DRIVERS OF PARTICIPATION IN INCUBATION PROGRAMS AND THEIR INFLUENCE ON SUSTAINABILITY OF AGRIBUSINESSES IN SELECTED PUBLIC AND PRIVATE UNIVERSITIES IN KENYA

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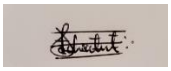
DECLARATION AND RECOMMENDATION

Declaration

I hereby declare that this thesis is my original work and has not been presented for the award of a degree in any other University.

Signature:  Date: 09/09/2024

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DEDICATION

I dedicate this dissertation to myself, my family, Mr Simon Ziwa, Niyikiza Faith the Transforming African Agricultural Universities to Meaningfully Contribute to Africa's Growth and Development (TagDev) project, and my supervisors for the patience and support they granted me during my academics.

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ABSTRACT

Youth unemployment is a major challenge in Kenya which is largely attributed to the mismatch between the education curriculum and the job market demands. With the hope of combating the problem, Universities are promoting entrepreneurship incubation to instil an entrepreneurial mindset to create student-led agribusiness ventures. This is done through University Incubation Programs (UIPs). Despite this acknowledgement, most University-Incubated Student-led Businesses (UISBs) have a high failure rate and low sustainability. To address this issue, the study sought to examine drivers of participation in incubation programs and their influence on the sustainability of agribusinesses in selected public and private universities in Kenya. Specific objectives were; to characterise student-led incubated agribusiness, to determine drivers of motivation of student entrepreneurs, and to determine the factors influencing UISBs. Data for this study was collected using a multistage sampling from 272 respondents using a semi-structured questionnaire. Objective one was analysed using descriptive statistics, Principal Component Analysis (PCA) was used for objective two while Structural Equation Model under the Partial Least Square method (PLS-SEM) was used for objective three. Results from the descriptives revealed that UISBs on average exist for only one year and five months where the majority do not survive their first year of operation. The majority of these students join UIPs to develop their businesses (40.7%) and have business management challenges which is also the major reason why many agribusinesses failed (39.7%). Furthermore, results from PCA revealed that most university students participate in UIP out of a need rather than seeing it as an opportunity, a component support with an alpha value of 0.823. These components, along with concerns about the stigma of failure, and personality, were analyzed using PLS-SEM. This analysis revealed positive and significant relationships between necessity motivation factors and personality/behavioural factors towards the sustainability of UIBs ($p=0.000$). On the other hand, opportunity motivation factors had no significant relationship to the sustainability of agribusinesses ($p=0.831$). To ensure the long-term success of UIBs, the study suggests that training programs should focus on necessity motivation factors since they significantly influence the sustainability of UIBs. In addition, policymakers should consider interventions that reduce unemployment, such as institutionalizing UIPs.

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LIST OF ABBREVIATIONS AND ACRONYMS

UISBs	University-Incubated Student-led Businesses
UIPs	University Incubation Programs
PCA	Principal Component Analysis
PLS-SEM	Partial Least squares- Structural Equation Modelling
SEMs	Structural Equation Modelling
SMEs	Small and Medium-sized Enterprises.
UBIs	University Business Incubators.
TBL	Triple Bottom Line

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The number of entrepreneurial businesses in Kenya is growing at a fast rate (Njuguna, 2016). In 2019, Kenyan start-ups raised Sh43.5 billion ($428.91 million), with companies in Fintech and Agritech topping in terms of the destinations of the investment (Ngige, 2020). Studies have shown that incubators are a major tool for enterprise growth in various world economies (Tiren, 2020). Business incubation provides the support and resources necessary to help new ventures succeed in their growth and maturity stages. They also create an environment where entrepreneurs receive intensive, personalized attention from management consultants, business executives, and other experts in their fields of interest (Mason & Brown, 2014).

While the incubators seek to develop entrepreneurship by providing complementary services that support and promote the skills and expertise of the entrepreneur, approximately half of all new entrants survive less than five years (Donkor, 2021; International Labour Office, 2012; Mwobobia, 2012).According to the International Business Innovation Association (InBIA), business incubation is a process that provides space, mentoring, and support services to high-potential entrepreneurs as they develop their ideas into viable and feasible businesses. More than a third of Kenya's youth eligible for work have no jobs in a general business environment where the government struggles to tackle the country's acute unemployment problem (Alushula, 2020).

The unemployment rate among young people in Kenya increased in the first quarter of 2021 compared to the previous quarter of 2020 (World Bank, 2021). In the age group between 20 and 24 years and above, the rate stood at 16.3 per cent, up from 15 per cent in Q4 2020, while in the age group between 15 to 19 years, the unemployment level grew to nearly seven per cent after reaching the lowest level of 2.8 per cent in Q4 (Karmer, 2022). This makes Youth unemployment among the major challenges being faced in Kenya (World Bank, 2021).

The current youth unemployment situation has forced the government and non-governmental organizations to mitigate this problem by incubating youths through entrepreneurship skills and providing start-up capital on certain occasions (Ferreiro *et al.,* 2018). Despite these organisations providing funding and support to youth agribusinesses, many funded and supported agribusinesses tend to cease or fail the moment the project funding stops, while others, even after incubation, fail to start (Yoshino & Taghizadeh, 2016).

These incubators have been set and are being set in both the communities and also in

the higher institutes of learning with the aim of reaching a larger number of youths. Unfortunately, there is no organisational body or an institution to highlight the specific number of incubators in the communities and also in the higher institutions, leaving out information on the number of incubators within the country, which is also noted by Wachira (2017). Literature focuses more on institutional/ university incubators than the community-based incubators (Donkor, 2021; Hassan, 2020; Mwobobia, 2012; Sekiziyivu, 2021). Despite this, this study still focuses on university-based incubators.

The interest in the university-sponsored business incubator stems from the potential of the concept that holds out the possibility of linking talent, technology, capital, and know-how to leverage entrepreneurial talent, accelerating the development of new technology-based firms, and speeding up the commercialization of technology. These facilitate the creation of job creators other than job seekers and more skilled personnel needed in the job market (Hassan, 2020; Segosebe *et al.,* 2020). Universities are one such parent organization for incubators that can be a pivot joint in the mitigation of unemployment in the country (Aebischer, 2015).

University incubators further assist start-up businesses under incubation in specific dimensions such as objectives, organizational design, governance and policy guidance, institutional support, staffing, funding sources, technologies and entrepreneurs-targeted operational policies and services provided (Wulung, *et al*., 2014). In this, incubators as startups supporting organizations need a clear view of their sustainable business model (Tang *et al*., 2021). This is also because the government and the nongovernment organizations have invested much money to incubate and support youths through universities to enable them to become job creators and equip them with entrepreneurship skills to combat the problem of unemployment amongst youths in Kenya (ILO, 2012).

However, it still stands as a challenge as many of the incubated agribusinesses fail to start after being incubated, while others that start fail to continue the moment the support stops. An enterprise over three years old is regarded as having achieved some measure of success (Kaiburi *et al*., 2012). These studies in the literature are operationalized based on a generalized concept of incubated businesses rather than the common business venture that employs a larger number of people in the country; agribusiness. This is because agriculture-related businesses dominate the Kenyan economy, accounting for 40% of the overall workforce (70% of the rural workforce) and about 25% of the annual workforce. (Central Bank of Kenya, 2022).

Therefore, this study seeks to understand the drivers of sustainability of youth-led incubated agribusinesses in selected universities of Kenya to contribute to the knowledge gap

of why many of the incubated agribusinesses fail to start after being incubated while others that start fail to continue the moment the incubation and support stops. Thus, this research will help stakeholders such as the universities, government, and non-government organizations establish effective and efficient policies that enable youth agribusinesses to sustain themselves even after the funding and incubation period, hence creating a sustained source of income for the youths.

1.2 Statement of the Problem.

Youth unemployment is a problem in Kenya with a rate of 13.48% as of 2021 unemployment statistics where universities are the leading institutions channelling graduates to the job market. In recent years, universities have come up with an alternative to create job creators not, job seekers through business incubation. While the incubators seek to develop entrepreneurship by providing complementary services that support and promote the skills and expertise of the entrepreneur, approximately half of all new entrants survive less than five years. Some of these agribusinesses fail to start while others discontinue the moment the incubation support stops. There is limited empirical literature on the drivers of sustainability of these supported youths' agribusinesses. Thus, this research sought to understand the drivers of sustainability of these agribusinesses as well as establish effective and efficient policies that will enable student agribusinesses to sustain themselves.

1.3 General Objective.

To contribute to the sustainability of student-led agribusinesses and job creation in university-led business incubators in Kenya.

1.3.1 Specific Objectives.

i. To determine the nature of student-led incubated agribusiness in selected universities of Kenya.
ii. To determine the drivers motivating student entrepreneurs to participate in incubation programs in the selected universities of Kenya.
iii. To determine factors influencing the sustainability of student-led incubated agribusinesses in the selected universities of Kenya.

1.4 Research Questions

i. What are the characteristics of student-led incubated agribusinesses in selected universities of Kenya?
ii. What are the drivers that motivate student entrepreneurs to participate in incubation programs in the selected universities of Kenya?

iii. What are the factors influencing the sustainability of student-led incubated agribusinesses in the selected universities of Kenya?

1.5 Justification of the Study

Agribusinesses are key economic activities for a large number of people in Kenya. However, most youths are not attracted to this sector and prefer white-collar jobs. Through understanding the drivers of sustainability of incubated agribusinesses in the selected universities of Kenya, this study contributes to increasing the diverse ways in which supported and incubated youth agribusinesses can be sustained to maximize their benefits. For example, findings from this study can guide business incubation projects in universities on the areas that need improvement and attention to increase the sustainability of university-incubated agribusinesses, hence increasing their sustainability performance. This contributes to increasing employment, income generation to many youths, and improving living standards, among others and hence poverty reduction as highlighted in Kenya Vision 2030 and fulfilment of one of the National Youth Policy objectives of creating opportunities for youth to earn decent and sustainable livelihoods.

1.6 Scope and Limitations of Study

This study focused on the three categories of drivers of sustainability of incubated youth-led agribusinesses, which included stigma of failure, motivations, and personality/ behavioural factors. The sustainability of university-incubated businesses was determined as the drivers that motivate youths to participate in the incubation programs as well as seeking to determine the characteristics of incubated agribusiness in the Universities of Kenya. The study was based on a few selected universities in Kenya which are incorporated as public and private universities with business incubators. The universities considered in this study included the University of Nairobi, Kenyatta University, Strathmore University Jomo Kenyatta University, Egerton University, Moi University, and Riara University. The study considered only university-based incubators and, therefore, did not include community-based incubators despite their activities in agribusiness and solemnly depended on the information provided by the respondents. Thus, the results may not be representative of all incubated agribusinesses in Kenya. In addition, the study assumed the general characteristics of university incubators are that they nurture innovative, early-stage businesses with high growth potential in the agricultural value chain and did not consider individual incubator characteristics. On the same note, measures of motivation and behaviour were based on the subjective opinions of the

respondents. However, this limitation was addressed by using Principal component analysis to establish dimensional groups.

1.7 Definition of Terms

Agribusiness: These are business ventures that are involved in the production, marketing, processing and distribution of agricultural-related products and services.

Incubation: This is considered the preparatory process where youths are nurtured on how to start and operate agribusiness. Skills development and training are given to youths in the incubators at the universities.

Incubated Agribusinesses: These are small and medium-sized start-up businesses in the agriculture value chain under the preparatory process where they are nurtured into feasible and growing businesses to attain business maturity.

Motivation: According to the study, youth's willingness to exert effort in the creation process of an agribusiness to make the agribusiness work by participating in incubation programs at the universities. This will include necessity motivation and opportunity motivation.

Support: According to the study, these are grants, soft loans, and work equipment given to youths to enhance agribusiness and termed as financial and production support in the analysis.

Sustainability: Within the study context, sustainability is considered as the agribusiness's continued operation after leaving the incubator's protection. That's to say, a fine line between the three dimensions: the economic, environmental, and social health of a youth agribusiness.

Drivers of sustainability: These are factors directly or indirectly influencing the performance of economic, social, and environmental sustainability of incubated youth agribusinesses.

Unemployment: This is a situation where a person fails to acquire an activity that can earn him a living before or after incubation and support.

University: This is a high-level educational institution in which students study for degrees and academic research is done and where incubators are found according to the study.

Youths: Youth is a person aged between eighteen (18) years and thirty-four (35) years but, according to the study, one studying at the university.

CHAPTER TWO

LITERATURE REVIEW

2.1 Concept of Business Incubation.

In this era of economic liberalization, Small and medium-sized firms (SMEs) are crucial for developing countries (OECD, 2017). According to research by the European Business and Innovation Centre Network (2013) and Leitao *et al*. (2022), business incubators are more successful than other economic development initiatives, such as business creation and attraction, including luring international companies. Established businesses build wealth for economies by generating jobs, transferring technology, and commercializing new technologies (Ferreiro *et al.,* 2018). Hence, there is a need for attention to ensure their sustainability as well as establishments.

There are several definitions for business incubation, but they all lead to the same conclusion: a business incubation program is an economic and social program that offers start-up businesses intense support and mentorship as they grow and succeed through business assistance programs (Karambakuwa & Bayat, 2022; Kibai, 2018; Meru & Struwig, 2015). The major objective is to create flourishing start-up businesses that will leave the incubators independent and financially stable. However, all these definitions in the literature, despite the similarity in the concept, are in abroad view concept of business incubation without narrowing down to one, and hence, this study will bridge the gap by defining youth-agribusiness incubation in universities in particular.

Business incubators offer local, on-the-spot care and prognosis of business issues, reducing the risk of new businesses failing in their early stages, especially given their vulnerability (Jørgensen, 2011; Wachira, 2017). According to Mwobobia (2012), approximately half of the new entrants survive for less than five years. This could be associated with the presumption made by Schwartz (2011), who disregarded the long-term graduate performance and sustainability of an incubated business. According to the literature, this long-term challenge among incubated and supported businesses creates the need to understand the drivers of sustainability of these incubated and supported businesses to understand their dynamics and how best they can be sustainable.

Almost all countries provide company incubation programs, especially those in developing countries. For instance, more than 20 incubators in South Africa support business owners in industries like horticulture, construction, chemicals, ICT, biotechnology, metal fabrication, furniture manufacture, and platinum beneficiation. As many are currently being

integrated into universities for efficiency and effectiveness. However, there are a few incubators run by the private sector, such as Raizcorp, the majority get funding from the federal government and, to a lesser extent, from state and local governments (Bergek & Norrman, 2008; Guerrero *et al*, 2020; InfoDev, 2019; Ssekiziyivu, 2021). These incubation programs, therefore, vary widely in their sponsors (state, economic development group, university, business, venture capital), objectives, location, sectoral focus, and business model (Kalidas & Mahendran, 2016).

The interest in university-sponsored business incubators in this study stems from the potential of universities to be well equipped with the resources to parent new ventures in that they provide all the needed equipment and a host of other facilities that can be shared with the incubators (Wachira, 2017). This idea suggests that it may be possible to combine talent, technology, capital, and expertise to harness entrepreneurial talent, hasten the creation of new technology-based businesses, and hasten the commercialization of technology as well as the sustainability of these entrepreneurial ventures (Yasin & Gilani, 2022).

Salem (2014) agreed that university business incubators (UBIs) are the most effective kind of incubators among all other types. Student entrepreneurs benefit from university incubators to create links with businesses and create their businesses by joining those incubators. Wachira (2017), in his study on the role of university-based business incubators strategy on enterprise growth, only identifies 6 university-based business incubators, leaving out many more university-based business incubators in universities like Egerton University, among others, while Ngige (2020) lists 16 startup incubators.

2.2 Concept of Business Sustainability

The phrase "sustainable development" has gained a lot of traction in today's political and economic discourse. Almost all governments have committed to sustainable development by fusing social coherence, environmental quality, and economic welfare (Giuliodori *et al.,* 2022; Li *et al.,* 2021; O'Connor *et al.,* 2016). However, the question of what happens to incubated and supported firms after they have left the protective environment of their supporting incubator organizations still stands as not many answers are given to it yet. According to the estimates given by the National Business Incubation Association, it is astonishing to find the fact that incubators have been established for more than half a century and that they are approximately 7,000 incubators in operation worldwide (NBIA, 2013).

Deriving from Purvis *et al.* (2019) sustainability of a start-up is the ability to maintain its objectives stand on its own, and post a positive cash flow. On the same note, Zapata-

Guerrero *et al*. (2020) define sustainability in business as the ability to achieve continuous improvement and obtain a positive cash flow from partnerships and stakeholders. The World Commission on Environment and Development also defines sustainability as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (WCED 1987). The goal of firm value creation can be achieved when management considers the interests of all stakeholders and integrates all five economic, governance, social, ethical, and environmental (EGSEE) dimensions of sustainability performance into managerial strategies, actions and reporting (Razaee, 2016).

Literature from Schwartz (2011) on long-term incubated firm performance after graduation indicates that incubated firms tend to exhibit a high growth rate during the incubation period, and afterwards, during the postgraduation period, they reveal potential negative effects of the discontinuation from the support and incubation where many of them do not survive hence creating a question of why others survive while the rest fail.

The success or failure of incubated and supported agribusinesses squarely depends on the sole ability of the owner(s) without the shield of limited liability (Adisa *et al.,* 2014; Mbogo, 2011; Nair & Blomquist, 2019). This is because incubated and supported agribusiness are small businesses that in most cases are independently owned (sometimes group owned) and operated, the operation is micro within a small-sized area with a low financed base, and has fewer than 100 employees, and has a relatively little impact on its industry (Muhindi & Ngaba, 2018; Yashino &Taghizadeh, 2016).

Research carried out by Nsengimana *et al*. (2017) also discovers a variety of reasons why women SMEs in Rwanda fail to be sustainable, the same research amazingly identifies youths in the age group of 18–48 years as being more energetic and active and can better withstand the demands of running a business than their older counterparts. On the same note, access to starting and operating finance remains the most significant challenge for their creation, survival, and growth (OECD, 2009). Watson *et al*. (1998) identify some of these reasons as being the reason why most SMEs fail to be sustainable however they may not apply to the youths particularly in universities as they tend to be of different age groups with different responsibilities.

2.3 Description of Incubated Businesses

There are difficulties in obtaining data from the incubators by researchers due to the lack of standardization of the concept of incubation and supported businesses (Nair & Blomquist, 2020; Tengeh & Choto, 2015). Generally, incubated and supported agribusinesses

are Small and Medium-sized start-up enterprises/businesses in agriculture that are found to have young entrepreneurs proving the heart of the term entrepreneurship. Small businesses irrefutably help in the development of any nation's economy as they are an excellent, source of employment generation, help in the development of local technology, and develop Indigenous entrepreneurs (Abisuga *et al.,*2020; Mohammed & Adamu, 2021).

Incubators are sponsored by; public entities, nonprofit organizations, universities, and private corporations, and thus the incubated and supported businesses are supported by the same entities (Valero *et al.,* 2021). Incubators have selection processes through which they evaluate, recommend, and select businesses to be incubated (Ramkissoon & David, 2014). This means that for startups to be incubated, they have to undergo various processes set by the incubators. The selection process includes the ability of the business to be incubated to create jobs, pay operating expenses, present a written business plan, have a unique opportunity, be a start-up company, be locally owned, have fast-growth potential, and be high technology-related (Ramkissoon & David, 2014; Wachira *et al.,* 2017). However, there is no frame of reference for judging whether the incubated business is on or off track and no way to decide whether and to what degree it may need additional resources or not.

Danna and Porsche (2008) along with other researchers agree with Cooper and Dunkelberg (1986) that; every business venture evolves through maturation stages; innovation or seed, start-up, growth, and maturity as well as decline and exist. Innovation or seed which involves the conception of the idea for the business venture, start-up involves the legal establishment of the business entity as well as delivering products and services to the target audience, and lastly, growth, and maturity where the venture has an established place in the market and begins to expand the customer base (Eliakis *et al.,* 2020; Tam & Gray, 2016).

The venture at the maturity stage has earned a stabilized cash flow, established market networks and distribution channels, brand recognition, brand position and equity, and a stable consumer base. The decline stage occurs when the economy, marketplace conditions, or societal needs and desires change while the exit stage represents the entrepreneur's decision to cash out of the business by closing or selling (Tam & Gray, 2016). This study, therefore, considers stages of business as ideation stage, startup stage, establishment, Expansion, and maturity to investigate the stages of incubated and supported agribusinesses at universities.

Tagraf and Akin (2009) as well as Xie *et al.* (2021) identify a significant correlation between business success with entrepreneurship characteristics which include among others; the need for achievement, innovativeness, proactive personality, generalized self-efficacy, stress tolerance, need for autonomy, locus of control, and risk-taking. With the help of these

traits, an entrepreneur can focus their efforts on developing a radical idea that will lead to the founding of a business (da Silva *et al.*, 2019). This is because, in its early stages, the business is highly dependent on the owner-manager as the main resource and decision-maker (Bolland & Lopes, 2018). But as the firm grows in complexity, it may be necessary to balance the entrepreneurial approach to decision-making with a professional management style of leadership (Hallo *et al.,* 2020)**.** New business entities can be structured as a sole proprietorship, general partnership, limited partnership, C corporation, S corporation, limited liability company, or limited liability partnership (Blair & Marcum, 2015). This thus questions the business structures of incubated and supported agribusiness in universities.

From 1998 to date, access to working capital financing and equity and debt capitalization is considered most important to starting businesses (Berger & Udell, 1998; Corredera *et al.,* 2021; OECD, 2014). This study includes evaluating financial options, access to loans and grants, loan packaging, and introduction to venture capital institutions and venture capitalists. A type of seed capital financing that incubators provide to starting businesses concerns financial assistance through in-kind service support whereby, these in-kind services include secretarial, administrative, and facilities support among others (Kee *et al.,* 2019). If people go to work in regions of active entrepreneurship, they are more likely to become entrepreneurs because they are surrounded by role models and sources of assistance (Fong *et al.,* 2020; Roden & Stahle, 2017).

Community support plays an important role in sustaining startup business development. This is because not many companies that have graduated or left the incubators to leave the communities where they were incubated (Kee *et al.,* 2019; Stumbitz *et al.,* 2018). Because of this, incubated businesses through incubators do gain the financial, moral, and/or public relations support of communities. This support may come from private individuals, city government, private industrial councils, county government, universities, and chambers of commerce (Edwards, 2021) On the same note, Giacomin *et al.* (2007) and Strandh (2000) as discussed by Van der Zwan (2016) found that age positively affects the start-up of a business because of "exit from unemployment", which could be related to the fact that older people have lower employability. The same authors find that age is negatively related to the "search for profit" and "social development". The odds of being an entrepreneur are also higher when there is a spouse or a relative who is also an entrepreneur (Cardella, *et al.,* 2020; Molina, 2020).

Entrepreneurial education prepares the entrepreneur to do business outside the incubator. (Jiatong *et al.,* 2021). It seeks to develop the skills to instil some of the necessary technical know-how in entrepreneurs so that they extend their abilities in running a business

(Lackeus, 2015).

All incubated businesses are expected to have gone through entrepreneurial education. Highly educated individuals have more employment alternatives, lowering the chances to be an entrepreneur. In contrast, lower educated people might have difficulties in finding a job and so result in starting up business ventures to create their employment (Mühlböck *et al.,* 2018). This is not the case in university-incubated businesses, as everyone is expected to have some level of education. However, studying the characteristics of incubated agribusiness will give an overview of education in entrepreneurship due to the niche of the study being Universities.

2.5 Drivers Motivating University Students to Participate in Incubation Programs

All human action is the result of both motivational and cognitive factors including ability, intelligence, and skills (Braver *et al.,* 2014; Souders, 2020). People are different from one another, and as a result, their willingness and ability to capture and seize chances vary. Buheji (2018) and Kong *et al.* (2020) argue that this variation among people in their willingness and ability to act has important effects on the entrepreneurial process. This objective seeks to study the influence of drivers motivating youths to participate in incubation programs at universities and how they affect the performance of these incubated and supported agribusiness.

Starting up businesses' motivations can be complicated, and they frequently have a close connection to the entrepreneur's personal life and those of their family (Molina, 2020; Shahzad, *et al.,* 2021). Considering small and medium-sized businesses (SMEs), the literature suggests that individuals are either pulled or pushed into business (Gódány *et al.,* 2021; Patrick *et al.,* 2016; Van der Zwan *et al.,* 2016). The same researchers view pull and push forces as triggers for starting up of SMEs. Van der Zwan *et al.* (2016) state examples of 'pull' motivations, which are the need for achievement, the desire to be independent and social development possibilities. He also states push motivations as arising from the exit from or risk of unemployment, family pressure and/or dissatisfaction with the present situation.

Adapting the research results of the Global Entrepreneurship Observation Report for this study, push and pull motivation are distinguished by introducing the concept of opportunity and necessity entrepreneurship (Ismail *et al*., 2016). Necessity entrepreneurship refers to nonoptional or enforced entrepreneurial activities when someone has no alternative due to personal reasons or certain conditions. Opportunistic entrepreneurship refers to the entrepreneurial activities that someone engages in to pursue personal ideals because of business opportunities discovered (Aima *et al*., 2020).

Van der Zwan *et al.* (2016) also mention mixed motivation, a situation where individuals start businesses because of both motivations, that are to say, necessity and opportunity motivations at play. Push motivation, which is often related to the unemployment-push effect, has been provided in several studies (Granger *et al.,* 1995; Kirkwood, 2009;). These studies argue that unemployment lowers the opportunity costs of self-employment, thereby driving individuals to start their businesses. In addition, Van der Zwan *et al.* (2016) also mention push motivations as a result of autonomy and family pressure pushing individuals into the direction of new venture creation.

On the other hand, pull motivation comes from the intrinsic desire to do something as indicated by Legault (2020) and Fishbach and Woolley (2022) who also distinguish between six categories of motivation: innovation, independence, recognition, roles, financial success and self-realization as they elaborate on intrinsic and extrinsic motivation. Giacomin *et al.* (2007) also distinguish between three pull motivations: market opportunity, social status and profit. Jayawama *et al.* (2013) and Van der Zwan *et al.* (2016), provide evidence of a multitude of pull motivations, including the need for approval, independence, personal development, improved welfare and wealth, and following role models.

Some potential entrepreneurs are motivated by a combination of push and pull factors as stated by Van der Zwan *et al.* (2016). They base their argument on a statement; “starting a business is a complex process which involves a variety of motivations and stimuli" as stated by Birley and Westhead (1994). This was evidenced by the findings of their research as they were investigating the factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. On the same note, they are some entrepreneurs who are neither driven by pull nor by push motivations (Giacomin *et al*., 2007). Therefore, there may be a group of individuals that take entrepreneurship as a hobby.

The influence of these motivations on performance and entrepreneurial engagement has been discussed by Van der Zwan *et al.* (2016) who found out that more individuals take the initiative to start a new venture because they see an opportunity than a need. However, these studies did not take into consideration businesses that start due to incubation and what motivates these entrepreneurs to seek incubation before starting up a business and what influence these motivations have on the sustainability of a business. These studies are also generalized without consideration of youth-led business, hence a need for this study.

2.6 Factors Influencing the Sustainability of Student-led Incubated Agribusinesses

According to Bansal and Roth (2000), the four main factors of organizational

sustainability include regulation; stakeholder pressure; business opportunities, and moral motivations. In addition to this, Linnenluecke and Griffiths (2010) and Epstein *et al*. (2018) cluster these factors into internal and external drivers, they explain that internal organizational factors include; organizational culture; human resource management; supply chain management; employee enablement; and the number of monetary resources assigned to the sustainability concept whereas the external factors are considered as government regulation and stakeholder pressure. However, these factors do not fully explain the concept of sustainability in agribusiness and thus, this study considers all other factors into social, economic and environmental factors determining the sustainability of businesses as explained in the literature as follows.

Kativhu *et al*. (2017) analysed factors influencing the sustainability of communally managed water facilities in rural areas of Zimbabwe. Social, technical, financial, environmental and institutional factors were found to influence sustainability. Jeon *et al*. (2013) stress the notion by stating that sustainability should capture attributes of system effectiveness and system impacts on economic development, environmental integrity, and social quality of life. Kativhu *et al*. (2017) state that active participation by communities at the planning stage of water projects was also found to be critical for sustainability, as well as financial factors of the adequacy of financial contributions and establishment of operation and maintenance funds, were found to be of great importance in sustaining water supply systems.

Results from a study by Githinji (2008) on factors influencing the sustainability of microfinance institutions in Kenya state that the levels of sustainability are positively influenced by the average size of savings. The microfinance institutions need to explore ways of increasing member savings. This revealed that the majority of microfinance institutions in Kenya are below the market mean sustainability as measured by both the return on assets as well as the return on equity and hence not financially sustainable.

With views from a study; organizational factors influencing the sustainability of local non-governmental organisations. Okerley and Nkrumah (2012), explain that the availability of funds, quality material resources, supportive leadership, development of needs-based and demand-driven programs, and effective management can have a significant influence on the sustainability of local NGOs. In their study, they highlighted leadership, availability and quality of material resources for work emerged as crucial factors in organizational sustainability. On the same note, using factor analysis for data analysis, Jagadeeswari *et al*. (2020), disclose that Innovation, risk-taking, Tolerance, self-efficacy, Financial Control, Opportunity Identification, Self-Efficacy and Managerial Self Efficacy are significant traits for entrepreneurs for the

sustainability of their ventures.

Other authors like Pollnac and Pomeroy (2005) examine factors influencing sustainability and further identify 16 factors on the same note, Kaimenyi (2019) mentions community participation, funding, capacity building, and project implantation as factors influencing the sustainability of community-based projects. Jassor (2016) also identified entrepreneurship skills, group leadership, internal controls and level of education as factors influencing the sustainability of youth group projects. However, it should be noted that across all literature, factors influencing sustainability are stated depending on the respective purpose of the study also, even though generally, most literature considers financial sustainability as a major factor, all factors should be considered when assessing sustainability since they are interrelated. This study adapted the use of a sustainability index as used by Nangobi *et al.* (2023) in her study on the sustainability of farmer organizations in Uganda: the role of organizational and institutional factors.

Underpinning the resource-based theory (RBT) and utilization of the PLS-SEM in data analysis, Afzal and Lim (2022) found that the organizations' social sustainability performance is positively influenced by their organizational culture and business strategies. In their study, they also revealed that; business strategies have a significant positive impact on the environmental sustainability performance of organizations. The RBT assumes that successful businesses and startups are driven by the capabilities and competencies of the firm's resources (Habiburrahman *et al.,* 2022; Hitt *et al*., 2016). Furthermore, according to the Triple Bottom Line model, the sustainability of an organization depends on the competencies that the organization attains from the social, economic, and environmental strategies employed (Cella-De-Oliveira, 2013). Therefore, startup agribusinesses have to balance the economic, social, and environmental dimensions as well as their strategic resources to gain a competitive advantage (Cella-De-Oliveira, 2013; Elkington, 1997).

Despite the significant amount of work that has gone into promoting sustainability, there seems to be a lack of empirical research focused on identifying the factors that influence the sustainability of university-supported agribusinesses. This study assumed that all factors under examination have a direct or indirect impact on each other, as well as on the social, environmental, and economic sustainability of agribusiness incubation and support within universities. Therefore, this study sought to fill the gap in knowledge by identifying the factors that affect the social, environmental, and economic sustainability of incubated agribusinesses.

2.7 Theoretical Framework

This study explored two important theories, namely the Resource-Based theory by Madhani (2010) and the Corporate Sustainability theory proposed by Chang *et al*. (2017) as the main theoretical frameworks. In terms of objective two, the Resource-Based theory suggests that a firm can achieve long-term success by acquiring and leveraging resources that are valuable, rare, difficult to imitate, and non-substitutable. However, the study also includes the cognitive ability of individual entrepreneurs, a Resource-Based theory boundary emphasized by Alvarez and Busenitz (2001). They assert that entrepreneurs possess individual-specific resources that enable them to identify new opportunities and gather resources for the venture. The focus on resources, from opportunity recognition to organizing them into a firm and creating superior outputs, is crucial. Therefore, this theory is relevant to the study because it explores how individuals utilize the resources at their disposal to establish a business; whether the individual joined incubation programs by need or by opportunity, either way, the individual wanted to turn the resources at hand into a business.

For objective three, the study relied on the concept of Corporate Sustainability proposed by Chang *et al.* (2017), which encompasses adopting business strategies and activities that meet the needs of the enterprise and its stakeholders while also protecting, sustaining, and improving the human and natural resources that will be required in the future (IISD, 2002). This was operationalized through the Triple Bottom Line (TBL), a concept developed by Elkington (1997), that includes three dimensions- social, environmental, and economic/financial. The TBL approach suggests that an organization can facilitate its movement towards sustainable development with a management approach that integrates TBL. In this case, the study aimed at the overall sustainability of the incubated and supported agribusiness taking into account the effect of the agribusiness on the green environment, and society while ensuring the economic sustainability of these agribusinesses.

2.8 Conceptual

From the literature, the concept of sustainability roams around three major dimensions; Economic (Profit maximization, Cost optimization, Organic expansion and return on investments), Environmental (Understanding the interdependence between business and environment, Sustainable production plans, Use of natural resources, among others) and social dimensions (Shared vision, Resolving internal conflicts, Active relationships and trust, and Social ethics norms) as adopted by this study. To improve the sustainability of youth agribusinesses, the study sought to determine the factors influencing the sustainability of

incubated and supported agribusinesses in the selected universities of Kenya whereby different variables were assumed to interact in the proposed model. The independent variables included: characteristics of incubated agribusiness (enterprise characteristics, incubator characteristics, socioeconomic and personality characteristics), and drivers motivating youths to seek out incubation (necessity and opportunity motivation).

In the study, the independent variables are assumed to influence each other in how they affect the sustainability of incubated and supported agribusiness. The way incubated and supported agribusiness are characterized has a positive and negative influence on the drivers that motivate youths to participate in incubation and support programs and vice-versa. However, through this interaction, the way incubated and agribusiness are characterized has an indirect and direct influence on the drivers motivating youths to participate in incubation programs. The dependent variable in the study; the sustainability of incubated agribusiness is disintegrated into economic, social, and environment sustainability as stated in the literature however explained as the continued expansion of the incubated agribusiness, their financial performance, the continued growth of assets as far as the economic sustainability is concerned and for social sustainability and environmental sustainability; social impact of the agribusiness on the community and impact of the agribusiness on the environment respectively.

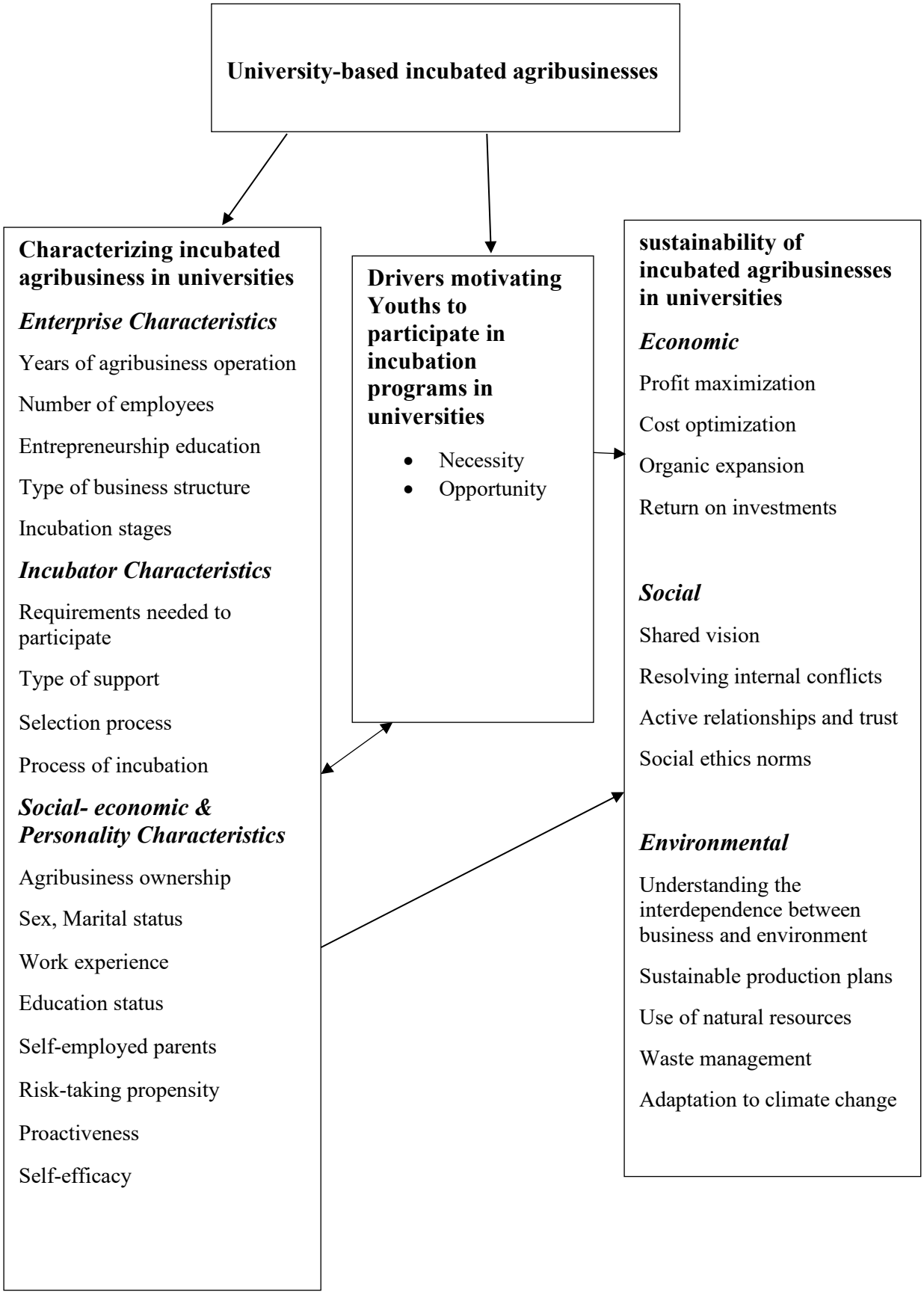

Figure 1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Area

The study was conducted in the seven selected Kenyan universities with youth business incubators. This is because Universities have taken on new missions and relationships to contribute to economic growth and social development through creating and hosting business incubation programs (Schmitz *et al.,* 2017). Universities tend to handle a large number of youths who seek to start their employment journey, with an enrolment of around 562,000 students in the academic year 2021/22 in Kenyan Universities, as published by Lars Kamer (University enrolment, 2022).

According to higher education in Kenya, as stated by k12academics.com, there are 65 universities in Kenya, 32 of which are public and 33 private (Glavin, 2019). Based on universities with business incubators that have been in existence for three years and above, this study studied incubated student agribusiness in 7 universities in Kenya to determine the sustainability of incubated and supported agribusiness in universities in Kenya. The study considered public and private chartered universities, even though private universities' strategic orientations are completely different from those of public universities.

MAP OF THE STUDY AREA

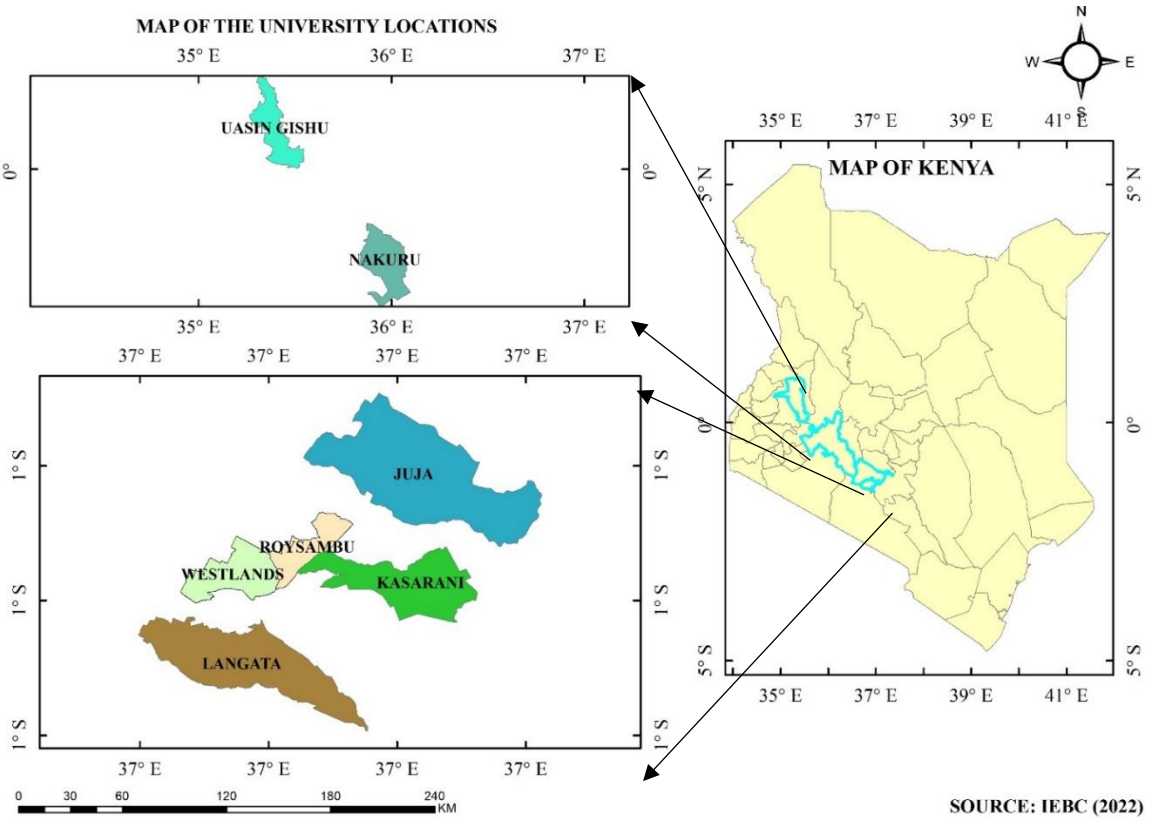

Figure 2: Map of the Study Area

Source: IEBC (2022)

KEY

	1. Moi University
	2. Egerton University
	3. Jomo Kenyatta University
	4. Riara University
	5. University of Nairobi
	6. Kenyatta University
	7. Strathmore University

3.2 Determining the Study Population

The population of this study comprised only 7 major universities with incubators in Kenya. There is no central organization or association for university-based business incubators in Kenya. Thus, the study obtained the list of all public and chartered private universities provided by the Commission for University Education and then checked for the major universities in Kenya. These were further verified as to whether or not the individual universities had an incubator that has been in existence for three years and above with youths venturing into agribusiness in place. According to web searches, and confirmatory inquiries, the study purposively selected the seven universities as indicated in Table 1.

3.3 Data and Sampling Approach

3.3.1 Determination of the Sample Size

Using the multistage sampling technique; Stage 1: the study purposively selected seven major universities with incubation programs that have been in existence for three years and above with youths venturing into agribusinesses. The administration of each particular university was approached for the known registered incubators within that given university. In Stage 2, the study employed the census method where all the given incubators were then approached for the provision of lists of youth(s) agribusiness groups and their contacts. In stage 3, the final respondents were selected from the given lists provided by the incubators through a linear systematic sampling technique whereby, starting with 5 student entrepreneurs, in a sequence of 1, 2 students were picked and the other one dropped until at least a minimum number of 39 student entrepreneurs was attained. Therefore, for this study, Cochran's (1963) formula for determining populations that are large and unknown was used to determine the sample size;

$$n_0 = z^2 \frac{p(1-p)}{e^2} \quad \text{..... Equation 1}$$

$$n = 1.96^2 \frac{0.23(1-0.23)}{0.05^2} \quad \text{..... Equation 2}$$

$$n_0 = 272 \text{ respondents}$$

Where; n_0 is the sample size, z^2 is the abscissa of the normal curve that cuts off an area at the tails, (Z-score of 95% from the table, which is 1.96), e is the margin of error (confidence interval/ the desired level of precision) of +/-5%, p is the estimated proportion of an attribute that is present in the population (standard deviation). According to Israel (1992), p= 0.23 is used in situations where a majority of the population may not have the attribute of interest.

Thus, to get the sample size, this study assumed p to be 0.23 because a smaller number of incubated businesses may last for more than three years when they are not sustainable and may exist by name or in debt but not as a business that can stand on its own (Wedig & Wiegratz, 2018).

The 272 respondents were distributed equally between the seven selected universities of Kenya, with a minimum of 39 respondents from each university. However, since the study considered only agribusinesses, some of the university incubators were not in a position to provide a full number of 39 respondents (students incubated in agribusiness). Therefore, the study maximized on university incubators with a larger number of university-incubated agribusinesses as seen in Table 1

Table 1: Distribution of Respondents

Universities	**Incubators**	**Incubator speciality**	**Number of respondents**	**Percentage**
University of Nairobi	C4DLab	Innovations in ICT use	19	6.9
Kenyatta University	Chandaria Business Incubation and Acceleration Centre	Incubation services, Technology Transfer Services, and Industry Linkages.	50	18.4
Jomo Kenyatta University	JKUAT industrial Park	Technology and Agriculture	40	14.7
Egerton University	CoELIB and AGLEAD	Innovative technology, business, and market development as well as agri-entrepreneurship	50	18.4
Strathmore University	@iLabAfrica Centre	ICT Innovation and Development	39	14.3

Moi University	PTRE Incubation Centre	Photochemical, textile and renewable energy enterprises.	40	14.7
Riara University	Accelerating Entrepreneurship Support in Universities in Kenya (AESU)	Accelerating Entrepreneurship	34	12.5
TOTAL			**272**	**100**

Note: The numbers sampled, as indicated above, were retained after data cleaning

3.4 Ethical Considerations

For moral justification of the investigation, the study sought ethical clearance from Egerton University Institutional Scientific and Ethics Review Committee (Appendix 1). In addition, the study sought authority from the respective universities before contacting the students who went through the respective university incubations. Also, the information that was collected was treated with the utmost confidentiality.

3.5 Data Collection and Analysis

This study employed a quantitative survey research design. Data collection was carried out from primary sources, representing several business incubators in seven recognized universities. This survey data was collected through interview schedules and questionnaires in situations where respondents were in reach. Through online surveys and phone calls, survey data was collected from respondents that were quite far from reach. With this, trained enumerators made phone calls and links to an online questionnaire. A pilot study was conducted to test the validity of the questionnaire and establish connections with the university incubators who later provided the lists of the respondents with their contact details. However, secondary data from publications, journals, relevant websites, and books was also used to reference and review the literature in this study.

3.5.1 Data analysis

The study used the Statistical Package for Social Sciences (SPSS), STATA and Smart PLS version 4 for analysis.

3.6 Analytical Framework

3.6.1 Objective 1: Determining the Nature of Incubated Student-led Agribusiness in Universities of Kenya.

Descriptive statistics were used to analyse this objective. This was attained through a quantitative analysis. The variables used in this study were continuous and categorical in nature. These variables were analysed using descriptive statistics involving mean, frequency distribution, standard deviation, percentages and cross-tabulations. Inferential statistics employed included the t-test, to compare means of public universities and private universities across agribusiness existence.

Table 2: Description of Variables Characterizing Incubated Agribusiness

Variables	Variable name	Description of variables
Sex	Sex	1 = Male, 2 = Female
Age	Age	The age group of the group members or an individual (in years)
Status	Marital status	1= married, 2= single
Educ	Educational status	Number of years spent in school
Entre	Entrepreneurship education	Dummy=1 if the individual agrees that school education helped him/her to develop a sense of initiative in entrepreneurial and 0 if they disagree
Self	Self-employed parents	Dummy=1 if a guardian is self-employed and value 0 if the guardian is not self-employed.
Type	Type of agribusiness	Dummy=1 if the agribusiness is group-owned and 0 if it's individually owned

Experie	Work experience	Dummy=1 if the agribusiness had experienced members at the start before incubation and 0 if not
Operation	Years of agribusiness operation	Number of years of the agribusiness in operation since the withdrawal of incubation
Employees	Number of employees	Number of people employed by the agribusiness minus the members
Stage	The development stage of the agribusiness before and after (current) incubation	1= Ideation stage, 2= Start-up, 3= Growth and establishment, 4= Expansion, and 5= Maturity.
require	The requirements needed of the participants to participate in incubation	1= groups, 2= individual, 3= graduate, 4= continuing, 5= other
Process	The process of incubation through which the participants went through	Stating the process of incubation
support	Nature of support received by the agribusiness members	1= Financial support, 2= Skills development and training, 3= Production support, 4=Other

3.6.2 Objective 2: Drivers Motivating University Students to Participate in Incubation Programs in the Selected Universities of Kenya.

With this objective, the study aimed to find out the drivers motivating youths to participate in university incubation programs. Either a student participated in university incubation programs to take advantage of incubation as a business opportunity, or the individual felt that there were no better choices for work after school. Each of these statements

represented a given motive as to why students participated in the incubation programs at the university, either as pull factors or as push factors into motivation (Van der Zwan *et al.,* 2016).

The driver's motivation instrument used in the investigation had 20 composition items rated on a 5-scale point, with 1 indicating disagree and 5 indicating strongly agree. The statements were essentially statements representing underlying student motivation to participate in university incubation programs either with a motive to take advantage of incubation as a business opportunity or the individual felt that there were no better choices for work after school even as considered for opportunity and necessity motivation by the Global Entrepreneurship Monitor GEM (Linan *et al*., 2013). Thus, the study considered Principal Component Analysis (PCA) an explanatory analysis useful for investigating dimensions (Hair *et al*., 2006).

Prior to PCA, assumptions of multivariate data analysis, namely normality, homoscedasticity and independence of observation, were tested (Hair *et al*., 2006). The multivariate normality test produced statistically significant results at prob>chi2= 0.0000. While the Kaiser-Meyer-Oklin Measure of sampling Adequacy was 0.829 and Bertlett's Test of Sphericity was also statistically significant at 0.000. In addition, reliability analysis was performed on each factor for evidence of internal consistency and discriminatory reliability. Throughout the analyses, the items to be retained were selected on the following basis;

i. The factor solution was constructed using the criterion of eigenvalue being greater than 1.00,

ii. Factor loading was not less than 0.4 based on the factor loadings guideline for sample size of 200 (Hair *et al*.,2006),

iii. The minimum number of items per dimension was 4 and any dimension that loaded fewer was removed. However, there was no dimension that loaded 0.60 to be retained.

iv. In the case of cross-loadings, the item content was scrutinized to see the factor that best describes that item.

In general, this first analysis was characterised by: i. A chaotic distribution of items across the factors, ii. Factorial complexities, and iii. The existence of items with very high loadings in unreliable factors. Thus, to obtain valid and reliable subscales, problematic items indicated by item-total correlations were identified and reanalysed to assess the reliability and common variance shared by the items, whereby in each analysis, the total variance explained exceeded 50%. The results suggested that most items with factorial complexities needed to be deleted. Results also revealed that when many items were deleted, the communality of a few other items was also affected. Finally, 9 items had to be deleted, and 11 items were retained,

formulating 2 principal components. Only results from the final PCA are reported in this thesis in chapter four.

Table 3: Description Variables and Expected Signs of Drivers Motivating Students to Participate in Incubation Programs

Variables	Variable name	Description of the variables	Hypothesis sign
Necessity driven motivation			
Value_edu	Add value to education.	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Entre_train	To get training in entrepreneurship	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Career	As a Career	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Hobby	Hobby	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Own_buz	To own business	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Employ	Fear of unemployment after school	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-

Connect	Connections	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Opportunity driven motivation			
family	Family status	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
peers	Peers/ friends status	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree to seek recognition and status being a reason to seek out incubation and support	+/-
Succ_buz	Influence from successful business	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-
Assign	As school assignment	Likert scale = 1-5; 1= Strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= Strongly agree	+/-

3.6.3 Objective three: To Determine Factors Influencing the Sustainability of Incubated Student-led Agribusinesses in the Universities of Kenya

With this objective, the study intended to determine the factors influencing the sustainability of incubated agribusiness; a sustainability index was computed to determine the sustainability performance of university-incubated agribusinesses and to formulate dimensional scores of economic, environmental and social sustainability. For any business to be competent and competitive, it needs to take into consideration its economic, environmental and social sustainability. According to Bhanot and Bapat (2015), A sustainability index is a total of dimensions of sustainability scores that explain the level of competency of a given

business over its competitors.

Thus, for this study, the sustainability index determining the performance of university-incubated youths' agribusinesses was computed from the three sustainability dimensions: economic, environmental, and social sustainability (Bhanot & Bapat, 2015; FAO, 2016; Singh *et al.,* 2016;). The economic dimension took the highest weight score of 50% because it facilitates all the activities in the business and is thus the heart of any business. The social and environmental dimensions took equal weight scores of 25% because for any business to prosper, it must be accepted in society and by all stakeholders at the same time, for agribusinesses largely depend on agriculture and environmental performance (Harik *et al*., 2015; Nangobi *et al.,* 2023).

To obtain the scores for the economic dimension, university-incubated agribusinesses were assumed to be startup businesses and thus weighted based on the current state of the business and the business strategies it applies to ensure better economic performance of the business (Bartlett, 1993). These included; having productivity improvements, having organic expansions, having paying customers, proper management of business money and having working capital, being able to make profits, using modern technologies and buying used furniture to minimize costs, having access to finance and market information, having and making business records, making savings, paying local tax and considering free yet effective marketing strategies (Bartlett, 1993; Githinii, 2008; Kativhu *et al.,* 2017). Thus, the study economically assessed youths who have undergone university incubation on 14 economic practices in startup businesses.

To obtain environmental scores, weights depended on the environmental strategies agribusinesses applies to ensure that they live in harmony with their environment and their understanding of the relationship between the environment and the agribusinesses (FAO, 2016). These included; identify and understand the interdependence among business activities and environment, design and implement effective sustainable production plans, using natural resources efficiently by employees and proper waste management during business operations, agribusiness adopting to climate change efficiently and effectively (FAO, 2016; Kativhu *et al.,* 2017). Therefore, the study assessed youths who have undergone university incubation on 5 environmental aspects.

To obtain social dimension scores, university incubated agribusinesses were weighted basing on the social strategies startup businesses applies to ensure a positive relation and wellbeing of the society in which they operate as well as employees and other stakeholders (Nangobi *et al.,* 2023). These social strategies included; having a shared vision with

stakeholders as well as having built active relations and trust with the stakeholders, capability of resolving internal conflicts within business, having no discrimination in business and stakeholders, understanding of the advantage of democratic leadership and managements in enforcing with internal rules, observing of social and ethical norms of business location community, having employees from the community and engaging community in the social activities of the business (Jeon *et al.,* 2013; Nangobi *et al.,* 2023). Thus, the study assessed youths that have undergone university incubation on 8 social aspects.

For each dimension a weighted average was calculated to further determine the performance of each item in a given dimension. These items were rated on a 5-scale point with 1 indicating disagree and 5 indicating strongly agree. The sub scores for each of the dimensions (sub_i) were computed as follows;

$$sub_i = \sum_{qi=1}^{n} \frac{s_a}{U_q} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad \text{Equation 3}$$

$qi =$ practices and strategies asked under each given dimension,

U_q= weight of number of practices and strategies asked under each given dimension, s_a= number of practices and strategies reported in university incubated youths' agribusiness.

These sub-scores were thus used the compute the sustainability index as follows;

$$\text{UIASI} = \sum_{i=1}^{3} U_{i^*} sub_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{ Equation 4}$$

UIASI= University Incubated Agribusiness Sustainability Index,

sub_i= Sub-scores of the three sustainability dimensions,

i =sustainability dimensions (economic, social, and environmental) and,

$U_=$weights of the respective dimensions.

The calculated University Incubated Agribusiness Sustainability Index was then used to assess the performance of university-incubated youths' agribusiness through descriptives, especially the mean estimation, the upper and the lower boundary.

Afterwards, the study considered the items measuring the dimensional sustainability as the dependent variable to determine the factors influencing the sustainability of university-incubated youths' agribusinesses and the relationships between the factors and the three dimensions of sustainability. For this study, the factors considered included stigma failure, personality, and motivation. With reference to the objectives of the study, a Structural Equation Modelling (SEM) under Partial least square methods (PLS) using path analysis was used for

model estimation considering the following hypotheses during the analysis and as depicted in Figure 3:

1 **H_1:** There are significant direct and indirect effects of necessity motivation (comp 1) factors on the economic, environmental, and social sustainability of the university-incubated business.

H_0: There are no significant direct and indirect effects of necessity motivation (comp 1) factors on the economic, environmental, and social sustainability of the university-incubated business.

2. **H_1:** There are significant direct and indirect effects of opportunity motivation (comp 2) factors on the economic, environmental, and social sustainability of the university-incubated business

H_0: There are no significant direct and indirect effects of opportunity motivation (comp 2) factors on the economic, environmental, and social sustainability of the university-incubated business

3. **H_1:** There are significant effects of the personality of students participating in university incubation programs on the economic, environmental, and social sustainability of their agribusinesses

H_0: There are no significant effects of the personality of students participating in university incubation programs on the economic, environmental, and social sustainability of their agribusinesses

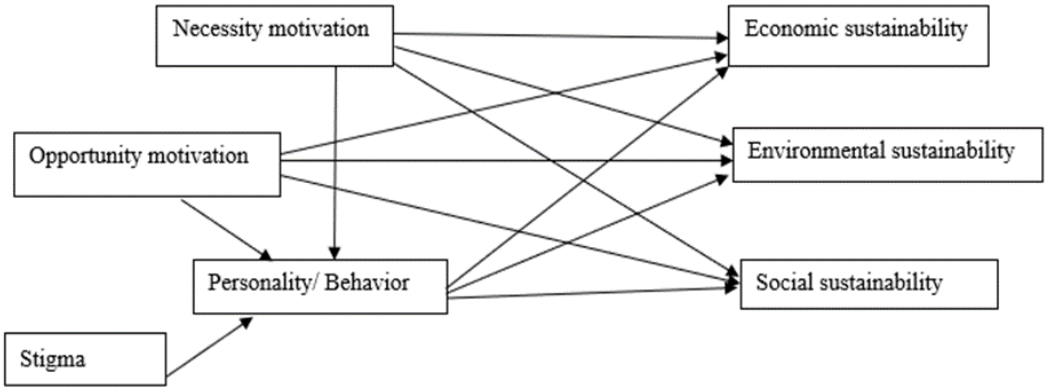

Figure 3: SEM-PLS Model Conceptual Framework

Table 4: Description of Variables and Expected Signs of Factors Influencing the Sustainability of Incubated Agribusinesses

Variables	Variable name	Description of the variables	Hypothesis sign
Dependent variables			
Econ	Economic sustainability	Dummy =1 if an agribusiness is economically sustainable, 0 if otherwise	+
Enviro	Environmental sustainability	Dummy =1 if an agribusiness is environmentally sustainable, 0 if otherwise	+
Social	Social sustainability	Dummy =1 if an agribusiness is socially sustainable, 0 if otherwise	+
Independent variables			
Necessity	Necessity Motivation factors	Dummy =1 if an individual was influenced by necessity motivation factors to join incubation, 0 if not	+/-
Opportunity	Opportunity Motivation factors	Dummy =1 if an individual was influenced by necessity motivation factors to join incubation, 0 if not	+/-
Personality	Entrepreneur characteristics as factors influencing business sustainability	Dummy =1 if agribusiness sustainability is influenced by Entrepreneur characteristics, 0 if not.	+/-

Stigma failure	Stigma of failure	Dummy =1 if the fear of failing in business influences its sustainability, 0 if not	+/-

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter displays results and discussions of the findings on the drivers of sustainability of incubated agribusinesses in the universities of Kenya. This chapter runs from the first objective, starting with describing the characteristics of university-incubated agribusiness, then determining the drivers that motivate youths at the universities to participate in the incubation programs, and lastly, the factors influencing the sustainability of university-incubated businesses. In conclusion of this section, inferential statistics such as the Anova, and the T-test results are explained.

4:1 Characteristics of Incubated Agribusiness in Universities of Kenya.

Introduction

This section presents the categorical and quantitative characteristics of university-incubated agribusinesses as represented by the seven major universities surveyed in Kenya. These characteristics are presented in three sections these include; Social-economic characteristics (gender, marital status, education level, effect of education on youth engagement in incubation, Role of parents, and business experience prior to joining incubation), Agribusiness information characteristics (entrepreneur characteristics, perception on starting own business, business existence, number of employees, time of starting business, period of closing business, reason for closing, business registration, ownership, sex composition of business owners, and duration of incubation), and lastly Business incubation characteristics (reason for joining incubation, process of incubation, business stages before and after incubation, requirements for incubation and their effects on joining, incubation support received, gains and challenges, and efficiency of services and facilities received and used).

4.1.1 Social-economic Characteristics

The social-economic characteristics were studied to understand the demographic characteristics of these incubated agribusinesses. The study assumed the average age for university students as youths in Kenya is 18 to 34 years according to the national gender and equity commission and as defined by Article 260 of Kenya's Constitution (Fitzgerald, 2010). With regards to gender, the results found that university-incubated businesses are mainly comprised of both male and female students, with males forming the majority (59.1%) (refer to Table 5). This means that male students participate more in incubation programs than their

female counterparts, revealing that male students have a greater desire to create their own businesses than female students. These results are consistent with the research conducted by Shi and Wang (2021), which also suggests that male students are more involved in entrepreneurial activities compared to their female counterparts. It should also be noted that there exists a very small difference in participation (1%) between male and female participation. This could be a result of more efforts being put into gender equality as a current norm across all sectors (Acosta, *et al.*, 2021; Giroud & Huaman, 2019).

Table 5: Social Economic Factors

Variable	Category	Frequency	Percentage (%)
Gender	Male	161	59.1
	Female	111	40.9
Marital status	Single	196	72.1
	Married	76	27.9
Education level	Certificate	44	16.3
	Diploma	37	13.5
	Degree	139	51.0
	Postgraduate	52	19.2
Self-employed parents	Yes	154	56.7
	No	118	43.3
Business experience prior to incubation	Yes	136	50.0
	No	136	50.0

Note: Results in this table will be used for reference in all discussions concerning the social-economic characteristics.

Furthermore, the study reveals that the majority of these students were single (72.1%), while the remaining (27.9%) were married. This could be because the majority of students at universities are found to be of a young age and are trying to align their careers, and thus, marriage may not be a priority to many. However, the results from the cross-tabulation in Table 6 indicate that married individuals have a higher percentage of existing businesses than their

single counterparts. In other words, married individuals tend to have more responsibilities, which could motivate them to hold onto their businesses more strongly than single individuals (Kolvereid, 2018; Pfeffer & Ross, 1982).

Table 6: Characteristics of Agribusinesses and Status of Business Existence

Indicators	Categories	whether the business is still in existence or not	
		Yes (%)	No (%)
Marital status	Single	70.8	29.2
	Married	74.0	26.0
Education level	Certificate	75.0	25.0
	Diploma	84.2	15.8
	Degree	73.2	26.8
	Postgraduate	58.1	41.9
Self-employed parents	Yes	75.8	24.2
	No	66.2	33.8
Business experience prior to incubation	Yes	73.1	26.9
	No	70.5	29.5
Business registered	Yes	76.4	23.6
	No	67.9	32.1
Number of partners	2-3	100.0	0.0
	4-5	67.7	32.3
	6-7	40.0	60.0
	8-9	33.3	66.7
	Above 10	0.0	0.0
Stage after incubation	Ideation	11.6	27.3
	Startup stage	33.9	36.4

	Growth and establishment	43.8	27.3
	Expansion	10.7	9.1
	maturity	0.0	0.0

Note: This crosstabulation table will be used for reference across the discussion of this section.

According to results presented in Table 5, the study revealed that students pursuing degrees and postgraduate degrees had a significantly higher participation rate in incubation programs (51.0% and 19.2%) in comparison to those pursuing certificates and diplomas (16.3% and 13.5%). The higher participation of degree and postgraduate students in universities can be linked to the fact that universities in Kenya offer more degree and postgraduate programs. At the same time, the certificates and diplomas are left for TVETs (Technical and Vocational Education and Training) (Mohammad *et al*., 2021). This reveals that despite the fact that these incubators are located within the university premises, some of these incubation programs take up youths from within the communities who could not be students from the same university and who could be pursuing certificates and diplomas.

Furthermore, the study found that diploma students had a greater percentage of pre-existing businesses (89.3%) compared to non-existent businesses (10.7%). In comparison, postgraduate students had the lowest percentage of pre-existing businesses (67.5%), with 32.5% having non-existing businesses (as indicated in cross-tabulation Table 6), an area that can be recommended for further research. This can also be linked to the fact that TVETs follow a competence-based kind of curriculum while universities are more theoretically affirming the mismatch between the education curriculum and the demands of the job market (Farah & Ali, 2018).

These results, like the background paper by Lackéus (2015), suggest that education has an impact on entrepreneurial engagement, with the majority of respondents affirming the positive influence of education on their involvement in incubation as an entrepreneurial activity (as shown in Table 5). Respondents agreed that their education helped them develop an entrepreneurial mindset, equipped them with skills for their agribusiness, and demonstrated the value of entrepreneurship in terms of starting a business (as per Table 7).

Table 7: Effect of Education on Youth Engagement in Incubation as an Entrepreneurship Activity

Items	SD(%)	D(%)	Ne(%)	A(%)	SA(%)	Mean	σ	Decision
My school education helped me to develop my sense of entrepreneurial attitude	6 (2.4)	30 (11.1)	67 (24.5)	93 (34.1)	76 (27.9)	3.74	1.059	Positive effect
It equipped me with skills for my agribusiness	12 (4.3)	31 (11.5)	69 (25.5)	93 (34.1)	67 (24.5)	3.63	1.104	Minimal Positive effect
It showed me the value of entrepreneurship (value in terms of need/relevance to start a business)	12 (4.3)	39 (14.4)	52 (19.2)	94 (34.6)	75 (27.4)	3.66	1.151	Minimal Positive effect

Note; N=272, SD= Strongly Disagree, D= Disagree, Ne= Neutral, A= Agree, SA= Strongly Agree, Decision= weighted Average= 3.68, σ= standard deviation, Percentages % are presented in brackets ()

Table 5 continues to show that the majority of the students who went through incubation had parents or guardians who were self-employed. In contrast, a lesser number had parents or guardians who did not engage in self-employment (43.3%). In the cross-tabulation Table 6, results reveal that the majority of the students with self-employed parents or guardians had more existing agribusinesses in relation to non-existing agribusinesses (78.8% and 21.2%), as compared to students whose parents or guardians are not self-employed (70.0% and 30.0%)

This revealed the importance of parents or guardians in entrepreneurship engagement as confirmed in Table 8 where students whose parents/ guardians were self-employed affirmed that their parents or guardians played a significant role in their entrepreneurial journey. The majority of the respondents reported that their parents motivated them to start their own business, agreed that their parents or guardians provided them with business advice, and

confirmed that their parents or guardians gave them startup capital. In addition, others indicated that they gained experience by working with their parents or guardians. These results are in line with the discoveries by Ranwala (2016), who suggested that entrepreneurship can be stimulated through their family background.

Table 8: Role of Parents/Guardians in Students' Entrepreneurship Engagement

Variable	Category	Frequency	Percentage (%)
Parents' level of influence	Not helpful all	67	24.5
	Moderately helpful	92	33.7
	Extremely helpful	114	41.8
Motivated me to start my own business	Yes	109	39.9
	No	163	60.1
Given me business advice	Yes	63	23.1
	No	209	76.9
Given me startup capital	Yes	27	10.1
	No	245	89.9
Experience through working with him/ her	Yes	65	24.0
	No	207	76.0

Results in Table 5 further reveal a 50 percent difference in numbers between students who join incubation with prior experience and those who join incubation without incubation. Cross-tabulation Table 6 continues to reveal that there might be an added advantage to business existence and performance due to previous experience in business. It shows that the majority of students with prior experience before business incubation had existing businesses in relation to non-existing agribusinesses (76.0% and 24.0%). In contrast, it reveals that students without prior business experience had fewer existing businesses in relation to non-existing agribusinesses (74.0% and 26.0%). Revealing a difference of 2 percent. Business experience equips one with experience in how to manage and run a business. It is also noted in this study

that business management is one of the major reasons why these agribusinesses fail; this could explain why students with prior experience had more existing agribusinesses than their counterparts.

4.1.2 Agribusiness Characteristics

Table 9 reveals that, on average, these agribusinesses had been in operation for one year and four months. Table 10 continues to reveal that the majority of the respondents had agribusinesses that were in operation at the time of data collection in comparison to those that are no longer in existence (75% and 25%, respectively). This could be because the incubators under study might have provided incubates, which they considered in operation and performing better, hence a limitation to the study. The longest duration of existence was four years, while the shortest was just two months. Among the agribusinesses that were not in existence, many closed within a year after incubation, with some shutting down even before a month had passed. The maximum time taken by such businesses to close after incubation was three years.

This reveals that the majority of these incubated agribusinesses do not get to see their second birthday and those that strive much to see it don't get to see their fifth birthday. These revelations are in line with Jorgensen (2011), Kaiburi *et al*. (2012), and Mwobobia (2012), who agree that while the incubators seek to develop entrepreneurship by providing complementary services that support and promote the skills and expertise of the entrepreneur approximately half of all new entrants survive less than five years.

It is worth noting that these agribusinesses have provided employment opportunities, with an average of at least two employees to a maximum of eight people, excluding the business administrator(s). In contrast, others indicated that they never employed anyone. This could be because most of these incubated agribusinesses are startups that solemnly depend on the owners of this business and, therefore, don't have the resources to pay the employees (Adisa *et al.,* 2014; Mbogo, 2011; Nair & Blomquist, 2019).

Table 9: Business Information

Items	N	Mean	Std. Deviation	Minimum	Maximum
Duration of business existence	272	1.424	0.913	0.167	4.000
Number of employees	272	1.550	1.699	0.000	8.000
Duration of incubation	272	4.199	4.644	0.230	24.000
Failed/ Closed businesses	68	1.061	0.559	0.830	3.00

According to the results in Table 10, university-incubated agribusinesses are mainly sole proprietorships (72.6%) (where an agribusiness is owned and controlled by an individual), followed by partnerships (25.5%) (which is an arrangement between two or more people to oversee business operations and share its profits and liabilities), and corporations (1.9%) (which is a legal entity that is separate and distinct from its owners). None of the agribusinesses indicated that they were cooperatives (where individuals own a jointly-owned and democratically controlled business). This could be because a majority of the students join these incubation programs as individuals rather than in groups. Among the sole proprietorships, the majority were owned by males.

This could be because males desire more to own businesses as compared to their female counterparts. This is also noted by Shi and Wang (2021), who also suggests that male students are more involved in entrepreneurial activities compared to their female counterparts. Regarding partnerships, a range of 2 to 8 partners, with a range of 4 to 5 partners, were the most common partnerships involved (66.7%). The cross-tabulation revealed that the partners ranging from 2 to 4 all had their businesses in existence and the rate of business existence went on decreasing with an increase in the number of partners.

Mixed-gender partnerships were the majority (81.8%), while single-gender partnerships were less common (9.1% male, 3.6% female). This shows active participation of both the male and female students in incubation programs, which is in line with Teren's (2020) research, which also found active participation of both genders in incubation programs. In terms of timing, a majority (41.0%) of the agribusinesses started before incubation, meaning they were running their businesses before joining incubation; 35.9% started during incubation, and 23.1% started after incubation.

This means that most of the students who join incubation need to improve their businesses and have a lot of expectations as they join these incubation programs. (The question is whether these students achieve their expectations from the incubation programs). While for others, incubation programs act as a kick-start for their businesses. These statistics also suggest that university incubation programs are successful in encouraging entrepreneurship, with a mix of business structures and gender participation (Hassan, 2020).

Table 10: Business Related Factors

Variable	Category	Frequency	Percentage(%)
Business existence	Yes	204	75.0
	No	68	25.0
Business registration	Registered	110	40.4
	Not registered	162	59.6
Business ownership	Sole proprietorship	198	72.6
	Partnership	69	25.5
	Corporation	5	1.9
	Cooperative	00	00.0
Sex of Sole proprietorships	Males	115	57.8
	Females	83	42.2
Number of partners	2-3	3	3.7
	4-5	49	66.7
	6-7	15	20.4
	8-9	4	5.6
	10 and above	3	3.7
Sex composition of group	Females	4	5.5
	Males	9	12.7
	Both male and female	61	81.8
Time of starting business	Started during incubation	73	35.9
	Existed before incubation	84	41.0
	Started after incubation	47	23.1
Reason for closing business	Had no money to run business	21	31.0
	Lost customers	4	5.2

	Making losses, no profit	16	24.1
	Had management challenges	27	39.7

With reference to Table 6, majority of the registered businesses were existing businesses (76.2%), while 23.0% were non-existing businesses. On the other hand, non-registered businesses consisted of 74.2% existing businesses and 26.0% non-existing businesses. However, despite the fact that majority of agribusinesses exist, table 10 shows that a significant number of these businesses face various challenges, with business management being one of the most prominent. This means that the majority of the students with incubated businesses do not know how to manage the daily activities/operations of their businesses, that is to say, overseeing all aspects of a business, from finance and operations to marketing and human resources.

This challenge is also cited as one of the main reasons for the closure of agribusinesses, as shown in Table 11. These findings are consistent with Teren's (2020) research, which also identified business management as a challenge facing incubated businesses in Nairobi. Tables 10 and 11 also reveal that most of the respondents whose agribusinesses were not in existence cited issues with loan repayment, business management challenges, and lack of funds to run business operations as the primary reasons for closure.

Other reasons and challenges mentioned included lost customers, consistent losses without profits, a shift to white-collar employment, difficulties in managing cash flow and sticking to a business plan, with many struggling even after completing the program. Additionally, limited consultation time was a concern for some, while a few felt they did not learn much from the process (Tables 10 and 11). Interestingly, most of these challenges align with those identified by Taren (2020) in her study on incubated businesses in Nairobi.

Table 11: The Cross-Tabulation of Challenges and Business Existence

Items			Business Existence	
			Yes (%)	**No (%)**
challenges	Paying back loan was hard	% within challenges	59.5	40.5
	Cashflow management was hard	% within challenges	74.1	25.9
	learned nothing	% within challenges	62.5	37.5
	following a business plan was hard	% within challenges	78.9	21.1
	administration work became so much	% within challenges	86.4	13.6
	limited time given	% within challenges	81.5	18.5

Entrepreneurial Characteristics

Table 12 results indicate that, on average, most of the youths who seek and participate in university incubation programs exhibit several entrepreneurial traits. They tend to be proactive, optimistic, innovative, and possess an internal locus of control, which means they believe their success or failure in business is determined by their own actions. They also have self-efficacy, a high-risk taking propensity, and decisional freedom, which means they can decide what, how, and when to venture into business independently. These traits have the potential to enhance entrepreneurship performance, as suggested by studies conducted by Crowley and Jordan (2017), Ncokazi and Mpiti (2023), and Yangailo and Qutieshat (2022). However, the same results also revealed that most of these students do not prefer competing with others, despite the fact that studies by Crowley and Jordan (2017) suggest that competition can increase business-level innovation.

Table 12: Personality of Incubated Students in Universities

Items	SD(%)	D(%)	Ne(%)	A(%)	SA(%)	Mean	σ	Decision
I am willing to take risks	3 (1.0)	14 (5.3)	40 (14.9)	139 (51.0)	76 (27.9)	4.00	0.854	Positive
Generally, when facing difficult tasks, I am certain that I will accomplish them	2 (1.0)	24 (8.7)	38 (13.9)	141 (51.9)	67 (24.5)	3.90	0.901	Positive
My life is determined by my own actions, not by others or by chance	3 (1.0)	20 (7.2)	51 (18.8)	112 (41.3)	86 (31.7)	3.96	0.939	Positive
If I see something I do not like, I change it	2 (1.0)	16 (5.8)	64 (23.6)	114 (41.8)	76 (27.9)	3.90	0.909	Positive
The possibility of being rejected by others for standing up for my decisions would not stop me	3 (1.4)	24 (8.7)	50 (18.3)	105 (38.5)	90 (33.2)	3.93	0.995	Positive
I create new ideas for business	3 (1.0)	23 (8.6)	33 (12.0)	125 (46.1)	88 (32.2)	4.00	0.938	Positive
I am optimistic about my future	5 (1.9)	16 (5.8)	26 (9.6)	99 (36.5)	126 (46.2)	4.19	0.964	Positive

I like situations in which I compete with others	14 (5.3)	39 (14.4)	109 (39.9)	63 (23.1)	47 (17.3)	3.33	1.085	Negative

Note; N=156, SD= Strongly Disagree, D= Disagree, Ne= Neutral, A= Agree, SA= Strongly Agree, Decision= weighted Average= 3.90125, σ= standard deviation, Percentages % are presented in brackets ()

Table 13 reveals that a significant number of university students seeking incubation have a positive outlook on entrepreneurship, despite the risks involved. According to Liñán *et al.* (2011), such attitudes can have a positive impact on entrepreneurial intentions. In addition, the results suggest that majority of the students possess a level of risk tolerance when starting a business. Meaning that majority of the students that join incubation are aware that running own business involves risks and are willing to take the risks. Furthermore, most of these respondents view failure as an opportunity to start afresh and believe that managing a business is not hindered by administrative procedures. These findings demonstrate a favourable perception towards starting and managing a business as stated by Liñán *et al*. (2011).

Table 13: Perception on Running Own Business

Items	**SD(%)**	**D(%)**	**Ne(%)**	**A(%)**	**SA(%)**	**Mean**	***σ***	**Decision**
One should not start a business if there is a risk it might fail	70 (25.6)	80 (29.5)	54 (19.9)	47 (17.3)	21 (7.7)	2.55	1.203	Positive perception
People who started their own businesses and have failed should start again	7 (2.6)	32 (11.5)	47 (17.3)	108 (39.7)	78 (28.8)	3.86	0.987	Positive perception

It's difficult to manage your own business due to complex administrative procedures	37 (13.5)	68 (25.0)	92 (34.0)	56 (20.0)	19 (7.0)	2.86	1.074	Positive perception
It is difficult to manage your own business for a long time due to a lack of available financial support	30 (10.9)	54 (19.9)	54 (19.9)	91 (33.3)	43 (16.0)	3.23	1.193	Negative perception
It is difficult to obtain sufficient information on how to manage your business efficiently	43 (16.0)	101 (37.2)	58 (21.2)	40 (14.7)	30 (10.9)	2.70	1.175	Positive perception

Note; N=156, SD= Strongly Disagree, D= Disagree, Ne= Neutral, A= Agree, SA= Strongly Agree, Decision= weighted Average= 3.04, σ= standard deviation, Percentages % are presented in brackets ()

Using weighted average to make decisions, where a decision was made basing on the weighted average that is to say; if the mean was equal to or above, then the variable was considered positive, where as a variable was considered negative if its mean was below the weighted average (Holt & Scariano, 2009). Majority of respondents also exhibited a positive perception towards access to financial support and running a business for a long time they disagreed that it is difficult to manage own business for a long time due to lack of financial support. This revealed that most of these students do not perceive access to finances as the reason to why one shouldn't run their own businesses.

Lastly, most of them had a positive perception towards access to information as they did not agree that it is difficult to obtain sufficient information on how to manage their business efficiently. In general, youths that seek university incubation on average have a positive

perception towards running own business as Table 13 indicated. But despite this, they were also some respondents who exhibited a negative perception towards running own business as the results reveal in Table 13. This means that they are individuals who are running their business in fear of failure and with a try and error method and mentality.

4.1.3 Business Incubation Characteristics

Based on the results presented in Table 11 and Fig. 3, and as described by Eliakis *et al*. (2020) and Tam and Gray (2016), the majority of young entrepreneurs join university incubation programs during the ideation and startup stages. These entrepreneurs then progress through various stages, although some don't show any progress in their business stages, either before or after joining the program. Revealing times when incubation doesn't create an impact in someone's business, this could be either the services being provided by the incubation program to the participates are irrelevant or they do not meet the needs of the participate.

Nonetheless, most of the respondents reported an increase in their business performance after going through pre-incubation and incubation phases, while only a few went through post-incubation and acceleration stages. According to this survey, majority of the respondents joined the incubation program with the goal of developing their own businesses (40.7%), others joined to obtain financial support, make business connections, acquire a place to work, or change the type of business (refer to Table 14). These findings are consistent with those of Lose *et al*. (2017) in their study as reasons why youths participate in business incubation programs.

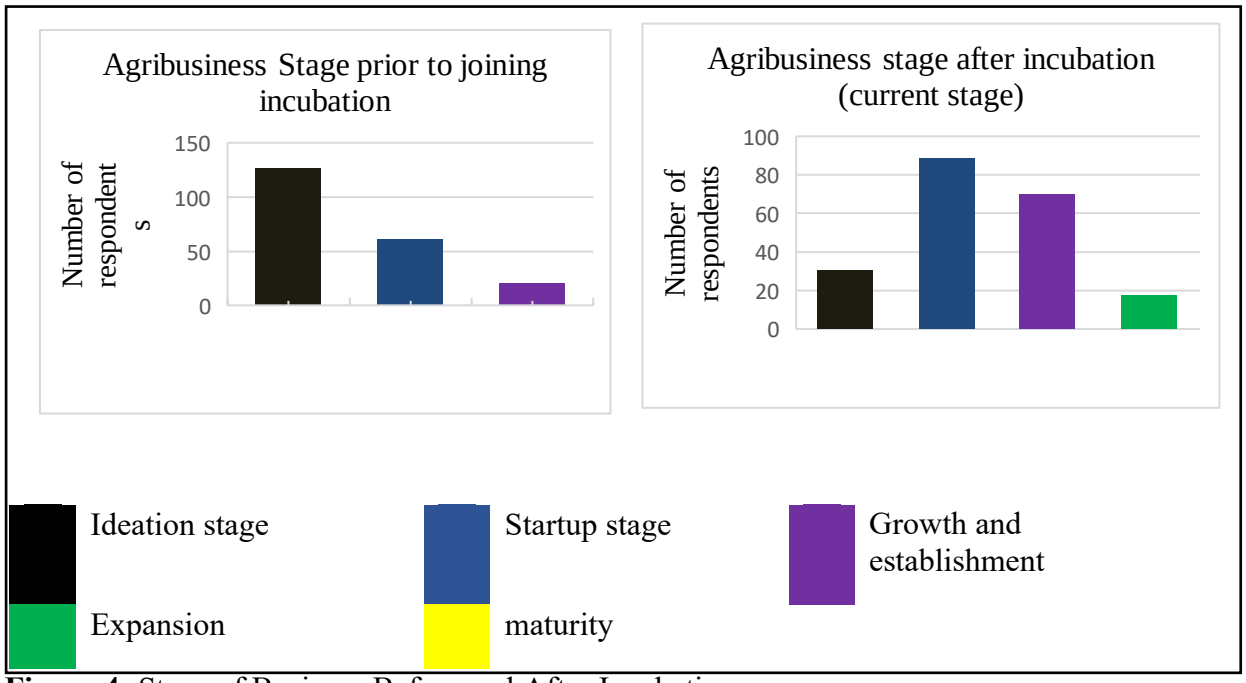

Figure 4: Stage of Business Before and After Incubation

Majority of the students join incubation through applications, obligations as university requirements, invitations by friends while a smaller number are recommended to university incubation programs. This revealed that despite the existence of these incubation programs in universities, these programs are not merely open to everyone at the university but rather a student has to seek them themselves through either through application or any other means.

However, results in Table 14, reveal that majority of the respondents are not affected by the requirements of their respective university incubators as most of them stated that the requirements prepared them for a serious entrepreneur journey ahead (59.9%). Others stated that they did not have any of requirements however they joined into their incubation program (See Table 14). Apart from aiding the selection of appropriate candidates for the incubation processes, this explains the need of requirements prior to entrance as it gives the participates a crucial perception of taking the incubation process seriously. In addition, it shows that university incubators have lenience entrance for the students into incubation programs at the universities.

Table 14: Business Incubation Information

Variable	Category	Frequency	Percentage (%)
Reason for joining incubation program	Get financial support	95	28.2
	Acquire place of work	4	1.1
	Develop own business	137	40.7
	Make business connections	86	25.6
	Change type of business	15	4.4
Process of joining incubation	Application	153	56.3
	School requirement	29	10.6
	Invitation from a friend	81	29.8
	Recommended	9	3.4
Business stage prior to incubation	Ideation stage	166	61.1
	Startup stage	80	29.3
	Growth and establishment	26	9.6
	Expansion	0	0.0
	Maturity	0	0.0

Stages of incubation went through	Pre-incubation	175	64.4
	Incubation	73	26.9
	Post-incubation	13	4.8
	Acceleration	11	3.8
Business stage after incubation	Ideation stage	40	14.9
	Startup stage	116	42.8
	Growth and establishment	92	33.7
	Expansion	24	8.7
	Maturity	0	0.0
Requirements for joining incubation	Being in a group	93	28.6
	Requirement as individual	106	32.4
	Student requirement as graduate	36	11.1
	Being a continuing student	91	27.9
Requirement effect on joining	Yes	105	38.5
	No	167	61.5
Effects of requirement on joining	Requirements were too many wanted to quit	14	6.6
	Too easy join felt easy to join	27	13.2
	Didn't have any of the requirements but I joined	42	20.3
	Prepared for a serious journey	123	59.9

Similarly, to other researchers such as Ahmed *et al.* (2020), business incubators offer a range of valuable services to young entrepreneurs. According to this research, majority of university students who participated in incubation programs received skills development and training support from their respective incubators (68.3%), while 25.4 percent and 6.2 percent received financial support and production support respectively (Table 15). This highlights production support as the least services provided by university incubators to their incubates. The table also indicates that most respondents who received support from incubators cited skills development and training as the primary service they received. Specifically, 37% received training in business ideation and starting up a business, 23.2% in financial management, 17.8%

in marketing, 15.4% in leadership, and 6.5% in proposal writing and grant winning as the least services provided.

With reference to Table 15, in the case of financial support, the majority of respondents received soft loans, while others received grants, were connected to financial services or assisted in saving up for capital. Majority of those who received production support were mainly connected to the market (54.6%) or provided with working space (28.4%), while others were assisted with intellectual property or provided with machinery. This reveals the need for more production support among students who are incubated in universities, the same can be linked to why many of these participates indicated business management as a challenge. This area is also suspectable for further research to find out why incubators put more effort to training in business ideation and starting up a business rather than providing all aspects of incubation to their trainees.

Table 15: Incubation Support, Gains and Challenges

Variable	**Category**	**Frequency**	**Percentage (%)**
Financial support	Received grant	29	29.3
	Given soft loan	44	45.3
	Connected to financial services	16	16
	Helped save capital	9	9.3
Skills development and training support	Ideation and starting up a business	161	37.0
	Financial management	101	23.2
	Proposal writing and grant winning	28	6.5
	Marketing	77	17.8
	Leadership	67	15.4
Production support	Machinery	8	4.3
	Connected to market	101	54.6
	Given working space	52	28.4
	Intellectual property	24	12.8
Stages of incubation went through	Pre-incubation	175	64.4
	Incubation	73	26.9

	Post-incubation	13	4.8
	Acceleration	10	3.8
Gains from incubation	Working space	89	14.9
	Getting funding	72	12.1
	Increased business performance	170	28.5
	Resource management	127	21.3
	Business connection help	96	16.2
	Fun	42	7.0
Challenges	Paying back loan was hard	55	13.8
	Cashflow management was hard	76	19.1
	Learned nothing	10	2.6
	Following a business plan was hard	93	23.4
	Administration work became so much	53	14.5
	Limited time given	106	26.6

According to the results obtained from Table 16, which used a weighted average to make decisions, most of the university-incubated youths had a negative response towards the facilities they used during the incubation period. This meant that the facilities were not helpful or were inefficient as they stated. Similarly, a majority of the respondents gave a negative response to the mode of training used and exhibition participation during incubation. However, they had a positive response towards the topics of training studied. This indicates that the training topics were efficient and helpful. Surprisingly, most respondents did not use mentorship and legal services, despite the positive revelations stated in a research study conducted by Ahmed *et al.* (2020). Thus, revealing a need for improvement in these specified areas by the various university incubators.

Table 16: Services and Facilities Efficiency

Items	SD(%)	D(%)	Ne(%)	A(%)	SA(%)	Mean	σ	Decision
Facilities		65 (24.0)	59 (21.6)	108 (39.9)	39 (14.4)	3.4471	1.01062	Negative
Mode of Training		69 (25.5)	31 (11.5)	112 (41.3)	59 (21.6)	3.5913	1.09068	Negative
Topics of training		33 (12.0)	30 (11.1)	142 (52.4)	67 (24.5)	3.8942	0.91068	Positive
Mentorship	44 (16.3)	5 (1.9)	59 (21.6)	112 (41.3)	51 (18.8)	3.4423	1.28407	Negative
Paticipation in Exhibition		10 (3.8)	118 (43.3)	67 (24.5)	77 (28.4)	3.7740	0.90724	Negative
Legal service		16 (5.8)	162 (59.6)	46 (16.8)	48 (17.8)	3.4663	0.85059	Negative

Note; N=156, SD= Strongly Disagree= (no mentor assigned), D= Disagree= (Not help), Ne= Neutral= (no comments, did not used, did not participate), A= Agree=(Good), SA= Strongly Agree= (used it is helpful), Decision= weighted Average= 3.6025, σ= Standard deviation, Percentages % are presented in brackets ()

The findings presented in Table 17 shed light on both the reasons to why university students join incubation and the actual gains these young entrepreneurs achieved from university incubation programs through a cross tabulation. The majority of respondents reported gaining valuable skills in resource management, networking, and securing funding, as well as having access to working space and enjoying the process. However, it is worth noting that most participants did not achieve their initial objectives for taking part in the incubation program, as also indicated in Table 14. This could mean that there could be lack of synchronization of expectations between the incubators and the incubates.

Table 17: Cross-tabulation of Reason for Joining Incubation and Gains Received

Items			gains from incubation (%)					
			Working space	Funding	Business development	Resource management	Business connection help	Fun
Reason for joining incubation	To get financial support	% within reason joining	16.9	14.0	27.0	20.8	15.7	5.6
	To acquire place of work	% within reason joining	26.8	17.1	22.0	19.5	12.2	2.4
	To develop my own business	% within reason joining	11.9	12.6	28.7	21.8	18.8	6.1
	To make business connections	% within reason joining	12.8	9.6	26.2	23.5	18.7	9.1
	To change the type of business	% within reason joining	15.6	12.5	21.9	21.9	15.5	12.5

4.1.4 Public University Incubators Versus Private University Incubators

An independent-sample t-test was conducted to determine the effect of the type of university on the existence of student-led agribusinesses (Table 18). There was not a significant difference between the public university student-led agribusinesses (M= 1.27; SD= 0.443), (t= 1.341), p=.0.181 and the private university student-led agribusinesses (M= 1.19; SD= 0.395)

towards the performance of the businesses in terms of business existence. There was no evidence that the type of university affects the existence of student-led agribusiness. This could be linked to the fact that most university incubation programs exist as projects within universities.

Table 18: Independent-sample T-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Business existence	Equal variances assumed	8.116	0.005	1.341	270	0.181	0.075	0.056	-0.035	0.186
	Equal variances not assumed			1.401	177.601	0.163	0.075	0.054	-0.031	0.182

On the contrary, a crosstabulation revealed that there were more existing student-led businesses in private universities to non-existing businesses (81.0% and 19.0% respectively), as compared to public universities (refer to Table 19). The fact that Private universities' strategic orientations are completely different from those of public universities cannot be ignored. This could be the fact that private universities focus on resource and profit maximization as compared to public universities even in running projects (Altbach *et al.,* 2021). In addition, most of the students in private universities have to pay for literally everything at their respective universities. With this, they could be attaching a greater value to the business startups they create at the universities as compared to their counterparts in the public universities. An area suspectable for further research.

Table 19: Cross-tabulation of University Type and Business Existence

			Business Existence	
			Yes	No
University type	Private	% within University type	81.0%	19.0%
	Public	% within University type	73.4%	26.6%

4.2 Drivers Motivating Students to Participate in Incubation Programs

With reference to section 3.4.2 of this thesis, the results represented in Table 20 reveal the final analysis where 11 items underwent PCA with oblique and varimax rotations to extract 2 components. The mean of these components ranged from 2.20 to 4.06 (Table 20). The multivariate normality test produced statistically significant results at prob>chi2= 0.0000 (Table 20) according to Hair *et al*. (2006). Moreover, the Kaiser-Meyer-Oklin Measure of Sampling Adequacy in Table 20 was 0.829, and Bertlett's Test of Sphericity was also statistically significant at 0.000 (Hair *et al*., 2006). This suggests that there was sufficient variance in the data that could be analysed using PCA (KMO >0.5), and the items had good correlation with each other, as the P-value was smaller than 0.05.

Table 20: Test for Normality and the Descriptive Statistics of the Motivation Statements

Motivation statements	**Mean**	**Std. Deviation**
To add value to education	3.68	1.26
To get training on entrepreneurship	4.06	0.97
As a career	3.61	1.10
As hobby	3.98	0.99
Influence from peers/friends' status	2.42	1.13
Uphold family status	2.55	1.15
For employment after school	3.43	1.27
For connections	3.64	1.10
To own business	4.03	0.98
Influence from successful business	2.72	1.25
As school assignment	2.20	1.24
Test for Multivariate Normality		

Mardia mSkewness = 18.67971	chi2(220) = 658.622	Prob>chi2 = 0.0000
Mardia mKurtosis = 130.2227	chi2(1) = 22.642	Prob>chi2 = 0.0000
Henze-Zirkler = 1.866559	chi2(1) = 3174.951	Prob>chi2 = 0.0000
Doornik-Hansen	chi2(20) = 262.835	Prob>chi2 = 0.0000

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.829
	Approx. Chi-Square	797.832
Bartlett's Test of Sphericity	df	55
	Sig.	0.000

The results reveal that both factors had eigenvalues greater than 1 (Table 21). The total variance extracted was 55.392% (Table 21). Furthermore, the oblique rotation revealed no correlation among the factors, as presented in Table 22.

Table 21: Total Variance Explained

Factor	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.027	36.606	36.606	4.027	36.606	36.606	3.856	35.050	35.050
2	2.066	18.786	55.392	2.066	18.786	55.392	2.238	20.342	55.392
3	0.923	8.392	63.784						
4	0.753	6.842	70.627						
5	0.682	6.198	76.825						
6	0.561	5.099	81.924						
7	0.530	4.822	86.745						
8	0.436	3.960	90.705						
9	0.410	3.730	94.435						
10	0.336	3.050	97.485						
11	0.277	2.515	100.000						

Extraction Method: Principal Component Analysis.

Furthermore, results indicated that all variables loaded significantly and there was no factorial complexity or mixed signals, as shown in Table 22. Additionally, the factor loadings were above 0.4, with communalities ranging from 0.31 to 0.65, as indicated in Table 22.

Table 22: Rotated Component Matrix with Communalities and Rotated Pattern Matrix

Rotated Component Matrix and Communalities			
	Components		Communalities
	1	2	
Add value to education	.823		.692
To get training on entrepreneurship	.802		.674
Career	.777		.619
Hobby	.747		.562
To own business	.741		.641
Employment after school	.646		.695
Connections	.563		.461
Family status		.817	374
Peers/friends' status		800	.549
Influence from successful business		.675	511
As school assignment		.555	.316

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations

Rotated Pattern Matrix		
	Components	
	1	2
Add value to education	.822	
To get training on entrepreneurship	.821	
Career	.776	
Hobby	.758	
To own business	.746	
Employment after school	.637	
Connections	.552	
Family status		.810
Peers/friends status		.806

Influence from successfull business	.661
As school assignment	.567

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 4 iterations.

According to the findings, Factor 1 accounted for 36.606% of the variance (Table 21), consisting of 7 items that represent a hypothesized subscale of students participating in incubation programs (Table 22). These depict that students were motivated by a need for employment after school and felt that there were no better options available for them. The items included in this subscale were: getting a career in business, adding value to education, getting entrepreneurship training, starting their own business, securing stable employment after school, making connections, and treating business as a hobby.

Interestingly, this suggests that university students are driven by the necessity motivation factors to participate in incubation programs. Necessity entrepreneurship refers to nonoptional or enforced entrepreneurial activities when someone has no alternative due to personal reasons or certain conditions (Aima *et al*., 2020). In other words, they feel that their education alone is not enough to guarantee them a successful career and employment after graduation. These findings are in agreement with studies such as Granger *et al.* (1995) and Kirkwood, (2009) which argue that unemployment lowers the opportunity costs of self-employment, thereby driving individuals to start their businesses. It is worth noting that this factor was highly reliable with an Alpha of 0.823 (Table 22).

Factor 2 accounted for 18.786% of the variance (Table 21), and it comprised 4 items related to students participating in incubation programs with a motive of leveraging them as business opportunities (Table 22). These items include obtaining recognition from peers and friends, fitting into family status, joining a successful line of business after seeing successful people in it, and using the programs to complete school assignments. Such motivations are similar to the ones outlined by Giacomin *et al.* (2007), who identified three pull motivations: market opportunity, social status, and profit. The study revealed that university students' motivation to participate in incubation programs is also associated with a pull factor of taking advantage of an opportunity, which is also known as opportunity motivation. This suggests that some students participate in university incubation programs to boost their social status. The reliability of this finding is supported by an alpha value of 0.817 (Table 22).

Findings revealed a clear distinction between necessity motivation and opportunity motivation of university students who participate in university incubation programs, as shown in Table 22. The lack of correlation between the subscales indicated the ability to differentiate between the two types of motivations for students' participation in university incubation programs. In contrast with the Van der Zwan *et al.* (2016) study, which found that more individuals start new ventures due to seeing an opportunity rather than a need, this study portrayed that more university students take the initiative to participate in university business incubators due to seeing a need rather than an opportunity.

It's noteworthy that factors such as acquiring wealth, though often cited as the primary reasons for entrepreneurs to start a business such as Shi and Wang's (2021) study, were not significant in either necessity or opportunity motivation. Additionally, hobby, which has been identified as a motivational factor by Giacomin *et al*. (2007), was more closely related to necessity motivation than opportunity motivation. This finding rejects the assumption that hobby as a motivation factor occurs when neither necessity motivation nor opportunity motivation is at play.

4.3 Factors Influencing the Sustainability of University-Incubated Agri-businesses

This section starts with describing the constructs in the respective sustainability dimensions which include; economic, environmental and social sustainability. This aided in identifying the particular areas in the dimensions that may need improvement. Then using the sustainability index forwards the sustainability performance was described as also indicated in section 3.4.3 and thereafter, reveals the relationships between the personnel/behavioural factors, motivational factors and the economic, environmental and social sustainability of these agribusinesses through the SEM-PLS model.

4.3.1 Description of the Constructs in the Respective Sustainability Dimensions

Economic Dimension

Table 23 presents the findings of a study that focused on the economic sustainability of university-incubated agribusinesses. The study found that the average mean of the constructs that make up the economic sustainability dimension was 3.265. Based on this, the performance of each item in the economic sustainability dimension was weighed. Revealing that majority of individuals who operated these agribusinesses managed their funds transparently, kept records and had savings for their business. They were also making profits, taking advantage of market opportunities, had regular paying customers, and used efficient market strategies to sell their products. The study also found that productivity improvements were observed in terms of

increased number of products and goods produced, which is a positive indication of the economic strategies adopted to sustain these agribusinesses.

However, the study also identified some areas where these agribusinesses were falling short. Majority of these individuals revealed that they had no working capital to operate their agribusiness daily, were not using modern technology to maximize their production, had no organic expansion in terms of an increased number of employees or acquiring new equipment, and were not considering using used equipment to minimize expenses.

Lastly, many revealed that they do not pay local tax for their agribusinesses, despite minimal the tax rates of 1% of gross turnover indicated by Kenya Revenue Authority. This could be because of the uncertainty of whether SMEs in Kenya have been reached by financial literacy programmes which is a key role in bringing about growth (Lusimbo, 2016; Solomon, 2021). In summary, the study highlights the economic strengths and weaknesses of university-incubated agribusinesses. While these businesses are performing well in most areas, there are areas where improvement is needed to ensure their long-term sustainability and success.

Table 23: Economic Sustainability Dimensional Statistics

Items	**Mean**	**Std. Deviation**
Funds are managed transparently	3.540	1.035
Savings	3.390	1.021
Record keeping	3.640	0.987
Have working capital	3.050	1.107
Take advantage of market opportunities	3.330	1.067
Profits	3.570	0.877
Have paying customers	3.330	0.922
Use modern technology	3.240	1.178
Market strategies	3.440	1.048
Use used equipment	2.650	1.141
Pay local tax	3.140	1.136
Have organic expansion	3.120	1.084

Productivity improve	3.370	1.023
Access finance	2.900	1.185

Note: The scale used is weighted average = 3.265

Environmental Dimension

According to results in Table 24, the average mean of the environmental sustainability constructs used to evaluate each particular item is 3.496. This indicates that most individuals with university-incubated agribusinesses have a good understanding of how their businesses depend on the environment. They claim to use natural resources efficiently, manage waste properly, and are able to adapt to climate change in their agribusinesses.

It should be noted that these agribusinesses are startups with minimal impact on the environment and owners might not notice their impact on the environment and, therefore may require not much effort to ensure their environmental sustainability. Therefore, a lot of learning is needed to help such startups understand their impact on the environment (Huang *et al*., 2020). There is also room for improvement in terms of sustainable production plans. Many of these agribusinesses do not have a plan that balances their environmental impact with their operations.

Table 24: Environmental Sustainability Dimensional Statistics

Items	**Mean**	**Std. Deviation**
Interdependence between environment and business	3.680	0.827
Sustainable production plans	3.390	0.967
Natural resources	3.400	0.953
Wastes	3.500	1.007
Adoption to climate	3.510	1.031

Note: The scale used is weighted average = 3.496

Social Sustainability

According to results in Table 25, the average mean for social sustainability used to evaluate each construct was 3.642, revealing that university-incubated agribusiness owners have fostered positive relationships with their stakeholders and gained their trust. They have shown no discrimination among their employees and other stakeholders who are directly

influenced by their agribusinesses and have established democratic rules, when necessary, among their employees.

This could be because most of these agribusinesses are startups which literally depend on their owners to survive with no or a minimum number of employees and thus not many stakeholders are actually involved in such businesses (Adisa *et al.,* 2014; Mbogo, 2011; Nair & Blomquist, 2019). The majority agreed that democratic leadership and management enforce compliance with internal rules and among business partners. They also follow social norms in their respective communities, indicating that their agribusinesses are well-accepted.

However, the study revealed a low level of shared vision with their stakeholders, suggesting that the majority of these individuals have business visions limited only to the owners and less information for other stakeholders who may be interested in their businesses. Additionally, the study found that the majority of these individuals do not engage in community activities as businesses, while their employees are not from the respective communities where their agribusinesses are located. This could be because most of business startup tend to depend on family members and therefore employing workers from the business locality may seem expensive while others depend on the owners for every operation. Lastly, they revealed to have a low capability of resolving internal conflicts within their agribusiness.

Table 25: Social Sustainability Dimensional Statistics

Items	**Mean**	**Std. Deviation**
Shared vision	3.590	1.003
Internal conflicts	3.590	0.954
Relationships/trust	3.640	0.982
Discrimination	3.810	0.921
Democracy	3.690	0.870
Social norms	3.750	1.013
Employees	3.530	1.103
Engage community	3.540	1.039

Note: The scale used is weighted average = 3.642

4.3.2 Sustainability Performance of University Incubated Students' Agri-business

The sustainability performance of university-incubated students' agribusiness in terms of their economic, environmental, and social sustainability is shown in table 26 below.

Table 26: Sustainability Performance of University Incubated Businesses

Variable	Dimension weights (%)	Mean	Dimension performance (%)	Std. Deviation	Minimum	Maximum
Economic Dimension scores	50.000	0.326	0.652	0.059	0.100	0.443
Environmental Dimension scores	25.000	0.175	0.700	0.034	0.050	0.250
Social Dimension scores	25.000	0.182	0.728	0.034	0.050	0.250
Sustainability Index of youth's university incubated businesses	100.000	0.682	0.682	0.111	0.200	0.922

According to the results, incubated student-led agribusinesses in the universities are 68.2% sustainable. As seen in Table 26, these agribusinesses performed fairly well in the social dimension with an average percentage of 72.8% in respect to its dimensional weight of 25%, compared to the environmental and economic dimensions. It has been observed that the majority of students who participate in the university incubation program for their agribusinesses strive to ensure there is no discrimination among employees and other stakeholders who are directly impacted by their agribusinesses. They use democratic rules, whenever necessary, to manage their employees. They also respect the social norms that their agribusinesses operate in (refer to Table 25). However, as mentioned in section 4.3.1, there are still several areas of social sustainability that require improvement.

The social dimension was followed by the environmental dimension as shown in Table 26, with an average score of 70% in comparison to its dimensional weight of 25%. The environmental dimension encompasses identifying and comprehending the interdependence between business activities and the environment, creating and implementing effective and sustainable production plans, managing waste and natural resources in a responsible manner, as well as adapting to climate change. Table 24 highlights areas for improvement in this

sustainability dimension.

Furthermore, the economic dimension followed with an average performance of 65.2% out of 50% of its dimensional weight. The economic dimension included productivity improvements, organic expansions such as increasing the number of employees and acquiring new working equipment, having paying customers, maintaining business records, making savings, paying local taxes, and considering free yet effective marketing strategies. Despite this performance, Table 23 shows that some constructs of the dimension have fair performance while others need improvement. The sustainability performance of university incubated agribusinesses as discussed above is clearly depicted in Figure 5 below.

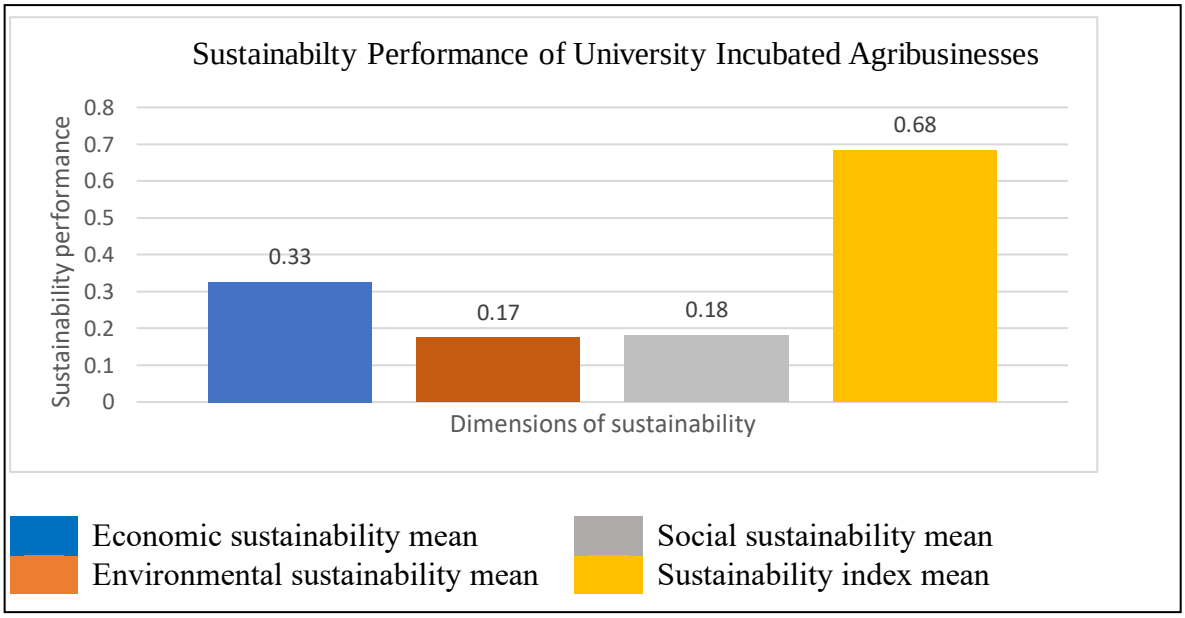

Figure 5: Sustainability Performance

4.3.3 The Structural Equation Model under the Partial Least Square Method (PLS-SEM).

This section presents the findings of the PLS-SEM model that assessed the relationships between the personnel/behavioural factors, motivational factors and the economic, environmental and social sustainability of these agribusinesses The first step was to assess the validity and reliability of the measurement model and validate the structural model. The next step involved determining the path coefficients of the test hypotheses. The hypotheses proposed in Chapter 3 were aimed at identifying the significance of different factors on the sustainability of university-incubated student-led agribusinesses.

A. Measurement Model

Smart PLS 4.0 by Ringle *et al*. (2022) was used to assess the measurement model and the structural model. The assessment of the measurement model starts with evaluation of the factor loadings followed by establishing the construct reliability and validity.

Factor Loadings

Factor loadings are the extent to which each of the items correlates with a given construct. They indicate how much an item weighs on each construct. Standardized loadings should be above 0.50 or higher, and ideally 0.70 or higher (Hair *et al*., 2010). For this study, factor loadings and item results derived from factor analysis are illustrated in Table 27 below;

Table 27: The Loading of Items on the Outer model

Items	Outer loadings
Autonomy <- behavioural factors	0.768
Democracy <- social sustainability	0.712
Engage community <- social sustainability	0.747
Innovativeness <- behavioural factors	0.800
Neccesity_career <- comp 1; necessity	0.800
Neccesity_employment_sch <- comp 1; necessity	0.637*
Neccesity_valueeduc <- comp 1; necessity	0.836
Natural_resources <- environmental sustainability	0.762
Opportunity_familystatus <- comp 2; opportunity	0.864
Opportunity_influsuccessful <- comp 2; opportunity	0.806
Opportunity_ownbusiness <- comp 1; necessity	0.777
Opportunity_peersfriends <- comp 2; opportunity	0.750
Opportunity_trainingentre <- comp 1; necessity	0.794
Optimism <- behavioural factors	0.760
Proactiveness <- behavioural factors	0.761
Risk taking <- behavioural factors	0.719
Stigma failure <- Stigma failure	1.000
Wastes <- environmental sustainability	0.593*
Climate_change <- environmental sustainability	0.704
Discrimination <- social sustainability	0.796
Employees <- social sustainability	0.623*
Hobby <- comp 1; necessity	0.735
Interdependence <- environmental sustainability	0.765

Internal_conflicts <- social sustainability	0.706
Locus_control <- behavioural factors	0.798
Marketing_strategies <- economic sustainability	0.740
Modern_tech <- economic sustainability	0.755
Payingcustomers <- economic sustainability	0.707
Productivity_improve <- economic sustainability	0.761
Profits <- economic sustainability	0.663*
Relationships_trust <- social sustainability	0.719
Self_efficacy <- behavioural factors	0.799
Social_norms <- social sustainability 0.702	0.702
Production plans <- environmental sustainability	0.784

Note; Items with lower loadings are marked with (*)

Some of the items in Table 30 marked with* do not have loadings above 0.7 as the preferred level indicating sufficient loading according to Hair *et al.* (2014) and Hair *et al.* (2010). However, lower loadings between 0.4 and 0.7 can be used if the Composite Reliability (CR) and Average Variance Extracted (AVE) are high enough for the corresponding items (Hair *et al.,* 2014) (see below). If not, the item should be eliminated from the scale if not it will result in an increase in the CR and AVE. In this study, the CR and AVE were high enough for the corresponding items to be retained.

Reliability and Validity

Results reveal Composite Reliability (CR) over 0.7 and Average Variance Extracted (AVE) higher than 0.5. Therefore, all loadings were acceptable for model estimation (Hair *et al*., 2014) (Table 28).

Table 28: Construct Reliability and Validity

Items	**Cronbach's alpha**	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**Average variance extracted (AVE)**
Behavioral factors	0.887	0.891	0.912	0.597
Comp1; necessity motivation	0.858	0.871	0.894	0.586
Comp2; opportunity motivation	0.739	0.770	0.849	0.653
Economic sustainability	0.778	0.789	0.848	0.527

Environmental sustainability	0.771	0.782	0.846	0.525
Social sustainability	0.849	0.877	0.880	0.514

Discriminant validity

Discriminant validity was assessed according to the heterotrait- monotrait ratio (HTMT). This is because HTMT has a better sensitivity to detect discriminant validity as compared to the Farnell and Larcker criterion for interpretation of the causal effect in the modelling analysis (Hamid *et al.,* 2017). Results for discriminant validity are illustrated in Table 29.

Table 29: Discriminant Validity- Heterotrait-monotrait Ratio

	Stigma failure	Behavioural factors	Comp 1; necessity	Comp 2; opportunity	Economic sustainability	Environmental sustainability	Social sustainability
Stigma failure							
Behavioural factors	0.665						
Comp 1; necessity	0.45	0.587					
Comp 2; opportunity	0.03	0.112	0.27				
Economic sustainability	0.406	0.599	0.515	0.116			
Environmental sustainability	0.477	0.645	0.586	0.180	0.865*		
Social sustainability	0.346	0.478	0.586	0.148	0.622	0.746	

Note: Component with discriminant validity close to 0.90 is marked (*)

Results reveal a slightly high collinearity problem among latent variables; economic sustainability and environmental sustainability. However, the acceptable levels of discriminant validity <0.90 as suggested by Henseler *et al.* (2015) was achieved. In addition, results from collinearity statistics reveal no problems of multicollinearity as the Variance Inflation Factor (VIF) value results of the structural equation modelling in this study is less than 5, and lies between 1 and 2.790 see Appendix 10 (Hair *et al.,* 2011). Results from cross-loadings all showed very low correlations between measures of unrelated constructs as shown in Appendix 11. Generally, the reliability and validity tests conducted on the measurement model were satisfactory, indicating that the items used to measure constructs are valid and fit to be used to estimate parameters in the structural model.

Goodness of Model Fit

To ascertain a good model fit, the acceptable standards for model fit according to Henseler *et al.* (2014) were achieved. Standardized Root Mean Residual (SRMR) also defined as the difference between the observed correlation and the model-implied correlation matrix should have a value less than (0.10 or 0.08) was obtained at 0.074 as well as SRMR confidence intervals as indicated in the tables below (table 33).

Table 30: Model Fit

Items	Saturated model	Estimated model
SRMR	0.074	0.098
d_ULS	3.414	6.067
d_G	0.957	1.11
Chi-square	1063.878	1178.029
NFI	0.711	0.68

B. The Structural Model and PLS-SEM Analysis

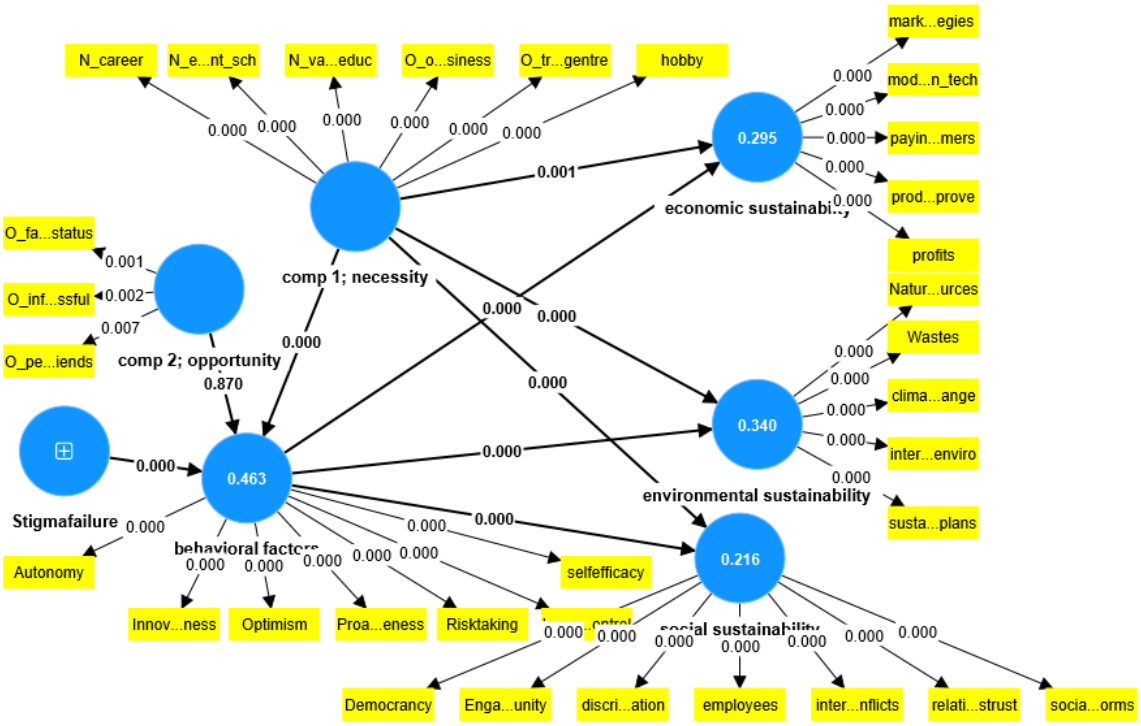

Figure 6: The Structural Model (The structural model indicates the path coefficients, R-squares, and outer loadings/ weights of the model)

Testing Hypotheses as Depicted in the Structural Model (Figure 6)

Direct Effects

H1 evaluated whether necessity motivation (comp 1) has significant effects on the economic, environmental, and social sustainability of university-incubated agribusinesses. Results revealed significant direct effects of necessity motivation on agribusinesses' economic, environmental and social sustainability at P values = 0.000, 0.000, and 0.000 respectively. Revealing the direct influence of necessity motivation factors to the sustainability to incubated agribusinesses. These findings are in line with the findings in a study done by Tur-Porcar *et al.* (2018) who based his study on intrinsic motivation as a factor affecting entrepreneurship and business sustainability. Hence the hypothesis that there direct effect of necessity motivation to sustainability (H1) was supported and the null hypothesis was rejected ($p \leq 0.05$ (refer to Path-Coefficients in Table 31).

H2 evaluated whether there are significant effects of opportunity motivation (comp 2) on the economic, environmental and social sustainability of their agribusinesses. Results revealed no significant direct effects of opportunity motivation on the economic, environmental

and social sustainability of university-incubated agribusinesses (Fig 6 and Table 31). This means that opportunity motivation factors do not influence the sustainability of university-incubated agribusinesses. Therefore, the hypothesis that opportunity motivation influences the economic, environmental and social sustainability of university-incubated agribusinesses is rejected and the null hypothesis that economic, environmental and social sustainability of university-incubated agribusinesses are not influenced by opportunity motivating factors is accepted.

H3 evaluated whether there are significant effects of behavioural/personality of students participating in university incubation programs on the economic, environmental and social sustainability of their agribusinesses. Results revealed significant direct effects of the behavioural/personality of students participating in university incubation programs on the economic, environmental and social sustainability of their agribusinesses at P values 0.000, 0.000 and 0.000 respectively. This could be because the personality of the students in terms of innovativeness, proactiveness, and risk-taking propensity determines the use of their resources at hard. These findings are similar to findings discovered by Tur-Porcar *et al.* (2018) on factors affecting entrepreneurship and business sustainability on the influence of behavioural as a factor influencing entrepreneurship sustainability (refer to Path-Coefficients in Table 31).

Table 31: Path-Coefficients of the Direct Relationships

Items	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (O/STDEV)**	**P values**
Stigma failure -> behavioural factors	0.495	0.494	0.061	8.045	0.000
Behavioural factors -> economic sustainability	0.389	0.395	0.085	4.568	0.000
Behavioural factors -> environmental sustainability	0.387	0.392	0.065	5.961	0.000
Behavioural factors -> social sustainability	0.336	0.344	0.066	5.071	0.000
	0.309	0.31	0.059	5.201	0.000

Comp 1; necessity -> behavioural factors					
Comp 1; necessity -> economic sustainability	0.236	0.238	0.074	3.18	0.001
Comp 1; necessity -> environmental sustainability	0.288	0.291	0.062	4.679	0.000
Comp 1; necessity -> social sustainability	0.208	0.214	0.068	3.047	0.002
Comp 2; opportunity -> behavioural factors	0.012	0.026	0.056	0.213	0.831

Indirect Effects

H1: Results in Table 32 revealed that necessity motivation factors had a significant indirect effect on the economic, environmental and social sustainability of the agribusinesses. The indirect effect of comp 1; necessity through behavioural factors affected economic sustainability. On the same note through behavioral factors, necessity motivation factors had significant indirect effects on the social and environmental sustainability of agribusinesses. This could be because necessity motivation factors such as the need for employment influences the personality of an individual and the way an individual may behave towards the resources available.

This affirms the cognitive ability of individual entrepreneurs, a Resource-Based theory boundary emphasized by Alvarez and Busenitz (2001) who asserts that entrepreneurs possess individual-specific resources that enable them to identify new opportunities and gather resources for the venture. The way individuals utilize the resources at their disposal determines the sustainability of their agribusinesses. Therefore, the hypothesis that there are significant direct and indirect effects of necessity motivation factors on the economic, environmental and social sustainability of university-incubated agribusinesses holds true and the null hypothesis is rejected ($p \leq 0.05$) (refer to Path-Coefficients in Table 32).

H2: Results in Table 32 revealed no significant indirect effect of opportunity motivation factors (comp 2) on the economic, environmental and social sustainability of the

agribusinesses. These effects included; comp 2; opportunity -> behavioural factors -> social sustainability, comp 2; opportunity -> behavioural factors -> economic sustainability, and comp 2; opportunity -> behavioural factors -> environmental sustainability. This could be because of the rampant unemployment status within the country and in communities as noted by the World Bank (2021) and Karmer (2022) that creates a rush to find employment rather than considering the influence from the society.

Therefore, the hypothesis that opportunity motivation influences the economic, environmental and social sustainability of university-incubated agribusinesses is rejected and the null hypothesis that economic, environmental and social sustainability of university-incubated agribusinesses are not influenced by opportunity motivating factors is accepted. These findings are in contrast with Van der Zwan *et al.*'s (2016) study, which found that more individuals start new ventures due to seeing an opportunity rather than a need.

H3: According to Path-Coefficients in Table 32, through behavioural effects, stigma failure has significant indirect effects on the social, economic and environmental sustainability of university-incubated agribusinesses. Even though this study did not expound on the various ways through which stigma failure influences the economic, environmental and social sustainability of university-incubated agribusinesses as did in the study by Simmons *et al.* (2014).

Results revealed in this study still confirm the significant effects of stigma failure on the economic, environmental and social sustainability of SMEs. This means that the behavior and perception that people who started their businesses and have failed should start again has a significant effect on the sustainability of their businesses. Therefore, the hypothesis that there are significant effects of behavioral/personality of students participating in university incubation programs on the economic, environmental and social sustainability of their agribusinesses is accepted.

Table 32: Path-Coefficients of the Indirect Relationships

Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Comp 1; necessity -> behavioural factors -> economic sustainability	0.12	0.124	0.041	2.969	0.003
Stigma failure -> behavioural factors -> economic sustainability	0.193	0.194	0.044	4.398	0.000
Comp 1; necessity -> behavioural factors -> social sustainability	0.104	0.107	0.032	3.281	0.001
Stigma failure -> behavioural factors -> environmental sustainability	0.192	0.193	0.038	5.000	0.000
Comp 2; opportunity -> behavioural factors -> social sustainability	0.004	0.009	0.020	0.204	0.838
Comp 2; opportunity -> behavioural factors -> economic sustainability	0.005	0.011	0.022	0.206	0.837
Comp 1; necessity -> behavioural factors -> environmental sustainability	0.12	0.122	0.034	3.539	0.000
Stigma failure -> behavioural factors -> social sustainability	0.166	0.17	0.038	4.372	0.000
Comp 2; opportunity -> behavioural factors -> environmental sustainability	0.005	0.01	0.022	0.208	0.835

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

Objective 1: Determining the Nature of University-incubated Agribusiness in Universities of Kenya.

Findings revealed a positive effect of education on university student's engagement in incubation as an entrepreneur activity. They also agreed that their parents/guardians' influence was helpful in their entrepreneur engagement. There was a 50percent difference in numbers between students that join incubation with prior experience and that join incubation without incubation. On average majority of the youths that seek and participate in university incubation programs are proactive, optimistic, innovative, have an internal locus of control on the cause of their success or failure in business, they have self-efficacy, they have a high-risk taking propensity and they also have decisional freedom with regard to what, how, and when venture/ business will be. Majority of the university youths had a positive perception towards starting own business. However, some respondents exhibited a negative perception towards running own business.

In terms of business information, the study revealed that on average, majority of these student-led agribusinesses have been in existence for one year and four months where some had closed within a year after incubation after incubation. Though not being registered businesses, these agribusinesses employed at least one person. In terms of incubation process, majority of the student entrepreneurs join university incubation at ideation stage and startup. They majorly join incubation because they want to develop their own businesses. Most of these student entrepreneurs join incubation through applications, obligations as university requirements, and invitations by friends. Findings further revealed that majority received skills development and training support from their respective incubators where they gave a negative response towards the facilities they used during incubation, mode of training used and exhibition participation during incubation while upraising the topics of training studied on with positive response.

Objective 2: To determine the drivers that Motivate University Students to Participate in the Incubation Programs

20 factors motivating youths at the universities to participate in the incubation programs were explored through PCA with oblique and varimax rotations to extract 2 components. All the factors had eigenvalues greater than 1 extracting a total variance (55.392%). Factor 1 explained 36.606% of the variance comprised of 7 items that represent a hypothesized subscale of students participating in incubation programs with a motive that there are no better choices for work after school; these constructs suggested that university students' motivation to participating in university incubation programs is associated with a push factor of a need for employment after school (necessity motivation). That is to say; students participate in university incubation programs because they feel that their education is not enough to secure them a proper career and employment after their school.

Factor 2 accounted for 18.786% of the variance. It comprised items that are related with students participating incubation programs with a motive of taking advantage of incubation programs as business opportunity. These constructs suggested that university students' motivation to participating in incubation programs is associated with a pull factor of taking advantage of an opportunity (opportunity motivation). This showed that some of the students participate in university incubation programs because they want to upgrade their social status. These demonstrated a clear distinction between necessity motivation and opportunity motivation of university student participating in university incubation programs.

A lack of correlation between the subscales indicated that one can different between necessity and opportunity motivation of students' participation in university incubation programs. Van der Zwan *et al,* (2016) found out that more individuals take the initiative to start a new venture because they see an opportunity than a need. In contrast, findings portraited that majority of the student entrepreneurs in Kenyan universities take initiative to participate in incubation programs because they see a need than an opportunity.

Objective 3: To Determine the Factors Influencing the Sustainability of Student-led Agribusinesses in Kenya

The sustainability performance of university-incubated agribusinesses was explored revealing that incubated student-led agribusinesses are 68.2% sustainable with better performance in the social sustainability dimension as compared to the economic and environmental dimensions. Furthermore, the study assessed the factors influencing the

sustainability of university incubated agribusinesses using PLS-SEM with three alternative hypotheses. The three hypotheses and insights were drawn as shown in Table 37.

Table 33: Summary of Testing Hypotheses and Insights from the Structural Model

Hypothesis	**Direct**	**Indirect**	**Insights**
H1; There are significant direct and indirect effects of necessity motivation (comp 1) factors on the economic, environmental and social sustainability of the university-incubated business	All P values = 0.000; the direct effect of necessity motivation to sustainability (H1) was supported.	Significant indirect effect on the sustainability of agribusinesses.	Students participate because they feel like they need to secure employment affects their agribusinesses.
H2; There are significant direct and indirect effects of opportunity motivation (comp 2) factors on the economic, environmental and social sustainability of the university-incubated business	No significant direct effects of opportunity motivation on sustainability (Null accepted)	No significant indirect effect of opportunity motivation on the sustainability of the agribusinesses.	Opportunity motivation factors do not influence the sustainability of university incubated agribusinesses
H3; There are significant effects of the personality of students participating in university incubation programs on the economic, environmental and social sustainability of their agribusinesses	All P values =0.000 significant direct effects of the personality of students on the sustainability	Significant indirect effects on the sustainability of agribusinesses. (stigma failure has significant	The behavior and personality of young entrepreneurs significantly affect the sustainability of their businesses.

	of their agribusinesses	indirect effects)

5.2 Conclusions

Objective 1: Determining the Nature of Incubated Student-led Agribusiness in Universities of Kenya.

Among the characteristics of University Incubated Agribusinesses identified include; The majority of these businesses exist for one year and five months and on average fail within one year after incubation. Business management is one of the major reasons for the failure of these businesses. The majority of these agribusinesses are sole proprietorships with most of them being incubated for four months while others for a very short period of even one week. These university-incubated agribusinesses are owned by male students and a significant proportion of these students had parents or guardians who were self-employed. These student entrepreneurs possess several entrepreneurial traits on average such as being proactive, optimistic, innovative, and having an internal locus of control, exhibiting self-efficacy, a high-risk-taking propensity, and decisional freedom. Furthermore, most of these student entrepreneurs avoid competition. In addition, the majority of these student entrepreneurs had already started their agribusinesses before joining the incubation programs, suggesting that most of these students join the incubation programs to improve their businesses and have high expectations from these programs however, the results further suggest a potential lack of alignment between the expectations of the incubators and the incubates.

Objective 2: To Determine the Drivers that Motivate University Students to Participate in the Incubation Programs.

The drivers motivating youth at universities to participate in incubation programs are; necessity motivation factors such as adding value to education, and securing a career among others. The majority of the student entrepreneurs confirmed these as the major reasons why they joined university incubation programs. A lesser number of student entrepreneurs also identify opportunity motivation factors as drivers that motivate them to join the incubation programs.

Objective 3: To Determine the Factors Influencing the Sustainability of Student-led Agribusinesses in Kenya.

The factors influencing the sustainability of university-incubated agribusinesses include; necessity motivation factors, behavioural/ personality of the student entrepreneurs, and the stigma of failure of the student entrepreneurs. These factors have both direct and indirect influences on the sustainability of university-incubated agribusinesses. The opportunity motivation factors were found to have no direct or indirect influences on the sustainability of university-incubated agribusinesses.

5.3 Recommendations

From the findings, the study recommends the following in policy

i. Standardizing the stages and time of business incubation as well as assessing the expectations of student entrepreneurs. University business incubators should create standardized policies and bodies governing all university periods and stages of incubation which students interested in business incubation have to take and go through at their respective universities. This will minimize the identified challenge of having not enough time for consultations during the incubation and being incubated for a very short period. In addition, university incubators should consider assessing the expectations of their participants before they enroll them for the two parties (student and incubator program) to have the same vision for starting the incubation program.

ii. On the same note university business incubators should incorporate business management modules in their modules of training. This will aid in minimizing the effect of business management challenges on the agribusinesses, a major challenge identified in the study and the common reason why many universities incubated agribusinesses close. In addition, university incubators should consider services such as mentorship, legal services, exhibitions, and business management modules in their modules of training given to the participants of university incubation programs as the study identified that the majority of respondents never actually receive such services.

iii. Universities should focus on enhancing training programs that cater to necessity motivations, as these significantly influence the sustainability of student-led agribusinesses. However, Tailoring incubation programs to address both necessity and opportunity motivations can provide a balanced approach, although the focus should remain on necessity motivations given their greater impact on sustainability. In addition, University incubators should encourage their incubatee to perceive their startup agribusinesses as opportunities that could turn into large businesses rather than an escape way to acquiring employment. This is because findings revealed that student

entrepreneurs participate in incubation programs because they need a better career after school where it was also noted that some of these students closed their agribusinesses after getting a white-collar job.

iv. Given the significant impact of behavioural factors on sustainability, incubation programs should incorporate modules that build entrepreneurial traits such as innovativeness, proactiveness, Risk-taking, Self-efficacy, Internal locus of control, Proactiveness, Autonomy, optimism, and competitiveness. In addition, they should develop support systems that reduce the stigma associated with business failure as this can encourage resilience and long-term success among student entrepreneurs

v. Building incubation structures that incorporate the TBL framework; the framework considers and gives an overall outlook on all the factors of sustainability. The performance of the economic sustainability dimension and practices that can encourage social and environmental sustainability of university-incubated agribusinesses should be given close attention by the university business incubators. Likewise, youths with university-incubated agribusinesses should intensify their economic, social, and environmental practices and strategies as well as improve their personality to ensure the holistic sustainability of their agribusinesses. Equal attention should be given to all factors.

vi. Lastly, policymakers should consider interventions that reduce unemployment. This can lower the opportunity costs of entrepreneurship and motivate more students to engage in sustainable business ventures. Hence contributing to increasing employment, income generation to many youths, and improving living standards. Thus, reducing poverty as highlighted in Kenya Vision 2030 and fulfilment of one of the National Youth Policy objectives of creating opportunities for youth to earn decent and sustainable livelihoods. For example; When Universities with such projects consider institutionalizing university incubation projects within their policies for efficient operation, it will give room for many students to learn about the opportunity for business incubation in their school as well as extend the sustainability of these programs. This is because an incubator's sustainability influences the business's sustainability since they are the initial mentors to the created agribusinesses through their programs. Furthermore, UIP should continue giving all students equal opportunities to participate in the incubation programs because neither the reason for joining nor the motive for joining determines the sustainability performance of their agribusinesses.

5.4 Suggestions for Further Research

This study was limited to university-incubated agribusinesses and did not consider community-based incubations as well as not considering other businesses which are not part of the agricultural value chain. Therefore, the results of the study may not be a whole representation of incubation businesses in Kenya. The study also only explored the services provided by the incubators from the incubates side of view and never explored from the incubators to find out why they give the services they do. On the same note, the sustainability of incubated businesses can be influenced by other factors such as perceptions, and marital status among others apart from stigma failure, motivations, and personality that could be explored. Furthermore, the sustainability of incubated agribusiness can be assessed passed the TBL framework to explore more leadership among other determinants. Lastly, further research is needed to explore how incubated businesses graduate from their respective incubators. In addition, more research is needed to explore how the sustainability of incubated businesses can be improved, if possible, coming up with a framework that best fits incubators in universities of Africa.

REFERENCES

Ab Hamid, M. R., Sami, W., & Sidek, M. M. (2017, September) Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. *Journal of Physics: Conference Series, 890*(1), 012163. IOP Publishing. https://doi.org/1088/1742-6596/890/1/012163

Abisuga-Oyekunle, O. A., Patra, S. K., & Muchie, M. (2020). SMEs in sustainable development: Their role in poverty reduction and employment generation in sub-Saharan Africa. *African Journal of Science, Technology, Innovation and Development*, *12*(4), 405-419. https://doi.org/10.1080/20421338.2019.1656428

Acosta, M., van Wessel, M., van Bommel, S., & Feindt, P. H. (2021). Examining the promise of 'the local'for improving gender equality in agriculture and climate change adaptation. *Third WorldQuarterly*, *42*(6), 1135-1156. https://www.tandfonline.com/doi/pdf/10.1080/01436597.2021.1882845

Adisa, T. A., Abdulraheem, I., & Mordi, C. (2014). The Characteristics and Challenges of Small Businesses in Africa: An exploratory Study of Nigerian Small Business Owners. *Petroleum-Gas University of Ploiesti Bulletin, Technical*, *14*(4), 1-20 http://upg-bulletin-se.ro/old_site/archive/2014-4/1.Disa_Abdulraheem_Mordi.pdf

Aebischer, P. (2015). *Universities: increasingly global players. United Nations Educational, Scientific Cultural Organization (Ed.), Towards, 2030*. UNESCO publishing 3-5. https://unesdoc.unesco.org/ark:/48223/pf0000235440pdf.

Afzal, F., & Lim, B. (2022). Organizational Factors Influencing the Sustainability Performance of Construction Organizations. *Sustainability*, *14*(16), 10449. https://doi.org/10.3390/su141610449

Ahmed, N., Li, C., Qalati, S. A., Khan, A., & Siddiqui, F. (2020). Role of business incubators as a service provider in entrepreneurship development. *Journal of Entrepreneurship & Organization Management*, *9*(1), 1-7. https://www.researchgate.net/profile/Dr-Naveed-Joo/publication

Aima, M. H., Wijaya, S. A., Carawangsa, L., & Ying, M. (2020). Effect of global mindset and entrepreneurial motivation to entrepreneurial self-efficacy and implication to entrepreneurial intention. *Dinasti International Journal of Digital Business Management*, *1*(2), 302-314. https://doi.org/10.31933/dijdbm.v1i2.160

Ajzen, I. (1991). The Theory of Planned Behaviour. Organizational Behaviour and Human Decision Processes. *Academic Press Inc*, *1*(2), 19-24. https://doi.org/10.1016/0749-5978(91)90020-T

Al-Mubaraki, H. M., & Busler, M. (2013). The effect of business incubation in developing countries. *European Journal of Business and Innovation Research*, *1*(1), 19-25. https://www.eajournals.org/wp-content/uploads/The-Effect-of-Business-Incubation-in-Developing-Countries.pdf

Altbach, P. G., Wit, H. D., & Woldegiyorgis, A. A. (2021). Public vs. private participation in higher education: *Realities and Debates, 1*(1), 1-9. https://coilink.org/20.500.12592/2fc9gr

Alushula, P. (2020). Census: 39pc of Kenya youth are unemployed (February 24). *Business Daily 1*(2) 1-3. https://www.businessdailyafrica.com/bd/economy/census-39pc-of-kenya-youth-are-unemployed-2281430

Alvarez, S. A., & Busenitz, L. W. (2001). The entrepreneurship of resource-based theory. *Journal of Management*, *27*(6), 755-775. https://doi.org/10.1007/978-3-540-48543-8_10

Artiach, T., Lee, D., Nelson, D., & Walker, J. (2010). The determinants of corporate sustainability performance. *Accounting & Finance*, *50*(1), 31-51..https://doi.org/10.1111/j.1467629X.2009.00315x

Banerjee, S. B., Iyer, E. S., & Kashyap, R. K. (2003). Corporate environmentalism: Antecedents and influence of industry type. *Journal of Marketing*, *67*(2), 106-122. https://doi.org/10.1509/jmkg.67.2.106.18604

Bansal, P., & Roth, K. (2000). Why companies go green: A model of ecological responsiveness. *Academy of Management Journal, 43*(4), 717-736. https://doi.org/10.5465/1556363

Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2012). Entrepreneurial behavior: Impact of motivation factors on decision to create a new venture. *Investigaciones Europeas de Dirección y Economía de la Empresa, 18*(2), 132-138. https://d oi.org/10.1016/S1135-2523(12)70003-5

Bartlett, A. A. (1993). The arithmetic of growth: methods of calculation. *Population and Environment, 14*(4), 359-387. https://doi.org/10.1007/BF01270916

Barton, M., Schaefer, R., & Canavati, S. (2018). To be or not to be a social entrepreneur: Motivational drivers amongst American business students. *Entrepreneurial Business and Economics Review*, *6*(1), 9-35. https://doi.org/10.15678/EBER.2018.060101

Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. *Technovation*, *28*(1-2), 20-28. https://doi.org/10.1016/j.technovation.2007.07.008

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance*, *22*(6-8), 613-673. https://doi.org/10.1016/S0378-4266(98)00038-7

Bhanot, D., & Bapat, V. (2015). Sustainability index of micro finance institutions (MFIs) and contributory factors. *International Journal of Social Economics. 42*(4), 387-403. https://doi.org/10.1108/IJSE-01-2014-001

Blair, E. S., & Marcum, T. M. (2015). Heed our advice: Exploring how professionals guide small business owners in start-up entity choice. *Journal of Small Business Management*, *53*(1), 249-265. https://doi.org/10.1111/jsbm.12073

Bolland, E. J., & Lopes, C. J. (2018). Decision making and business performance. *Edward Elgar Publishing*, 4(3), (1-20). https://doi.org/10.4337/9781786430168 .00004

Braga, J. C., Proença, T., & Ferreira, M. R. (2014). Motivations for social entrepreneurship–Evidences from Portugal. *Tékhne*, *12*, 11-21. https://doi.org/10.1016/j.tekhne.2015.01.002

Braver, T. S., Krug, M. K., Chiew, K. S., Kool, W., Westbrook, J. A., Clement, N. J., ... & Somerville, L. H. (2014). Mechanisms of motivation–cognition interaction: challenges and opportunities. *Cognitive, Affective, & Behavioral Neuroscience*, *14*(2), 443-472. https://link.springer.com/article/10.3758/s13415-014-0300-0

Buheji, M. (2018). The Art of Capturing Opportunities—Screening Arab Social Entrepreneurs. *American Journal of Industrial and Business Management*, *8*(04), 803-819. https://shs.hal.science/halshs-01820426

Byrne, B. M. (2016). Structural Equation Modelling with Amos (3rd ed.). *New York: Routledge, 8*(9), 1326-1341. https://doi.org/10.4236/psych.2017.89086

Cardella, G. M., Hernández-Sánchez, B. R., & Sanchez Garcia, J. C. (2020). Entrepreneurship and family role: a systematic review of a growing research. *Frontiers in Psychology*, *10(4)*, 29-39. https://doi.org/10.3389/fpsyg.2019.02939

Carter, N. M., Gartner, W. B., Shaver, K. G., & Gatewood, E. J. (2003). The career reasons of nascent entrepreneurs. *Journal of Business Venturing*, *18*(1), 13-39. https://doi.org/10.1016/S0883-9026(02)00078-2

Cassar, G. (2014). Industry and startup experience on entrepreneur forecast performance in new firms. *Journal of Business Venturing*, *29*(1), 137-151. https://doi.org/10.1016/j.jbusvent.2012.10.002

Chang, R. D., Zuo, J., Zhao, Z. Y., Zillante, G., Gan, X. L., & Soebarto, V. (2017). Evolving theories of sustainability and firms: History, future directions and implications for

renewable energy research. *Renewable and Sustainable Energy Reviews*, *72*, 48-56. https://doi.org/10.1016/j.rser.2017.01.029

Cochran, W. G. (1963). Sampling Techniques, 2nd Ed., *New York: John Wiley and Sons, Inc*, *1*(1), 12-30. https://www.scirp.org/reference/ReferencesPapers?ReferenceID=1837525

Contín-Pilart, I., & Larraza-Kintana, M. (2015). Do entrepreneurial role models influence the nascent entrepreneurial activity of immigrants?. *Journal of Small Business Management*, *53*(4), 1146-1163. https://doi.org/10.1111/jsbm.12153

Cooper, A. C., & Dunkelberg, W. C. (1986). Entrepreneurship and paths to business ownership. *Strategic Management Journal*, *7*(1), 53-68. https://www.jstor.org/stable/2485967

Corredera-Catalán, F., di Pietro, F., & Trujillo-Ponce, A. (2021). Post-COVID-19 SME financing constraints and the credit guarantee scheme solution in Spain. *Journal of Banking Regulation*, *22*(3), 250-260. https://doi.org/10.1057/s41261-021-001

Crowley, F., & Jordan, D. (2017). Does more competition increase business-level innovation? Evidence from domestically focused firms in emerging economies. *Economics of Innovation and New Technology*, *26*(5), 477-488. https://doi.org/10.1080/10438599.2016.1233627

da Silva Marinho, E., Minello, I. F., & Bürger, R. E. (2019). Incubation Process and Entrepreneurial Characteristics: An Interactive Perspective. *International Journal of Business Management & Economic Research*, *10*(2), 1574-1586. 13p. http://www.ijbmer.com/docs/volumes/vol10issue2/ijbmer2019100202.pdf

Danna, D., & Porsche, D. (2008). Stages of business start-up. *The Journal for Nurse Practitioners*, *4*(6), 422-423 https://doi.org/10.1016/j.nurpra.2008.05.001

Donkor, A. (2021). Africa's youth unemployment crisis is a global problem. *Foreign Policy. 4*(4) 9-10. https://foreignpolicy.com/2021/10/19/africa-youth-unemployment-crisis-global-problem/?tpcc=recirc_latest062921

Dyllick, T. H. (2002). K. 2002. Beyond the business case for corporate sustainability. *Business Strategy and the Environment*, *11*(2), 130-141. http://dx.doi.org/10.1002/bse.323

Edwards, C. (2021). Entrepreneurs and regulations: Removing state and local barriers to new businesses. *Cato Institute, Policy Analysis, 9*(16), 916. https://www.cato.org/sites/cato.org/files/2021-05/pa-916.pdf

Eliakis, S., Kotsopoulos, D., Karagiannaki, A., & Pramatari, K. (2020). Survival and growth in innovative technology entrepreneurship: a mixed-methods investigation. *Administrative Sciences*, *10*(3), 39. https://doi.org/10.3390/admsci10030039

Epstein, M. J., & Buhovac, A. R. (2014). Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts. *Berrett-koehler Publishers*, *4*(6) 45-50. https://www.bkconnection.com/static/Making_Sustainability_Work_EXCERPT.pdf

Eslami, Y., Dassisti, M., Lezoche, M., & Panetto, H. (2019). A survey on sustainability in manufacturing organisations: dimensions and future insights. *International Journal of Production Research, 57*(15-16), 5194-5214. https://doi.org/10.1080/00207543.2018.1544723

FAO. 2016. *A Scheme and Training Manual on Good Agricultural Practices (gap) for Fruits and Vegetables- Vol 2. Training Manual. Bangkok:* Food and Agriculture Organisation (FAO); United Nations: Bangkok, Thailand, 7(13) 5-14 https://openknowledge.fao.org/server/api/core/bitstreams/8116d523-97a5-46b7-8e2f-2eea68d4035f/content

Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training*, *30*(9), 701-720. https://doi.org/10.1108/03090590610715022

Ferreiro-Seoane, F. J., Rodríguez-Rodríguez, G., & Vaquero-García, A. (2018). Public investment in business incubators is better than doing nothing. *International Journal of Entrepreneurship and Small Business*, *33*(4), 553-574. DOI: 10.1504/IJESB.2018.10011220

Fishbach, A., & Woolley, K. (2022). The structure of intrinsic motivation. *Annual Review of Organizational Psychology and Organizational Behavior*, *9*(10), 339-363. https://doi.org/10.1146/annurev-orgpsych-012420-091122

Fitzgerald, J. (2010). The road to equality? The right to equality in Kenya's new constitution. *The Equal Rights Review*, *5*, 55-69. https://www.equalrightstrust.org/sites/default/files/ertdocs/Jim%20Fitzgerald%20article.pdf

Furlan, A. (2019). Startup size and pre-entry experience: New evidence from Italian new manufacturing ventures. *Journal of Small Business Management*, *57*(2), 679-692. https://doi.org/10.1111/jsbm.12427

Gadenne, D. L., Kennedy, J., & McKeiver, C. (2009). An empirical study of environmental awareness and practices in SMEs. *Journal of Business Ethics*, *84*(1), 45-63. https://link.springer.com/article/10.1007/s10551-008-9672-9

Gerl, E., Millerupton, J., & Erlewine, M. (2000). Incubating the arts: Establishing a program to help artists and arts organizations become viable businesses. *National Business Incubation Association, 1*(4), 1-20. https://inbia.org/product/incubating-arts-establishing-program-help-artists-arts-organizations-become-viable-businesses/

Germak, A. J. (2013). Social Entrepreneurship Motivation: A Quantitative Analysis of Nascent Social Entrepreneurs.[pdf] *Liege: EMES-SOCENT Conference Selected Papers, no. LG* 13-69. https://emes.net/content/uploads/publications/Germak_ECSP-LG13-69.pdf

Germak, A. J., & Robinson, J. A. (2014). Exploring the motivation of nascent social entrepreneurs. *Journal of Social Entrepreneurship*, *5*(1), 5-21. https://doi.org/10.1080/19420676.2013.820781

Giroud, A., & Huaman, J. S. (2019). Investment in agriculture and gender equality in developing countries. *Transnational Corporations*, *26*(3), 89-113. https://unctad.org/system/files/official-document/diaeia2019d3a4_en.pdf

Githinji, B. W. (2008). *Factors influencing Sustainability of Microfinance Institutions in Kenya.* Doctoral Dissertation, University of Nairobi. http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/7889

Giuliodori, A., Berrone, P., & Ricart, J. E. (2023). Where smart meets sustainability: The role of Smart Governance in achieving the Sustainable Development Goals in cities. *BRQ Business Research Quarterly*, *26*(1), 27-44. https://doi.org/10.1177/23409444221091281

Glavin, C. (2019, March 13). Higher Education in Kenya | *K12 Academics*. https://www.k12academics.com/Higher%20Education%20Worldwide/higher-education-kenya

Gódány, Z., Machová, R., Mura, L., & Zsigmond, T. (2021). Entrepreneurship motivation in the 21st century in terms of pull and push factors. *TEM J*, *10*, 334-342. https://doi.org/10.18421/TEM101-42

Granger, B., Stanworth, J., & Stanworth, C. (1995). Self-employment career dynamics: The case ofunemployment push'in UK book publishing. *Work, Employment and Society*, *9*(3), 499-516. https://doi.org/10.1177/095001709593004

Guerrero, M., Urbano, D., & Gajón, E. (2020). Entrepreneurial university ecosystems and graduates' career patterns: do entrepreneurship education programmes and university business incubators matter? *Journal of Management Development*, *39*(5), 753-775. https://doi.org/10.1108/JMD-10-2019-0439

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). A primer on partial least squares structural equation modeling (PLS-SEM). *Sage publications*. *Journal of Tourism Research 6*(2), 211-213. http://ejtr.vumk.eu/

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., &Tatham, R. L. (2010). *Multivariate Data Analysis*. *Upper Saddle River, New Jersey: Prentice Hall*. *8*(6), 1-17. https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., &Tatham, R. L. (2006). *Multivariate Data Analysis. (6th ed.)*, *New Jersey: Pearson Education International*. https://www.scirp.org/reference/ReferencesPapers?ReferenceID=1385913

Hair, J. F., Hult, G. T., Ringle, C., & Sarstedt, M. (2014). A Primer on Partial Least squares Structural Equation Modeling (PLS-SEM). *Los Angeles: Sage Publications*, *6*(9), 1-45https://www.researchgate.net/publication/236032728_A_Primer_on_Partial_Least_Squares_Structural_Equation_Modeling. https://www.researchgate.net/publication/236032728_A_Primer_on_Partial_Least_Squares_Structural_Equation_Modeling

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, *19*(2), 139-152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hallo, L., Nguyen, T., Gorod, A., & Tran, P. (2020). Effectiveness of leadership decision-making in complex systems. *Systems*, *8*(1), 5. https://doi.org/10.3390/systems8010005

Harik, R., El Hachem, W., Medini, K., & Bernard, A. (2015). Towards a holistic sustainability index for measuring sustainability of manufacturing companies. *International Journal of Production Research*, *53*(13), 4117-4139. https://doi.org/10.1080/00207543.2014.993773

Hassan, N. A. (2020). University business incubators as a tool for accelerating entrepreneurship: theoretical perspective. *Review of Economics and Political Science*, *8*(1), 1-17. http://dx.doi.org/10.1108/REPS-10-2019-0142

Heck, R. H., & Thomas, S. L. (2020). *An Introduction to Multilevel Modeling Techniques: MLM and SEM Approaches.* Routledge. https://doi.org/10.4324/9780429060274

Henseler, J. (2014, May). Assessing and testing the goodness-of-fit of PLS path models. In *the 3rd Annual Conference of the Dutch/Flemish Classification Society (Vereniging voor Ordinatie en Classificate-VOC).* https://research.utwente.nlen/pulications/assessing-and-testing-the-goodness-of-fit-of-pls-path-models

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015), "A New Criterion for Assessing Discriminant Validity in Variance-based structural Equation modelling", *Journal of the Academy of Marketing Science, 43,* 115-135. https://link.springer.com/content/pdf/10.1007/s11747-014-0403-8.pdf

Holt, M. M., & Scariano, S. M. (2009). Mean, median and mode from a decision perspective. *Journal of Statistics Education*, *17*(3) 11-30. https://doi.org/10.1080/10691898.2009.11889533

Huang, S. Z., Chau, K. Y., Chien, F., & Shen, H. (2020). The impact of startups' dual learning on their green innovation capability: The effects of business executives' environmental awareness and environmental regulations. *Sustainability*, *12*(16), 6526. https://www.mdpi.com/2071-1050/12/16/6526/pdf

ILO. (2012). *Youth Employment Interventions in Africa: A Mapping Report of the Employment and Labour Sub-Cluster of the Regional Coordination Mechanism (RCM) for Africa.* Public @africa Documents Publication.https://www.ilo.org/wcmsp5/groups/public/africa/documents/publication/wcms_206325.pdf

Imperatives, S. (1987). *Report of the World Commission on Environment and Development: Our Common Future*. Sustainable Development. http://www.ask-force.org/web/Sustainability/Brundtland-Our-Common-Future-1987-2008.pdf

International Institution of Sustainable Development (IISD). *Business Strategy for Sustainable Development: Leadership and Accountability for the 90s. 2002.* International institute for sustainable development, *3*(5) 1-19. https://www.iisd.org/system/files/publications/business_strategy.pdf

International Labour Office. (2012). *Global Employment Trends 2012.* International Labour Office. https://www.ilo.org/wcmsp5/groups/public/africa/documents/publication/wcms_184325.pdf

Ismail, I., Husin, N., Rahim, N. A., Kamal, M. H. M., & Mat, R. C. (2016). Entrepreneurial success among single mothers: The role of motivation and passion. *Procedia Economics and Finance*, *37*(1), 121-128. https://doi.org/10.1016/S2212-5671(16)30102-2

Jahn, S. (2007). Strukturgleichungsmodellierung mit LISREL, AMOS und SmartPLS: eine Einführung (An introduction to structural equation modeling with LISREL, AMOS and SmartPLS). *AMOS und SmartPLS: Eine Einführung An Introduction to Structural Equation Modeling with LISREL, AMOS and SmartPLS, Springer*. https://dx.doi.org/10.2139/ssrn.2729658

Jassor, M. (2016). *Factors Influencing Sustainability of Youth Group Projects Funded by Youth Enterprise Development Fund in Bomet County, Kenya*. Doctoral Dissertation, University of Nairobi Repository. http://hdl.handle.net/11295/97443

Jayawarna, D., Rouse, J., & Kitching, J. (2013). Entrepreneur motivations and life course. *International Small Business Journal*, *31*(1), 34-56. https://doi.org/10.1177/0266242611401444

Jeon, C. M., Amekudzi, A. A., & Guensler, R. L. (2013). Sustainability assessment at the transportation planning level: Performance measures and indexes. *Transport Policy*, *25*, 10-21.https://doi.org/10.1016/j.tranpol.2012.10.004

Jiatong, W., Murad, M., Bajun, F., Tufail, M. S., Mirza, F., & Rafiq, M. (2021). Impact of entrepreneurial education, mindset, and creativity on entrepreneurial intention: mediating role of entrepreneurial self-efficacy. *Frontiers in Psychology*, *12*,(72) 44-40. https://doi.org/10.3389/fpsyg.2021.724440

Jöreskog, K. G. (1970). A general method for estimating a linear structural equation system. *ETS Research Bulletin Series*, *1970*(2), 1-41. https://doi.org/10.1002/j.2333-8504.1970.tb00783.x

Joung, C. B., Carrell, J., Sarkar, P., & Feng, S. C. (2013). Categorization of indicators for sustainable manufacturing. *Ecological Indicators*, *24*, 148-157. https://doi.org/10.1016/j.ecolind.2012.05.030

Kaburi, S. N., Mobegi, V. O., Kombo, A., Omari, A., & Sewe, T. (2013, February). Entrepreneurship challenges in developing economies: A case of Kenyan Economy. *In Scientific Conference Proceedings* *2*(4) 43-59. http://41.204.187.99/index.php/jscp/article/download/845/756

Kaimenyi, M. D. (2019). *Factors Influencing Sustainability of Community-based County Projects in Kenya: A case of Isiolo North Sub County, Isiolo County* (Doctoral dissertation, UoN). University of Nairobi Repository. http://erepository.uonbi.ac.ke/handle/11295/107361

Karambakuwa, J. K., & Bayat, M. S. (2022). The effect of business incubation on start-ups in harare. *International Journal of Entrepreneurship*, *26*(3), 1-13.

https://www.abacademies.org/articles/the-effect-of-business-incubation-on-startups-in-harare.pdf

Karmer, L. (2022). *Kenya Youth Unemployment Rate by Age 2019-2021.* Retrieved 21 November 2022. Statista. https://www.statista.com/statistics/1134402/youth-unemployment-rate-in-kenya-by-age-group

Kativhu, T., Mazvimavi, D., Tevera, D., & Nhapi, I. (2017). Factors influencing sustainability of communally-managed water facilities in rural areas of Zimbabwe. *Physics and Chemistry of the Earth, Parts A/B/C*, *100*, 247-257. https://doi.org/10.1016/j.pce.2017.04.009

Kee, D. M. H., Yusoff, Y. M., & Khin, S. (2019). The role of support on start-up success: a PLS-SEM approach. *Asian Academy of Management Journal*, *24*, 43-59. https://doi.org/10.21315/aamj2019.24.s1.4

Kibai, M. (2018). *Key Success Factors for Business Incubation Process in Kenya.* (Master's Thesis United States International University-Africa), United States International University-Africa Digital Repository. http://erepo.usiu.ac.ke/11732/4289

Kim, N. L. T., Duvernay, D., & Le Thanh, H. (2021). Determinants of financial performance of listed firms manufacturing food products in Vietnam: regression analysis and Blinder–Oaxaca decomposition analysis. *Journal of Economics and Development*, *23(*3), 267-283. https://doi.org/10.1108/JED-09-2020-0130

Kirkwood, J. (2009). Motivational factors in a push-pull theory of entrepreneurship. *Gender in Management: An International Journal*, *24*(5) 346-364. https://doi.org/10.1108/17542410910968805

Kline, P. (1994). *An Easy Guide to Factor Analysis* 208. Routledge. https://doi.org/10.4324/9781315788135

Kolvereid, L. (2018). Entrepreneurship among parents. *Journal of Innovation and Entrepreneurship*, *7*(1), 1-14. https://doi.org/10.1186/s13731-018-0089-0

Kong, F., Zhao, L., & Tsai, C. H. (2020). The relationship between entrepreneurial intention and action: the effects of fear of failure and role model. *Frontiers in Psychology*, *11*, 229. https://doi.org/10.3389/fpsyg.2020.00229

Lackéus, M. (2015). Entrepreneurship in education: What, why, when, how. *Journal of Innovation and Entrepreneurship, 7(6), 1-14.* https://www.oecd.org/cfe/leed/BGP_Entrepreneurship-in-Education.pdf

Leitão, J., Pereira, D., & Gonçalves, Â. (2022). Business incubators, accelerators, and performance of technology-based ventures: A systematic literature review. *Journal of*

Open Innovation: Technology, Market, and Complexity, *8*(1), 46-50. https://doi.org/10.3390/joitmc8010046

Lewis, V. L., & Churchill, N. C. (1983). *The Five Stages of Small Business Growth.* University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship. https://ssrn.com/abstract=1504517

Li, D., He, G., Jin, H., & Tsai, F. S. (2021). Sustainable Development of African Countries: Minding the Public Life, Education, and Welfare. *Frontiers in Public Health*, *9*, 1454. https://doi.org/10.3389/fpubh.2021.748845

Linan, F., Fernandez-Serrano, J., & Romero, I. (2013). Necessity and Opportunity Entreprenurship: The mediating Effect of Culture. *Rvisita de Economia Mundial, 9* (33), 21-47. https://www.researchgate.net/publication/235937863

Liñán, F., Santos, F. J., & Fernández, J. (2011). The influence of perceptions on potential entrepreneurs. *International Entrepreneurship and Management Journal*, *7*, 373-390. https://www.academia.edu/download/31416122/LinanSantosFernandez2011.pdf

Linnenluecke, M. K., & Griffiths, A. (2010). Corporate sustainability and organizational culture. *Journal of World Business*, *45*(4), 357-366. https://doi.org/10.1016/j.jwb.2009.08.006

Loewen, S., & Gonulal, T. (2015). *Exploratory Factor Analysis and Principal Components Analysis.* In *Advancing Quantitative Methods in Second Language Research*. Routledge. https://books.google.co.ke/books

Lose, T., Maziriri, E. T., Choto, P., & Welcome Madinga, N. (2017). Navigating the reasons behind joining a business Incubation programme: Empirical evidence from entrepreneurs in South Africa. *Acta Universitatis Danubius. Œconomica*, *13*(4). https://journals.univ-danubius.ro/index.php/oeconomica/article/download/3936/4149

Lusimbo, E. N. (2016). *Relationship Between Financial Literacy and the Growth of Micro and Small Enterprises in Kenya: A case of Kakamega Central sub-county* (Doctoral Dissertation, Cohred, JKUAT), JKUAT Digital Repository. http://hdl.handle.net/123456789/2236

Lyken-Segosebe, D., Montshiwa, B., Kenewang, S., & Mogotsi, T. (2020). Stimulating Academic Entrepreneurship through Technology Business Incubation: Lessons for the Incoming Sponsoring University. *International Journal of Higher Education*, *9*(5), 1-18. https://doi.org/10.5430/ijhe.v9n5p1

Madhani, P. M. (2010). The resource-based view (RBV): issues and perspectives. *PACE, A Journal of Research of Prestige Institute of Management*, *1*(1), 43-55. https://ssrn.com/abstract=1579837

Mair, J., & Noboa, E. (2006). *Social Entrepreneurship: How Intentions to Create a Social Venture are Formed. In Social Entrepreneurship* (pp. 121-135). London: Palgrave Macmillan UK. https://link.springer.com/chapter/10.1057/97802306256558

Mason, C., & Brown, R. (2014). *Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship.* Final Report to OECD, Paris, (pp. 77-102). https://www.oecd.org/cfe/leed/entrepreneurial-ecosystems.pdf

Mbogo, M. (2011). Influence of Managerial Accounting Skills on SME's on the Success and Growth of Small and Medium Enterprises in Kenya. *Journal of Language, Technology & Entrepreneurship in Africa*, *3*(1), 109-132. https://doi.org/10.4314/jolte.v3i1.66602

Meru, A. K., & Struwig, M. (2015). Business-incubation process and business development in Kenya: Challenges and recommendations. *Journal of Entrepreneurship and Innovation in Emerging Economies*, *1*(1), 1-17. https://doi.org/10.1177/2393957514554982

Mohammad Shafi, M., Neyestani, M. R., Jafari, S. E. M., & Taghvaei, V. (2021). The Quality Improvement Indicators of the Curriculum at the Technical and Vocational Higher Education. *International Journal of Instruction*, *14*(1), 65-84. https://files.eric.ed.gov/fulltext/EJ1281882.pdf

Mohammed, H. A., & Adamu, I. A. (2021). Perceived Challenges of Start Up of Small and Medium Scale Enterprises Among Business Education Graduates in Federal Colleges of Education in North-East, Nigeria. *Kashere Journal of Education*, *2*(2), 143-151. https://dx.doi.org/10.4314/kje.v2i2.18

Molina, J. A. (2020). Family and entrepreneurship: New empirical and theoretical results. *Journal of Family and Economic Issues*, *41*(1), 1-3. https://doi.org/10.1007/s10834-020-09667-y

Morvan, C., & Jenkins, W. J. (2017). *An Analysis of Amos Tversky and Daniel Kahneman's Judgment under Uncertainty: Heuristics and Biases*. Macat Library. https://doi.org/10.4324/9781912282562 .

Muhindi, K. A., & Ngaba, D. (2018). Effect of firm size on financial performance on banks: Case of commercial banks in Kenya. *International Academic Journal of Economics and Finance*, *3*(1), 175-190. http://www.iajournals.org/articles/iajef_v3_i1_175_190.pdf

Mühlböck, M., Warmuth, J. R., Holienka, M., & Kittel, B. (2018). Desperate entrepreneurs: no opportunities, no skills. *International Entrepreneurship and Management Journal*, *14*(4), 975-997. https://link.springer.com/article/10.1007/s11365-017-0472-5

Muriithi, S. M., Ndegwa, C., & Juma, J. (2018). Business incubators: the missing link to small business survival. *The International Journal of Humanities & Social Studies 6*(10). http://repository.daystar.ac.ke/xmlui/handle/123456789/3654

Murphy, M., & Dyrenfurth, M. J. (2012, June). Examining the role of the University in creating jobs. In *2012 ASEE Annual Conference* 25-600. https://www.researchgate.net/publication/287092895

Mwobobia, F. M. (2012). The challenges facing small-scale women entrepreneurs: A case of Kenya. *International Journal of Business Administration*, *3*(2), 112 https://doi.org/10.5430/ijba.v3n2p112

Naffziger, D. W., Hornsby, J. S., & Kuratko, D. F. (1994). A proposed research model of entrepreneurial motivation. *Entrepreneurship Theory and Practice*, *18*(3), 29-42. https://doi.org/10.1177/104225879401800303

Nair, S., & Blomquist, T. (2019). Failure prevention and management in business incubation: practices towards a scalable business model. *Technology Analysis & Strategic Management*, *31*(3), 266-278. https://doi.org/10.1080/09537325.2018.1495325

Nair, S., & Blomquist, T. (2020). The temporal dimensions of business incubation: A value-creation perspective. *The International Journal of Entrepreneurship and Innovation*, *21*(1), 38-46. https://doi.org/10.1177/1465750318817970

Ncokazi, A., & Mpiti, P. T. (2023). Critical Evaluation of the Relationship between the Need for Achievement and Entrepreneurship Performance: Risk-Taking Propensity, Entrepreneurial Independence and Motivation. *IntechOpen*. https://www.intechopen.com/chapters/83534

Ngige L, (2020, January 14). Here's A list Of Startup Incubators For Kenyan Entrepreneurs. *Weetracker*. https://weetracker.com/2020/01/14/a-list-of- startup-incubators-in-kenya/

Njuguna, S. (2016). *Factors Affecting Growth of Small Businesses in Kenya A Case of Kariobangi Area in Nairobi* (Doctoral dissertation, United States International University-Africa). United States International University-Africa Digital Repository. http://erepo.usiu.ac.ke/11732/2801

Nsengimana, S., Tengeh, R. K., & Iwu, C. G. (2017). The sustainability of businesses in Kigali, Rwanda: An analysis of the barriers faced by women entrepreneurs. *Sustainability*, *9*(8), 1372.https://doi.org/10.3390/su9081372

OECD, P. (2017). Enhancing the contributions of SMEs in a global and digitalised economy. *Paris. Retrieved Feb, 25, 2019*, *Luxembourg: Publications Office of the European Union. 9(10), 6-8* https://www.oecd.org/industry/C-MIN-2017-8-EN.pdf

OECD/European Commission. (2014). Policy Brief on Access to Business Start-up Finance for Inclusive Entrepreneurship: Entrepreneurial Activities in Europe. *Luxembourg: Publications Office of the European Union. 9(11), 36-86* https://www.oecd.org/cfe/leed/Finacing%20inclusive%20entrepreneurship%20policy%20brief%20EN.pdf

Okorley, E. L., & Nkrumah, E. E. (2012). Organisational factors influencing sustainability of local non-governmental organisations: Lessons from a Ghanaian context. *International Journal of Social Economics*. *39* (5), 330-341. https://doi.org/10.1108/03068291211214190

Olejnik, I. (2021). Qualitative and quantitative methods in sustainable development. *Poznań University of Economics and Business Press. 2*(3), 13-26. https://doi.org/10.18559/978-83-8211-072-2

Otuki, N. (2013). Varsities' Incubation Hubs Key in Kenya's Growth. *The Business Daily, 2013 April*, *26*. https://www.businessdailyafrica.com/bd/economy/varsities-incubation-hubs-key-to-kenya-growth-2030690

Patrick, C., Stephens, H., & Weinstein, A. (2016). Where are all the self-employed women? Push and pull factors influencing female labor market decisions. *Small Business Economics*, *46*(3), 365-390. https://www.jstor.org/stable/43895690

Pattanasak, P., Anantana, T., Paphawasit, B., & Wudhikarn, R. (2022). Critical factors and performance measurement of business incubators: A systematic literature review. *Sustainability*, *14*(8), 4610. https://doi.org/10.3390/su14084610

Peredo, A. M., & McLean, M. (2006). Social entrepreneurship: A critical review of the concept. *Journal of World Business*, *41*(1), 56-65. https://doi.org/10.1016/j.jwb.2005.10.007

Pfeffer, J., & Ross, J. (1982). The effects of marriage and a working wife on occupational and wage attainment. *Administrative Science Quarterly*, 66-80. https://doi.org/10.2307/2392546

Pollnac, R. B., & Pomeroy, R. S. (2005). Factors influencing the sustainability of integrated coastal management projects in the Philippines and Indonesia. *Ocean & Coastal Management*, *48*(3-6), 233-251. https://doi.org/10.1016/j.ocecoaman.2005.04.003

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability Science*, *14*(3), 681-695. https://link.springer.com/article/10.1007/s11625-018-0627-5

Rajchamaha, K., & Prapojanasomboon, J. (2022). Influence of role models on the entrepreneurial skills of science and technology undergraduates. *Education+ Training*, *64*(7), 981-995. https://doi.org/10.1108/ET-04-2021-0151

Ramkissoon-Babwah, N., & Mc David, J. (2014). Selecting the right clients for a business incubator-lessons learnt from the national integrated business incubator system (IBIS) programme in Trinidad and Tobago. *Journal of Small Business and Entrepreneurship Development*, *2*(3), 13-26. http://dx.doi.org/10.15640/jsbed.v2n3-4a2

Ranwala, R. S. (2016). Family background, entrepreneurship specific education and entrepreneurial knowledge in venture creation: The moderation effect of gender. *Entrepreneurship and Innovation Management Journal*, *4*(4), 172-186. https://www.ijsrp.org/research-paper-0916/ijsrp-p5769.pdf

Reuel Johnmark, D., Munene, J. C., & Balunywa, W. (2016). Robustness of personal initiative in moderating entrepreneurial intentions and actions of disabled students. *Cogent Business & Management*, *3*(1), 1169575. https://doi.org/10.1080/23311975.2016.1169575

Rezaee, Z. (2016). Business sustainability research: A theoretical and integrated perspective. *Journal of Accounting Literature*, *36,* 48-64. https://doi.org/10.1016/j.acclit.2016.05.003

Ringle, C. M., Wende, S., and Becker, J.-M. 2022. "SmartPLS 4." *Oststeinbek: SmartPLS GmbH*. http://www.smartpls.com

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Robin, C. Y., & Poon, C. S. (2009). Cultural shift towards sustainability in the construction industry of Hong Kong. *Journal of Environmental Management*, *90*(11), 3616-3628. https://doi.org/10.1016/j.jenvman.2009.06.017

Rödén, M., & Ståhle, H. (2017). *The Motives for Entrepreneurship in Developing Countries; the Case of Nairobi.* (Master's Thesis KTH Royal Institute of Technology School of Industrial Engineering and Management) DiVA portal. http://www.diva-portal.org/smash/get/diva2:1116072/FULLTEXT01.pdf

Rokhman, W., & Ahamed, F. (2015). The role of social and psychological factors on entrepreneurial intention among Islamic college students in Indonesia. *Entrepreneurial Business and Economics Review*, *3*(1), 30. https://doi.org/10.15678/EBER.2015.030103

Salem, M. I. (2014). The role of business incubators in the economic development of Saudi Arabia. *International Business & Economics Research Journal (IBER)*, *13*(4), 853-860. https://doi.org/10.19030/iber.v13i4.8694

Scaramuzzi, E. (2002). Incubators in developing countries: Status and development perspectives. *Washington DC: The World Bank,* 1-35. https://documents1.worldbank.org/curated/en/186751468770425799/pdf/266370WP0Scode090incubators0Infodev.pdf

Schmitz, A., Urbano, D., Dandolini, G. A., de Souza, J. A., & Guerrero, M. (2017). Innovation and entrepreneurship in the academic setting: a systematic literature review. *International Entrepreneurship and Management Journal*, *13*(2), 369-395. https://doi.org/10.1007/s11365-016-0401-z

Schwartz, M. (2011). Incubating an Illusion? Long-term incubator firm performance after graduation. *Growth and Change*, *42*(4), 491-516. https://doi.org/10.1111/j.1468-2257.2011.00565.x

Segal, G. Borgia and Jerry Schoenfeld. 2005. The Motivation To Become An Entrepreneur. *International Journal of Entrepreneurial Behavior & Research*, *11*(1), 42-57. https://doi.org/10.1108/13552550510580834

Shahzad, M. F., Khan, K. I., Saleem, S., & Rashid, T. (2021). What factors affect the entrepreneurial intention to start-ups? the role of entrepreneurial skills, propensity to take risks, and innovativeness in open business models. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(3), 173. https://doi.org/10.3390/joitmc7030173

Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.* https://ssrn.com/abstract=1497759

Shi, B., & Wang, T. (2021). Analysis of entrepreneurial motivation on entrepreneurial psychology in the context of transition economy. *Frontiers in Psychology*, *12*, 1-11. https://doi.org/10.3389/fpsyg.2021.680296

Simmons, S. A., Wiklund, J., & Levie, J. (2014). Stigma and business failure: implications for entrepreneurs' career choices. *Small Business Economics*, *42*, 485-505. https://doi.org/10.1007/s11187-013-9519-3

Singh, P. K., Sankhala, G., Singh, A., & Prasad, K. (2016). Sustainability of Gangatiri cattle rearing. *Indian Journal of Animal Sciences*, *86*(8), 936-939. https://epubs.icar.org.in/index.php/IJAnS/article/download/60830/24894/152694

Solomon, F. (2021). Calculating the Minimum Tax for Your Business in Kenya (April 19). *MMS Advocates.* https://mmsadvocates.co.ke/calculating-the-minimum-tax-for-your-business-in-kenya/

Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, *22*(4), 566-591. https://doi.org/10.1016/j.jbusvent.2006.05.002

Ssekiziyivu, B., & Banyenzaki, Y. (2021). Business incubation practices and sustainability of incubatee start-up firms in Uganda. *Cogent Business & Management*, *8*(1), 1963168. https://doi.org/10.1080/23311975.2021.1963168

Stadtler, L., & Lin, H. (2017). Moving to the next strategy stage: Examining firms' awareness, motivation and capability drivers in environmental alliances. *Business Strategy and the Environment*, *26*(6), 709-730. https://doi.org/10.1002/bse.1937

Strandh, M. (2000). Different exit routes from unemployment and their impact on mental well-being: the role of the economic situation and the predictability of the life course. *Work, Employment and Society*, *14*(3), 459-479. https://doi.org/10.1177/09500170022118527

Stumbitz, B., Vickers, I., Lyon, F., Butler, J., Gregory, D., & Mansfield, C. (2018). The role of community businesses in providing health and wellbeing services: Challenges, opportunities and support needs, *Eprints Ic Studies,* 2-47. https://www.researchgate.net/publication/329217680

Tagraf, H., & Akin, E. (2009). Relations between the characteristics of entrepreneurship and the business owner: An analysis of SMEs in Konya. *Serbian Journal of Management*, *4*(2), 239-257. https://www.researchgate.net/profile/Eyup-Akin/publication/228974494.pdf

Tam, S., & Gray, D. E. (2016). What can we learn from the organizational life cycle theory? A conceptualization for the practice of workplace learning. *Journal of Management Research*, *8*(2), 18-29. http://dx.doi.org/10.5296/jmr.v8i2.9093

Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis*, *48*(1), 159-205. https://doi.org/10.1016/j.csda.2004.03.005

Tengeh, R. K., & Choto, P. (2015). The relevance and challenges of business incubators that support survivalist entrepreneurs. *Investment Management and Financial Innovations 12* (2), 150-161. https://philpapers.org/archive/TENTRA-3.pdf

Tiren, D. (2020). *Assessing the Efficacy of usiness Incubation in Nairobi County, Kenya: an Incubatee's Perspective* (Doctoral Dissertation, Strathmore University). Strathmore University Digital Repository. http://hdl.handle.net/11071/10253

Tur-Porcar, A., Roig-Tierno, N., & Llorca Mestre, A. (2018). Factors affecting entrepreneurship and business sustainability. *Sustainability*, *10*(2), 452. https://doi.org/10.3390/su10020452

Uva, G., Dassisti, M., Iannone, F., Florio, G., Maddalena, F., Ruta, M., ... & Leggieri, V. (2017). Modelling framework for sustainable co-management of multi-purpose exhibition systems: the "Fiera del Levante" case. *Procedia engineering*, *180,* 812-821. https://doi.org/10.1016/j.proeng.2017.04.242

Valero, J. N., Saitgalina, M., & Black, R. A. (2021). Understanding the Nature of Non-Profit Incubators with Other Sector Incubators in the Founding of Social Change Organisations by Social Entrepreneurs. *Journal of Social Entrepreneurship*, 1-20. https://doi.org/10.1080/19420676.2021.1977975

Van der Zwan, P., Thurik1, R., Verheul, I., & Hessels, J. (2016). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. *Eurasian Business Review,* 6, 273-295. https://doi.org/10.1007/s40821-016-0065-1

Van Marrewijk, M., & Werre, M. (2003). Multiple levels of corporate sustainability. *Journal of Businessethics*,*44*(2),107119https://link.springer.com/content/pdf/10.1023/A:1023383229086.pdf

Wachira, K. (2017). The Role of University based Business Incubators Strategy on Enterprise Growth in Kenya. (Masters dissertation, Jomo Kenyatta University of Agriculture and Technology). *Jomo Kenyatta University of Agriculture and Technology Digital Repository.* http://hdl.handle.net/123456789/3305

Wachira, K., Ngugi, P., & Otieno, R. O. (2017). Incubatee selection criteria and its role on entrepreneurship growth: a survey of university based business incubators in Kenya. *International Journal of Academic Research in Business and Social Sciences, 7*(1), 1-11. http://dx.doi.org/10.6007/IJARBSS/v7-i1/2553

Wang, C., Walker, E. A., & Redmond, J. (2006). Ownership motivation and strategic planning in small business. *Journal of Asia Entrepreneurship and Sustainability*, *2*(4), 50. http://www.asiaentrepreneurshipjournal.com/AJESII4Wang.pdf

Wang, D., Si, R., & Fahad, S. (2022). Evaluating the small and medium sized enterprises motivating factors and influencing barriers about adoption of green

practices. *Environment, Development and Sustainability*, 1-13. https://doi.org/10.1007/s10668-022-02166-0

Watson, K., Hogarth-Scott, S., & Wilson, N. (1998). Small business start-ups: success factors and support implications. *International Journal of Entrepreneurial Behavior & Research*, *4*(3), 217-238. https://doi.org/10.1108/13552559810235510

WCED (World Commission on Environment and Development). 1987. Our Common Future. Oxford: *Oxford University Press*, *2*(4), 17-50 https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

Wedig, K., & Wiegratz, J. (2018). Neoliberalism and the revival of agricultural cooperatives: The case of the coffee sector in Uganda. *Journal of Agrarian Change, 18*(2), 348-369. SSN 1471-0358. https://doi.org/10.1111/joac.12221

Weiber, R., & Mühlhaus, D. S. (2014). Weiber, R., & Mühlhaus, D. S. (2014). *Eine Anwendungsorientierte Einführung in die Kausalanalyse mit Hilfe von AMOS, SmartPLS und SPSS.* Structural Equation Modeling. An application-oriented introduction to causal analysis using AMOS, SmartPLS and SPSS]. 2nd ed. Berlin: Springer Gabler. https://link.springer.com/book/10.1007/978-3-642-35012-2

Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self–efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice, 31*(3), 387-406. https://doi.org/10.1111/j.1540-6520.2007.00179.x

World Bank. (2021) Kenya Economic Update: From Recovery to Better Jobs (English). Kenya Economic Update; *Edition No. 24 Washington, D.C.: World Bank Group, 1*(1) . http://documents.worldbank.org/curated/en/099910012132120798/P1749610b2583d010089f90bb1057d49c8c

Xie, Q., Liu, L., Malik, H., Chupradit, S., & Chupradit, P. W. (2021). The Influence of entrepreneurial characteristics on the performance of tourism vlogger entrepreneurs. *Frontiers in Psychology*, *12*(12) 45-89. https://doi.org/10.3389%2Ffpsyg.2021.725545

Yangailo, T., & Qutieshat, A. (2022). Uncovering dominant characteristics for entrepreneurial intention and success in the last decade: systematic literature review. *Entrepreneurship Education*, *5*(2), 145-178. https://doi.org/10.1007/s41959-022-00073-z

Yasin, N., & Gilani, S. A. M. (2022). 'Imitate or Incubate?' Evaluating the Current State of University-Based Business Incubators in the United Arab Emirates. *Sage Publications*, *3*(9) 12-30. https://doi.org/10.1177/23197145221112744

Yoshino, Naoyuki and Taghizadeh Hesary, Farhad, Major Challenges Facing Small and Medium-Sized Enterprises in Asia and Solutions for Mitigating Them (April 18, 2016). *ADBI Working Paper* 564. http://dx.doi.org/10.2139/ssrn.2766242.

Zahra, S. A. (1999). The changing rules of global competitiveness in the 21st century. *Academy of management perspectives*, *13*(1), 36-42. https://doi.org/10.5465/ame.1999.1567300

Zapata-Guerrero, F. T., Ayup, J., Mayer-Granados, E. L., & Charles-Coll, J. (2021). Incubator efficiency vs survival of start-ups. *RAUSP Management Journal*, *55*, 511-530. https://doi.org/10.1108/RAUSP-04-2019-0063

Zhang, Q., Oo, B. L., & Lim, B. T. H. (2022). Linking corporate social responsibility (CSR) practices and organizational performance in the construction industry: A resource collaboration network. *Resources, Conservation and Recycling*, *1*(79), 106-113. https://doi.org/10.1016/j.resconrec.2021.1061 13

APPENDICES

Appendix A: Ethical Clearance

EGERTON UNIVERSITY

TEL: (051) 2217808
FAX: 051-2217942

P. O. BOX 536
EGERTON

EGERTON UNIVERSITY INSTITUTIONAL SCIENTIFIC AND ETHICS REVIEW COMMITTEE

EU/RE/DIR/009
Approval No. EUISERC/APP/261/2023 ***29th June* 2023**

Nakiganda Racheal Gladys,
P.O. Box 536-20115
Egerton
Telephone +254114013618
Email: rachealgladysn@gmail.com

Dear Racheal,

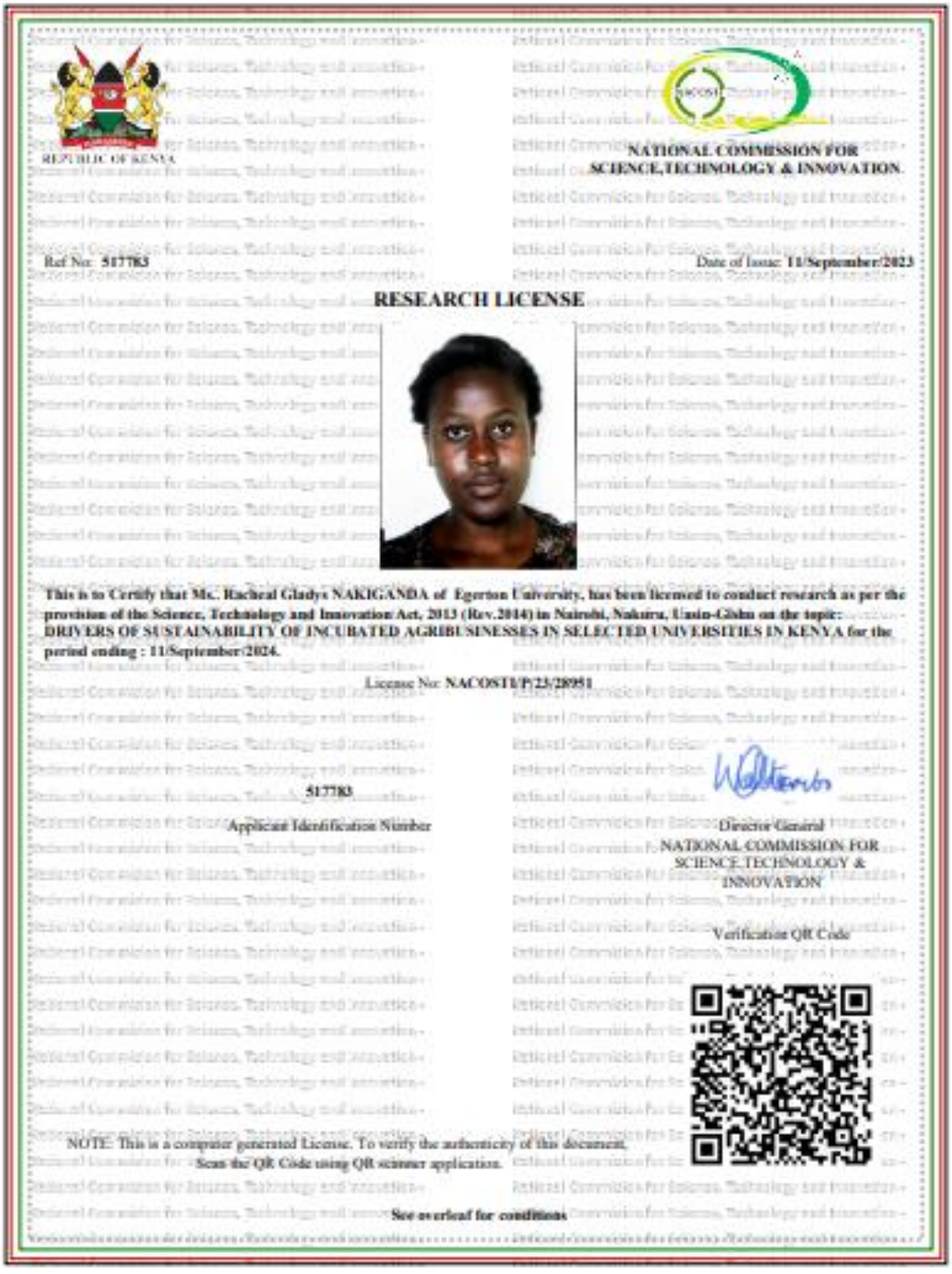
RE: ETHICAL APPROVAL: DRIVERS OF SUSTAINABILITY OF INCUBATED AND SUPPORTED AGRIBUSINESSES IN SELECTED UNIVERSITIES IN KENYA

This is to inform you that ***Egerton University Institutional Scientific and Ethics Review Committee*** has reviewed and approved your above research proposal. Your application approval number is ***EUISERC/APP/261/2023.*** The approval period is ***29th June, 2023 –30th June, 2024***

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***Egerton University Institutional Scientific and Ethics Review Committee***.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***Egerton University Institutional Scientific and Ethics Review Committee*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to ***Egerton University Institutional Scientific and Ethics Review Committee*** within 72 hours.
v. Clearance for Material Transfer of biological specimens must be obtained from relevant institutions.

Appendix B: Research Permit



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 517783

Date of Issue: 11/September/2023

RESEARCH LICENSE

This is to Certify that Ms. Rachael Gladys NAKIGANDA of Egerton University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi, Nakuru, Uasin-Gishu on the topic: DRIVERS OF SUSTAINABILITY OF INCUBATED AGRIBUSINESSES IN SELECTED UNIVERSITIES IN KENYA for the period ending : 11/September/2024.

License No: NACOSTI/P/23/28951

517783

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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See overleaf for conditions

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposal research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
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11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
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13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke

Appendix C: Informed Consent

Study Title: Drivers of sustainability of incubated and supported agribusinesses in selected universities in Kenya

Name of Principal Investigator(s): Nakiganda Racheal Gladys

Co-Investigators: Dr Dickson Okello, Prof Hillary K Bett

Name of Organization: Egerton University

Name of Sponsor: TagDev program at Egerton University

Informed Consent Form for: Incubated and supported agribusinesses in selected universities in Kenya

Investigator(s)–Local and International Collaborators: Nakiganda Racheal Gladys, Dr Dickson Okello, Prof Hillary K Bett

Why is this study being done?

Youth unemployment is a big problem in Kenya where universities are the leading institutions channelling graduates to the job market. In recent past years, universities have come up with an alternative to create job creators not job seekers through business incubation. This is a way to create graduates who are enterprising and capable of creating more employment. Despite, this acknowledgement, the menace of youth unemployment is still bulging with most incubated and supported youth led-businesses failing to be sustainable. There is limited empirical literature on determinants of failure of the incubated and supported agribusiness in universities to sustain themselves. Therefore, this study seeks to contribute to this knowledge gap by understanding the drivers of sustainability of incubated and supported agribusinesses in selected universities in Kenya.

Who will take part in this study?

The selected Universities with incubators that have been in existence for 3 years and above are purposively selected for this study, whereby the incubators in these universities are to provide lists of students that have been incubated in the past years.

Students with incubated and supported agribusinesses in selected university incubators in Kenya will be interviewed for the study

How long will the study last?

This study will last for 20 minutes only in order to respond to all the questions.

Do I have to be in the study?

Yes

Procedure:

To participate in this study, the participant should have been having/ is having an agribusiness that was incubated through a university incubator. Your participation in this study will take

approximately 20 minutes.

Benefits

This study will contribute to increasing the diverse ways in which supported and incubated youth agribusinesses can be sustained to maximize their benefits. For example, increasing employment, income generation to many youths, improving living standards, and hence poverty reduction as highlighted in Kenya Vision 2030 and fulfilment of one of the National Youth Policy objectives of creating opportunities for youth to earn decent sustainable livelihoods.

On the same note, this will help stakeholders such as the government and non-government organizations along aside universities to establish effective and efficient policies that enable youth agribusinesses to sustain themselves even after the funding period. This will contribute to participating in the fulfilment of the focus of the National Agribusiness Strategy of getting rid of barriers and creating incentives for investment in agribusiness. For as the more successful and sustainable the youths-agribusiness are, the more funding they attract from both the government and non-government organisations. Furthermore, alighting the nascent entrepreneurs as they appreciate and support the youths-agribusiness to realize their entrepreneurial ideas turn into real sustainable enterprises that contribute to enterprise growth. This study will also serve as a reference point for future study in this area since the study is based on a wider context of building a body of knowledge on the sustainability of youth-based agribusinesses in universities where many incubator centres are concentrated.

Risks

This study solely relies on the information provided by the respondent and thus there is no evidence to clarify if the information given is true or not.

This study also only considers university-based incubators and therefore doesn't consider community-based incubators despite their activities in agribusiness. Thus, the results may not be representative of all incubated and supported agribusinesses in Kenya.

Are there any costs for me if I agree to join the study?

There will be no monetary costs to you for participating in this study.

Confidentiality:

The data will be protected and accessed by the principal investigating and collaborators/ supervisors. This data is only for academic purposes to be awarded a Master of Science degree in Agribusiness Management. The data will be stored under Egerton University from the date of collection to the date of graduation.

Contact: Who do I call if I have questions about the study?

Nakiganda Racheal Gladys, Egerton University, rachealgladysn@gmail.com +254114013618

Questions about your rights as a research participant:

If you want to know more about your rights while participating in this research or if you feel that your rights have been violated you may contact the Egerton University Research Ethics Committee (EUREC), P.O. Box 536-20115, EGERTON-Kenya, Egerton University, email: eurec@egerton.ac.ke, Phone number: (Chairperson): +254720235707. A research ethics committee is a group of people that review studies for safety and to protect the rights of study participants.

Consenter statement

I have read the information provided or has been read to me. I have been given an opportunity to ask questions and the questions have been answered satisfactorily. I consent voluntarily to participate in the project knowing that I have a right to withdraw at any time.

Participant's Name (Optional)…….

Signature----------or Thumb print----------

Date…….

I have read the information provided or has been read to me as the legally authorized representative. I have been given an opportunity to ask questions and the questions have been answered satisfactorily. I consent voluntarily for the person I am representing to participate in the project knowing that I have a right to withdraw the consent and stop the person I am representing from further participating in the research at any time.

LAR's Name (Optional)…….

Signature----------or Thumb print----------

Date…….

I the undersigned affirm that consent has been sought with full disclosure of project details to the participant to consent. (I have explained the study to the extent compatible with the participant's capability, and the participant has agreed to be in the study)

Name of the presenter (who presented/explained the consent document) ……..……

Signature: ……

Date……

Principal Investigator……...

Signature……

Date……

Appendix D: Example of Authorizations from Universities

Strathmore UNIVERSITY

26th September 2023

Nakiganda Racheal Gladys,
MSc. Agribusiness Management,
Egerton University,
P.O. Box 20115-536,
Egerton, Kenya.

Email: rachealgladysn@gmail.com

Dear Racheal,

RE: AUTHORIZATION TO COLLECT DATA AT STRATHMORE UNIVERSITY

The Research and Innovation Department at Strathmore University has reviewed and granted you the authorization to collect data from the management of @iLabAfrica Centre or any other person as directed for the purpose of the completion of your MSc. Agribusiness Management. The study *"Drivers of Sustainability of Incubated Agribusinesses in Selected Universities in Kenya"* aims to contribute to the sustainability of youths' agribusinesses by creating youth opportunities to earn a decent, sustainable livelihood through understanding the drivers of sustainability of incubated agribusinesses in universities in Kenya.

The authorization is effective from **September 26th, 2023**, to **December 25th, 2023**.

Please sign the declaration form binding you to the ethical use of the data you collect from Strathmore University (meant strictly for the purposes of your study).

Yours sincerely,

26 SEP 2023

Prof. Izael Da Silva
Deputy Vice-Chancellor - Research and Innovation

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703-034000 Email info@strathmore.edu www.strathmore.edu

Appendix E: Questionnaires

QUESTIONNAIRES

EGERTON UNIVERSITY

DETERMINING THE SUSTAINABILITY OF INCUBATED AGRIBUSINESSES IN UNIVERSITIES OF KENYA QUESTIONNAIRE

(This information is strictly confidential and is to be used for statistical and academic purposes only.)

1. NAME OF UNIVERSITY …….
2. COUNTY …….
3. NAME OF INCUBATOR…….
4. DATE …….

TABLE OF CONTENTS

Introduction

This survey is aimed at improving the sustainability of youths' agribusinesses and non-agribusinesses by determining the factors influencing the sustainability of incubated agribusinesses and non-agribusinesses in the universities of Kenya. The word positive in this questionnaire means highly ranked that's to say; 4-5 on all scales. This questionnaire is meant for academic purposes only and information obtained therein will be treated with the utmost confidentiality.

SECTION A: SOCIAL-ECONOMIC BACKGROUND

Sex of the respondent;	Marital status of the respondent;

0= Male, 1= Female	0= Married, 1= Single

A3. State the highest and lowest education level of member(s).

1= certificate, 2= diploma, 3= degree, 4= postgraduate(PhD/Masters)

Highest;
……

Lowest
……..……

A4a. In your opinion, state your level of agreement or disagreement with the following statement regarding the influence of education on entrepreneurial mindset (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

Statement	1	2	3	4	5
My school education helped me to develop my sense of entrepreneurial attitude					
It equipped me with skills for my agribusiness					
It showed me the value of entrepreneurship					

A5a. Are your parents self-employed?

0. Yes 1. No

A5b. If yes is a positive state the parent(s) that is self-employed

1. Father
2. Mother
3. Both father and mother
4. Other

A5c. On a scale of 1 to 5, to what extent do you think that your parents/ guardians' being self-employed has influenced your engagement in entrepreneurship

1= not at all, 2= less, 3= somehow, 4= much, 5= very much

A5d. If the scale is 4-5, Explain how

1= has motivated me to start my own business

2= has given me business advice

3= has given me startup capital

4= has given me experience through working with him/her

5= other, state;

……

A6. Did you have business experience prior to starting the enterprise?

1. Yes

2. No

A7. In your own opinion, state your level of agreement or disagreement to the following statement regarding running a business enterprise (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

Statement	1	2	3	4	5
One should not start a business if there is a risk it might fail					
People who started their own businesses and have failed should be given a second chance.					
it's difficult to manage a business own business due to complex administrative procedures?					
it is difficult to manage your own business for a long time due to a lack of available financial support					
it is difficult to obtain sufficient information on how to manage your business efficiently					

In your own opinion, state your level of agreement or disagreement to the following statement regarding your personality (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

Statement	1	2	3	4	5
In general, I am willing to take risks					

Generally, when facing difficult tasks, I am certain that I will accomplish them					
My life is determined by my own actions, not by others or by chance					
If I see something I do not like, I change it					
The possibility of being rejected by others for standing up for my decisions would not stop me					
I am an inventive person who has ideas					
I am optimistic about my future					
I like situations in which I compete with others					

SECTION B: BUSINESS INFORMATION

B1. What is the type of your business (please specify the value chain/ business you are majoring in)

0. Agribusiness (please specify the value chain you are majoring in, for example; dairy, poultry etc)

   …….

1. Non- Agribusiness (please specify the business you are majoring in, for example; cyber, electrical etc)

   ……

B2. Is your business registered?

1. Yes
2. No

B3. State the type of your business ownership

1. Sole proprietorship
2. Partnership
3. Corporation
4. Cooperative

B3b. if 2, 3, and 4 are positive, kindly state the number of business partners

1. Individual
2. 2-3
3. 4-5
4. 6-7
5. 8-9
6. 10 and above

B3c. What is the sex composition of the group members

1. Females
2. Males
3. Both females and males

B4. When did you start agribusiness?

1. Agribusiness started during the incubation
2. Agribusiness existed before incubation
3. Agribusiness started after incubation

B5. Is agribusiness still in existence?

0. Yes
1. No

B5a(i). if the agribusiness is still in existence, for how long has the agribusiness been in exitance since incubation?

……

B5a(ii). State the number of people the business is employing

…….

B5b. If the agribusiness is no longer in existence; state the closure period. (For example; one month after incubation)

…….

B5c. Briefly state the reason why the stated agribusiness closed.

1. We (I) had no money to run the business
2. I lost customers
3. The business was making a lot of losses without profits
4. We (I) had management challenges
5. Other, state

SECTION C: INCUBATION

C1. Why did you join the incubation programme at your university?

1. To get financial support
2. To acquire a place of work
3. To develop my own business
4. To make business connections
5. To change the type of business
6. Other, state…….

C2. How did you join the incubation programme at your university?

1. Application
2. School requirement
3. Invitation from a friend
4. Other, state……

C3. What was the stage of the business prior to joining incubation and what is the current stage of the business

Before incubation and support; 1= ideation stage, 2= startup stage, 3= growth and establishment, 4= Expansion, 5= maturity.

After incubation and support; 1= ideation stage, 2= startup stage, 3= growth and establishment, 4= Expansion, 5= maturity

C4. What are the requirements you needed to join the incubation?	C4b. Did the requirements affect your desire to join incubation?
1= groups	1= Yes 2= No
2= individual	State how;

3= graduate	1= They were too many, and I wanted to quit
4= continuing student	2= They were too easy, it felt easy to join
5= other, state	3= I did not have all of them, however, I joined
	4= They prepared my mind for a serious journey
	5= other, state

C5. What kind of support did you receive from the incubator? (Production support here means working equipment for example; machinery)

1= financial support	2= Skills development and training	3= production support	4= Other, state
a= grant	a= entrepreneurship training	a= working machinery	
b= soft loan	b= financial management and bookkeeping	b= connected me to the market	
c= connected me to financial services	c= proposal writing for grants	c= acquired intellectual property	
d= helped me save up for capital	d= marketing	d= other, state;	
e= other, state	e= leadership		
	f= other, state;		

C6. For how long was your business incubated?

……
…

C7. What are the stages of incubation that you went through?

1. Pre-incubation (support at the initial stage of a business idea. E.g.; acquiring knowledge on how to set up and run a business activity, refining basic elements of a business model)

2. Incubation (support for already operating startup, i.e. registered enterprise E.g. acquiring consulting support for the product, service development, working space, access to financing)

3. Post-incubation (support when the enterprise physically leaves the incubator and operates independently but can partly use the services the incubator provides)

4. Acceleration (an open process for everyone characterised by high competition in terms of submitted applications for obtaining funds and intensive mentoring sessions)

C8. What do you think of the process of incubation (Any gains or losses)?

Gains

1. It was helpful in getting a working space
2. It was helpful in getting funding support
3. It was helpful in my/our business development
4. It was helpful in managing our resources and finance
5. It was helpful in getting connections
6. It gave me fun
7. Others state; ……..

Losses and challenges

1. Paying back the soft loan we/I was given was so hard
2. It was hard maintaining a cash flow/ financial management
3. I did not learn anything
4. It was difficult to follow business plan
5. There was too much administration work after incubation
6. The time I was given for incubation was so limited for consultations
7. Other state; …….

C9a. To what extent do you agree with the statement; the services and facilities provided by the incubation were very necessary and helped my business to grow (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

……
……

C9b. In your own opinion, react to the services and facilities provided by your university incubator in the regard to how they influenced the performance and growth of your business with good, not helpful, did not use, used, it is helpful, "no mentor" assigned to me(us), no comments, did not participate where applicable in your case.

Facilities	Training	Topics of training	Mentorship	Exhibition participation	Legal service	Milestone assessment

SECTION D: DRIVERS MOTIVATING YOUTHS TO PARTICIPATE IN THE INCUBATION PROGRAMS

D1. Did you participate in incubation programs at the university to start a business to take advantage of a business opportunity or because you have no better choices for work? which of the following do you feel, is the most important motive for pursuing the opportunity of being incubated at the University?

1. To take advantage of a business opportunity
2. There were no better choices for work after school

D2. In your opinion, state the level of agreement or disagreement with the following statements regarding what motivated you to participate in the incubation and support program at the university. (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

Statement	**1**	**2**	**3**	**4**	**5**
I wanted to gain material wealth through agribusiness					
I wanted to get a career in business					
I wanted to change my financial affairs					
I wanted to gain prestige					
I wanted to add value to my education					
I wanted to put into practice what I was being taught in class					
I wanted stable employment after school					
It was a requirement of my school assignment, so I had to do it					

D3. In your opinion, state the level of agreement or disagreement with the following statements regarding what motivated you to participate in the incubation and support program at the university. (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree)

Statement	**1**	**2**	**3**	**4**	**5**
I wanted to have a business of my own					
I wanted to fit into my family status					
I wanted to change my academic status					

I wanted to get recognition from my peers/friends					
I wanted to get training in entrepreneurship					
I wanted to get recognition from my school					
I wanted to get recognised at home					
I realized an opportunity for funds and choose to take it					
I wanted to upscale my business through soft loans they were giving					
I wanted to get connections and meet new people					
I saw a need for a product or service and I needed help to provide it in the form of business					
I saw everyone who was doing this particular business successful and I also wanted to join in					
I love entrepreneurship and I find fun participating in entrepreneur activities					

SECTION E: FACTORS INFLUENCING SUSTAINABILITY

SECTION E1; Economic Factors

In your own opinion, state your level of agreement or disagreement with the following statements regarding the factors influencing the economic sustainability of your agribusiness.

Economic indicators	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Funds are managed transparently by all the business partners					
Savings are made regularly and well managed so these are protected.					
Records about business and production are kept.					

Market information is easily available					
Have enough working capital for the everyday operations of the business					
Profitable opportunities for market demand are identified and analysed.					
Make profits per sale of a product after subtracting all costs for the business we(I) are able to retain enough profits					
Have paying customers					
Use modern technology to minimise costs					
Consider free yet effective marketing strategies					
Buy used furniture and equipment to minimize costs					
Pay local tax					
Have organic expansions such us bought new machinery, increased workers					
Have productivity improvements such as increased number of goods/ products/ services produced/ offered and sold					
Can easily access finance such as donor funds, loans, youth funds					

SECTION E2; Environmental Factors

(Efficiently in this section means using a resource without depleting it or degrading)

Environmental indicators	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I can identify and understand the interdependence among the business activities and the wider landscape of the environment					
The business is able to design and implement effective conservation rehabilitation or sustainable production plans.					
Natural resources are used efficiently by business employees during business activities.					
Wastes are managed properly during business operations.					
Agribusiness is adapting to climate change efficiently and effectively					

SECTION E3; Social

Social indicators	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
We have a shared vision					
There is the capability of resolving internal conflicts within the business					
We as business members have built active relationships/trust					
There is no discrimination in the business and among employees, everyone is included.					
Democratic leadership and managements enforce compliance with					

internal rules and among the business partners.					
The business observes the social and ethical norms of the community where it is located.					
Most of the employees are from within the community					
We engage the community in the social activities of the agribusiness					

Appendix F: Correlation Matrix

Correlation Matrix[a]

		N_career	N_valueeduc	N_employment_sch	N_schoolassgn	O_ownbusiness	O_familystatus	O_peersfriends	O_trainingentre	O_connections	O_influsuccessful	hobby
Correlation	N_career	1.000	.585	.456	.039	.546	.251	.063	.516	.339	.246	.543
	N_valueeduc	.585	1.000	.545	.077	.569	.182	.081	.626	.419	.280	.484
	N_employment_sch	.456	.545	1.000	.047	.394	.269	.087	.395	.325	.267	.350
	N_schoolassgn	.039	.077	.047	1.000	.038	.309	.311	-.115	.030	.110	-.147
	O_ownbusiness	.546	.569	.394	.038	1.000	.086	.091	.514	.291	.152	.477
	O_familystatus	.251	.182	.269	.309	.086	1.000	.553	.012	.255	.483	.133
	O_peersfriends	.063	.081	.087	.311	.091	.553	1.000	-.033	.183	.422	-.001
	O_trainingentre	.516	.626	.395	-.115	.514	.012	-.033	1.000	.419	.002	.526
	O_connections	.339	.419	.325	.030	.291	.255	.183	.419	1.000	.239	.366
	O_influsuccessful	.246	.280	.267	.110	.152	.483	.422	.002	.239	1.000	.163
	hobby	.543	.484	.350	-.147	.477	.133	-.001	.526	.366	.163	1.000
Sig. (1-tailed)	N_career		.000	.000	.289	.000	.000	.184	.000	.000	.000	.000
	N_valueeduc	.000		.000	.134	.000	.004	.123	.000	.000	.000	.000
	N_employment_sch	.000	.000		.251	.000	.000	.106	.000	.000	.000	.000
	N_schoolassgn	.289	.134	.251		.293	.000	.000	.049	.332	.057	.017
	O_ownbusiness	.000	.000	.000	.293		.109	.096	.000	.000	.014	.000
	O_familystatus	.000	.004	.000	.000	.109		.000	.431	.000	.000	.028
	O_peersfriends	.184	.123	.106	.000	.096	.000		.318	.004	.000	.492
	O_trainingentre	.000	.000	.000	.049	.000	.431	.318		.000	.486	.000
	O_connections	.000	.000	.000	.332	.000	.000	.004	.000		.000	.000
	O_influsuccessful	.000	.000	.000	.057	.014	.000	.000	.486	.000		.009
	hobby	.000	.000	.000	.017	.000	.028	.492	.000	.000	.009	

a. Determinant = .019

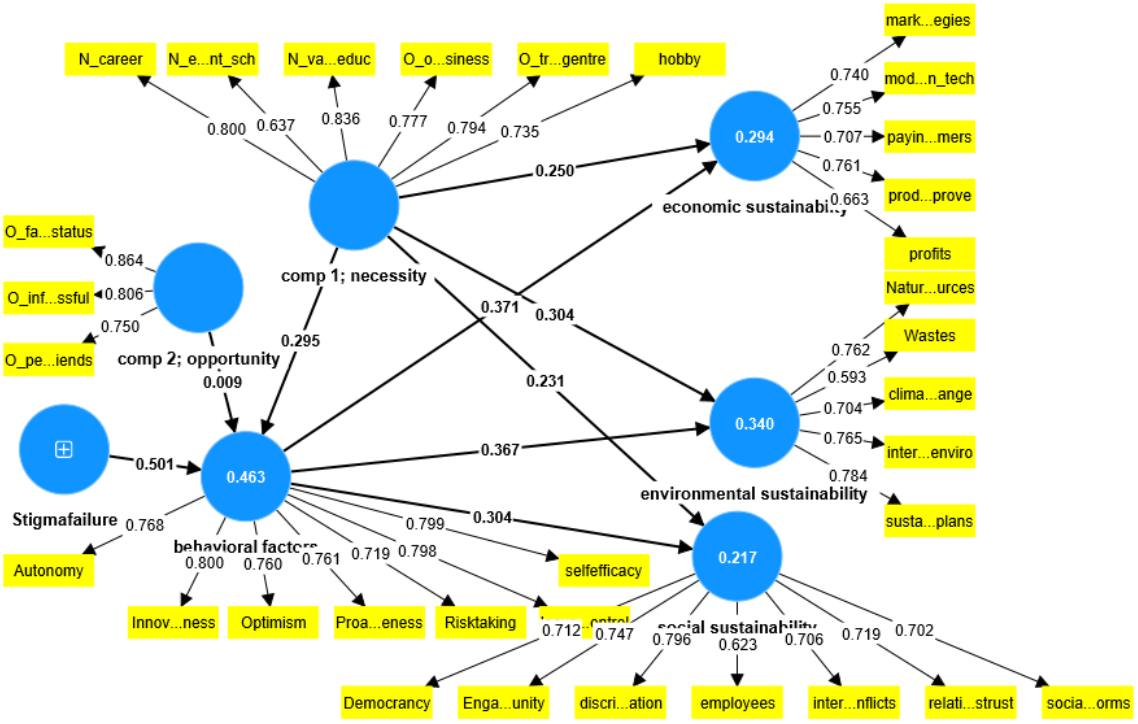
Appendix G: Collinearity Statistics

Items	VIF
Autonomy	1.940
Competitiveness	1.269
Democracy	1.700
Engage_community	1.684
Innovativeness	2.158
N_career	1.929
N_employment_sch	1.492
N_valueeduc	2.309
Natural_resources	1.689
O_familystatus	1.616
O_influsuccessful	1.366
O_ownbusiness	1.747
O_peersfriends	1.509
O_trainingentre	1.914
Optimism	1.898
Proactiveness	1.883
Risk taking	1.838
Stigmafailure	1.000
Wastes	1.195
Climate_change	1.433
Discrimination	2.079
Employees	1.491
Hobby	1.660
Interdependence_activities_enviro	1.540
Internal_conflicts	2.790
Locus_control	2.151
Marketing_strategies	1.441
Modern_tech	1.490
Paying customers	1.567
Productivity_improve	1.513
Profits	1.514
Relationships/trust	2.719
Self-efficacy	2.044
Social_norms	1.337
Sustainable_pdt_plans	1.614

Appendix H: Discriminant Validity- Cross loadings

Column1	Stigma failure	Personal/behavioural factors	comp 1; necessity	comp 2; opportunity	economic sustainability	environmental sustainability	social sustainability
Autonomy	0.482	**0.757**	0.396	0.088	0.404	0.327	0.276
Competitiveness	0.265	**0.476**	0.304	0.069	0.306	0.337	0.362
Democrancy	0.195	0.243	0.222	-0.041	0.306	0.408	**0.715**
Engage_community	0.237	0.385	0.341	-0.073	0.507	0.524	**0.748**
Innovativeness	0.433	**0.798**	0.321	0.05	0.374	0.394	0.343
N_career	0.397	0.457	**0.8**	0.243	0.369	0.345	0.31
N_employment_sch	0.235	0.276	**0.635**	0.268	0.204	0.232	0.159
N_valueeduc	0.332	0.405	**0.836**	0.229	0.377	0.424	0.347
Natural_resources	0.288	0.387	0.288	-0.034	0.485	**0.766**	0.512
O_familystatus	0.037	0.084	0.19	**0.868**	0.041	0.072	-0.075
O_influsuccessful	0.006	0.07	0.232	**0.781**	-0.073	0.017	-0.129
O_ownbusiness	0.353	0.426	**0.778**	0.134	0.333	0.427	0.348
O_peersfriends	0.02	0.059	0.06	**0.777**	-0.024	0.114	0.043
O_trainingentre	0.282	0.418	**0.794**	-0.004	0.406	0.397	0.307
Optimism	0.507	**0.767**	0.496	0.014	0.481	0.511	0.385
Proactiveness	0.479	**0.756**	0.384	0.11	0.322	0.356	0.325
Risktaking	0.481	**0.721**	0.288	0.017	0.311	0.335	0.32
Stigmafailure	**1**	**0.625**	0.42	0.027	0.365	0.421	0.342
Wastes	0.237	0.349	0.28	0.181	0.462	**0.587**	0.387
Climate_change	0.33	0.322	0.371	0.077	0.372	**0.705**	0.438
Discrimination	0.299	0.306	0.244	-0.115	0.338	0.427	**0.796**
Employees	0.133	0.222	0.145	-0.06	0.311	0.338	**0.625**
Hobby	0.314	0.374	**0.734**	0.13	0.281	0.385	0.242
Interdependence	0.328	0.401	0.391	0.059	0.555	**0.763**	0.383
Internal_conflicts	0.213	0.261	0.196	-0.01	0.361	0.457	**0.708**
Locus_control	0.473	**0.773**	0.404	0.092	0.403	0.42	0.289
Marketing_strategies	0.333	0.433	0.314	-0.064	**0.74**	0.513	0.451
Modern_tech	0.254	0.434	0.367	0.033	**0.756**	0.512	0.373
Payingcustomers	0.217	0.303	0.254	0.028	**0.706**	0.455	0.338
Productivity_improve	0.288	0.387	0.364	-0.056	**0.761**	0.56	0.432
Profits	0.212	0.251	0.268	0.011	**0.663**	0.415	0.343
Relationshipstrust	0.206	0.211	0.15	-0.008	0.343	0.406	**0.721**
Selfefficacy	0.517	**0.788**	0.416	0.091	0.37	0.435	0.318
Social_norms	0.332	0.436	0.425	-0.043	0.427	0.507	**0.697**
Sustainable_pdt_plans	0.333	0.466	0.421	0.026	0.575	**0.786**	0.554

Appendix I: Structural model indicating outer loadings, path coefficients, and R-square



Appendix J: Published Paper

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What Are University Incubated Agribusinesses: A Sustainability Description of University Incubated Agribusinesses in Kenya

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Abstract

Universities are promoting entrepreneurship incubation as a means of instilling an entrepreneurial mindset and creation of business ventures among university students. This is necessitated by the bulging youth unemployment among university graduates in the world and most sub-Saharan African countries. This initiative aims at creating graduates who are job creators and not job seekers. Despite these efforts, youth unemployment rates continue to rise among most graduates. Moreover, most university-incubated youth-led businesses have a high failure rate with a majority of them not seeing a second birthday. To address this issue, the study sought to examine the nature of incubated agribusinesses and their sustainability performance in seven selected universities in Kenya. A multistage sampling procedure technique along with Cochran's (1963) formula for determining populations that are large and unknown were used to select 272 respondents whose businesses were incubated at their universities. Using an index and descriptive statistics, University Incubated agribusinesses in Kenya on average exist for only one year and five months. Results also revealed that the university-incubated agribusinesses under study were 68.2% sustainable indicating a fair performance. They revealed a higher performance in social sustainability (72.8% of its dimensional scores) as compared to economic and environmental sustainability (65.2% and 70% respectively of their dimensional scores). To ensure the long-term success of university-incubated youth agribusinesses, the study recommends that university business incubators should assess the expectations of their participants before they enroll them. The study also suggests that universities should create standardized policies, and procedures governing all stages of incubation. Moreover, youths with university-incubated agribusinesses need to intensify their economic, social, and environmental practices and strategies to ensure the holistic sustainability of their agribusinesses.

Keywords: incubated businesses, sustainability performance, agribusinesses, entrepreneurship

1. Introduction

The unemployment rate among young people in Kenya keeps on increasing. For example; in the first quarter of 2021 it increased compared to the previous quarter of 2020 (World Bank, 2021). In the age group between 20 and 24 years and above, the rate stood at 16.3 percent. This was an increase from 15 percent in Q4 2020, while in the age group between 15 to 19 years, the unemployment level grew to nearly 7 percent after reaching the lowest level of 2.8 percent in Q4 2020 (Karmer, 2022). This makes youth unemployment one of the major challenges in Kenya, a country where agribusinesses are a significant livelihood to many (World Bank, 2021). According to Farah and Ali (2018), among the many causes of unemployment is the failure to align the education curricula with skill demand by the labour market as well as the youth bulge. Consequentially, the government and non-governmental organizations are trying to mitigate this problem through different interventions. One of the interventions is incubating youths through entrepreneurship skills development and the provision of start-up capital (Ferreiro et al., 2018). Business incubation provides the support and resources necessary to help new ventures succeed in their growth and maturity stages. Incubation centers create an environment where entrepreneurs receive intensive, personalized attention from management consultants, business executives, and other experts in their fields of interest (Mason & Brown, 2014). Since universities play a crucial role in youth skill development, some of the incubation centers are located in universities.

The importance of the university-sponsored business incubator stems from the potential of linking talent, technology, capital, and know-how to leverage entrepreneurial talent, accelerating the development of new