

**EVALUATION OF THE RELATIONSHIP BETWEEN INCUBATION
PRACTICES, ENTREPRENEURIAL ORIENTATION AND PERFORMANCE
OF INCUBATOR CENTRES IN KENYA**

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DECLARATION

Declaration by the Student

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

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DEDICATION

To my children; Ilham and Faiz Suraj. I work hard for you to emulate and shape your future. To my mum, you are a role model and source of inspiration. To you all, God bless you.

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ABBREVIATIONS AND ACRONYMS

AMOS	- Analysis of Moment Structures
BIC	- Batavia Industrial Centre
BIP	- Business Incubation Practices
C.D.F	- Cumulative Distribution Function
CFA	- Confirmatory Factor Analysis
CFI	- Comparative Fit Index
E.D.F	- Empirical Distribution Function
EFA	- Exploratory Factor Analysis
EO	- Entrepreneurial Orientation
GDP	- Gross Domestic Product
GFI	- Goodness-of-fit Index
GTI	- Graduate Tele-working Initiative
ICT	- Information Communication Technology
IPO	- Initial Public Offering
KIE	- Kenya Industrial Estates
KIRDI	- Kenya Industrial Research Development Institute.
KMO	- Kaiser-Meyer Olkin
KNBS	- Kenya National Bureau of Statistics
K-S	- Kolmogorov-Smirnov
M&E	- Monitoring and Evaluation
MIMIC	- multiple – indicators- multiple- causes
MMR	- Moderated Multiple Regression
MSEA	- Micro and Small Enterprises Authority
NBIA	- National Business Incubation Association

NPV	- Net Profit Value
OLS	- Ordinary Least Squares
POLS	- Pooled Ordinary Least Square
ROK	- Republic of Kenya
SEM	- Structural Equation Modelling
SLT	- Situated Learning Theory
SMEs	- Small and Medium Enterprises
SPSS	- Statistical Package of Social Sciences
TBI	- Technology Business Incubation
TVET	- Technical, Vocational Education and Training
UK	- United Kingdom
UKBI	- United Kingdom Business Incubation
USA	- United States of America
WB	- World Bank

ABSTRACT

Small businesses are the fundamental drivers of Kenya's economy. However, empirical evidence shows that in a highly turbulent business environment, 46.3 percent of small businesses tend to fail in their first year of operation in Kenya. It was assumed that, with appropriate use of Entrepreneurial Orientation (EO), these businesses would take off and become successful. Despite EO intervention, the failure rate of 46.3 percent of small businesses is high, a great concern to the government and development partners. To reduce this failure rate, the Government of Kenya licensed and mandated incubators to nurture small business owners. Despite their presence, small businesses in Kenya still face unique problems of uncertainty, poor innovations and slow evolution. The purpose of this study was to investigate the relationship between incubator practices, entrepreneurial orientation and performance of incubator centres in Kenya. The study was guided by client selection criteria, incubator funding and entrepreneurial management as independent variables, EO as the moderator and performance of incubator centres as dependent variable. The study was anchored on Resource Based Theory which supports the strategic entrepreneurship concept. The study used a correlation design because it focused on a causal-effect relationship. The study population was 51 incubator managers. Secondary data was obtained from published sources such as institutional reports, manuals and research done by other scholars. Structural Equation Modelling (SEM) approach was used to analyze the measurement model and test the hypothesized relationships in this study. Hierarchical moderated regression model was used to measure the strength of the relationship between incubation practices, EO and performance of incubator centres in Kenya. The joint effect model results indicated that client selection criteria had the most significant relationship with performance of incubator centres (Regression coefficient=1.441, p-value<0.05=0.001, followed by entrepreneurial management (Regression coefficient=-0.041, p-value<0.05=0.856). In addition, analysis showed that entrepreneurial orientation had a moderating effect on incubation practices and performance, yielding a significant R^2 change of 0.075 that is 7.5 percent additional variance. The study recommends that, the incubator centres should put proper institutional systems in place to track and categorize graduate incubatees through proper record keeping of the previous incubatees history, to minimize failure of incubators, the state department of Industrialization should embark on developing policies that will assist in incorporation and management of incubators whether public or private. The department should also develop entrepreneurship skills and capacity building programmes that match the technical and entrepreneurial skills and mind-set within the incubation process. Sensitize and re-orient the growing labour force towards the entrepreneurial development programmes. Partnerships with relevant stakeholders are established to ensure relevance of our youth in the job market. It is envisaged that the findings of this study offer positive insights to entrepreneurs, academicians and financiers contribution to reshaping government policy as far as optimal management of business incubators is concerned.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, Countries are strategically positioning themselves for market leadership due to dynamic business environment. Entrepreneurial spirit is seen as the strategy that will deliver this agenda (Ahmad & Ingle, 2011). This spirit is believed to be behind the innovative business that revolutionizes the business world (Al-Mubarak & Busler, 2010).

In a dynamic and complex environment, the success of any business is pegged on the entrepreneurial operations of a firm. To realize success, Gathungu, Aiko and Machuki, (2014), advocate for entrepreneurial orientation (EO) as a strategy for making business decisions and taking strategic actions. Entrepreneurial Orientation has been operationalized in terms of three dimensions (Miller, 1983). The scholar defines an entrepreneurial firm is one that engages in product market innovation, undertakes risky ventures, and is first to come up with proactive innovations, beating competitors in the market. Scholars are in agreement that, entrepreneurial orientation (EO) is a combination of these three dimensions (Wiklund, 1999), some studies have adopted the three dimensional models (Covin & Slevin, 1989; Wiklund & Shepherd, 2003). There was an additional two dimensions to the original ones by Miller (1983). These are autonomy and competitive aggressiveness (Lumpkin & Dess, 1996).

This study adopted Miller's three dimensions, innovativeness, risk taking and proactiveness to confirm if the three, have similar strength as proposed by Miller (1983). Organizations need to take risks, perform self-directed activities, engage in

innovation and react proactively. Zhou and Wit (2009) argue that, entrepreneurial-oriented firms have been proven to be ahead of competition because they are always introducing new products and services and in turn improve their financial results.

Theodorakopoulos, Kakabadse and McGowan (2014) support that, learning and development occurs amongst people who actively engage in a common enterprise by making learning empowering and productive and thus sustain entrepreneurial orientation. This in turn produces communities of entrepreneurial practice. The scholars aver that, the role of the entrepreneurial manager is to nurture communities of growth-oriented firms where entrepreneurial learning takes place.

Business environment is highly turbulent. This calls for organizations to integrate strategic function with entrepreneurial actions. Organizations turn to Strategic entrepreneurship (SE). It is a combination of two disciplines; entrepreneurship and strategic management Schindler and Hill (2007). The former constitutes actions that contribute to the identification and exploitation of gainful prospects in the environment, while the latter involves a set of actions designed to achieve competitive advantage and realize far-reaching results by carefully selecting viable alternatives that lead to superior performance. Kimuli (2011) argues that strategic entrepreneurship is important and organizations that embrace it, achieve their main goal of continuously creating competitive advantage that they maximize on wealth creation.

In both developed and developing countries, there is need for structural and policy reforms in order to develop and support new and innovative high-technology firms (Ahmad & Ingle, 2011). Most of these are small businesses that have been acknowledged as vital component of economic growth and social development,

accounting for over 70% of available employment opportunities and constituting 30-40% contribution to GDP (Dey, 2012). Despite this promise, the failure rate of these businesses ranges between 80-90 % within the first year of operation (Mutambi, Byaruhanga, Buhwed, & Trojer, 2010).

Within this paradigm of economic development, such a high failure rate cannot be ignored, cognizant of the vital contribution the sector makes to the economy and society (Xu, 2009). Support of business organizations is becoming increasingly popular in both industrialized and developing world for economic development, wealth creation and poverty reduction (World Bank, 2013). Governments have come up with numerous concepts and strategies that relate to the formation, development and sustainability of small business sector, business incubation being one of them (Ahmad & Ingle, 2011).

Business incubation involves programmes designed to accelerate the successful development of entrepreneurial companies through an array of business support resources and services, developed and managed by incubator management. These services are offered both in the incubator and through its network of contacts. National Business Incubation Association (NBIA) is the body that formulates guidelines aimed at developing dynamic processes of business enterprise development and in turn, nurtures young firms to survive and grow during the start-up period when they are most vulnerable (Theodorakopoulos et al., 2014)

Case studies conducted across different countries to establish what constitutes successful national and international business incubation programmes. It suggested that there are best practices that yield incubation success (Lewis, Harper-Anderson & Molnar, 2011). These practices are, business assistance programs, professional

infrastructure, funding, client networking, technology licensing and commercialization, University and state linkage, facility fit, governance and staffing, client screening and graduation and lastly incubator evaluation (Wolfe, Adkins, & Sherman, 2000).

Another study conducted among seven (7) incubators in US, one (1) in Israel, Canada and New Zealand respectively, to test whether there was a causal relationship between business incubation practices and client firm success documented 8 best practices similar to the previous study. The study also concluded that, business incubation practices yield higher success than program size, age or host region capacity for innovation and entrepreneurship (Colbert, Adkins, Wolfe, & Lapan, 2010).

This study conceptualized the following incubation practices factors, client selection criteria, funding and entrepreneurial management as critical practices that ought to be adopted by successful incubation program. To ensure the incubator creates conducive environment that lowers the failure rate of firms seeking services. Other practices will be considered in later studies to establish their correlation with success of incubators.

A business incubator is a facility designed to assist businesses become established and profitable during their incubation period. The concept has its roots in the 1960s, but it wasn't until the late 1990s that it gained popularity as support for start-up companies who needed advice and venture capital to get their ideas off the ground (Liss, 2000). Business incubation facilities have been viewed in different ways by different scholars: as multi-tenant buildings (Weinberg, Allen, & Schermerhorn, 1991; Hurley, 2002); managed workspaces (Lalkaka, 1997); incubator buildings, speculative buildings and flex space (Hurley, 2002); greenhouse business facilities and business centres (Plosila & Allen, 1985); or concentrates on business-incubator profiles (Hackett & Dilts, 2004).

The first documented incubator was the Batavia Industrial Centre (BIC) located in Batavia, New York, and started in 1959 (Theodorakopoulos et al., 2014). The concept has evolved over time, with programs being classified as either first, second or third generation. The first focused on infrastructure (tangible assets). The second generation focused on business support while the third focused on networks and value addition. Over time both the second and third generation moved to intangible assets. In the evolution of business incubators, the first generation came into being from 1960 to 1985, the second from 1986 to 1995 while the third generation spans from 1996 to date (Ryzhonkov, 2013).

The National Business Incubation Association (NBIA) traces three movements of business incubation development (Kemp, 2013). The first analyzed movement is one with a desire to fill old vacant factories and abandoned buildings in depressed economies in North America. The second movement was prompted by the National Science Foundation's desire to spur innovation and entrepreneurship in universities. Lastly, the third movement was spurred by the private sector, which identified a new path for investment and commercialization of emerging technology (Carrera, Menguzzo & Messina, 2006) as cited in Kemp (2013). The scholar avers that the first incubator movement sought a real estate solution. The second movement discovered infrastructure alone would not deliver results; an entrepreneur was needed in adding value. The last movement saw the rise of many venture capital investments in start-up firms. With the private sector looking for an avenue to commercialize emerging technologies, business incubators were seen as a good avenue.

Bruneel, Ratinho, Clarysse and Groenc (2012) posit that business incubators play a significant role in transforming a business idea into an efficient economic organization that hatches enterprises. The scholars view business incubation as an

umbrella concept that describes a wide range of ever-present and heterogeneous institutions in different contexts and with distinctive objectives. They argued that incubators are either public or private, specialized in a particular industry or diversified profit or non-profit based, physical or virtual (or a combination of the two). They concluded that due to their diversity, incubators come with a variety of organization missions, processes, structures and resource flows exhibited by these diverse concepts.

Nteere (2012) classifies three main categories of incubatees who may need the services of business incubators. First are those individuals interested in promoting an innovative idea into a viable business, yet they lack skills in business and are interested in learning more to change the concept into business. The second category of incubatees are people who have clear documented business concepts based on an innovative idea, but due to resource constraints cannot convert them into businesses. Third, incubatees could also be businesses that are already set up and running but need to be boosted to grow.

Resources are not valuable in and of themselves, but there is need for firms to have different stocks of resources for performance differential (Peteraf & Bergen, 2003). To achieve this performance differential, Barney (1991) opines that a firm's resources must, be valuable, rare, and imperfectly imitable and substitutable so as to be a source of sustained competitive advantage. Incubators are mechanisms of awarding stock of tangible and intangible resources to incubatee firms resulting in access to new knowledge, expertise and networks that finally lead to superior differential performance based on the resources availed in the incubator. This study is anchored on resource based view theory.

Zahra and Dess (2001) defined incubator performance with respect to their overall goals which can either be in financial or non-financial perspective. The financial perspective includes sales growth, market share and profitability and non-financial perspective may include the infrastructural development, Increase in intellectual rights, introduction of new services and stakeholder satisfaction among others provide firm performance. This study adopted the non-financial perspective which focused on the overall goal of an incubator centre.

Lewis et al (2011) support that the main goal of an incubator is release of financially stable and free standing firms after incubation. This signifies survivability of incubated firms. This study focused on start-ups hence survivability of firms is important. Hence the study focused on increase in number to measure performance of incubators, targeting three areas, that is, increase in number of incubatees, number of failed and exited from incubator and number still in operation after graduation.

1.1.1 Global Perspective of Business Incubation Practices

In the United Kingdom, there is a well-established network of about 300 business incubators supporting about 12000 businesses (Wanyoko, 2013). A study in UK indicated that, 23% of incubatees were in agreement that business performance was improved by an incubator program. Another 60% rated it critical, with only 17% viewing it as unimportant. This is a clear indication that incubation is deemed important by a greater majority. By 2013, there were about 7000 incubators worldwide. Europe alone had 1800, China 750, and North America approximately 2000 (NBIA, 2010). North America saw 27,000 start-up companies in 2005, providing fulltime employment for more than 10,000 workers and annual revenue of more than \$ 17 billion (NBIA, 2006).

In the United States, incubation falls under various programs. Mixed-use incubators take the lion's share at 54%, technology 39%, service /specialty 4% and finally manufacturing 3%. Incubator programs have diversified sponsors, with economic development organizations constituting 31%, Government entities 21%, and Academic Institutions 20% among other sponsors (NBIA, 2010). The return on investment of incubators is \$1 in public investment and \$30 in local tax revenue. The retention rate of graduates in the incubator community is 84%. The incubator also increases the likelihood of business success, with 87% of incubator graduates remaining in business (NBIA, 2010). In 2005, 27,000 new start-up companies were assisted by business incubation in North America. They provided more than 100,000 fulltime employment to workers, and generated annual revenue of \$17 billion (Wanyoko, 2013).

In South Africa, business incubation was introduced to bridge the first and third world economic barriers (Cullen, Calitz & Chandeler, 2014). The scholars aver that there are about 30 incubators throughout the country in various sectors of the economy ranging from high technology to high growth sector, such as construction, with about 19646 jobs created. Dubihlela and van Schaikwyk (2014) gives an estimate of about 0.25 million jobs generated by the business incubation programme. Natrass (2011) as cited in Dubihlela and van Schaikwyk (2014) support that business incubators in South Africa are established by government, the private sector, higher education institutions with the help of overseas initiatives such as the Branson Centre of Entrepreneurship in partnership with Ned Bank in funding the small business sector.

Some scholars opine that business incubation has not benefitted SMEs; Lose and Tengeh (2015) research on sustainability and challenges of business incubators, reported that, despite the numerous resources invested in incubator programmes by

government and private organizations, their impact on SMEs is not well documented, especially in the context of South Africa. It is possible that the low uptake of business incubation by SMEs is lack of conducive environment.

1.1.2 Kenyan Perspective of Business Incubation Practices

In Kenya, Small and Medium Enterprises (SMEs) play a very important role in economic growth and development. The sector contributes up to 18.4% of the country's Gross Domestic Product (KNBS, 2015). The SME sector constitutes 98 percent of all businesses in the country, providing employment to 50% of young job seekers in the manufacturing and service industries (Wakiaga, 2015). However, like in many developing countries, the survival rate for start-up business is only between 10-20% (Kekobi, 2005). But, there is resurgence in the survivability of small businesses; one of the reasons for this paradigm shift is attributed to the advent of business incubators. In Kenya, business incubation is gaining prominence in Government policy, private sector and the academia. (Ruhiu, Ngugi & Waititu, 2015).

The history of business incubators in Kenya can be traced back to 1967 when the Industrial and Commercial Development Corporation (ICDC) established the Kenya Industrial Estate (KIE) as its subsidiary. Modelled along the concept of industrial estates, the first task of the Kenya Industrial Estate was to provide sheltered real estate services countrywide, along with the provision of financial and business development services (BDS), as a strategy geared towards local adaptation and industrialization (Meru & Struwig, 2011). Kaane, a former permanent secretary in the Ministry of Education (2014) at a conference in Ivory Coast, on youth employment reported that, Technical, Vocational Education and Training (TVET) institutions in the country are believed to be the engine that imparts knowledge and skills to help the youth be job

creators and not job seekers. This move is frustrated by the government's move to upgrade most of these institutions into universities. The report stated that, some institutions have also not embraced incubation as a strategy to nurture, the great innovative ideas to vibrant businesses that boost the regional and national economy. Though, some Universities have started incubator Centres to nurture innovative ideas. Notable example is the Fab Lab at the University of Nairobi. The University works with TVET institutions and MSEs to develop their innovations and designs to commercial level. Other notable interventions are from Jomo Kenyatta University of Agriculture and Technology, Kenyatta University, Strathmore University, and Mount Kenya University. The same paper reported that Government institutions also champion incubation. These include, Kenya Industrial Estates (KIE) the oldest incubator programme in the country that funds and provides infrastructure to SMEs. The government through Kenya Industrial Research and Development Institute (KIRDI) supports youth in both formal and informal sectors to actualize business ideas into commercial projects through training.

The Global Innovation Report (2015) is cognizant of the private sector and the progress it is making in incubation. Regionally, Kenya is the leading innovation hub (World Bank, 2016). Despite this recognition, all this achievement is outside policy, and proper structures, with the incubation policy, at the draft stage. The incubators in the country fail to come up with solutions to assure survivability of the ideas upon graduation.

1.2 Statement of the Problem

In Kenya, A study by Ruhiu, Karanja and Waititu (2014) revealed that 53.2% incubated businesses started outside an incubator while 36.3% start-ups began in the incubator and a further 79% were still housed in an incubator. This indicates an upward trend of incubation uptake in Kenya. It is envisaged that with increased uptake of incubation, Small, Medium Enterprises (SME's) failure rate will be checked since incubated businesses have 87% chances of survival (NBIA, 2010) However, current incubation capacities cannot meet the demand from potential high growth SMEs. A pilot study in the Closing The Gap series of entrepreneurial ecosystem assessments conducted in 2015 in three counties Nairobi, Nakuru and Mombasa, the stakeholder conversations and assessment suggested that, incubators and accelerators on average support around 18 SMEs per year yet for the economy to grow at an average of 10% GDP of the republic of Kenya (RoK, 2007), and 25% of 28,800 of the registered start –ups need to be incubated (Baier, Agakar, Sinha, Guta & Poonja, 2015). Out of 51 operational business incubators in Kenya, only 24 are registered with the government and most are operating in Nairobi. For incubators to be enhanced, EO needs to be introduced in their business operation models (Amezcuca, 2010), hence, this study explored the extent to which EO is enhanced in the relationship between incubation practices and performance of incubator centres in Kenya.

Business incubators presence notwithstanding, Kenya's SMEs still face unique problems of uncertainty, inadequate innovation and evolution (Katua, 2014). These challenges hinder their progress, growth and subsequently their contribution to economic development. This is likely to lead to their sure death, hence lowering the country's Gross Domestic Product (GDP), the vision 2030 economic pillar(GoK, 2013).This likelihood stirs fears of possible economic recession in economists and investors alike (Ndung'u, Wanjau & Gichira, 2014).

Several local studies have been carried out in the field of business incubation practices. Wachira (2017) in his study on the role of University based Business Incubation Strategy on Enterprise growth concluded that to reduce the high mortality rate of MSE start-ups University incubators need to adopt a suitable selection criteria

that screens and admit only the qualified clients, build on their managerial skills create networks and develop entrepreneurial skills to identify opportunities.

Kwamboka and Muturi (2015) conducted an in-depth study on the factors affecting access of business incubation services by women entrepreneurs in Kisii County. The study findings revealed that the influence of time and finance on business incubation services had a positive influence on women entrepreneurs in Kisii County.

Mungai and Njeru (2016) studied the effects of Incubation services on performance of business ventures at Nairobi incubation Lab. Physical infrastructure, networking, business management were positively correlated with performance of business ventures. The study concluded that business incubation services should be provided in variety to improve business performance.

Rotich, Wanjau and Namusonge (2015) assessed the moderating role of EO on the relationship between lending and financial performance on manufacturing SME's in Kenya. The study recommended firms embrace EO to increase competitiveness. It is also evident from the reviewed literature that, little attention has been given to the role of EO on the relationship between incubation practices and performance of incubator centres. It is also noted that, the focus of most incubation studies is on outcome and little attention is paid to the practices and process of incubation (Junaid, 2014). This study therefore sought to fill in this knowledge gap.

1.3 General Objective

The general objective of this study was to analyze the relationship between incubation practices, entrepreneurial orientation and performance of incubator centres in Kenya.

1.3.1 Specific Objectives

Specifically the study intended to address the following objectives:

- i. To find out the relationship between client selection criteria and performance of incubator centres in Kenya.
- ii. To determine the relationship between incubators funding and performance of incubator centres in Kenya.
- iii. To assess the relationship between Entrepreneurial management and performance of incubator centres in Kenya.
- iv. To evaluate the influence of Entrepreneurial Orientation on the relationship between incubation practices and performance of incubator centres in Kenya.

1.4 Research Hypothesis

H0₁: There is no significant relationship between client selection criteria and performance of incubator centres in Kenya.

H0₂: There is no significant relationship between funding and performance of incubator centres in Kenya.

H0₃: There is no significant relationship between entrepreneurial management and performance of incubator centres in Kenya.

H0₄: Entrepreneurial orientation does not moderate the relationship between incubation practices and performance of incubator centres in Kenya.

1.5 Justification of the Study

This study was timely because SMEs are a growing feature in the national economy, accounting for a rising share of employment. Since unemployment is a perennial problem in Kenya, there is need to boost SMEs and services that assist in their establishment and performance, of which business incubation is key. The current study was significant in that, its findings improve in the uptake of incubation by SMEs when the concept is clarified to the sector, which currently is not aware of the concept.

In Kenya, the public and private sectors have been the principal employers for many years, but it has become increasingly evident that the two sectors cannot absorb the large numbers of school leavers and university graduates released into the job market every year. With the country's population continuing to rise, current employment trends are set to continue in the foreseeable future. Thus, in order to provide productive work for the vast majority of working-age Kenyans, the government should seriously consider increasing involvement in business incubation. The cumulative effects of investing in entrepreneurs gives a firm foundation in business that will create myriad new enterprises that in turn employ others as well as give them the experience and know-how to venture into business in their own right.

A study conducted in USA revealed that best incubation practices yield incubation success (Lewis et al., 2011) hence the need to conduct a study to evaluate the performance of incubator centres in Kenya and ascertain if they embrace best practice, to increase awareness and uptake of incubation services by SMEs and

individual entrepreneurs. Many studies (McAdam & McAdam, 2008; Patton, Warren, & Bream, 2009; Tosrovic & Moenter, 2010) as cited in Junaid (2014) adopt Resource Based View in a strategic context, hence the need to study the resources available in the centres, the strategies formulated and employed by incubator managers in pursuance of sustained competitive advantage and superior performance.

1.6 Significance of the Study

The study contributes in four areas namely; theoretical, empirical, practical and policy. Theoretically, the study tested theories and contributes to the already existing few theories in the area of business incubation. Empirically, the study adopted the commonly studied dimensions of entrepreneurial orientation; innovation, risk taking and proactiveness by Miller (1983), by exploring if they contribute to performance of incubators. The study also adopted EO in the relationship, this relationship has not been tested here in Kenya; hence the findings will be useful source of information for scholars.

Practically, incubator managers will appreciate the importance of incubation practices that correlate with incubator performance to increase admission into their incubators. They would also understand the importance of embracing entrepreneurial spirit and behaviour in formulating incubator strategies to position themselves in the market ahead of other incubators. Entrepreneurs would appreciate the importance of coming up with innovative ideas, being passionate about their ideas and develop business models that can stand the test of time to become a brand name in the market. This opportunity will create jobs for the local community and spur development in the area.

Policy makers will develop strategies to assist business incubation programs in Kenya, to increase opportunities, incubation uptake and see many of the youths, be job creators and not job seekers; this will improve the economy of the country and reduce the crime rate.

1.7 Scope of the Study

The study was limited to incubator centres in all counties targeting start-ups in operation from 2012-2016. The sub-variables of incubation practices studied were client selection criteria, funding and entrepreneurial management. The study also adopted the widely studied constructs of EO, innovation, risk taking and proactiveness (Miller, 1983; Covin & Slevin, 1989). Performance indicators that were used in this study included number of graduating firms, number of firms failed and exited and number of firms in operation after graduation. This study targeted start-ups hence survival is key, justifying performance indicators. Incubators are mainly non-profit making entities, their main goal is to produce successful firms that will leave the program financially viable and freestanding, by providing resources in the incubator and through its networks (Lewis et al., 2011)

1.8 Limitations of the Study

This study targeted the opinions of incubator management in all the targeted incubators. This study adopted the ordinal scale to measure variables. This scale would not give the level of precision required in a study, especially when strong statistical procedures are to be applied (Mugenda, 2008). To address this limitation, the ordinal data collected for the constructs were collected using several indicators for each construct. Factor analysis was used for dimension reduction of ordinal data indicators of the construct. When factor score were generated the resulting

measurement for the constructs was on an interval scale. The other reason was because the respondents have a responsibility for both variables (independent and dependent), hence the responsibility was dependent on their personality. Test of common method variance gave rise to a value that was of acceptable threshold, that mitigated against this limitation.

1.9 Definition of Terms

1.9.1 Client selection criteria

Ganamotse (2011) defines client selection criteria as a well developed and managed procedure that acts as a basis for discussing and selecting of clients which is seen an effective way to define and develop a good client base. Lumpkin and Ireland (1988) defines it as a process upon which the firm can help to insure its works with clients who are willing, and able to pay for the legal services provided, assist with the growth of the firm, maintain and expand identified practice areas retaining clients who meet the goals of the firm. This study operationalized the term as a basis for incubator management accepting or rejecting clients at the admission stage.

1.9.2 Entrepreneurial Management

Gurbuz and Aykol (2009) define entrepreneurial management as the practice of taking entrepreneurial knowledge and utilizing it for increasing the effectiveness of new business venture as well as small- and medium-sized businesses.

Hortovanyi (2012) define entrepreneurial management as an opportunity driven without regards of availability of resources and potential obstacles, which requires a great level of propensity to change. Shane and Venkataraman (2000) define entrepreneurial management as a mode of management that is proactive, opportunity-driven, and action-oriented. This study adopted Gurbuz and Aykol (2009) definition.

1.9.3 Incubator

Incubator is an organization that accelerates and systematizes the process of creating successful enterprises by providing them with a comprehensive and integrated range of support and steady flow of new businesses with above average job and wealth creation potential (Wynarczyk & Raine, 2005). Lewis et al. (2011) define an incubator as multitenant facility with on site management that directs a business incubation program. A Business Incubator is defined as sound platform to reduce the chances of failure in early stage companies and result in the financial viability and growth of firms that it supports (Wadhvani Foundation, 2013). A term embraced in this study. The term business incubator is synonymous with technology, business, tech hub or accelerator. This study considered any organization that targeted start-ups or individual entrepreneurs and nurtured them for growth irrespective of the term used.

1.9.4 Incubation

United Kingdom Business Incubation (UKBI, 2009) define business incubation as a unique and highly flexible combination of business development processes, infrastructure and people designed to nurture new and small businesses by supporting them through the early stages of development and change. National Business Incubation Association (NBIA) (2010) define incubation as business support processes that accelerate the successful development of start-up and fledging companies by providing entrepreneurs with array of targeted resources and services orchestrated by incubation management, offered in the incubator and through its network of contacts. This definition is adopted in this study. Different terms are used to describe this process; these terms include business incubation, technology parks,

industrial sheds, hubs and accelerators. Despite the term, if the facility exists to support the growth of start-ups they qualified to be considered in this study.

1.9.5 Incubation Practices

National Business Incubation Association (NBIA, 2010) defines incubation practices as best practices or innovative approach to incubation programs. Lewis, Anderson & Molnar (2011) define incubation practices as those practices that lead to successful new ventures. This study adopted NBIA (2010) definition.

1.9.6 Entrepreneurial Orientation

Entrepreneurial Orientation is a strategic posture of a firm which indicates a firm's overall competitive orientation (Covin & Slevin, 1989, 1990). Entrepreneurial orientation is the extent to which a firm is entrepreneurial (Schillo, 2011). This definition was adopted in this study.

1.9.7 Performance of Incubator Centres

Zahra and Dess (2001) defined incubator performance with respect to their overall goals which can either be in financial or non-financial perspective. The financial perspective includes sales growth, market share and profitability and non-financial perspective may include the infrastructural development. Increase in intellectual rights, introduction of new services and stakeholder satisfaction among others provide firm performance. This study adopted the non-financial perspective which focused on the overall goal of an incubator centre. This study focused on start-ups hence survivability of firms is important. Hence the study focused on number of graduating firms, number of firms failed and exited and number of firms in operation after graduation.

1.9.8 Resource Based Approach

Barney (1991) define resource based approach as a strategic asset that is valuable, rare, difficult to imitate, and non-substitutable. Porter (1981) defines the Resource-Based approach as a managerial framework used to determine the strategic resources with the potential to deliver comparative advantage to a firm. These resources can be exploited by the firm in order to achieve sustainable competitive advantage. This study adopted Michael porter's definition.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

This chapter covered Strategic entrepreneurship concept, business incubation concepts and entrepreneurial orientation, theoretical and empirical literature that is relevant to the area of study. It also presents a conceptual framework, followed by critique of the existing literature, identified research gaps and summarized empirical literature.

2.1 Strategic Entrepreneurship Concept

Strategic entrepreneurship is defined as a process that guides decision making and managerial efforts for identifying the best opportunities and then exploiting them through strategic actions (Shane & Venkataraman, 2000). It is also seen as a process that facilitates firm efforts to identify opportunities with the highest potential to lead to value creation, through the entrepreneurial component and then exploit them through measured strategic action, based on their resource base (Kyrgidou & Hughes, 2010).

Strategic entrepreneurship finds equilibrium between opportunity seeking and advantage seeking activities (Ireland, Hitt & Sirmon, 2003). In opportunity seeking, potential opportunities are sort to identify areas of future business for the firm. The areas are represented by how well the firm absorbs and integrates new and existing knowledge found within and outside the organization to facilitate the learning process (Chesbrough, 2003). Therefore, firms have to build diverse knowledge base to expand and succeed in an environment that is marked by highly disruptive innovations (Christensen, 1997).

Strategic entrepreneurship focuses on appropriate managerial skills with a bias to broader set of capabilities. In addition, ability to monitor and evaluate activities that vary between creative opportunity seeking and precise advantage seeking is important (Ireland et al., 2003). For strategic entrepreneurship to thrive, innovations must keep streaming in (Ireland & Webb, 2007). If no new innovations come in, the firm simply relies on its existing routine (March, 1991). In an incubator, the role of the manager is very important in ensuring success. The mindset of the manager, the culture and leadership skills determines how resources will be used in the incubator centre, ensure there is an inflow of innovative ideas, supported by a good selection criteria embraced by an incubator Centre.

2.1.2 Incubation Practice Concept

Efforts are put in place to improve business incubation performance to ensure growth of innovative competitive business by developing best practice at national and international levels. Different studies have been conducted across different countries to establish what constitutes successful business incubation programmes and the findings of the studies suggest that, there are best practices that yield incubation success (Lewis et al., 2011).

These best business incubation practices are documented to illustrate best practices or innovative approach to incubation programs. They also promote economic development of the country since the success rate of incubated businesses is at 87% compared to those businesses that are not incubated and do not live beyond their fifth birthday (NBIA, 2010). These practices are, business assistance programs, professional infrastructure, funding, client networking, technology licensing and commercialization, University and state linkage, facility fit, governance and staffing,

client screening and graduation and lastly incubator evaluation (Wolfe, Adkins & Sherman, 2000).

2.2 Theoretical Framework

A theoretical framework provides a theoretical understanding of a research by reviewing theories related to the study (Cooper & Schindler, 2011). This section of the study covered the theories that are relevant in explaining the influence of entrepreneurial orientation on the relationship between business incubation practices and performance of firms.

2.2.1 Creative Destruction Theory

Creative Destruction Theory was developed by Schumpeter (1942) and modified by Thesmar and Thoenig (2000) and Kimuli (2011). The theory argues that innovation is developed if firms are to be creative. Innovation reflects an important means by which firms pursue new opportunities (Lumpkin, Lyon & Dess, 2000). Scott (2000) as cited in (Kimuli, 2011) argue that all firms face an increasingly dynamic and complex environment that is characterized by industry globalization, mergers, shorter product life cycles, technology, and fast-changing competitive approaches that impact on overall performance.

Schumpeter (1942) argues that innovation leads to market dislocations, where the small firms take over leadership position in the market from the incumbent large firms. This view is supported by Thesmar and Thoenig (2000). The two argue that innovative first movers destroy incumbents' market power and enjoy temporary monopoly and abnormal profits courtesy of rivals' lagged responses. This calls for businesses to turn to disruptive innovation approaches that create a competitive advantage that creates new value for customers (Mizik & Jacobson, 2003). Business

incubators are highly motivated to pursue disruptive innovation by implementing changes and beat the large companies who are not fast in changing and lag in delivering new technologies in the market.

This theory is relevant to this study because it tries to compare traditional firms that are not willing to keep abreast with customers taste and preferences with the entrepreneurial firm that are always striving for better ways of doing things and as a result the laggards soon disappear from the market leaving firms that are willing to adapt to the changes in the market as dictated by the customers. This scenario reflects the Schumpeterian wave of creative destruction of 1942 and Kirzner (1979) theory of alertness. The incubator cushions entrepreneurs from the hostile environment and as a result, they are fast in introducing new products, finding new customers, embracing new processes, new markets and also new successful organizations. This prolongs their presence in the market when others fail during their formative years.

2.2.2 Real Option Theory

Real Option Theory was developed by Schumpeter (1934) and supported by Kirzner (1979). The theory purports that a real option is created through an initial investment decision, while subsequent resource infusions, monitoring and assistance are option exercises (Junaid, 2014). The theory views the entrepreneur as a resource that recognizes and creates options. The proponents of the theory appreciate an entrepreneur as someone alert to opportunities that can be profitably exploited.. Alertness is seeing value in a product that other people cannot see. In an incubator, management can decide to invest resources in incubatees even if the Net Profit Value (NPV) analysis does not suggest rewards but there are indications that through innovation, its value can be increased. If, by any chance, the desired value is not

created, management winds up quickly and cheaply. This indicates that incubator management requires skills and experience in adding value in the incubation process.

Junaid (2014) asserts that clients can be rationally selected from a pool of available real options by employing selection criteria. The Real Option theory, however, it is cognizant of the inability to come up with a universal set of selection criteria or capability to be developed by firms for market success. The difference is attributed to difference in typology, goals, and markets served. The success of any incubator is pegged on the quality of ideas selected for incubation. These ideas must have the ability to grow into sustainable business that not only benefits the locality where it is incubated but other regions.

Hackett and Dilts (2004) opine that performance of the incubator is measured through growth of incubatees and financial performance when exiting the incubator. All this is concluded to be a function of incubator ability, development capabilities and resources that create options. When weak but promising firms are admitted to the incubator, resources infused, and the performance checked for potential terminal option failure, but do not measure up, then they should be withdrawn.

Hackett and Dilts (2004) argue that business incubator performance is a product of three factors; selection of the right clients, quality of incubator assistance and level of financial resources that will deliver services to the clients. Armstrong (2009) affirms that management and employees must agree on targets to be achieved and identify metrics to measure performance. This enables the incubator management to assess and measure up the idea, and if not viable withdraw it from the incubator early enough to avoid wastage of resources.

This theory is applicable to the current study because the success of business incubation is anchored on wise selection criteria of options that are to deliver value. It is also dependent on incubator management that is believed to be an overarching factor of success for other factors of production. It is also applicable because the incubator management must set challenging goals with the incubatee and communicate what is expected of them. Management must also develop metrics of measuring performance against the set goals. Client selection criteria, incubator funding and entrepreneurial management factors were established as some of the independent variables that affect incubator performance. This was instigated by the Real Option Theory.

2.2.3 Resource -Based View Theory

This theory was propounded by Penrose (1959) and argued in line with Michael Porter's strategic development process which begins by assessing the relative position of a firm in a particular industry. The strategy formulation in any firm is a statement of a firm's identity. First, firms identify and classify firms' resources and appraise their strength and weakness relative to competitors. Next, firm's capabilities are identified paying attention to resource input to each capability and the complexity of each capability. The rent generation potential of these resources and capability in terms of potential for competitive advantage and their returns is determined. This information helps firms formulate a strategy that best exploits the firm's resources and capabilities relative to external opportunities. Finally, the firm is in a position to identify resource gaps that need to be filled, replenish, augment and upgrade a firm's resource base.

Penrose (1959) views resources from tangible and intangible perspective. Many scholars (McAdam & McAdam, 2008; Patton et al., 2009; Tosrovic & Moenter, 2010) as cited in Junaid (2014) viewed incubators as mechanisms of awarding a stock of intangible and intangible resources to incubatee firms resulting in access to new knowledge, expertise and networks that finally lead to better performance. The theory supports that the essence of incubation is to avail resources in a cost effective and timely way to clients.

Junaid (2014) argues that, the logic behind the resource based view (RBV) is for firms to develop sustainable competitive advantage (SCA) and at the same time earn economic rents hence, RBV interlinks the role of incubators in three tiers. One, how the centre can help clients develop SCA and superior performance, two, what the characteristics of these advantage generating resources are and lastly identify, who are the influencers of strategic choices by client firms. The incubator role lies only in the second tier because the first tier and third tier are environmental variable outside the control of the incubator. McAdam and McAdam (2008) as cited in Junaid (2014) noted that in the second tier, for clients to effectively exploit resources within an incubator, it calls for competent management team.

There are problems relating to classical assumptions behind this theory in terms of applicability of the theory from an economic stand point. On the exchange issue, the theory places greater emphasis on the economic stand point as opposed to political and social exchanges. The theory also views organizational actors as rational beings who make decisions and choices that are self-gratifying (Fahy, 2000) as cited in Junaid (2014). The theory therefore gives the current study an argument based on performance measurements which are more on the economic value of incubators as

opposed to social and political thus giving incubators role the great benefit to the entrepreneurs who are focused on economic value.

2.3 Conceptual Framework

A conceptual framework is a model presentation of how a researcher conceptualizes or visualizes relationships between variables of a study. This relationship is presented graphically or diagrammatically (Orodho, 2008). The scholar contends that, conceptual framework as a hypothesized model that identifies concepts or variables considered in a study bringing out the relationships.

A variable is a measurable characteristic that assumes different values among units of specific population (Mugenda, 2008). The key variables in this study are categorized as moderator, independent and dependent. This study sought to analyze how client selection criteria, incubator funding and entrepreneurial management influence performance and the role of EO in this relationship.

The variables in the conceptual framework were derived from the theories identified in the study. The variables were also derived from the studies done by scholars like Lewis et al. (2011); Lechner and Vidar (2014); Lumpkin and Ireland (1988); Junaid (2014); UKBI (2009); Cui, Zha, and Zhang (2010); Ahmad and Ingle (2011); Theodorakopoulos et al. (2014); Gurbuz and Aykol (2009); Tell (2012); Somsuk, Wonglimpiyarat, and Laosirihongthong (2012); Wanyoko (2013); Voisey, Gornall, Jones, and Thomas (2005); Hackett & Dilts (2004); Wadhvani Foundation (2013); InfoDev (2010) and Lumpkin and Dess (1996, 2001).

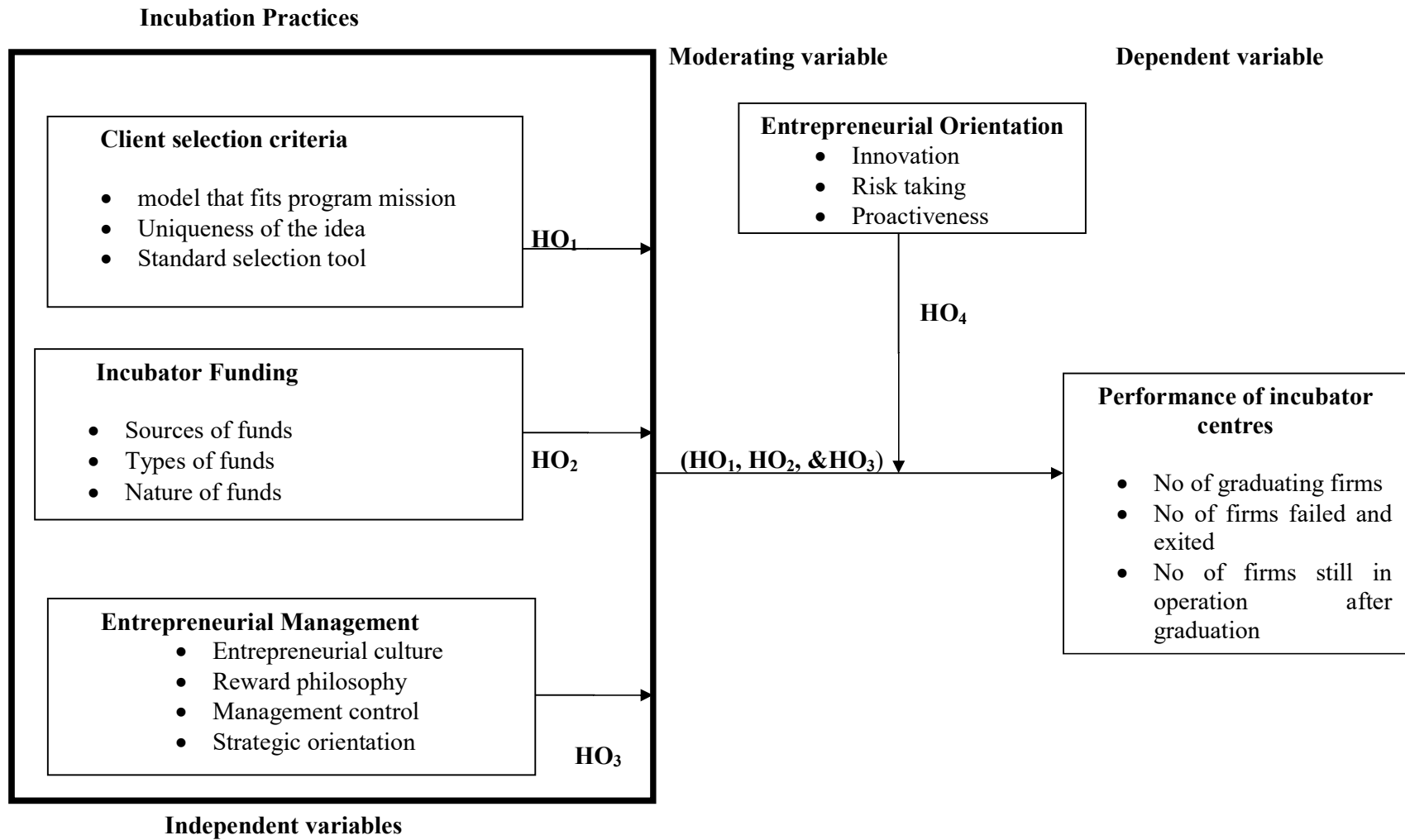


Figure 2.1: Conceptual Framework

2.3.1 Client Selection Criteria

Competition for placement into business incubation program is stiff due to limited resources (Babwah & McDavid, 2014). The success of Business Incubation Programme is anchored on the performance of the client and their business enterprises making the client selection process a key component of business incubation to justify the value for resources. The incubator's program ultimate goal of a client selection process is to establish that there exists a match between the prospective/potential client's needs and incubator's mission and resources (Walker, 2004). An incubator must also ensure the following are incorporated in the board, community and private industry. They should also be involves as mentors, suppliers or customers. Client selection must also take the shortest time possible to establish a viable pool of viable tenants (Nteere, 2012). Therefore it's important for any program to screen the client's ideas for viability since most incubators operate with limited staff and financial resources (Lumpkin & Ireland, 1988).

2.3.2 Incubator Funding

A fundamental decision made by firms relates to how assets are to be financed hence making financial policy choice an important research area in finance (Hochmuth, 2010). UKBI (2009) supports the findings of the study conducted in USA, where most of the incubation programmes are financed by public funds. Other studies recommend that firms vary the sources of finance and avoid over reliance on one source (Gstraunthaler, 2010) the scholar also assert that incubators are not capable of attracting venture capitalists for their incubatees and none of the incubatees had successfully applied for funds from venture capitalists. This implies that incubatees are only relying on one source of funds. The study concluded that incubators are demand driven due to the high number of clients seeking admission, but due to

limited resources, only those clients that meet the laid down criteria of a host incubator, will be admitted.

Developing a successful incubator calls for proper understanding of the project to avoid over/under funding the project. This is done by identification of the right amount of operational funds and ability to structure it in a reasonable compensation as need may be.

2.3.3 Entrepreneurial Management

Business incubation best practice demands that management operate an incubator as a business, with a mission, goals, objectives, strategies, payroll, staff, cash flow, and most other business characteristics, to help create and nurture new businesses (Lewis et al, 2011). Hróbjartsson (2014) spelt out requirements of incubation management to achieve success. They need experience with certain skills necessary for effective operation of an incubator, facilitate clients networking among themselves and other important players in their industry, and train clients in readiness for unsupported operations. Another important characteristic of these staff is they should have entrepreneurial mindset. The entrepreneurial staff has to have the “can-do” attitude, ability to solve problems, key focus on results, and work hard (Wiggins & Gibson, 2003).

Lastly the quality of management and staff is crucial in the performance of incubators. Theodorakopoulos et al. (2014) posit that there is a significant gap that exists on how management can support entrepreneurial development among incubatees, and recommend that incubation management should nurture entrepreneurial skills among the incubatees that can assure communities of growth-oriented firms. It is evident that

management skills and experience is an important aspect of incubation program success.

2.3.4 Moderating Role of Entrepreneurial Orientation on the Relationship between Incubation Practices and Performance of Incubator Centre

Entrepreneurial orientation is a significant and positive factor behind a firm's long-term growth. Hence it is attributed to positive impact on firm performance (Soininen, 2013). Several empirical studies are in support of this view (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Wiklund, 1999). Others that evidence entrepreneurial orientation's role in bringing organizational success and better firm performance are Huang, Wang, Chen and Yien (2011). Several studies also indicate a positive effect of entrepreneurial orientation on small firm's growth (Hughes & Morgan, 2007; Lumpkin & Dess, 1996). Lewis et al. (2011) conducted a study that evidenced that business incubation best practices are positively correlated to incubator success. It is affirmed empirically that business incubation practices yield higher success and not program size, age nor host region capacity for innovation and entrepreneurship (Colbert et al., 2010).

Literature affirms that firms which adopt entrepreneurial orientation perform better than those that adopt conservative orientation. (Rauch, Wiklund, Lumpkin & Frese, 2009). Organizational culture, in which business incubation best practices are embedded, is a key determinant of a firm's ability to understand, develop, or maintain entrepreneurial activity (Richard, Barnett, Dwyer & Chadwick, 2004). This hinges on the importance of business incubators embracing EO to create solutions in the economy and spur growth of innovative incubators. This underscores the importance of investigating the extent of its adoption to increase its uptake for the survivability

for business. In literature, there are few studies that have discussed directly the relationship between business incubation practices and entrepreneurial orientation but none has explored how Entrepreneurial orientation moderates this relation.

Overall, organizational culture sends an organization to greatness as its members are inspired to do their utmost to work hard to conceive and make goods and services that improve the welfare of their customers, hence developing organizational competences and obtaining a competitive advantage (Ndung'u et al., 2014). Chadwick et al. (2001) are in support of this view, and opine that a positive culture that supports risk-taking, opportunity seeking, and innovation, is a culture that embraces entrepreneurial orientation. In this context, entrepreneurial orientation is supported in moderating the relationship between business incubation practices and firm performance.

Hughes and Morgan (2007) aver that individual contribution of the different dimensions of EO is not uniform. Different dimensions differ in intensity of positive influence on firm growth at different stages of growth. The study encouraged an exploitation of the combination of dimensions whose positive contributions differ at different stages of growth of a firm. Lumpkin and Dess (1996) concur with these findings.

2.3.5 Performance of Incubator Centre

Incubator centre in this study represents a firm. Firm performance has been described in terms of the extent to which a firm's economic and strategic objectives are achieved in the market place (Gweyi & Karanja, 2014). Firm performance ascertains the functioning of an organization against a set of criteria and standards (Tangen, 2003). Effectiveness and efficacy are the two firm performance dimensions used to ensure the interests of organization publics is considered (Moullin, 2003; Khan,

Baharun, Rahim and Zakuan, 2011). Performance is a measure of how well a mechanism or a process achieves its purpose (Gathungu, Aiko, & Machuki, 2014).

Neely, Gregory and Platts (2005) define Firm performance measurement system as a process of quantifying the effectiveness and efficiency of an organization. The quantification of firm performance is viewed as traditionally based financial criteria whose dimensions are annual profit, annual sales, number of clients and their growth among others; however, those in the multiple objective schools of thought argue that performance measurement should balance and embrace a multi-dimensional, better reflecting stockholder interest (Malina & Selto, 2004, WU, 2009).

Kennerley and Neeley (2003) aver that financial performance measures are historical, hence limited in future indicators of performance. They focus on internal at the expense of external, with little regard to competitors and customers. Entrepreneurs, who are constantly scanning the environment, embrace contemporary performance measures system, which is multi-dimensional in nature capturing both, financial and non-financial criteria (Laitinen & Chong, 2006).

Phan, Siegel and Wright (2005) opine that Incubator performance is multi-dimensional with no existing literature on the acceptable measure in incubation, resulting in numerous performance measures by researchers. This is attributed to the definitional challenge of the concept of incubation hence, coming up with a single acceptable measure of performance is a challenge. Hence the following indices are used; finance, revenue, graduation from incubator program. Venture capital funds, survival, networking, innovative firms, job creation, growth, sales, profitability, patents registered, technology transfer, ability to share knowledge and technology and high tech employment.

Aerts, Matthyssens and Vandenbempt (2007) study to establish if the initial screening practice of incubators affect the survival rate of incubated tenants. The study established that incubators that balance factors at the initial screening stage and support entrepreneurial and small business development produce higher survival rate for its tenants, Amezcua (2010) in a thesis whose purpose was to establish if the performance of incubated firms outperforms the performance of non-incubated firms. The study also assessed if certain attributes of business incubators are more associated with better tenant performance. The findings of the study found a statistically marginal difference between incubated and non-incubated firms in terms of performance, also there were economic losses in terms of employment and sales and no contribution to economic growth. These findings are in line with those of Schwartz (2012), whose study on 371 startups in Germany assessed whether incubated firms have greater chances of success in the long run as a result of availing itself to incubation program when compared to a non-incubated firm. The study concluded that incubation is doubtful as a policy of improving firm performance in the long run. Amezcua (2010) study observed that, an incubator and entrepreneurial traits when related with how incubated firms perform, there was evidence of measurable impact of the duo on performance of incubated venture. These findings support that incubators that adopt entrepreneurial orientation outperform those that don't embrace entrepreneurial orientation.

2.4 Empirical Review

2.4.1 Client selection Criteria

Ganamotse (2011) conducted a study whose main objective was to assess the importance of business incubation and the value creation associated with nurturing and growing innovative and high growth SMEs that contribute to regional economic development. Business incubation selection was underpinned in this study, and it sought to analyze if selection practice directly or indirectly affects the performance of business incubation, measured in terms of new venture creation. The study revealed that selection criteria used in business industry is proposed by venture capitalists. The findings were believed to assist in selection processes where there is limited empirical evidence. The selection process was also rated as one of the most important activities that account for high growth potential of new ventures. The study also revealed that promotion of high growth ventures and not creation of new ones has a high potential for economic development of an area. Findings revealed that venture capitalist selection criteria failed to meet financial characteristic reliability tests, hence the need to use business incubation specific selection criteria and difference in objectives and practice in business incubators across countries.

Bergek and Norrman (2008) postulate that the task of identifying which firm to incubate and which to ignore is a challenge and it calls for sophisticated understanding of the market and processes of new venture creation. Thus failure to identify the correct firms to incubate will hinder firm growth. The scholars further support that the selection criteria be divided into one, idea focused selection and two, entrepreneur focused selection. In the first one, the incubator manager assesses the client based on the marketability and profitability of the idea while the second one is

based on entrepreneurial characteristics that distinguish them from other clients, they include experiences and skills.

Khalid, Gilbert and Huq (2012), studied selection performance and resource munificence as predictors of business incubation performance. The study targeted 118 incubatees from 180 ICT based companies in Malaysia. Results revealed that, selection was significant predictor of incubation outcome though resource munificence failed to show any relation to any of the outcome category.

Wachira (2017) in his study on the role of University based business incubator strategy on enterprise growth in Kenya postulate that incubator selection strategy mainly focuses on start-ups that have potential be become high growth business in three years. The growth envisioned in this study is sales, employees and export potential. The study argues that university based incubators target innovative technology based small and medium enterprises. The study concludes that weak financial capacity has led to most incubators to fail to stick to strict selection criteria and instead open up the incubator to any client who has ability to pay rent to bridge the cash flow gaps. Some of the challenges witnessed in the selection criteria, is failure to select ideas aligned to university vision hence clients find their way into the subsidized rent establishments. The study also stresses that business plan competition be adopted to vet the viability of ideas gaining entry into the incubator. Lalkaka (1997) support that a strict selection criterion will save resources that would otherwise gone to wastage, incubating ideas that are destined to fail.

2.4.2 Incubator Funding

Cui, Zha and Zhang (2010) conducted a study to investigate financial support systems and strategies of SMEs in the incubation based on the business life cycle. The study analyzed financial demand characters of SMEs based on the theory business life cycle. The findings revealed that a business needs different financial support at different development phases. At the seed period, the study revealed that yields from the project are generally negative, indicating external funding was not sourced; instead, own capital was utilized. At the infant stage, the findings indicated that own capital could not sustain enterprise development and that external funds, especially from business angels, were sourced. At the growth stage, incubators had stabilized and there was greater need for capital to increase production, improve quality, and brand. At this stage, the study revealed that venture capital was sought. At the maturity stage, incubation had increased yields and reduced risks. At this stage, incubators had more mortgage assets hence could enjoy finance from initial public offering (IPO) and bank finance. The findings revealed that after incubation, there was little support for SME's that graduate, so most of their funds will be from the institutional investors and banks.

Wadhvani Foundation (2013) in their paper, purport that there is need to put down a good framework for the success of incubation program. The reports aver that the incubator developers must invest money to conduct feasibility study that identifies critical incubator success indicators such as sound financial base, market share and strong community support. With these conditions in place, a model is established along industry best practice. The report indicates that there are two funding organizations, one that funds the development of incubator as an organization, the other, funds institutions that will develop the seed fund (early stage capital money) for

incubated start-ups housed in the incubator. In other instances, host organizations are the funding organizations. In such cases, it is imperative the incubators separate the two relationships and embrace the fiscal discipline. The paper purports that when developing an incubator, success is compromised due to over/under funding the project. Hence the need to identify the right amount of operational funds and ability to structure in a reasonable compensation as the need may be.

Likewise, there is a tendency to tie capital in physical infrastructure at the expense of employing the right staff. The challenge in this move is holding too much capital in an investment whose return on investment is not assured. The paper also opines that rent is the main source of revenue, yet most incubators are not for profit, yet there are those programs that support medium growth start-ups. This poses a challenge of raising enough capital to support the incubator, enhanced services and incubated start-ups. The paper recommends that incubators be encouraged to train and mentor entrepreneurs in the community even if they are not enrolled in the incubation program. This assures a regular source of revenue for the incubator and enhances the quality of incubator through improved knowledge and skills of incubator team in handling entrepreneurs' issues and create a potential pipeline of future clients, but also insists that the incubator must maintain uniformity in the profile of start-ups they work with to assure success. The paper sampled incubator practices for success; one indicated that they provide seed capital upfront to incubated firms. The firms are expected to return the money after the business picks to ensure other grandaunts have money to support their businesses upon graduation. This move assures stability of businesses when they get out of the incubator Centre.

Gastranthal (2010) did a study on seven business incubators in Lithuania. The aim was to ascertain if business incubations exist to serve real economic demand or just political reasons. The study established a strong focus on property, coupled with training and consulting at a superficial level. To support the view that incubators exist for economic demand was an ever-increasing number of people seeking admission into the facilities. On the other hand, however, there was indication that they were more interested in the free money that was given to incubatees. It was also discovered that business incubators consisted of less than three people, unlike incubators in Europe that operate with an average of 12 incubatees. This is enough evidence that these facilities are not demand-driven.

The study also supported the presence of private shareholders, because politics cannot act freely and there are also too many contradictory demands from the different shareholders. The state was seen as interested in high returns through rents and property development, whereas private organizations wanted to see many companies started. Institutions supported by the Government of the day without proper systems in place were short lived in case of change of office bearer. This calls for other sources of funding and avoidance of overdependence on public funds. The paper concludes by questioning whether public institutions are able to foster economic activity, and suggest that business incubation must align with real business interest if they are to be sustainable.

InfoDev (2010) conducted a desktop review relating to best practice in public policy supporting business incubation. The study was supplemented by four national case studies that covered Brazil, Malaysia, New Zealand and South Africa. The study wanted public bodies to identify clear objectives and goals to be achieved within the resources available and take steps to monitor and evaluate achievement and

disseminate best practice to help improve performance. It revealed that services offered in an incubator varied relative to the objectives of the incubator, resources at their disposal and the wider environment. The study also concluded that the justifiable definition of an incubator is one that helps socially-excluded groups to launch businesses that achieve high growth with low failure rate. The findings revealed that, Government uses incubation to bring about change in communities. In the case studies conducted, the incubators were used to encourage transfer of research and development of innovative products, raise productivity through use of ICT, restructure industries, create new ones and bring deprived communities into the mainstream of new business opportunities. The findings of the study revealed that, direct ownership by Government or university is not a successful approach. Collaboration between the public and private sectors was seen as an acceptable approach because it encourages incubators make riskier direct investment in their clients. The study recommended that incubators not only develop a critical monitoring and evaluation system that enables cost –benefit analysis, but also identify and disseminate best practices within business incubation networks.

Al-Mubarak and Busler (2010) conducted a study to explore how business incubators play a key role in the economic development of a community or region. The study was conducted in Kuwait and other Gulf Corporation member states. It adopted an internet based survey, targeting NBIA members, specifically 105 survey respondents. The businesses varied in size, sponsorship and budgets. Most incubators served local and national-based clients whose main objective was creating employment and contributing to economic development of their areas. Only 45 surveys were completed fully, representing about 16%. The study also targeted 92 incubator managers, but only six responded. The study revealed problems encountered by an incubator. These

include: failure to define goals of the incubator, failure to get community buy in, as well as occupancy/cash flow issues. To resolve these challenges, the study suggested that feasibility studies be undertaken to develop a business plan to evaluate results against this plan. Stakeholders too need to buy into the objectives of the business organization. Sometimes incubators are not breaking even, hence lie to get funding.

Voisey et al. (2006) examined the impact and success of business incubation projects on its participants in a case study method that evaluated all aspects of the graduate teleworking initiative (GTi) projects in Wales. The study identified good practices and examined the measurement of success within such projects. It suggested that measurement of success should be broader than statistical outputs if business incubation is to continue receiving support. The study proposed application of public funding in support of business incubators as an overall economic regeneration strategy that provides wider evaluation of effectiveness. It also identified some achievable success measures that should inform development in business incubation. These success factors are conceptualized as hard measures, and consider aspects such as number of incubating businesses and value of sales. The other factor is business incubation, which demonstrates a positive impact upon incubating enterprises in their practices in terms of development of customer bases, increase in productivity and turnover, and ability to meet “hard” targets as agreed with key stakeholders. The other factors are classified as soft measures and are mostly benefits such as increased business knowledge and skills, more business awareness and increased client networking.

Hackett and Dilts (2008) study identified a gap where most scholars focused on business incubator effectiveness rather than the process. Their study symbolized the incubation as a black box, since the internal workings of an incubator remained a

mystery. It is conceptualized as a place and a process and this leads to confusion. To measure success and effectiveness of incubation, the profit and loss statements, share of sustainable enterprises and contribution to regional wealth are used.

2.4.2 Entrepreneurial Management

Gurbuz and Aykol (2009) in their study on entrepreneurial management of small firm growth in Turkey revealed that this management perspective has six dimensions: strategic, resource and growth orientation, management structure, reward philosophy, entrepreneurial culture. The same study avers that entrepreneurial management has two strategy creation options for firms. One is to create strategies by the opportunities or resources a firm has. The other is, the resource a firm controls explains the extent of ownership or employment of resources. Based on the six dimensions of entrepreneurial management, Stevenson and Gumpert (1985) proposed two types of managerial behaviours: promoter and trustee. The promoter firms exhibit entrepreneurial behaviour exploiting opportunities regardless the resources the firm controls and trustee firms exhibit administrative behaviour, using resources efficiently. In reference to the six dimensions, the study indicated that the two firms differ. In strategic orientation, the promoter firm is driven by opportunities; the other is driven by resources. Promoters are flexible with organic structure and these firms seize opportunities when they arise whereas the trustee firms make long analysis and investment to pursue an opportunity. These firms also like to own and employ all the required personnel and their structure is mechanistic and the promoter firm rents resources. The reward philosophy for these firms is based on the value added by employees but for trustee firms, it's based on responsibility and seniority. The promoter firm has an ambition for rapid growth but trustee firms prefer slow and steady growth. The culture emphasized by promoter firm is that of opportunity

seeking and exploitation but for trustee firms, new ideas are restricted by the resources owned (Brown, Davidsson, & Wiklund, 2001).

A study by Tell (2012) on strategy in entrepreneurship revealed that firms sustained growth due to pursuance of a planned strategy that led to improved performance and where there was no growth, no strategic plan for growth existed. The findings indicated 52% of firms' experienced negative growth and 48% experienced growth at some level. The study's question, if strategy really mattered? Findings revealed that strategic planning by top management was important because a firm structures future expectations. The study tested Lumpkin and Dess (1996) management strategies typology in small firms namely: simplistic, Participative Adaptive and innovative/intrapreneural strategies. The simplistic is commonly used in small firms where the manager focuses only on one goal or strategy and addresses few issues relating to firm competitive advantage. In participative, business planning everyone in the organization is involved, the adaptive strategy, the firm is keen on getting and addressing complaints from customers and suppliers. Finally, innovative/intrapreneural strategy the leader is involved in many activities. The firm relies on internal and external stakeholders for ideas and take risks. The study concluded that difference in the strategies was based on managers behaviour variance, internal and external orientation and leadership dominance all controlled by both internal and external circumstances.

Ahmad and Ingle (2011) studied the nature of incubator manager and client relations that facilitate incubation activity. Their study adopted a case study of an Irish, Dublin-based university campus incubator. It revealed that the quality of human relationships is important, occurs through the co-production in dyads and triads for it to work, and calls for voluntary and active participation of clients. The brokerage behaviour by the

incubator manager that facilitates the connection of clients in consortiums, or links clients individually or in groups to unrelated outside agencies, improves the overall quality of the incubation experience.

Somsuk et al. (2011) conducted a case study to determine enabling factors that influence the success of technology business incubation (TBI) with respect to exiting and acquired resources in Thailand Science Park Incubator. The strategic resources that are considered as TBI-enabling factors were identified through resource-based value theory.. TBI management teams should ensure that they can collect resources and capabilities required to serve the start-up business in gaining viability. The exiting incubates should move within local industrial base (Main, 1997). The study revealed that there was need to contextualize regulations, before adopting them, if they are to work in local contexts

Theodorakopoulos et al. (2014) conducted a two-fold study to critically assess incubation effectiveness and submit a theoretical perspective on how incubation management can foster development of incubatee entrepreneurs and their firms. The paper reviewed literature on definitional issues, as well as performance aspects and approaches, to establish critical success factors in business incubation. Incubation management was identified as an overarching factor for theorizing on incubation effectiveness.

Hackett and Dilts (2004) identified five distinct outcomes for incubating business. Zombie businesses are regarded as factors, and early closure of non-viable businesses as success and not failure. The additional structures to measure and report success of the project include entrepreneurial leadership; value added services, open selection processes, as well as access to financial and human resources.

2.5 Critique of the Existing Literature

A study by Ganamotse (2011) “A Conceptual Framework for Examining Selection Practices of Business Incubators” utilized a small sample size and the response rate was low hence making generalizability of results a challenge. The study focused on success of graduated firms and ignored those that were selected but for one reason or another had to be withdrawn from the program before using up resources. Hackett and Dilts (2004) do not term this as failure. A fact ignored by this study.

A study conducted by Cui, Zha and Zhang (2010) titled, ‘Financial Support System and Strategy of SMEs in the Incubation Based on Business Life Cycle’ ignored the fact that entrepreneurs don’t get into the incubator at the stage. There are incubatees who join the facility at the growth stage rather than the seed stage. The study also indicated that there was no support for incubatees after exit. This would lower the survival rate for some businesses because not all ideas are fully established at the expiry time. There is need to link up the incubatees with facilities upon graduation to enable them compete favourably with other entrepreneurs.

A Study by Wadhvani Foundation (2013) titled “Metrics and milestones for successful incubation development in India” revealed that metrics pose challenges in embracing guidelines universally because Indian business environment is different from other countries since it is listed as one of the advanced nations. Incubators were not classified under common characteristics; hence application of these metrics used to measure success was a challenge. There are different models of incubators with varying characteristics. To apply these metrics calls for classification and identification of characteristics for uniformity purposes. Finally success is relative and there is no uniform definition of success; this is attributed to difference in the

incubation models that exist to achieve different objectives. Consequently, this challenges the adoptions of the metrics of success universally.

A study on business incubation by Gstraunthaler (2010) suggests that if incubators cannot attract more incubatees they cannot be sustainable because incubators must generate their own revenue, and one of the sources of revenue is rent. Charging high rents negates the purposes of starting incubators because they exist to cushion start-up firms by charging subsidized rents in order to stabilize and move out of the incubator and graduate to the market. Institutions supported by the Government of the day without proper systems in place, are short lived in case of change of office. This calls for other sources of funds and avoid overdependence on public funds encouraging collaboration with private partners.

A review conducted by InfoDev (2010) titled “ Global Good Practice in Incubation Policy Development and Implementation” targeted four (4) countries from developed economies making it very hard to generalize the findings in less developed countries owing to differences in business environments. In addition, most developing countries are not at par with the developed ones in terms of incubation. The developing world is still dealing with the problem of uptake of the concept and therefore; it is not easy for the two economies to come up with global practice for all incubators. The study would have yielded better results had it been a comparative study between two economies, developed and developing.

Al-Mubarak and Busler (2010) study titled “The Development of Entrepreneurial Companies through Business Incubation Programs” had respondents representing a wide range of countries and hence a diverse sample that provides sufficient information regarding the range of services offered. Due to the wide coverage,

internet-based interview would have been ideal but, it presented the challenge of high non-response rate of 16% that affects the generalizability of findings of the study. It also presents a weakness in the credibility of responses; hence the need to adopt another data collection method to verify what was collected through the internet.

Voisey et al. (2006) study titled, “The measurement of success in a Business Incubation Project that identified good practices and considered the measurement of success within graduate incubator projects”. The study observed that it was difficult to measure success, because some of the positive outcomes - such as access to ideas and knowledge within other incubating businesses (UKBI, 2004) do not always find their way reported. Due to contradicting definitions of what business incubation is, the incubators are heterogeneous. The study also documented a list of must-dos by incubators to succeed. These include: establishing clear metrics for success, providing entrepreneurial leadership, developing and delivering value-added services to member companies, developing a rational new company selection process and ensuring member companies gain access to necessary human and financial resources.

Hackett and Dilts (2008) study titled, “Inside the Black Box of Business incubation” used certain measures to gauge success and effectiveness. The measures were not appropriate because most of the incubators were not for profit. The definition of success was very relative and so the evaluation of incubators was difficult. In addition, differences exist for different purposes; but the common cause that all incubators seek to serve is to reduce chances of failure in the early stages and result in firm viability and growth.

Gurbuz and Aykol (2009) titled, “Entrepreneurial Management, Entrepreneurial Orientation and Turkish Small Firm Growth” focused on large scale organizations

which have different characteristics from the small firms since the entrepreneurial spirit is assumed to be present at the foundation of the large organization. However, Tell (2012) asserted that firms don't plan because they don't have proper planning documentation to prove the strategic planning process was followed to the letter; therefore, it is important to examine the strategy making process other than the rational processes that are suggested in literature and used by large firms.

Ahmad and Ingle (2011) study titled, "Relationships Matter: Case Study of a University Campus Incubator" explored the nature of incubator manager and client relations that facilitate incubation activity. The assumption was that social capital would automatically increase as a result of an increase in client interpersonal contact. This is a flawed notion. It is not simple to increase social capital as the researchers assumed. Screening of clients according to industry and area of experience needs to be observed because for certain industries and type of business activity, forming natural beneficial relationship is more convenient than in other areas.

A study by Somsuk et al. (2011) on "Technology Business Incubators and Industrial development: A Resource Based View" adopted a case study approach which is limiting to generalize research findings. There was an experts' selection bias, because it was based on experience rather than being random, leaving room for the selection favouring experts. The number of selection experts was low due to efforts to maintain a manageable panel, which compromised the credibility and validity of enabling factor development. The study needed to compare with other international technology-based incubators to confirm these findings from Thailand. It is not possible to measure benefits by linking them to specific indicators of high technology firm growth, due to internal and external variables that impact on the process. The nature of incubator contribution to the development of client firms may not be

qualified in monetary or other numeric terms, but rather in terms of the participant high technology client firm's entrepreneurs and incubator customers. At times it is difficult to get customers to give quantitative figures to qualify the value of the services they receive.

Theodorakopoulos et al. (2014) study titled "What matters in Business Incubation? A Literature Review and a Suggestion for Situated Theorizing" revealed that despite the many studies conducted in this area, there was still lack of comprehensive framework for assessing incubation effectiveness. Heterogeneity of business incubators, definitional incongruence, alongside a wide and broad variety of criteria for assessing incubator effectiveness, makes it difficult to estimate the extent of value addition evaluation of the greatest impact for successful incubation.

Hackett and Dilts (2004) study titled "A Systematic Review of Business Incubation Research" identified five distinct outcomes for incubating business. For policy implication, guidance on outcomes uses the terminology 'hard outputs' and 'soft outcomes', similar but not necessarily identical ways in which outcomes are differentiated from outputs (Dewson, Eccles, Tackey & Jackson, 2000). However, these maybe termed indicators (Dewson et al., 2000).The acquisition of certain soft outcomes may seem insignificant, but for some individuals the step forward in achieving these outcomes is immense. The scholars argue that the role of any incubator is to deliver a strategy for a community or region, which in turn promote survival of the new ventures started. They postulate key factors that incubators contribute to incubatees success. These include providing dynamic feedback to incubatees; assisting incubatees with business planning skills, as well as encouraging incubatees develop control measures at the beginning of their businesses.

2.6 Research Gaps

Many scholars have tested the moderating role of entrepreneurship orientation. They include Richard et al. (2004) in their study on cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions; Li, Zhao, Tan and Liu (2008) in their study that investigated the moderating effect of entrepreneurship orientation on market orientation-performance linkage titled “Evidence from Chinese Small Firms”; Al-Nuiami, Idris, Al-Ferokh and Joma (2014) in their study on the moderating effects entrepreneurial orientation has on the relationship between environmental turbulence and innovation performance in five star hotels in Jordan. No study so far has tested the role of entrepreneurship orientation on the relationship between business incubation practices and firm performance.

It is evident that the few studies done on the area of business incubation practices are mostly in Europe, United States and Asia fail to focus on the internal process of business incubation on firm performance. Voisey et al. (2006) studied the success of business incubation projects in Wales on their participants; Hackett and Dilts, (2004) studied the five distinct outcomes for incubating business; Somsuk et al. (2011) focused on the enabling factors of technology business incubators in Thailand, with respect to existing and acquired resources; Ahmed and Ingle (2011) studied the nature of incubator manager and client relationship that facilitate incubation; Al Mubarak and Busler (2010) explored how business incubation in Kuwait and other Gulf Corporation members can play a key role in economic development of a community or region; Gstraunthaler (2010), in a study conducted in Lithuania sought to establish if business incubators exist to meet economic demand or serve political interests; Hackett and Dilts (2008) contextualized the incubator as a black box whose

internal operations are not known, hence the need to study and shed more light on the concept.

In Kenya, the few studies carried out in the field of business incubation conceptualized practices as services, Ruhii et al. (2015) looked at the effects of managerial skills on the growth of incubated micro and small enterprise in Kenya. Managerial skills correlated with growth. Meru and Struwig (2011) focused on an evaluation of entrepreneur perceptions of business incubation services in Kenya. The study recommended documentation of business incubation practices factors that affect the effectiveness of business incubation. Wanyoko (2013) studied on the influence of business incubation services on Growth of Small and Medium Enterprises in Kenya. The findings revealed that the following business incubation services correlated with growth of SME's in Kenya, management skills, networks, access to finance and innovation incentives. Riunge (2014) studied determinants of success in Information Communication Technology (ICT) business start-up incubators in Kenya. The findings indicated that selection criteria, financing, monitoring and evaluation and training were found to be statistically significant in justifying successful incubation of ICT firms. The report purport business incubators follow a more systematic approach in selection processes to recruit the most innovative ideas. Therefore this study was conducted to fill this knowledge gap and further contribute on how EO moderates the relationship between incubation practices and performance of incubator centres.

A critical review of the studies covered in the literature reveals that, they interrogated different conceptual issues and not performance of incubator Centres. In addition, some of the reviewed empirical studies focused on different research methodologies such as different data collection instruments or different research designs. A critical

review of the studies further revealed that they were either done in different contexts or different areas. This led to the knowledge gaps that the study sought to fill.

2.7 Summary of the Literature Review

The chapter focused on theoretical and conceptual framework, it also presented empirical review and research gaps. Theories were identified in line with their relevance to the study variables. There was evidence from the studies reviewed that firms that embraced best incubation practices, they registered improved performance. Most of the studies on Incubation practices have been conducted in America and Europe. There are several scholars who have studied EO as a moderator in other areas but there exists little evidence in business incubation both globally and locally.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter presented the research design and methodology that was used in this study. It presents the research philosophy, followed by research design, population, sampling size and sampling technique, data collection instruments, data collection procedure, pilot study, measurement and scaling technique, data analysis and processing, and statistical model and hypothesis testing.

3.1 Research Philosophy

This study adopted mixed methods approach so that the overall strength of the study is greater than adopting quantitative or qualitative methodologies (Creswell & Plano, 2007). This research approach has evolved and exists as a separate methodological orientation that has its own worldview, vocabulary and techniques (Tashakkori & Teddlie, 2003). The core ideas and practices of the mixed methods approach are mainly captured in the works of Creswell (2003), Creswell & Plano (2007) and Tashakkori & Teddlie (2003). Review of literature indicates the benefits of embracing mixed methods approach. The benefits include, improving data accuracy, avoid biases attributed to one research approach, used to develop analysis and building upon earlier findings by use of contrasting data or methods. Studies that use questionnaires, this method assists in identifying respondents, to be included in the study (Bryman, 2006). Pragmatism is generally regarded as the philosophical associate for the Mixed Methods approach (Denscombe, 2008). This study is anchored on this research philosophy. The philosophy underpins mixed methods approach by presenting a set of assumptions about knowledge and enquiry. It also

draws a distinction from purely quantitative approaches based on (post)positivism philosophy and purely qualitative approaches based on interpretivism or constructivism philosophy (Johnson & Onwuegbuzie, 2004).

Berglund and Wennberg (2016) present entrepreneurs as pragmatic agents who strike a balance between their varied skills, experiences, repertoires and other stakeholders to achieve their goals. Pragmatism approach would be of great importance to incubation management and Entrepreneurship research on how organizations make use of the resources they have and complement with other stakeholders for superior performance.

3.2 Research Design

Cooper and Schindler (2011) posit that research design enables the researcher in the allocation of limited resources by posing crucial choices in methodology. Mugenda and Mugenda (2012), state that correlation research design aims at establishing relationships among variables in a particular period in time without manipulation. It is anchored on a premise or hypotheses that if a statistically significant relationship exists between two variables, then it is possible to predict one variable using the information on another variable. The design of this study will be correlation because it tries to find out whether an increase or decrease in one variable corresponds to an increase or decrease in another variable. The study focuses on a causal-effect relationship. Khalid et al. (2012) in the study, “An Empirical Analysis into the Underlying Components Impacting upon Business Incubation Performance of Malaysian ICT Incubators” used correlation in mixed methods.

A correlation design was used to help in hypothesis formulation and testing the analysis of the relationship between variables (Mugenda & Mugenda, 2012). This is an appropriate design for the current study since it extensively tested the analysis of the relationships between variables. Mungai and Njeru (2016) used this design in their study on the effect of entrepreneurial business incubation services on performance of business ventures at Nairobi incubation lab in Kenya. Another study that adopted this design is Wanyoko (2013) on influence of business incubation services on growth of SMEs in Kenya.

3.3 Study Population

The study population was the incubators in Kenya. The target population was made of unit of all incubators targeting start-up businesses who were in operation between 2012 and 2016. The sampling frame was sought from the State department of Industrialization. A total of 51 incubators targeting start-up businesses were identified. The unit of analysis were incubators while unit of enquires were the incubator managers of the incubator centres.

3.4 Sample Size and Sampling Technique

The study adopted a census approach which considers all the elements in the population into the study. These concerns were carried out due to the small population of all the 51 incubators incubating start-up SMEs in Kenya. This figure was considered adequate for conducting structural equation modeling considering a total of 5 latent variables each with three sub-dimensions each. MacCallum, Widaman, Zhang, and Hong (1999) opine that, SEM has strength of being flexible and allow examination of complex associations using various types of data including categorical, dimensional, censored, count variables. They also however noted that

with this flexibility of SEM, it is difficult to develop generalized sample size requirements guidelines. Various rules of thumb that include sample sizes below 100 have been advanced. Nunnally and Bernstein (1967) proposed 10 cases per latent variable, Tanaka (1987) 20 cases per variable while Bentler and Chou (1987) advanced the rule of Thumb of 5 to 10 cases per estimated latent variable. In their study of Sample Size Requirements for Structural Equation Models, Wolf, Harrington, Clark, and Miller (2013) did Monte Carlo data simulation data techniques using a one sample size not fit for all scenario techniques to study the sample size requirements. In their study, the results showed that sample sizes ranging from 30 to 460 were adequate for analysis using SEM. The sample size of 30 required a CFA factor to have loadings of 0.7 and the 460 sample size allowed CFA factors to have loadings of 0.5. Bornstein and Benasich (1986) used a sample size of 35 in a model of habituation of infants. Considering the rule of thumb developed and used by other studies the census considering 51 elements on the model with 5 latent variables was considered adequate. Lewis et al. (2011) used census in their study on Incubating Success Incubation: Best Practices that Lead to Successful New Ventures. Wachira (2017) used census in his study on the role of university based business incubators strategy on enterprise growth in Kenya.

3.5 Data Collection Instruments

Primary data was obtained from incubator managers as key informants. Secondary data sources included institutional reports, journals, work papers, conference proceedings and e-resources. Primary data was obtained by use of semi-structured self-administered questionnaire. Questionnaires were prepared in various sections using Likert scale and administered to incubator manager within the incubator.

The open ended questions were used for each section to yield qualitative data. They also provided freedom to respondents in responding to the questions while the closed ended ones restricted the respondent's responses to specified choices provided (Saunders & Thornhill, 2007). The questionnaires yielded both qualitative and quantitative data in the following sections: Section one- background information; Section two- incubation practices; Section three- entrepreneurial orientation; Section four- performance of incubator centres. Cullen et al. (2014) used a self-administered, semi-structured questionnaire in their study Business Incubation in the Eastern Cape: A Case Study of Small Business Development Corporation, an Incubator in South Africa. Ruhu et al (2015) used a self-administered semi structured questionnaire in her study: Business Incubation services and the growth of micro & small business in Kenya.

3.6 Data Collection Procedure

Data was collected by use of a questionnaire which was self-administered to the incubator managers. There was preliminary notification by telephone to increase the response rate and accelerate the rate of return. There were cases of follow ups of the participants, since it is reported to be an effective method of increasing response and return rate (Cooper & Schindler, 2006). The visits were as per the appointments with the incubator managers. Kwamboka and Muturi (2015) used a self-administered data collection procedure to collect data in their study on Factors affecting access to Business incubation services by women entrepreneurs in Kenya.

3.7 Pilot Study

In enhancing reliability of research instruments, a pilot test on 10 percent of the population frame who qualified but excluded from the final study was carried out to pre-test the research instruments. For high precision pilot studies, 1% to 10% of the sample should constitute the pilot test size (Mugenda & Mugenda, 2003). In this study, 5 incubator centres participated in the pilot study with a response rate of 100%. According to Saunders (2009) pilot testing refines the questionnaire so that respondents will not have problems in answering the questions. Ambiguity and sensitivity of the items and other issues related to data collection are noted and the tools and procedures revised and refined before the main study (Mugenda & Mugenda, 2012). Pre-testing enabled the researcher to correct and improve the research instruments thus performance of data collection. Gately and Cunningham (2014) in their study “Building Intellectual Capital in Incubated Technology Firms” piloted their study in order to test and reshape perspectives generated from extant literature and researchers’ experience in this field.

3.7.1 Reliability of Data Collection Instrument.

Reliability is the consistency of a set of measurements items while validity indicates that the instrument is testing what it should (Cronbach, 1951). Data is said to be reliable for a decision when data collection methods and the instruments used to collect the data produce similar results when applied repeatedly over time (Mugenda & Mugenda, 2012). This study used Cronbach’s Alpha (α) scale of 0.7 as an internal consistency measure computed as a coefficient ranging from 0 and 1. It indicates the extent to which a set of items can be treated as measuring a single latent variable (Cronbach, 1951). Cronbach’s alpha is very useful for interval-level measurement

involving multi-item scales, especially to check homogeneity of internal consistency of underlying constructs (Cooper & Schindler, 2006) based on inter-item correlation means, in order to measure the reliability of the instruments.

Ditcher et al. (2013) used Cronbach's alpha to check the reliability of the data collection instrument in a study titled "Incubation Strategy, Institutional Context, and Incubator Performance: A Moderated- Mediation Analysis of Brazilian Incubators.

3.7.2 Validity of Data Collection Instrument.

Validity is the accuracy, truthfulness and meaningfulness of the data and all inferences made from the data (Mugenda & Mugenda, 2012). Validity exists if the instruments measure what they are supposed to measure. In other words the reason all people do not have the same test score is that they differ in terms of the attribute the test measures (Cooper & Schindler, 2006). For this study the instruments were pre-tested during the pilot study to ensure they were not faulty and were understood by the respondents. During the study, appropriate language was used to remove any ambiguity and allowed free flow of information between the researcher and the respondents.

Factor analysis was performed to identify the patterns in data and to reduce data to manageable levels (Field, 2009). The factors analyzed measured business incubation practices, Entrepreneurial orientation and performance of incubator centres. The results were generated using the rotational Varimax methods to explore the variables contained in each component for further analysis. Ruhiu et al. (2015) in a study on business incubation services and growth of SME's in Kenya used factor analysis.

3.8 Data Analysis and Presentation

Descriptive statistics in the form of percentages, means and measures of dispersion; which allows for presentation of data in a more meaningful way and makes for a simpler interpretation of data was used (Cooper & Schindler, 2011). Hypotheses were tested using a multiple – indicators- multiple- causes (MIMIC) structural equation modeling (SEM) pioneered by Joreskog and Goldberger (1975) The MIMIC model determines values of latent variables with data input adopting a linear regression model in finding significance among the tested variables by use of analysis of moment structures (AMOS) software. The descriptive statistics were analyzed by use of Statistical package of social sciences (SPSS) and data interpreted and presented in frequency tables, bar charts, graphs and pie charts. Kusumawardhani (2013) in her study” The role of entrepreneurial orientation on firm performance. A study of Indonesian SMEs in the furniture industry In Central Java” used structural equation modelling.

3.8.1 Measurement and Scaling Technique

Closed-ended questions were presented in a 5-point Likert scale to measure the objectives. Likert scale, which is essentially an interval scale, is designed to examine how strongly subjects agree or disagree with a statement (Sekaran & Bougie, 2010). The 5-point Likert scale ranged from “Strongly disagree” to “Strongly agree, Kothari (2009) explains that 5-point Likert scales are used because they are more reliable and can provide more information. The open ended questions allowed respondents to provide additional information pertaining to business incubation practices, entrepreneurial orientation and performance of incubator centres.

Xu (2009) study titled Business incubation in China: Effectiveness and perceived contribution to tenants' enterprises. A study by Ditcher et al. (2013) titled Scalability and internal consistency of German version of the dementia- specific quality of life instrument qualidem in nursing homes, both studies adopted a 5-point Likert scale. Information is summarized in Table 3.1

Table 3.1: Measurement of Variables

Objective	Variable	Type	Data analysis	Operational definition of variable	Measurement
1).To evaluate the relationship between client selection criteria and performance of incubator centres in Kenya.	Client selection criteria	Independent variable	Descriptive Inferential	<ul style="list-style-type: none"> • model that fits program mission • Uniqueness of the idea • Standard selection tool 	Indirect measurements. Indicators used to measure the latent construct
2) To determine the relationship between incubators funding and performance of incubator centres in Kenya.	Incubator funding	Independent variable	Descriptive Inferential	<ul style="list-style-type: none"> • Sources of funds • Types of funds • Nature of funds 	Indirect measurement Indicators used to measure the latent construct

3) To assess the relationship between Entrepreneurial management and performance of incubator centres in Kenya.	Entrepreneurial management	Independent variables	Descriptive Inferential	<ul style="list-style-type: none"> • Entrepreneurial culture • Reward philosophy • Management control • Strategic orientation 	Indirect measurement Indicators used to measure the latent construct
4) To evaluate the influence of Entrepreneurial Orientation on the relationship between incubation practices and performance of incubator centres in Kenya	Entrepreneurial Orientation	Moderating variables	Descriptive Inferential	<ul style="list-style-type: none"> • Innovation • Risk taking • Proactiveness 	Indirect measurement Indicators used to measure the latent construct
Objectives 1,2,3 and 4	Performance of incubator centres in Kenya	Dependent variable	Descriptive Inferential	<ul style="list-style-type: none"> • No of graduating firms • No of exited firms • No of firms still in operation 	Indirect measurement Indicators used to measure the latent construct

3.8.2 Measurement of Independent and Moderating Variables

The following rating scales were used in this study that is dichotomous scale to elicit a 'Yes' or 'No' answer, open-ended questions allow respondents to provide extra information not included in the closed-ended questions and Likert scale. Likert scale dominated this study because it is widely used (Chimi & Russel, 2009). This scale, examines how strongly subjects agree or disagree with a statement (Cooper & Schindler, 2011). The use of Likert scale is best suited when the value sought is a belief or opinion, and the effect or value sought cannot be given with definite precision, or considered sensitive. Such data was collected in this study.

Client selection criteria was measured through a model that matched program goals, uniqueness of ideas and standard selection tools. Incubator funding was determined by sources of funds, types of funds and nature of funds. Entrepreneurial management was determined through entrepreneurial culture, reward philosophy, management control and strategic orientation. Likert scale was used to measure the respondent's level of agreement or disagreement. The higher the score, the higher the level of agreement or disagreement with the above key dimensions.

. A five point Likert scale was used to measure how strongly one agrees or disagrees with the key dimensions that characterize entrepreneurial orientation, willingness to innovate, take risks, and act proactively relative to market opportunities (Lumpkin & Dess, 1996). The EO key dimensions that were used in this study questionnaire were developed by Covin and Slevin (1989).

3.8.3 Measurement of Dependent Variable

The study used a multi-dimensional scale to measure performance .of incubator centre Lechner and Vidar (2012) adopted survival, business strength and weaknesses to

measure the dependent variable. This study modified these dimensions to number of graduating firms, number of firms failed and exited and number of firms in operation after graduation. Performance was measured as an increase in number in the above mentioned dimensions between 2012 and 2016. Tengeh and Choto (2015) used percentage increase in firm growth in their study on “Relevance and challenges of Business Incubators that support survivalist entrepreneurs”.

3.9 Data Analysis and Processing

After data collection, the raw data was subjected to cleaning to identify missing values to meet requirement of normality. Quantitative data was critically evaluated to confirm that it fulfils assumptions to allow the researcher progress with further tests. The tests included normality, Heteroscedasticity, multicollinearity, communality, common method variance, goodness of fit and sphericity (Wahab & Norizan, 2012; Park, 2008; Kim, Mueller, Kim, Ahtola & Spector, 1978; Burns & Burns, 2008). Non response bias checked the difference between the early and late responses. Normality of data was important, because it determines the shape of distribution and helped to predict dependent variable scores (Wahab & Norizan, 2012). A Kolmogorov-Smirnov (K-S) test was used to test the normality of the data. For normal sample, the resulting p- value should be more than 0.10, if less than, its evidence enough the data is not normal (Garson, 2012). Khalid (2009), in his study “The Role of Business Incubators in Developing Entrepreneurship and Creating New Business Start-ups in Gaza Strip”, used the Kolmogorov-Smirnov test to test the normality of the data.

The study also tested for outliers. An outlier is an extreme case that distorts the true relationship between variables, either by creating a correlation that should not exist or suppressing a correlation that should exist (Abbott & McKinney, 2013). Outliers in

this study were tested through computing Mahalanobis distance for each sample, with outliers being identified as those samples yielding large values of Mahalanobis distance. Wachira (2017) study on the role of university based business incubators strategy on enterprise growth in Kenya, tested for outliers.

Heteroscedasticity is a situation where the variance of the dependent variable varies across the data, as opposed to a situation where Ordinary Least Squares, OLS, makes the assumption that $V(\epsilon_j) = \sigma^2$ for all j , meaning that the variance of the error term is constant (homoscedasticity). Heteroscedasticity complicates analysis because many methods in regression analysis are based on an assumption of equal variance (Park, 2008). Ndung'u et al. (2014) study on moderating role of EO on the relationship between information security and firm performance in Kenya, tested for Heteroscedasticity

This study also checked for multicollinearity, if there were high correlations between some of the independent variables (Burns & Burns, 2008). Multicollinearity was examined using correlation matrices and collinearity diagnostics. A linearity test was conducted to show the amount of change or rate of change between scores on two sets of variables and was constant for the entire range of scores for the variables (Bai & Perron, 2008). Wanyoko (2013) in a study on influence of business incubation services on growth of SME's in Kenya tested for multicollinearity.

Factor analysis was conducted on all the constructs to determine the ones that were regressed against the dependent variable, with the principal axis factoring and varimax rotation being employed (Kau & Wan-Yiun Loh, 2006). Prior to the extraction of factors, the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy, and Bartlett's test of sphericity, was conducted to confirm whether there is a

significant correlation among the variables to warrant the application of exploratory factor analysis (Narteh, 2013). Benjamin (2009) in his study "Effects of Business Incubation on Knowledge Acquisition of Incubatees and Incubatees 'Performance' used the Bartlett test of sphericity and the Kaiser-Meyer Olkin (KMO) to check whether there was a significant correlation among the variables.

This study also checked for communalities. Communality is the variance of an observed variable that is accounted for by the common factor (Kim et al., 1978). Communalities, after extraction, should be greater than 0.7 when fewer than 30 variables are analyzed (Field, 2009). Communality values were then checked to measure the variability of each observed variable that could be explained by the extracted factors (Field, 2009). Principal axes factor analysis was used for extracting factors. Factor extraction was used to find the number of factors that can adequately explain the observed correlation among the observed variables (Kim et al., 1978). A factor that accounts for less than 5% of the variance was considered not important for further investigation. Also, only factors with an Eigen value of 0.1 or more was retained. Ndung'u et al. (2014) study on moderating role of EO on the relationship between information security and firm performance in Kenya, retained factors whose Eigen value was 0.1 or more in their study.

Confirmatory Factor Analysis (CFA) was then performed. The researcher used CFA after confirming the underlying latent variable structure. The study lied on the knowledge of the theory, empirical research, or both, to postulate relations between the observed measures and the underlying factors of the study and then tests the hypothesized model statistically (Byrne, 2001). The relationship between observed variables and their associated latent constructs were tested to ensure that the items adequately measure their associated constructs.

Structural Equation Modelling (SEM) is a statistical approach for testing hypotheses about relations between observed and latent variables. Structural Equation Modelling (SEM) was chosen because it permitted the analyses of multiple structural relationships simultaneously while maintaining statistical efficiency (Hair, Tatham, Anderson, & Black, 2006). It combined features of factor analysis and multiple regressions for studying both the measurement and structural properties of theoretical models. Structural Equation Modelling (SEM) methodology accounted for independent variable errors and models multiple relationships simultaneously, which results in more powerful tests of mean differences. Kusumawardhani (2013) study on the role of EO in firm performance: A study of Indonesian SMEs in the furniture industry in Central Java, used structural Equation Modelling.

The research study construct measures were first tested by use of Exploratory Factor Analysis (EFA) and were tested for reliability using SPSS. Exploratory Factor Analysis EFA was intended to explore the data if the links between the observed and latent variables are unknown or uncertain (Byrne, 2010; Hair, Black & Babin, 2010). This two-step approach made it possible to rule out problems in the measurement models and concentrate on the investigation on the structural model as the source of inefficiency (Singh & Smith, 2004). Kyalo, Gichira, Waititu and Ragui. (2014) in her study on factors that influence women entrepreneurs in Kenya to start Enterprises in male dominated sector of the economy used EFA in her study.

3.10 Statistical Model and Hypothesis Testing

In testing how entrepreneurial orientation moderates the relationship between incubation practices and performance of incubator centres, Moderated Multiple Regressions (MMR) statistical tool was used. Moderated multiple regression was suitable to this study because it enables the slope of one or more of the independent variables to vary across values of the moderator variable, hence facilitating the investigation of an extensive range of relationships and function forms (Goode & Harris, 2007).

Moderated multiple regression also permitted the multiple relationships between the endogenous variable and exogenous variables to depend on the levels of the other exogenous variables in the study. To estimate the interaction effect using moderated multiple regression consists of creation of Ordinary Least Squares (OLS) model and a moderated multiple regression (MMR) model equations involving scores for a

Continuous predictor variable Y, scores for a predictor variable X, and scores for a second predictor variable Z hypothesized to be a moderator (Aguinis, Gottfredson & Wright, 2010). To determine the presence of moderating effect, the OLS model was then compared with the MMR model. Lewis et al. (2011) used moderated multiple regression in their study “Incubating Success Incubation: Best Practices that Lead to Successful New Ventures”.

The first equation showed the Ordinary Least Squares (OLS) regression equation model predicting y scores from the first-order effects of X and Z observed scores:

$$y = \beta_0 + \beta_1 X + \beta_2 Z + \varepsilon \quad \text{-----Equation (3.1)}$$

Where β_0 = least squares estimate of the intercept, β_1 = least squares estimate of the population regression coefficient for X observed scores, β_2 = least squares estimate of

the population regression coefficient for Z observed scores, and ε = error term.

The second equation, the moderated multiple regression models will be formed by creating a new set of scores for the two predictors (i.e. X , Z), and including it as a third term in the equation, which will yield the following model:

$$y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 X*Z + \varepsilon \text{ -----Equation (3.2)}$$

Where β_3 is the least squares estimate of the population regression coefficient for the interaction term scores. T-statistic was used to test the significance of the variable weights. Appropriate alphas were used to assess the different significance levels.

3.11 Ethical Considerations

Ethical behaviour should be upheld by all parties in research (Cooper & Schindler, 2011). The scholars outline the following ethical issues to be observed in research, treatment of participants, sponsor, team members, and obligation to the research community and approval procedures. This study complied with the following ethical concerns, First the researcher sought authority from the Karatina University to proceed to the field to collect data. Next, a permit was obtained from National Council for Science and Technology to collect data from the identified population. In the field, participants consent was sought by first disclosing the procedure of the proposed study before seeking authority to undertake the study. Participants were assured of confidentiality and privacy.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

INTRODUCTION

The broad objective of the proposed study was to determine the relationship between incubation practices, entrepreneurial orientation and performance of incubator centres in Kenya. To achieve this objective, four specific objectives were tested. This chapter presented the findings of the study on the basis of which further analyses was undertaken to test the formulated model using structural equation model. It laid focus on various tests of data that was gathered as well as the manifestations of the research variables among the studied organizations.

This chapter also through the use of descriptive statistics, reported on statistical operations and analyses carried out to test the study objectives. The chapter thus presented an analysis of the results highlighting the reliability and validity of the research instrument and the results of descriptive and inferential analysis.

4.1 Response Rate

A total of 51 questionnaires were distributed to the respondents out of which 41 (80.39%) questionnaires were filled as shown in table 4.1. Mugenda and Mugenda, (2003) states that 50% response rate is adequate, 60% is good and above 70% is very good. Hence the response rate of 80.30% was therefore considered very good. This study's response rate was acceptable as it compares well with similar studies of incubation and performance. Mungai and Njeru (2016) studied the effect of Business Incubator Services on Performance of Business Ventures at Nairobi Incubation Lab, Kenya and achieved a response rate of 67.39%. Ruhui et al. (2014) studied the effects

of managerial skills on the growth of incubated micro and small enterprises in Kenya and achieved a response rate of 67.72%. Therefore the response rate of 80.39% in this study is acceptable.

Table 4.1: Response Rate

	Questionnaires Administered	Questionnaires filled & Returned	Percentage
Respondents	51	41	80.39%

4.1.1 Missing Data Analysis

According to the response rate, 80.39% response rate was recorded with 41 respondents returned the questionnaires. The data collected was entered and processed before analysis. A missing data analysis was carried out to check and adjust the data for completeness. Mugenda (2008) and Tabachnick and Fidell (2007), opine that, one of the most common problems when analysing data is missing data. Missing data is caused when respondents leave certain questions unanswered. There are suggestions that less 10% of missing data does not display a large amount of missing data (Cohen, Cohen, West, & Aiken, 2003).

Only 5% of the questionnaires returned exhibited more than 10% of missing data. The 2 (5%) questionnaires that had up to 11% missing data were expunged resulting to 39 respondents being retained that constituted 95% of the total questionnaires returned.

On examining the missing data the missing responses it was deduced and concluded that the missing responses were independent random. Of the 95% that were retained, 30 questionnaires were fully filled with 0% missing data, 5 respondents had up to 7% and 4 respondents had up to 9% missing data. Due to the random and complete independence of the missing responses, the missing values were replaced with of

measures of central tendency of the respective variables (Yohai, Stahel, & Zamar, 1991).

Table 4.2: Percentage of Missing Responses per Respondent

Missing Response	Respondents	Valid Percent	Cumulative Percent	Action
0%	30	73%	73%	Retained
7%	5	12%	85%	Retained
9%	4	10%	95%	Retained
11%	2	5%	100%	Deleted

4.2 Reliability and Validity Tests

4.2.1 Test of Reliability

Reliability is a measure of degree to which an instrument yields consistent results or data after repeated trials. Reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error. It is a measure of consistency as the correlation analysis tests the assumptions in order to avoid Type I and Type II errors (Osborne, Christensen, & Gunter, 2001). It is important that the measurement instrument is reliable for it to measure consistently (Cooper & Schindler, 2011).

Cronbach coefficient assesses the internal consistency. The coefficient alpha value ranges from zero (no internal consistency) to one (complete internal consistency) were used. This study adopted the alpha coefficients ranges in value from 0 (no internal consistency) to 1 (complete internal consistency) to describe reliability factors extracted from formatted questionnaires on Likert scale (rating from scale 1 to 5). Nunnally (1978) support that the higher the Alpha the more reliable the test is. The Scholar also aver that there is no commonly agreed cut off, but 0.7 and above is acceptable. This study adopted the 0.7 as the acceptable Alpha level. Meru and

Struwig (2011) in their study on ‘an evaluation of the entrepreneurs’ perception of business-incubation services in Kenya did Cronbach’s alpha reliability analysis for the entrepreneur/incubating businesses questionnaire and found Cronbach alpha > 0.5 considered reliable. Further Van der Zee (2010) in a study on Business incubator contributions to the development of businesses in the early stages of the business life-cycle and used a Cronbach’s alpha > 0.6. Therefore the Cronbach’s alpha > 0.7 indicate that all constructs had high scores of reliability coefficients.

As shown in Table 4.3, the alpha coefficients for all the variables are above the 0.7 threshold. This was confirmation of reliability of the data used to draw conclusions from theoretical concepts. Cronbach’s alpha coefficient ranged from 0.727 (Incubator Funding) to 0.875 (Entrepreneurial Management) revealing a high degree of reliability. The results indicate that all constructs had high scores of reliability coefficients. Entrepreneurial Management and Client selection criteria in that order had the highest reliability scores. Funding had lowest reliability score although it was above the 0.7 cut-off point for reliability test (Nunnally, 1978).

Table 4.3: Summary of Cronbach’s Alpha Reliability Coefficients

Variables	Components of Variables	Cronbach’s Alpha	Number of items	Decision
Client selection criteria	<ul style="list-style-type: none"> • Model that match program goals • Uniqueness of ideas • Standard selection tool 	.760	13	Reliable
Funding	<ul style="list-style-type: none"> • Sources of funds • Types of funds • Nature of funds 	.727	12	Reliable
Management team competence	<ul style="list-style-type: none"> • Entrepreneurial culture • Reward philosophy • Control • Strategic orientation 	.875	16	Reliable
Entrepreneurial orientation	<ul style="list-style-type: none"> • Innovativeness • Risk taking • Proactiveness 	.763	13	Reliable
performance of Incubator center	<ul style="list-style-type: none"> • Number of graduating firms • Number of firms that failed and withdrawn from incubation • Number of businesses still in operation after graduation 	.905	20	Reliable

4.2.2 Construct Validity Tests

This study used both construct and content validity tests. Construct validity was assessed using a factor analysis in order to observe how well the individual measures reflected their constructs (Field, 2009). Construct validity test shows how well the measure reflects the target construct (Doodley, Flynn & Cormican, 2003).

Factor analysis was employed. Kieffer (1999) and Henson and Roberts (2006) stress that factor analysis is one of the useful techniques for determining validity evidence basing on internal structure. Factor analysis techniques are standard statistical tools for dimension reduction and are useful in developing measurement scales and assessing the structure of the measurement scales. Based on existing priori theories

and empirical information, the study used CFA for dimension reduction, and assessment of the scale structures for validity purposes. This was carried out by determining the total variances extracted, factor loadings and factor scores. Items with factor loadings above 0.4 were all retained while those with loadings below 0.4 were expunged. The factor analysis results are presented in Appendix IV.

KMO and Bartlett’s test which are sampling adequacy tests were done to assess the appropriateness of factor analysis in measurement scale development of the items in the questionnaire. KMO measures the proportional variance in the constructs that could be caused by their underlying factors with values ranging from 0 to 1. The KMO statistic was found to be 0.756 which is greater than 0.5 and tends towards 1 which is an indication of relatively compact the patterns of correlations and distinct and reliable factors yielded from factor analysis. A value of 0 would on the other hand indicate that the sum of partial correlations is large relative to the sum of correlations, which is a sign of diffusion in the pattern of correlations and likely inappropriate results from factor analysis. The Bartlett’s Chi-square statistic has a p-value of 0.000 which is less than 0.05 that implies that there is significant relationship between factors and thus factor analysis would be useful.

Table 4. 4: KMO and Bartlett’s Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.756
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	2359.246
	946
	0.000

Construct validity assessment determines whether the measurement scales validly measure the constructs they are meant to measure. Construct validity is measured by

using factor analysis results of variances extracted to assess convergent and discriminant validity. Convergent validity is used to assess and determine that items that are meant to be related that are measuring the same construct are actually related. To determine convergent validity, the average variances extracted (AVEs) for each construct are calculated. Convergent validity is attributed to AVEs above 0.5. All the constructs AVEs were above 0.5 implying convergent validity. Results discussed in Table 4.5.

Table 4.5: Average Variance Extracts (AVEs)

Construct	AVE
Client selection criteria	0.701
Incubator Funding	0.741
Entrepreneurial Management	0.701
Entrepreneurial orientation	0.783
Performance of incubator centres	0.712

Discriminant validity was assessed to determine whether items measuring different constructs which are meant to be un-related are actually not related. Discriminant validity was assessed by comparing the AVEs to the squared multiple correlations. As expected for discriminant validity, all the squared correlations for each construct were found to be less than the relative AVE implying discriminant validity. The instrument was therefore considered to have met construct validity having met both convergent and discriminant validity. Results discussed in Table 4.6

Table 4.6: Discriminant Validity Test Results.

Variables	Client selection criteria	Funding	Entrepreneurial management	Entrepreneurial orientation	Performance of incubator centres
Client selection criteria	0.701	0.008	0.159	0.377	0.070
Incubator Funding	0.008	0.741	0.274	0.128	0.256
Entrepreneurial management	0.159	0.274	0.701	0.195	0.215
Entrepreneurial orientation	0.377	0.128	0.195	0.783	0.598
Performance of incubator centres	0.070	0.256	0.215	0.598	0.712

4.2.3 Content Validity Test

All the variables in the study were found to be uni-dimensional and valid indicators of the constructs they were to measure. Sangoseni, Hellman and Hill (2013) proposed S-CVI of >0.78 as shown in table 4.3. This is a significant level for inclusion of an item into the study. All constructs were considered appropriate as the items measuring all resulted to CVIs above 0.8 as shown in table 4.3. This is a significant level for inclusion of an item in the study as stated by Sangoseni et al. (2013) who proposed S-CVI of >0.78 as significant. Ogutu and Kihonge (2016) in their study on “Impact of business incubators on economic growth and entrepreneurship development” used factor analysis to measure construct validity and observe how well the individual measures reflected their constructs. The relevant results are summarized in Table 4.7.

Table 4.7: Content Validity Results

Construct	Total number of items	Number of items considered relevant	Content validity index	Interpretation
Client selection criteria	16	11	1.981	Appropriate
Incubator Funding	14	9	1.022	Appropriate
Entrepreneurial management	19	13	0.761	Appropriate
Entrepreneurial orientation	16	9	1.000	Appropriate
Performance of incubator centres	10	10	0.889	Appropriate

4.3 Firm Demographics

The respondents were asked to indicate the years worked in the centre, years of service in the centre, gender, age distribution, highest level of education, age of the incubator Centre, type of incubator program and number of clients housed in the centre. The age of the employees in organizations is an important factor because it determines how well they can interpret the environment (Miles & Snow, 1978) and therefore adapts to changes from the environment (Eisenhardt & Bourgeois, 1988) and consequently makes decisions for their organizations that will eventually influence performance.

Gender diversity in an organization can influence decision making and thus organizational overall performance. Education is the level of academic and professional qualifications that is possessed by employees. It is an indicator of their knowledge, skills and capability (Horwitz, 2005) and can influence performance.

Length of service could be attributed to experience and the technical nature of the management roles. They would also be in a position to give institutional memory on the firm's activities hence the responses would be credible.

4.3.1 Background Information of Respondents

Appendix V presents results on firm demographics in incubator Centres. The indexes factored in include gender, age, education level and tenure in the incubator Centres how that, majority (58.97%) of respondents sampled were male with female being moderate (41.03 %). This indicates that there are slightly more males than females but with less disparity in the distribution which may be due to roles related to incubation activities that tend to attract more males than females. Gender diversity in organization positions could improve performance of firms through a number of channels. Greater representation of women could bring in heterogeneity in values, beliefs, and attitudes, which would broaden the range of perspectives in the decision making process and also encourage more women to venture into male dominated areas so as to demystify entrepreneurship as a male vocation and increase the number of women in business (Kyalo et al., 2014). Results summarized in Table 4.8

Table 4. 8: Gender of respondents

Gender	Frequency	Percentage (%)
Male	23	58.97
Female	16	41.03
Total	39	100

Table 4.9 shows the findings on other demographic variables. The findings revealed that, majority (43.59%) respondents had college education followed by moderate (34.15%) with undergraduate qualification. However the study findings are in line with a study conducted locally (Wanyoko, 2013) that indicated, incubator programs

admit clients who have not attained high school education, but admitted on the basis of their entrepreneurial orientation. This is supported in this study that showed, few (10.26%) of respondents had secondary education, but managed very successful incubator Centres due to their astute entrepreneurial orientation. Majority (58.97%) of the managers had worked in the incubators between 0-4 years. The results indicate that majority of the managers had relevant and adequate knowledge of the incubation activities.

Prior research on tenure in incubation program have indicated a positive and statistically significant relationship between improved incubator centre performance and manager's experience in the incubation industry and current program (Lewis et al., 2011). The study postulated two critical findings on this, experienced managers are effective and the manager's stability creates the avenue to develop networks with key stakeholders to enhance trust that contributes to superior performance. The results of level of education and years of service of respondents is represented in Table 4.9

Table 4. 9: Age, Level of Education and Years of service of respondents

Age Distribution	up to 29	30 – 34	35 – 39	40 – 44	>45	Total
Frequency	10	16	6	6	1	39
Percentage (%)	25.64	41.03	15.38	15.38	2.56	100
Highest education level	Secondary	College	Under-graduate	Post-graduate		Total
Frequency	4	17	14	4		39
Percentage (%)	10.26	43.59	35.9	10.26		100
Years of service in centre	0-4 years	5-9 years	10-14 years	Over 15 years		Total
Frequency	23	13	2	1		39
Percentage (%)	58.97	33.33	5.13	2.56		100

4.3.2 Constitution of the Board

The study determined the board composition in the respective incubation firms in terms of different professions. This was to determine the existence of wide knowledge base during decision making process. In any organization the board composition is key, to ensure the firm's prosperity by collectively directing the company's affairs, whilst meeting the appropriate interests of its shareholders and stakeholders.

Table 4. 10: Constitution of the Board

	Frequency	Percent	Cumulative Percent
Graduates from incubator	9	23.1	23.1
Government representative	4	10.3	33.3
Practicing entrepreneur	18	46.2	79.5
Research institutions	3	7.7	87.2
Higher Education/University	5	12.8	100
Total	39	100	

Table 4.10 indicates that, majority (46.2%) of the board composition are practicing entrepreneurs, higher education (59%), graduates from incubator (23.1%), Higher education (12.8%), also represented are 4 government representative on at least (10.3%) and 3 research Institutions at (7.7%). This depicts that incubator centres depends on the knowledge and expertise of practicing entrepreneurs and higher education in the running of the affairs in the sense that they have vast knowledge both in terms of experience and science based knowledge in the area of entrepreneurship to contribute positively towards nurturing new entrepreneurs in the incubation programs. The results are in agreement with entrepreneurship that asserts that, different skills result in combination of knowledge, skills and a mind-set that accompany a process of value creation in fulfilling a market need.

The results indicate, practicing entrepreneurs and higher education play a central role in nurturing entrepreneurship. This is done through entrepreneurship education and

training, as well as hands-on support for young entrepreneurs. Bacigalupo, Kampylis, Punie and van Den Brande (2016) on entrepreneurship competence framework and competence of the board in terms of educational, professional and experience in entrepreneurial field establishes a bridge between the worlds of education and entrepreneurial related work and can enhance the overall performance of the centre.

The results therefore show that incubator centres in Kenya are well equipped with board members who have different knowledge base, professional and entrepreneurial mind set which translates infusion of diverse strategies and resources that assures improved performance of incubator centres. This concurs with RBV theory essence of availing resources in an incubator in a cost effective and timely way.

4.3.3 Firms Average Annual Turn-Over in the Past 5 Years

The study also determined the firm's average annual turn-over in the past five years. This was to determine how inflows and outflows relate to assets under management. The results in Figure 4.1 shows that majority (45.5%) of the firm's average turn-over in the past 5 years ranged between Kshs 0-20 million, followed by those who indicated that their annual turn-over ranged between 51-100 represented by (27.3%) with (24.2%) indicating that their annual turn-over ranged between 21-50 million. However it was established further that very few (3.0%) had annual turn-over between 101-250 million.

These results indicated that, most incubators annual turn-over are below Ksh 20 million. Gassmann and Becker (2006) state that, incubators do not need much annual turn-over to operate, since they provide support in terms of tangible and intangible resources to incubators. Tangible support includes operating space and shared facilities provided by an incubator to reduce heavy financial burden often faced by

start-ups whereas intangible resources include guidance and advice that will assist business start-ups in running and managing their businesses.

This depicts therefore, incubators main function is to nurture entrepreneurs and equip them with required entrepreneurial skills which include both tangible and intangible support, which is the logic behind the RBV theory for sustainable competitive advantage.

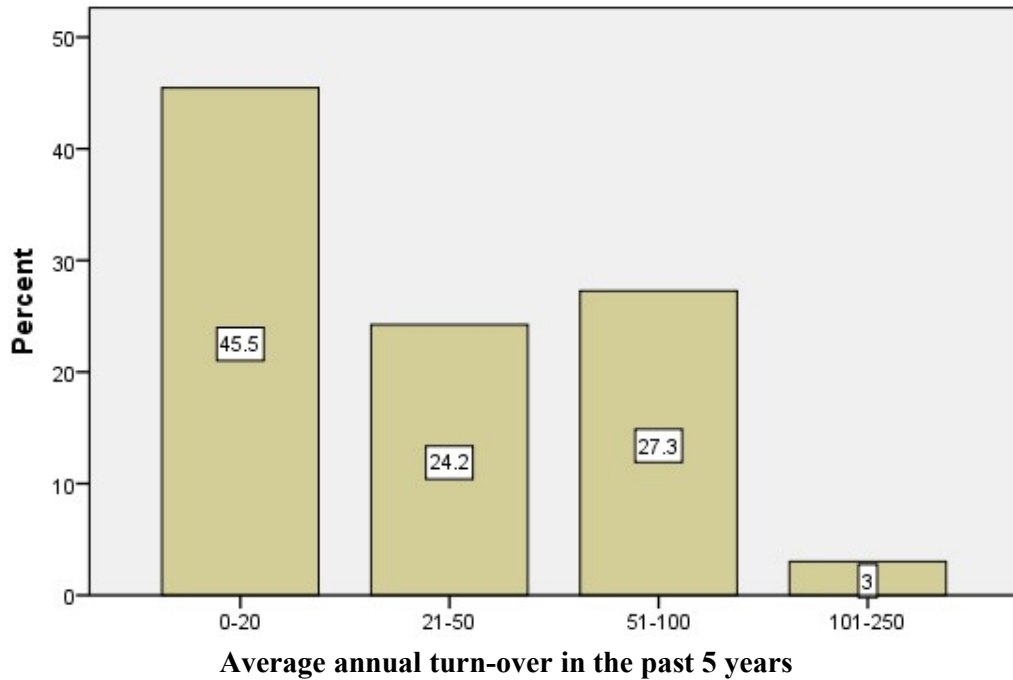


Figure 4.1: Average Annual Turn-Over in the Past 5 Years

4.4 Structural Equation Modelling Measurement Model

This study was to establish the relationship between incubation practices, entrepreneurial orientation and performance of incubator centres in Kenya. The study was also to establish the role of entrepreneurial orientation and enablers on the relationship. Based on the research objectives, the four relationships that were to be established, both significance levels are reported in the following tables. Structural Equation Modelling provides a pictorial representation of the model variables. Mulaik and Millsap (2000) recommends stringent four-step approach in Structured Equation Modelling, to test the measurement model, i.e. the relationship between the manifest variables and the latent variables or constructs as specified and all latent variables or constructs were allowed to co-vary. In step I: exploratory factor analysis (EFA) was conducted to estimate the number of latent variables or factors as discussed in chapter three. EFA is used to explore the possible underlying structure of a set of interrelated variables without imposing any preconceived structure on the outcome (Child, 1990). The results presented in Appendix IV shows the variance explained due EFA. The results show that 5 components had Eigen values greater than 1 and further on the rotated sum of squares of the loadings show that the components explain up to 87.506% variance extracted from the items. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were also used under exploratory factor analysis (EFA) as sampling adequacy tests. KMO measures the proportional variance in the constructs that could be caused by their underlying factors with values ranging from 0 to 1. The KMO ν -statistic was found to be 0.756 which is greater than 0.5 and tends towards 1 which is an indication of relatively compact the patterns of correlations and distinct and reliable factors yielded from factor analysis. A value of 0 would on the other hand indicate that the sum of partial correlations is large relative to the sum of correlations,

which is a sign of diffusion in the pattern of correlations and likely inappropriate results from factor analysis. The Bartlett's Chi-square statistic has a p-value of 0.000 which is less than 0.05 that implies that there is significant relationship between factors and thus factor analysis would be useful.

4.4.1 Confirmatory Factor Analysis (CFA)

Step II confirmed the measurement model using confirmatory factor analysis with further refinement of the factor loadings. In step III the study tested the structural model leading to model rejection or acceptance in step IV. The constructs of the study based on priori empirical evidence and theories were structured into sub-dimensional items. Assessment of uni-dimensionality was carried out. Uni-dimensionality is the existence of latent variables and traits for underlying data, (Hattie 1985). To make sense when relating variables, the variable must be uni-dimensional; the various items underlying the data must measure the same traits. Construct validity was assessed using CFA on the sub-dimensions of the constructs. The factor loadings of each sub-dimension were found to be above 0.4 and were all retained. The loading are presented in Table 4.11.

Table 4.11: Factor Loadings Matrix

	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5
Model that match program goals	-0.797				
Uniqueness of ideas	0.974				
Standard selection tool	0.947				
Sources of funds		0.531			
Types of funds		0.951			
Nature of funds		0.9			
Entrepreneurial culture			0.143		
Reward Philosophy			0.963		
Control			-0.939		
Strategic orientation			0.984		
Innovation				0.881	
Risk Taking				-0.513	
Proactiveness				0.943	
Number of graduating firms.					0.526
Number of firms that failed and withdrawn from incubation.					-0.759
Number of businesses still in operation after graduation					0.852

Factor analysis results were used in determining average variances extracted for testing convergent validity of the constructs. Convergent validity assessed whether that items that are meant to be related are actually related. To determine convergent validity, the average variances extracted (AVEs) for each construct are calculated. Convergent validity is attributed to AVEs above 0.5. All the constructs AVEs were above 0.5 implying convergent validity. Results shown in Table 4.12.

Table 4.12: Average Variance Extracts

Construct	AVE
Client selection criteria	0.906
Funding	0.794
Entrepreneurial management	0.757
Entrepreneurial orientation	0.779
Performance of incubator centres	0.712

Discriminant validity was also assessed to determine whether items measuring different constructs which are meant to be un-related are actually not related. Discriminant validity was assessed by comparing the AVEs to the squared multiple correlations. As expected for discriminant validity, all the squared correlations for each construct were found to be less than the relative AVE implying discriminant validity. The instrument was therefore considered to have met construct validity having met both convergent and discriminant validity. Results displayed in Table 4.13.

Table 4.13: Squared Correlations against Average Variance Extracts

Variables	Client selection criteria	Funding	Entrepreneurial management	Entrepreneurial orientation	Performance of incubator centres
Client selection criteria	0.906	0.008	0.159	0.377	0.070
Funding	0.008	0.794	0.274	0.128	0.256
Entrepreneurial management	0.159	0.274	0.757	0.195	0.215
Entrepreneurial orientation	0.377	0.128	0.195	0.779	0.598
Performance of incubator centres	0.070	0.256	0.215	0.598	0.712

The Structural equation models fitted were tested for overall fitness by assessing absolute fitness and incremental fitness For absolute fit indices, the study adopted Goodness-of-Fit Index, Adjusted Goodness-of-Fit Index and Root Mean-Square Error of Approximation, and for incremental fit indices, Comparative Fit Index was used. This study also examined their interpretive value in assessing model fit. The Comparative Fit Index (CFI), one of the most popularly reported fit indices because it is one of the measures least affected by sample size, takes into account a sample size that performs well even when sample size is small (Tabachnick & Fidell, 2013). Incremental fit index assumes that all latent variables are uncorrelated, that is,

independent model and compares the sample covariance matrix with this independent model (Kline, 2005). The values for this statistic range between 0.0 and 1.0 with values closer to 1.0 indicating good fit. Indeed, a value of CFI greater than or equal to 0.95 is presently recognized as indicative of good fit (Hu & Bentler, 1999). Another incremental fit index considered was the normed fit index (NFI). The NFI also called Bentler-Bonett Normed Fit Index is not affected by the number of parameter/variables in the model but is measured through a comparison of the model of interest to a model of completely uncorrelated variable (Ullman, 1996). A NFI value above 0.8 is acceptable to imply good incremental fitness.

Root-Mean-Square Error of Approximation, RMSEA, assesses how poorly the model fits the data by considering the error of approximation, which concerns the lack of fit of the researcher's model to the population covariance matrix. Values up to 0.08 indicate reasonable fit to the data. If the samples are large, values of less than 0.10 are also acceptable (Byrne, 2001). Kenny, Kaniskan and McCoach (2015) used RMSEA, GFI, CFI, and SRMR in their study on Moderating effect of national culture on the relationship between entrepreneurial orientation and business performance: evidence from Serbia.

Goodness-of-Fit Index (GFI) is used to measure the amount of variance and covariance in the observed correlation matrix that is predicted by the model-implied correlation matrix. Values between 0.90 and 1.0 are indicated acceptable (Arbuckle & Wothke, 1999). Adjusted Goodness-of-Fit Index (AGFI) is also an absolute fit index that corrects the GFI, which is affected by the number of indicators of each latent variable. Values for the AGFI also range between 0 and 1.0 and it is generally accepted that values of ≥ 0.90 indicate well-fitting models.

Control variables in SEM is a concept of parsimony principle where those variables that are only strictly required for the data to fit in a model are considered for a model to give a better fit. They are controlled through model modification processes where the variables with insignificant ($p\text{-value} > 0.05$) at 95% confidence level are controlled by covariance. Results shown in Table 4.14.

Table 4.14: Fitness Indices Thresholds

Fit index	Cut-off values
Chi Square (df) Prob	$P < 0.05$
GFI (Goodness-of-Fit Index)	≥ 0.90
AGFI (Adjusted Goodness-of-Fit Index)	≥ 0.8
RMSEA (Root Mean-Square Error of Approximation)	≤ 0.05 is good ≤ 0.08 is adequate
NFI	≥ 0.80
CFI (Comparative Fit Index)	≥ 0.90

4.5 Performance of Incubator Centre

The dependent variable in the study was performance of incubator centre. This was an important variable of the study that was intended to be measured. Performance was defined with respect to the firm's overall goals. That particular definition determined how performance was measured. This study's, emphasis was on non-financial perspectives that include number of graduating firms, number of firms failed and exited and number of firms in operation after graduation. The study first determined the respondents' views on how resources provided at the incubator Centre influenced performance improvement. The results show that majority (81.08%) of the respondents were of the view that the resources provided at the incubator Centre

influenced performance improvement with a few (18.92%) contradicting with the view.

This was an indication that incubation resources are very important in influencing performance and therefore very necessary to be taken into consideration by management during decision making. The results were indicated on Figure 4.2.

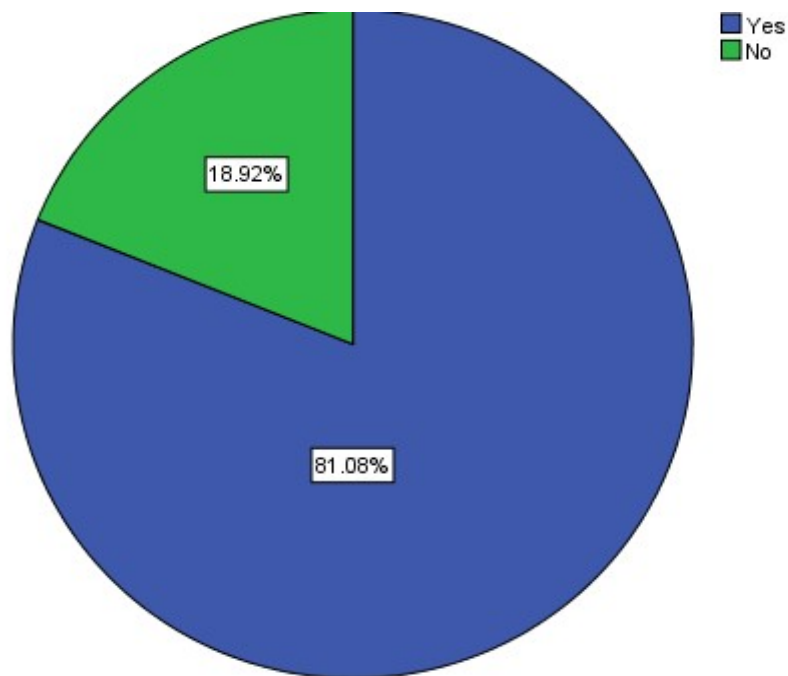


Figure 4.2: Performance Improvement as a Result of the Resources Provided at the Incubator Centres.

The study further determined how the measurements of performance were manifested in the incubator centre for the five consecutive years. This was, did the number of graduating, number of failed firms and number of operating business after graduation been reducing, remained the same or been increasing over the five year period .

The results depicted an upward trend for the number of graduating firms from the past five years. A few (10.5%) of the respondents indicated that there has been a reducing trend for the number of graduating firms for the past five years. The results also depicted that for the past five years, the number of failed firms that left incubation. Further a mixed trend was depicted on the statement that for the past five years, the number of operating business after graduation had been decreasing, remained the same or increasing. A few (14.5%) indicated that they had been decreasing, moderate (32.4%) indicated they remained the same and majority (52.9%) indicating that they had been increasing.

The responses depicted a good performance in the three measurements implying that there is improved performance of incubator centre as the year's progress. It was clear that the number of graduated firms have been increasing across all the measurement years. The progressive decline in the number of failed firms and left incubation had also an indication of good performance. The increasing trend of the number of operating business after graduation was also a good performance indication depicting that incubator Centres are doing best at their disposal to succeed in the goals and objectives of nurturing entrepreneurship spirit. The findings are presented on Table 4.14.

The finding of this study indicate incubation program improves the performance of business and support the findings of Lewis et al. (2011), study of "incubating success Incubating: Best practices that lead to successful new ventures", that stresses the main goal of incubation is to increase the likelihood of survival, a view supported by Ruhu et al. (2015) that aver that business incubators have an average success rate of 98% of businesses succeeding whilst in the incubator (compared to a national average

of less than 50% of all small and medium sized companies registered) and 87% surviving after 5 years of starting.

The findings reveal that incubators increase the survivability of businesses; therefore they need to evaluate the interaction of resources and establish the contribution of these resources to superior performance. A Firm's unique resource is stressed in the expounded resource based view (RBV) by Barney (1986). Hence the incubator managers must strive to integrate unique resources within the centre and be a world class incubator centre that is desired by all incubatees and potential incubatees.

Table 4.14: Performance of Incubator Centre Dimensions

Performance of Incubator centre Dimensions past five years	Been reducing Frequency (%)	Remained the same Frequency (%)	Been increasing Frequency (%)			
The number of graduating firms has.	4	10.5	12	31.6	23	57.9
The number of failed firms and left incubation has.	16	40.5	15	37.84	8	21.6
The number of operating business after graduation.	6	14.5	13	32.4	21	52.9

The study also measured the performance from the actual numerical data from the incubators centres to support the previous findings on whether performance reduced, remained the same or increased. The years between 2012 and 2016 were considered. The results shows that in 2012 the average mean score of the number of graduating firms was 8.4375, 2013 was 9.1111, 2014 was 10.6111 and 2015 averaging 9.958. 2016 had the highest mean score of 10.837. This is upward trend supporting the previous results. As far as the number of firms that failed and withdrawn from incubation is concerned in 2012 they registered an average mean score of 2.7857,

2013 was 2.4667, 2014 was 2.3778, 2015 was 2.125 and 2016 was 2.0526. Further as far as the statement that number of businesses still in operation after graduation is concerned. There was a clear upward trend with 2012 registering 3.5333 and 2016 registering the highest mean of 4.9565.

This is an indication that incubators are striving to achieve their intended purpose and objectives. Firm performance is one of the best criteria for determining efficiency and effectiveness within a given time (Adams & Sykes, 2003). Firm performance is a clear indication of the firms' level of entrepreneurial activities depicted within the market where the firm operates and evidenced by improved growth of the firm (Soininen, 2013). The averages were computed and results summarized in Table 4.15.

Table 4.15: Overall Performance of Incubator Centres

Component	2012 (Mean)	2013 (Mean)	2014 (Mean)	2015 (Mean)	2016 (Mean)
Number of graduating firms.	8.4375	9.1111	10.6111	9.9583	10.8370
Number of firms that failed and exited from incubation.	2.7857	2.4667	2.3778	2.1250	2.0526
Number of businesses still in operation after graduation	3.5333	3.0471	3.6000	4.8182	4.9565

To test study hypotheses and draw conclusions on the study objectives, inferential analyses were carried out. The analyses involved statistical modelling and tests carried out based on the fitted model. The study sought to analyse the relationship between incubation practices, entrepreneurial orientation and incubator centre performance in Kenya. To explore the relationships between the constructs, structural equation modelling was adopted. Structural equation modelling (SEM) is a series of statistical methods that allow complex relationships between one or more independent

variables and one or more dependent variables. To examine the correlations among the variables and identify possible paths of relationships among the variables structural equation modelling is done (Pallant, 2010; Leedy & Ormrod, 2013).

4.6 Entrepreneurial Orientation Analysis

Entrepreneurial Orientation is operationalized as innovation, risk taking and pro-activeness. The results in Table 4.16 show that majority (85.36%) of the respondents agreed that there is re-engineering of the processes to make processes more efficient than competitors in their firms. Further it was also established that majority (82.93%) were in the view that management provide resources to implement new ideas initiated by employees. majority (94.7%) answered to the affirmative when the question was asked. The centre exhibited high level of creativity. Mburia, Wanjau and Kinyanjui (2017) study on moderating role of Entrepreneurial Orientation on the relationship between Best Manufacturing Practices and Performance of Food Processing Firms in Kenya. The study also sought to know if resources were provided to implement new ideas initiated by employees. Majority (82.93) agreed while a few (17.07) disagreed with this statement as indicated in Table 4.16.

Ferreira and Azevedo (2008) support that, prudent resource management is a dimension of strategic management. Resource based view postulate that a firm's performance is enhanced by resources owned the firm, but it is of the view that to ensure sustainable competitive advantage these resources must be heterogeneous that are difficult to create, substitute or be imitated. To achieve this superior performance incubator management must vet the quality of resources employed at the centre through proper monitoring system in the centre. However, majority (82.93%) disagreed with the question that if a manager makes a decision and fail, he/she is

punished. This implies that management is well aware of the crucial aspects of entrepreneurial orientation and thus strives to apply them with the aim of enhancing the centre performance.

Entrepreneurship, failure is treated as trial and error method that constitutes a learning process for entrepreneurial managers. It also explains why these managers exhibit remarkable degree of confidence when they source for resources beyond what they currently control, because they are assured the missing element of the opportunity the organization is exploiting will definitely take shape and pay off and this leads to superior performance. The results are presented in Table 4.17

Table 4.17: Entrepreneurial Orientation

Entrepreneurial Orientation	Yes		No	
	Frequency	(%)	Frequency	(%)
Re-engineering the processes to make them more efficient than competitors processes	33	85.36	6	14.63
Providing resources to implement new ideas initiated by employees	32	82.93	7	17.07
Management allows quick decisions made to counter competition	30	78.04	9	21.95
If a manager make a decision and fail, he/she is punished	7	17.07	32	82.93

4.6.1 Measurement of Innovation Factor amongst Incubator Centres

Table 4.18 indicate the index on whether the centres create value for new and existing clients through partnerships as far as innovativeness is concerned this index had the highest mean score (Mean=4.025, SD=.9195). The results show that the average mean for innovation had an average mean score of 3.7833 and standard deviation of 1.0603. Innovation reflects a firm's propensity to engage in and support the generation of new ideas and creative processes that may lead to new products/ services, technological processes and new markets. Innovation is important to renewing products and services in the market to remain competitive. It is also a strategy embraced to deal with shortened product/business life cycles (Perez-Luno, Wiklund & Cabrera, 2011). Small and medium enterprises (SMEs) lack adequate capabilities and resources to innovate as compared to the larger firms (Otero-Neira, Lindman & Fernandez, 2009).

To deal with this challenge, incubator Centres should strive to innovate to remain competitive but due to inadequate capabilities and resources, the centres can opt to pool resources to avoid duplication of processes. The centres can also collaborate with different stakeholders such as universities, research institutions and other relevant partners who will assist with various processes of innovation for superior performance and optimum use of resources.

Table 4.18: Innovating Factors in The incubation centres

Innovating	1	2	3	4	5	Mean	Std. Deviation
During the last six months the centre has done something different to attract new clients.	8%	0%	21%	56%	15%	3.825	1.107
Your centre creates value for new and existing clients through partnerships.	0%	0%	23%	28%	49%	4.025	0.920
There is a budget for innovation is in place to encourage creativity in business.	15%	15%	18%	28%	23%	3.500	1.155
Average mean score						3.783	1.060

4.6.2 Measurement of Risk taking Factors amongst Incubator Centres

Table 4.17 shows that respondents were asked if management was afraid to take bold decisions, had the highest mean score (Mean=4.050, SD=.9323). The results show that the average mean for risk taking had average mean score of 3.534 and standard deviation of 1.0438. Risk-taking is the firm's willingness to engage in calculated business related risks in the market place, even when their outcomes are uncertain. Firms with risk-taking behaviour are described as being bold and aggressive in pursuing opportunities as they are ready to incur large and risky resources commitments in the hope of obtaining high returns (Lumpkin & Dess, 2001; Rauch et al., 2009).

Incubator Centres exist to nurture superior performance. The probability of succeeding or failing is not known, so these centres risk resources, to counter this uncertainty, the centres ensure they encourage their clients to create new products, create new markets and embrace new processes that outperform other competitors in the market. Business is believed to be a game of skill. Entrepreneurs appreciate that where there is no risk, there is no return. They equate high risk to high return and vice versa, this underpins the place of entrepreneurial managers in a firm to carefully

evaluate risks, avoid low one for they present no challenge and avoid high ones, for they risk losing all they have invested.

Table 4.11: Risk taking Factors amongst Incubator Centres

Risk taking	1	2	3	4	5	Mean	Std. Deviation
Clients are allowed to operate before paying rent	31%	0%	18%	38%	13%	3.103	1.188
During selection, weak ideas that show potential of growth are selected.	8%	5%	21%	54%	13%	3.450	1.011
In exploiting opportunities, Management is not afraid to take bold decisions.	8%	0%	15%	33%	44%	4.050	0.932
Average mean score						3.534	1.044

4.6.3 Measurement of Proactiveness Factor amongst Incubator Centres

Table 4.20 indicated a statement that showed the highest mean score that sought to find out if their centre actively sought new opportunities, a mean of 4.100 and standard deviation of .84124 was recorded. The results show that the average mean for proactiveness had an average mean score of 3.8538 and standard deviation of 1.07257. A firm's pro-activeness is demonstrated by its awareness of and responsiveness to market signals (Hughes & Morgan, 2007). Pro-activeness involves identifying and evaluating new opportunities and monitoring market trends (Kropp, Lindsay & Shoham, 2008).

The results show that the average mean for the aspects of the entrepreneurial orientation variables varied across the three constructs. Innovativeness had an average mean score of 3.7833 and standard deviation of 1.0603, risk taking had average mean score of 3.534 and standard deviation of 1.0438 and proactiveness had an average mean score of 3.8538 and standard deviation of 1.07257. This depicts a moderately high ranking which means that the three aspects of the entrepreneurial orientation

were important for performance of incubator Centres. The centre creates value for new and existing clients through partnerships as far as innovativeness is concerned had the highest mean score (Mean=4.025, SD=.9195). As far as risk taking was concerned the statement that in exploiting opportunities, Management is not afraid to take bold decisions, had the highest mean score (Mean=4.050, SD=.9323) and as far as proactiveness was concerned the statement that showed highest mean score was that our centre actively seeks new opportunities with a mean of 4.100 and standard deviation of .84124.

Okeyo, Gathungu and K'Obonyo, (2016) study on Entrepreneurial Orientation, Business Development Services, Business Environment, and Performance and found that entrepreneurially oriented firms are innovative, calculated risk-takers, and proactively reach markets ahead of their competitors. Mwangi and Ngugi (2014) studied the influence of Entrepreneurial Orientation on Growth of Micro and Small Enterprises in Kerugoya, Kenya and found that the dimensions of EO (Innovativeness, risk taking, pro-activeness, and entrepreneurial managerial competence have a Significant positive influence on growth of Micro and Small Enterprises. According to Soininen (2013) entrepreneurial orientation is a significant and positive factor behind a firm's long-term growth. Hence it is attributed to positive impact on firm performance and that firms which adopt entrepreneurial orientation perform better than those that adopt conservative orientation.

For entrepreneurs to thrive in a dynamic market that experiences economic downturns, they have to understand what value creating activities they have to adopt to distinguish themselves from conventional managers by embracing entrepreneurial orientation and achieve competitive advantage.

Table 4.20: Proactiveness Factor amongst Incubator Centres

Proactiveness	1	2	3	4	5	Mean	Std. Deviation
Our centre initiates changes before our competitors do.	8%	0%	38%	38%	15%	3.718	1.169
Our centre actively seeks new opportunities	0%	8%	0%	51%	41%	4.100	0.841
The centre anticipates changes and acts on them.	0%	8%	15%	38%	38%	3.744	1.208
Average mean score						3.854	1.073

4.7 Client Selection Criteria and Performance of incubator centres

The study determined the influence of client selection criteria on performance of incubator centres. The incubator's ultimate goal of a client selection process is to establish that there exists a match between the prospective/potential client's needs and incubator's mission and resources. Therefore it's important for any program to screen the clients ideas for viability since most incubators operate with limited staff and financial resources. The study determined, if the incubators centres have a standard checklist for client selection, if the selection of ideas is based on cultural fit and if originality of ideas was an important element considered during selection.

The results reveals that majority (97.56%) of the firms surveyed had a standard checklist for client selection with only few (2.44%) indicating that they had no standard checklist for client selection. Reason being, there was a selection criteria and a recruitment panel for the incubatee that calls for applications from SMEs and those with business ideas were vetted, interviewed and recruited in to the incubator every year. The question if the centre select ideas based on cultural fit attracted majority (51.22%) agreeing with few (48.78%) disagreeing. Those disagreeing indicated that mostly the incubators with innovations and ideas apply and are invited for an interview where they pitch to a panel of judges who pick the best and feasible ideas. They normally look for business ideas and business practitioners who are mentored,

coached and guided to develop bankable business plans in 6 months. Once the business plan is funded, the incubatee is mentored for 24 to 36 months until the company stands. They further explained that they select businesses with high potential to grow and succeed and also check and confirm that the idea is aligned. The study further established that majority(78.05%) of the respondents agreed that originality of ideas is an important element considered during selection as shown in Table 4.22.

Raheem and Akhuemonkhan, (2014) study on Enterprise development through incubation management and found that, admission criteria should be clearly set with guidelines and transparent evaluation procedures that look for components such as innovativeness of the business/product idea; product feasibility and patent protect ability, understanding of market and growth potential, financial plan, risks/opportunities involved in the project, professional and education background of the applicant, community benefits and ecological awareness. The selection panel also needs to establish the entrepreneur's passion in the clients seeking admission.

Entrepreneurial passion is an intense emotion that entrepreneurs feel for their activities that significantly mirror their identity (Laaksonen, Ainamo & Karjalainen, 2011). The scholars studied entrepreneurial passion in the music industry that they found ideal for this entrepreneurial dimension.

This study identified that, majority incubators in Nairobi fall under the creative art industry, managed by young passionate managers hence, incubator centres need to identify entrepreneurs who are passionate about their ideas for admission. Such entrepreneurs will go against all odds to make their ideas succeed and become high growth ventures that impact the economy of the immediate community by starting

businesses and utilize the locally available resources with an intension to be different and unique from the rest.

Table 4.21 :Identification of Client Particulars

Identification of Client Particulars	Yes		No	
	Frequency	(%)	Frequency	(%)
A standard checklist for client selection	38	97.56	1.00	2.44
Selection of ideas based on cultural fit	21	51.22	19	48.78
Originality of ideas as an important element considered during selection	32	78.05	9	21.95

4.7.1 Client Selection Criteria Dimensions

The study also carried out an analysis to determine the extent to which the respondents agreed on statements regarding client selection criteria on a Likert scale. The constructs under measurement were model that match program goals, uniqueness of ideas and standard selection tool. Appendix VI shows the results on each of the constructs of client selection criteria Model that match program goals construct had an average mean score of 3.74 and standard deviation of 1.21. This is an indication of a moderate agreement as far as the views of the respondents on the statements are concerned. The ideas selected with economic value statement had the highest mean score (Mean=3.900, SD=1.19), with the statement that the selection of ideas is based on prior experience of the management team having the least mean score (Mean=3.5135 and SD=1.16956). The findings also show that the average mean score of uniqueness of ideas was 4.1125 and standard deviation of 1.119. This depicts strong agreement as far as the statements on the construct as concerned across the firm's surveyed. All the statements had a mean score above 3.8 with the statement

that the selection of ideas is based on the ideas potential in creating new markets and the selection of ideas is based on potential to attract investment participation from venture having the highest mean scores (Mean=4.2250, SD=1.049) and Mean=4.2250, SD=1.2086) respectively. However the index on model that addresses the needs of the immediate community showed the least observed mean of 3.850 and standard deviation of 1.167.

The one represented by standard selection tool had an average mean score of 3.8317 and standard deviation of 1.211. This depicts an agreement from the respondents as far as the firm's adopting standard selection tool as client selection criteria is concerned. The findings therefore affirm that uniqueness of business ideas was the highly agreed construct followed by standard selection tool and finally the model that match program goals construct. Bergek and Norrman (2008) aver that the task of identifying which firm to incubate and which to ignore is a challenge and it calls for sophisticated understanding of the market and processes of new venture creation.

Laaksonen et al. (2011) opine that entrepreneurial passion is an emotional resource for coping with challenges, by stimulating entrepreneurs to overcome obstacles and stay on course. The scholars stress that, entrepreneurs love their work genuinely and this sustains additional thrust of energy. Incubator managers need to possess the same entrepreneurial passion as their clients, in crafting the vision for their incubator centres.

The managers have a stronger entrepreneurial vision, they visualize better than other members of the centre and have greater self-efficacy to actualize these visions, hence top management of the incubators are the Vision carriers in delivering the vision leading to superior performance of the incubators. The management is better placed to

formulate a strategy that best exploits the resources and capabilities relative to external opportunities. It can therefore be depicted from the study findings that a client selection criterion is well exhibited within the incubators in Kenya.

Table 4.22: Client Selection Criteria Dimensions

Client Selection Criteria							
Model that match program goals	1	2	3	4	5	Mean	Std. Deviation
Management only selects ideas that match the centre resource base.	0%	8%	15%	31%	46%	3.816	1.159
The selection of ideas is based on prior experience of the management team	5%	10%	23%	49%	13%	3.514	1.170
Ideas selected are those with economic value	5%	0%	5%	56%	33%	3.900	1.194
Average mean score						3.743	1.174
Uniqueness of ideas	1	2	3	4	5		
Ideas selected are those with a multiplier effect	5%	0%	23%	28%	44%	4.150	1.051
The selection of ideas is based on the ideas potential in creating new markets	0%	0%	8%	41%	51%	4.225	1.050
The selection of ideas is based on potential to attract investment participation from venture capitalists	0%	0%	8%	31%	62%	4.225	1.209
The model addresses the needs of the immediate community.	5%	8%	8%	41%	38%	3.850	1.167
Average mean score						4.113	1.119
Standard selection tool	1	2	3	4	5		
Management has developed a selection criteria targeting specific sector.	0%	31%	13%	13%	44%	3.737	1.369
The tool targets innovative ideas that have potential to change the immediate community.	0%	0%	28%	36%	36%	3.947	1.138
Management adheres to the tool for standardization.	0%	8%	28%	33%	31%	3.811	1.126
Average mean score						3.8	3.832

4.7.1 Relationship between Client Selection Criteria and Performance of Incubator Centres in Kenya

The first objective of this study was to establish the relationship between client selection criteria and performance of incubator centres in Kenya. The objective sought to test hypothesis;

H₀₁: *There is no significant relationship between client selection criteria and performance of incubator centres in Kenya*

The goodness of fit indices indicates that the hypothesized Structural Sub Model 1 provides a good fit between the data and the model. The likelihood chi-square ($\chi^2 = 16.950$; $df = 8$; $p = 0.031$) was significant ($p > .05$), other fit measures also showed that model adequately fit the observed data. The absolute fit measures GFI and RMSEA were 0.961 and 0.000 respectively indicating good absolute fitness of model. The goodness of fit indices between the data and the model gave AGFI was 0.941 which was greater than 0.90 cut-off point, indicating acceptable fit between the data and the model. The values obtained in testing the model fit indices were within the thresholds as shown in Table 4.23.

Table 4.23: Fit Indices with Client Selection Criteria as the Predictor

Model	Chi-square			CFI	NFI	GFI	AGFI	RMSEA
	χ^2	df	P-value					
Statistic	16.950	8	0.031	1.000	0.836	.961	.941	0.000
Cut-off	P-value < 0.05			≥ 0.90	≥ 0.8	≥ 0.90	≥ 0.8	≤ 0.08

As shown in Figure 4.3 and path coefficients and table 4.24, there is a significant relationship between client selection criteria and performance of incubator centres in Kenya. The standardized path coefficients on the influence of client selection criteria on performance of incubator centres was found to be significant ($\beta=0.27$, $C.R = 3.356$). In this model, 2 of the items measuring performance of incubators (number of graduating firms, number of firms that failed and withdrawn from incubation and number of businesses still in operation after graduation) were found to be significant indicators.

The CR of the coefficient of client selection criteria was found to be 3.356 which is greater than 1.96 the standard normal distribution critical ratio at 0.5 level of significance. These findings therefore show that client selection criteria practices significantly affect performance of incubator centres positively. The findings concur with Lumpkin and Ireland (1988) who indicated that the incubator’s program ultimate goal of a client selection process is to establish that there exists a match between the prospective/potential client’s needs and incubator’s mission and resources.

The findings are supported by Mises theory of entrepreneurship that argues, all economic decisions are anchored on decision making and coping with future uncertainties. He stresses that the future is influenced by human decisions and how well entrepreneurs remain focused to their vision. He opines that entrepreneurship is made up of judgemental decision making under conditions of uncertainty. Incubator management in the selection criteria must make informed decisions guided by the vision of the centre. The results are presented in Table 4.24.

Table 4.24: Regression Weights for CSC

			Estimate	S.E.	C.R.	P
ICP	<---	CSC	0.269	0.08	3.356	***
NGF	<---	ICP	1			
NEF.	<---	ICP	-0.732	0.392	-1.867	0.062
NSO	<---	ICP	0.842	0.365	2.308	0.021
MMP	<---	CSC	-0.283	0.057	-4.967	***
SST	<---	CSC	1			
UI	<---	CSC	1.62	0.086	18.769	***

P<0.05 *, P<0.01 **, P<0.001***

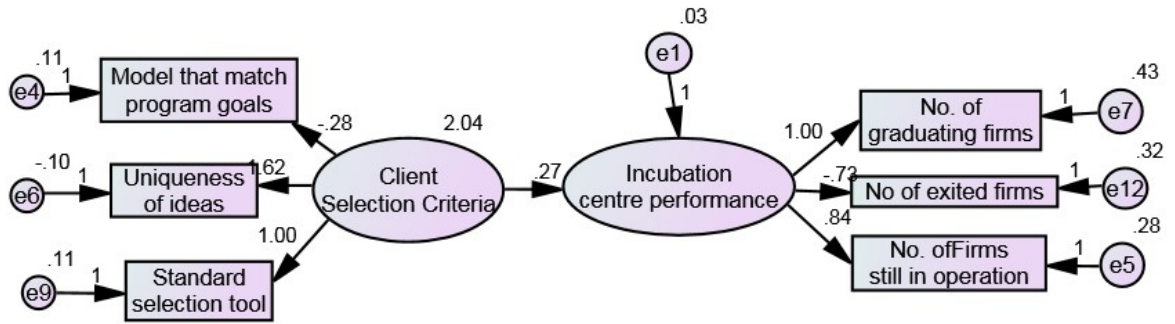


Figure 4.3: General Analysis of Moments Structures Model For the Hypothesised Relationship between CSC and PIC

4.7.2 Moderating Effect of Entrepreneurial Orientation on the Relationship between Client Selection Criteria and Performance of Incubator Centre.

Further, the moderating effect of entrepreneurial orientation on the relationship between CSC and PIC was explored. This was assessed by introducing the moderating variable entrepreneurial orientation and the interaction variable between client selection criteria and entrepreneurial orientation to the model. Figure 4.4 and the path coefficients table 4.26 shows the moderating effect. The CR of the coefficient of the interaction effect between CSC and EO was found to be 1.986 which are greater than 1.96 the critical ratio at the 0.05 level of significance. These findings therefore show that EO has a significant moderating effect on the relationship between client selection criteria and performance of incubator centres. Results shown in Table 4.25.

Table 4.25: Weights for the Moderating Effect of EO on CSC and PIC

			Estimate	S.E.	C.R.	P
ICP	<---	CSC	-0.532	0.266	-1.9964	0.046
ICP	<---	EO	0.289	0.147	1.965	0.049
ICP	<---	X1Z	0.822	0.414	1.986	0.047
NGF	<---	ICP	0.333			
NEF.	<---	ICP	-0.728	0.369	-1.972	0.049
NSO	<---	ICP	0.838	0.426	1.9673	0.049
MMP	<---	CSC	-0.105	0.02	-5.298	***
UI	<---	CSC	0.598	0.024	25.437	***
PR	<---	EO	0.489			
RT	<---	EO	-0.202	0.082	-2.453	0.014
SST	<---	CSC	0.382			
IN	<---	EO	0.431	0.061	7.093	***

P<0.05 *, P<0.01 **, P<0.001***

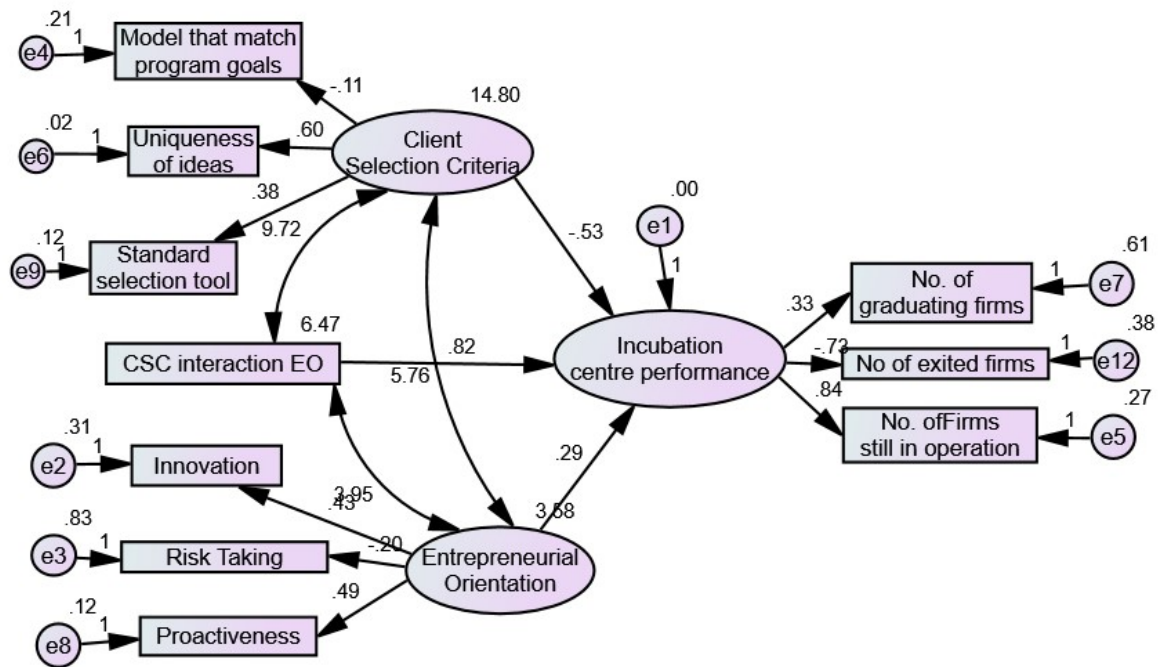


Figure 4.4: General Analysis of Moments Structures Model for the Moderation Effect of EO on the Relationship between CSC and PIC

This study used Hierarchical Moderated Multiple Regression (MMR) analysis to test the moderating effect of entrepreneurial orientation on the relationship between incubator practices and performance of incubator centres and draw conclusions on the objectives of the study. The hierarchical moderated multiple regression is a three stepwise regression analysis with introduction of the moderating variable in step 2 and introduction of the interaction variables between the moderator and the independent variables in step 3. The study performed 4 hierarchical regression models considering the bi-variate analysis on the independent variable as the first model and the fourth MMR considering the joint effect of the three independent variables as the 1st model.

The first hierarchical moderated regression model was fitted considering client selection criteria as the independent variable in model 1. In step one; client selection criteria were regressed as the only predictor on performance of incubator centres. In step two the moderating variable, entrepreneurial orientation was introduced to the model and finally in step three, interaction term between client selection criteria and Entrepreneurial Orientation was introduced. The results for this moderated multiple regression was presented in Table 4.27. The results show that model 1 has an R-square of 0.433, this shows that 43.3% of the variation in performance of incubator centre is explained by the variation of client selection criteria in the model. The model is generally significant based on the ANOVA F statistic with a p-value of 0.000 which is less than 0.05. On introducing the moderating variable EO, the model experienced a change in R-square of 0.168. The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows a significant 16.8% increase in the variation of performance of incubator centres explained by the predictors in the model due to addition of EO to the model. Addition of the interaction variable between EO and CSC however

exhibited no significant change in R-square. The R-square change was 0.000 with a p-value of 0.896 which is greater than 0.05. This shows that considering the client selection criteria as the only independent variable in the model, EO does not moderate the relationship between CSC and PIC.

Table 4.26: Model Summary for MMR with client selection criteria as predictor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.658a	0.433	0.417	0.76335707	0.433	28.212	1	37	0.000
2	.775b	0.60	0.578	0.64940043	0.168	15.125	1	36	0.000
3	.775c	0.601	0.566	0.6584499	0.000	0.017	1	35	0.896

a. Predictors: (Constant), Client selection criteria

b. Predictors: (Constant), Client selection criteria, Entrepreneurial Orientation

c. Predictors: (Constant), Client selection criteria, Entrepreneurial Orientation, X1Z

Table 4.26 shows the model coefficients of models 1, 2 and 3 of this stepwise regression model. Model 1 results show that client selection criteria (CSC) has a significant influence on performance of incubator centres ($\beta = 0.658$, $t = 5.312$, $p < .05$). The coefficient of CSC has a t-statistic of 5.312 and a p-value of 0.001 which is less than 0.05 implying significance at the 0.05 level of significance.

The equation generated from model 1 becomes;

$$\hat{Y} = 0.00 + 0.658X_1 \dots \dots \dots \text{Equation 4.1}$$

Model 2 shows that adding entrepreneurial orientation to the model has a significant effect. The coefficient of EO in the model is significant at 0.05 level of significance ($\beta = 0.714$, $t = 3.889$, $p < .05$) showing that EO has a significant influence on PIC. The equation generated from model 2 is given by;

$$\hat{Y} = 0.00 + 0.73X_1 + 0.714Z \dots \dots \dots \text{Equation 4.2}$$

According to model 3, adding the interaction term to the model yielded no significant improvement to the model. The interaction term had no significant influence on ICP ($\beta= 0.029$, $t=0.131$, $p > .05$). The p-value of the interaction term according to this model was found to be 0.896 which is greater than 0.05 implying insignificance. There is therefore no significant model equation that can be generated from model 3.

Table 4.27: Coefficients for MMR with Client Selection Criteria as Predictor

Model	Predictor	Un-standardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	0.000	0.122		0	1.000
	Client selection criteria	0.658	0.124	0.658	5.312	0.000
2	(Constant)	0.000	0.104		0.000	1.000
	Client selection criteria	0.730	0.184	0.730	3.967	0.000
	Entrepreneurial Orientation	0.714	0.184	0.714	3.889	0.000
3	(Constant)	0.023	0.206		0.113	0.911
	Client selection criteria	-0.200	0.599	-0.002	-0.003	0.998
	Entrepreneurial Orientation	0.715	0.186	0.715	3.837	0.000
	X1Z	0.029	0.222	0.075	0.131	0.896

4.8 Incubator Funding Practices and Performance of incubator centres

The study determined how funding influence performance of incubator centres. A fundamental decision made by firms relates to how assets are to be financed hence making financial policy choice an important research area in finance. The study first determined if the centre financed to cater for all the activities. The findings shows that majority (52.5%) indicated that incubator centres did not finance all the activities, whereas, 47.50% indicated that the centres financed to cater for all their activities. This implies that the activities carried out by the incubators are many thus requires extra source of funds. It's therefore imperative that incubators do not depend solely on

financed funds to carry out their activities but also find other sources within their reach. The results are presented on Figure 4.5.

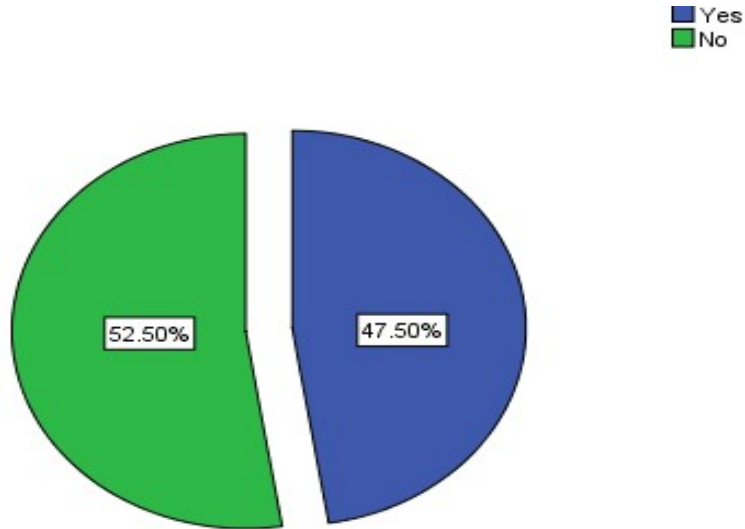


Figure 4.5: Incubator Centre Financing to Cater for All the Activities

The study thus sought to determine the sector that funds the incubators activities. This was to determine the interested parties in the noble process of nurturing entrepreneurship. The results in Figure 4.2 show the varying percentage among key stakeholders. Majorities (38.46%) of the donors are from public sector and few (25.64%) were from private sector. However a moderate (35.9%) indicated both public and private sector. This implies that incubator management does not understand the concept of public- private partnership. This is in line with UKBI (2009) who found that most of the incubation programmes are financed by public funds but also argued that in other studies, firms vary the sources of finance and avoid over reliance on one source.

It is not easy for incubators to provide resources across board within a strategic group due to RBV's assumption that some of the resources cannot be traded in factor markets and are difficult to accumulate and imitate. Resource heterogeneity (or uniqueness) is considered a necessary condition for a resource bundle to contribute to a competitive advantage.

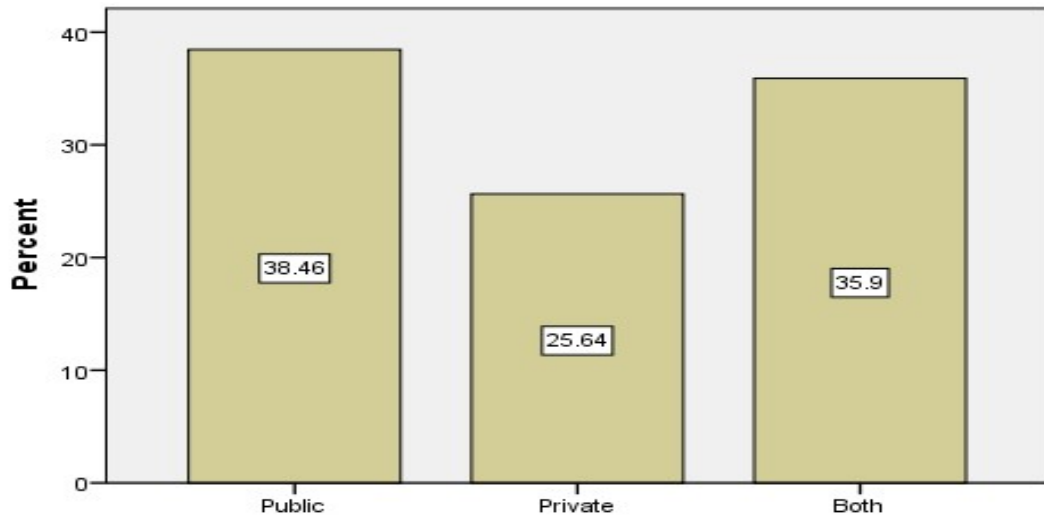


Figure 4.6: Sectors Funding the Incubator Centres

4.6.1 Incubator Funding Dimensions

The study determined the influence of funding on performance of incubator centres based on how funds are sourced; types of funds and nature of funds Table 4.24 present scores for sources of funds are 3.11 and standard deviation of 1.3419. This a moderate mean score depicting that financing is a challenge within the incubator Centres. The statement with the highest mean score as far as sources of funds is concerned is that Management relies heavily on external sources of funds with a mean of 3.667 and standard deviation of 1.4018 with the statement with the lowest mean being that management gets royalty fee from its clients with a mean of 2.4103 and

standard deviation of 1.332. Types of funds had an average mean score of 2.7307 and standard deviation of 1.3054 with the statement that most of your proposals attract funding from stakeholders having the highest mean score of 3.4 and standard deviation of 1.3166 and the statement with the lowest mean being that management secures loans from banks for business operations with a mean of 1.846 and standard deviation of 1.247. Further the results indicate that nature of funds had an average mean score of 3.1717 with standard deviation of 1.398.

The statements varied in weight depending on the generated means with the statement that management allocates funds for re-engineer processes whenever required having the highest mean score of 3.729 and standard deviation of 1.123 with the statement having the lowest mean being that the incubator centre has adequate funds for research and development with a mean score of 2.575 and standard deviation of 1.5995. The results therefore depict that incubator management relies heavily on external sources of funds where most of the proposals attract funding from stakeholders and also management allocates funds for re-engineering processes whenever required. The findings are presented in Table 4.24.

This is an indication that most incubators face financial challenges which might affect their performance in the long run. Boldrini, Schieb-Bienfait and Chéné (2011) study on improving SMEs' guidance within public innovation support found that public bodies are cognizant of the importance of small- and medium-sized enterprises (SMEs) in regional economic development and therefore stimulated their innovativeness through incubator funding and innovation agencies all over European countries.

Cui, Zha and Zhang (2010) conducted a study to investigate financial support systems and strategies of SMEs in the incubation based on the business life cycle. They argued that at maturity stage, incubators are more mortgage assets hence can enjoy finance from Initial Public Offering (IPO) and bank finance. The findings revealed that after incubation, there was little support for SME's that graduate, so most of their funds will be from the institutional investors and banks.

Prudent resource management indicates that firms that are adequately financed cater for all activity schedules hence meeting and exceeding customer expectation and incubator centres are no exception.

Table 4.28: Funding Practices Dimensions

Sources of funds	1	2	3	4	5	Mean	Std. Deviation
Management experiences challenges collecting rent from incubates.	23%	5%	13%	38%	21%	3.2564	1.29204
Management gets royalty fee from its clients	67%	8%	13%	8%	5%	2.4103	1.33215
Management relies heavily on external sources of funds	33%	5%	8%	28%	26%	3.6667	1.40175
Average mean score						3.1111	1.34198
Types of funds	1	2	3	4	5		
Management secures loans from banks for business operations	72%	21%	0%	8%	0%	1.8462	1.24686
Most of your proposals attract funding from stakeholders	15%	0%	23%	51%	10%	3.4	1.31656
Your incubator Centre has attracted venture capitalists.	23%	5%	26%	15%	31%	2.9459	1.3529
Average mean score						2.7307	1.30544
Nature of funds	1	2	3	4	5		
Your incubator Centre attracted seed funding from several sources	15%	8%	10%	36%	31%	3.2105	1.47333
Management allocates funds for re-engineer processes whenever required.	13%	26%	8%	36%	18%	3.7297	1.12172
The incubator centre has adequate funds for research and development.	44%	18%	13%	8%	18%	2.575	1.59948
Average mean score						3.1717	1.39818

4.8.1 Relationship between Incubator Funding Practices and Performance of Incubator Centres in Kenya.

The second objective of this study was to establish the relationship between incubator funding practices and performance of incubator centres in Kenya. The hypothesis to test for this specific objective was as follows:

H₀₂: *There is no significant relationship between funding practices and performance of incubator centres in Kenya*

The goodness of fit indices indicates that the hypothesized Structural Sub Model 1 provides a good fit between the data and the model. The likelihood chi-square ($\chi^2 = 19.967$; $df = 8$; $p = 0.01$) was significant ($p < 0.05$), while other fit measures also showed that the model adequately fit the observed data. The absolute fit measures i.e. GFI and RMSEA were 0.919 and 0.04 respectively indicating good absolute fitness of model. The model also gave AGFI as 0.987 which was greater than the cut-off of 0.90, indicating acceptable fit between the data and the model. The values obtained in testing the model fit indices were within the thresholds as shown in Table 4.29.

Table 4.29: Fit Indices with Incubator Funding Practices as the Predictor

Model	Chi-square			CFI	NFI	GFI	AGFI	RMSEA
	χ^2	df	P-value					
Statistic	19.967	8	0.010	0.950	0.956	.919	.987	0.04
Cut-off	P-value < 0.05			≥ 0.90	≥ 0.8	≥ 0.90	≥ 0.8	≤ 0.08

As shown in Figure 4.8 and path coefficients table 4.30, there is a significant relationship between incubators funding and performance of incubator centres in Kenya. The standardized path coefficients on the influence of incubator funding on performance of incubator centre was found to be significant ($\beta=0.205$, C.R =2.048).

The CR of the coefficient of incubators funding was found to be 2.048 which is greater than 1.96 the critical ratio at the 0.5 level of significance. These findings therefore show that incubators funding significantly affect performance incubator centre positively. The results are shown in Table 4.30.

Incubator centres need to embrace innovative methods of financing the businesses because most of these small businesses are regarded as high risk venture by most financial institutions. This can be achieved by identifying value addition activities that

will create unique innovation that will be patented and generate funds, hence increase revenue streams in the incubation centres. This is supported by Kirzner's concept of entrepreneurship that advocates for alertness to profit opportunities. The core concept of this theory is, the entrepreneur who is alert to superior production process or a product, and moves fast to fill this gap enjoys higher profits.

Table 4.30: Regression Weights for IF

			Estimate	S.E.	C.R.	P
ICP	<---	IF	0.205	0.1	2.048	0.041
NGF	<---	ICP	1			
NEF.	<---	ICP	-1.712	0.886	-1.932	0.053
NSO	<---	ICP	1.857	0.868	2.141	0.032
SF	<---	IF	0.031	0.059	0.53	0.596
NF	<---	IF	1			
TF	<---	IF	0.348	0.066	5.271	***

P<0.05 *, P<0.01 **, P<0.001***

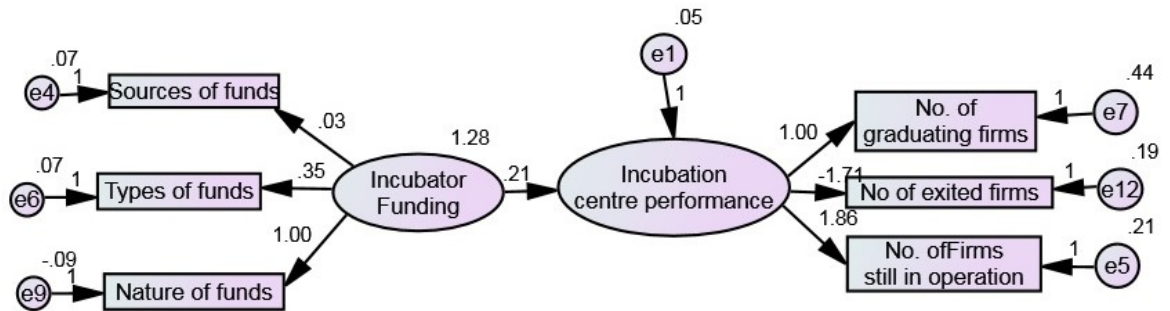


Figure 4.7: General Analysis of Moments Structures Model for the Hypothesised Relationship Between Incubator Funding and Performance of Incubator Centres

4.8.2 Moderating Effect of Entrepreneurial Orientation on the Relationship between Incubator Funding and Performance of Incubator Centres in Kenya

The moderating effect of entrepreneurial orientation on the relationship between Incubation funding (IF) and performance of Incubator Centre (PIC) was explored. This assessment involved the introduction of the moderating variable, entrepreneurial orientation (EO) and the interaction variable between IF and EO to the model. Figure 4.9 and the path coefficients table 4.31 shows the moderating effect. The CR of the coefficient of the interaction effect between IF and EO was found to be 0.621 which are less than 1.96 the critical ratio at the 0.5 level of significance. The p-value of the estimate is also 0.535 which is greater than 0.05. These findings therefore show that EO has a no significant moderating effect on the relationship between Incubation funding and performance of Incubator Centre, as presented in Table 4.31.

Table 4.31: Weights for the Moderating Effect of EO on IF and PIC

			Estimate	S.E.	C.R.	P
ICP	<---	IF	0.023	0.133	0.175	0.861
ICP	<---	EO	0.453	0.204	2.22	0.026
ICP	<---	X2Z	0.043	0.069	0.621	0.535
NGF	<---	ICP	1			
NEF.	<---	ICP	-1.23	0.529	-2.324	0.02
NSO	<---	ICP	1.499	0.583	2.573	0.01
SF	<---	IF	0.077	0.062	1.241	0.215
TF	<---	IF	0.408	0.047	8.756	***
PR	<---	EO	1			
RT	<---	EO	-0.436	0.171	-2.548	0.011
NF	<---	IF	1			
IN	<---	EO	0.903	0.126	7.154	***

P<0.05 *, P<0.01 **, P<0.001***

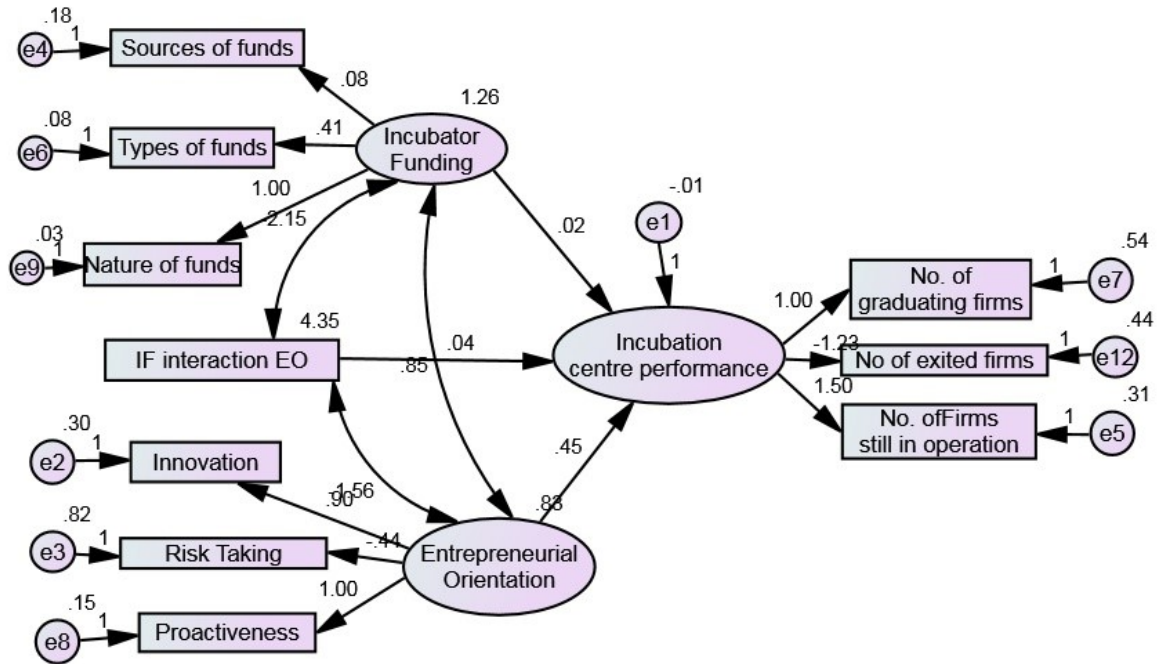


Figure 4.8: General Analysis of Moments Structures Model for the Moderation Effect of EO on the Relationship between IF and PIC

A hierarchical moderated regression model was also fitted in which incubator funding was as the independent variable in model 1. In step one; incubator funding was regressed as a predictor on performance of incubator centres. In the next step the moderating variable entrepreneurial orientation was introduced to the model and finally in step three, interaction term between incubator funding and Entrepreneurial Orientation was introduced. The model summary results for this moderated multiple regression were presented in Table 4.32.

The results show that model 1 has an R-square of 0.277 which shows that 27.7% of the variation in performance of incubator centres is explained by the variation of incubator funding in the model. The model is generally significant based on the ANOVA F statistic with a p-value of 0.000 which is less than 0.05. On introducing

the moderating variable EO, the model experienced a change in R-square of 0.355. The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows that there is a significant 35.5% increase in the variation of performance of incubator centres explained by the predictors in the model due to addition of EO to the model. Addition of the interaction variable between EO and IF exhibited no significant change in R-square. The R-square change was 0.007 with a p-value of 0.402 which is greater than 0.05. This shows that considering the incubator funding as the only independent variable in the model, EO does not moderate the relationship between IF and PIC

Table 4.32: MMR Summary with Incubator Funding as Predictor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.527a	0.277	0.258	0.861	0.277	14.210	1	37	0.001
2	.795b	0.632	0.612	0.623	0.355	34.707	1	36	0.000
3	.800c	0.640	0.609	0.626	0.007	0.718	1	35	0.402

- a. Predictors: (Constant), Incubator funding
- b. Predictors: (Constant), Incubator funding, Entrepreneurial Orientation
- c. Predictors: (Constant), Incubator funding, Entrepreneurial Orientation, X3Z

Table 4.32 shows the model coefficients of models 1, 2 and 3 of this stepwise regression model. Model 1 results show that incubator funding (IF) has a significant influence on performance of incubator centres ($\beta = 0.527$, $t = 3.77$, $p < .05$). The coefficient of IF has a t-statistic of 3.77 and a p-value of 0.001 which is less than 0.05 implying significance at the 0.05 level of significance. The equation generated from model 1 becomes;

$$\hat{Y} = 0.00 + 0.527X_1 \dots \dots \dots \text{Equation 4.3}$$

Model 2 shows that adding entrepreneurial orientation to the model has a significant effect. The coefficient of EO in the model is significant at 0.05 level of significance

($\beta= 1.033$, $t=5.891$, $p < .05$) showing that EO has a significant influence on ICP. The equation generated from model 2 is given by;

$$\hat{Y} = 0.00 + 0.73X_1 + 1.033Z \dots\dots\dots \text{Equation 4.4}$$

According to model three, adding the interaction term to the model yielded no significant improvement to the model. The interaction term has no significant influence on ICP ($\beta= -0.074$, $t=-0.848$, $p > .05$). The p-value of the interaction term according to this model was found to be 0.848 which is greater than 0.05 implying insignificance. There is therefore not significant model equation that can be generated from model 3.

Table 4.33: Model Coefficients with Incubator Funding as Predictor

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	0.000	0.138		0.000	1.000
	Incubator funding	0.527	0.140	0.527	3.77	0.001
2	(Constant)	0.000	0.100		0.000	1.000
	Incubator funding	-0.317	0.147	-0.317	-2.156	0.038
	Entrepreneurial Orientation	1.033	0.175	1.033	5.891	0.000
3	(Constant)	0.059	0.122		0.482	0.633
	Incubator funding	-0.383	0.193	-0.383	-1.991	0.054
	Entrepreneurial Orientation	0.963	0.194	0.963	4.953	0.000
	X2Z	-0.074	0.087	-0.156	-0.848	0.402

4.9 Entrepreneurial Management and Performance of Incubator Centres

Entrepreneurial management and performance of incubator centre was also evaluated to determine the magnitude of the influence. This was deemed important since business incubation best practice demands that management operate an incubator as a business entity with a mission, goals, objectives, strategies, payroll, staff, cash flow, and most other business characteristics to help create and nurture new businesses thus incubators require experienced staff with certain skills necessary for the effective

operations of an incubator. First the study determined whether entrepreneurial management is exhibited within the firms.

The results showed that majority of those responded 37(95.12%) indicated that management clearly communicate the centres mission to all. The study further showed that there was also an agreement from respondents that all stakeholders were involved in planning of the activities of the centre. This was indicated by 78%. The findings also showed that 36(92.68%) agreed that management monitors and evaluates the activities of the centre. It is therefore important to note that incubator centres have the top notch management in place to direct the actions of the important activities within the firms. According to Theodorakopoulos et al. (2014) incubation management can foster development of incubatee entrepreneurs and their firms. Incubation management was identified as an overarching factor for theorizing on incubation effectiveness. It was also argued that strategic planning by top management was important because a firm structures future expectations. The results are presented in Table 4.34

Today one of the biggest management challenges is achieving the right balance between changes through continuous innovation (Hortovanyi, 2012). Therefore, management should strive to establish and balance innovation ability of the organization by disregarding the resources the organization currently controls and ambitiously seeks the required resources to exploit the identified opportunities (Timmons, 1994). For strategic renewal, organizations need entrepreneurial transformation that can be achieved through manipulating the organizations' culture and systems, thereby prompting staff to act entrepreneurially leading to superior performance.

Table 4.34: Entrepreneurial Management

Entrepreneurial management	Yes		No	
	Frequency	(%)	Frequency	(%)
Management clearly communicating the centre's mission to all	37	95.12	2	4.88
All stakeholders involving in planning of the activities of the centre	30	78.05	9	21.95
Management monitoring and evaluating the activities of the centre	36	92.68	3	7.32

4.9.1 Entrepreneurial Management Dimensions

The study further determined the influence of entrepreneurial management on incubator performance based on some constructs developed on a Likert scale measure. Respondents were required to respond to the statements depending on how they manifest themselves within the surveyed firms. The results from the computed responses indicate varying magnitude on how each construct of entrepreneurial management manifested in the firms. The overall mean score of entrepreneurial culture, reward philosophy, control and strategic orientation were 3.8667, 3.6583, 3.5857 and 3.8380. They were all above 3.5 depicting strong agreement from the respondents on the statements that measures each construct. The statements that showed highest mean as far as entrepreneurial culture is concerned was that changes in the society often give us new ideas for products and services (Mean=4.200, SD=.7909). Further the statement with the highest mean as far as reward philosophy is concerned was that an employee is perceived based on the value s/he adds (Mean=3.775, SD=.9997). As far as control is concerned the statement that showed the highest mean was that the organization's operating styles range from very formal

to very informal (Mean=3.717, SD=1.2555) and finally the statement that showed the highest mean as far as strategic orientation, they don't limit the opportunities they pursue on the basis of their current resources (Mean=3.975, SD=1.1432). This depicts that entrepreneurial management is well exhibited within the incubation firms surveyed which is interpreted to mean that better management will result to sound decisions based on research and fact findings which translates to better performance of the incubator centres.

Grimaldi and Grandi (2005) studied Business incubators and new venture creation: an assessment of incubating models and found that management teams are important in fostering incubator performance and that the main differences between private and public management teams can be explained by differences in their incentive structures. In the case of private incubators, management teams invest their own money in the new ventures and are deeply involved in the management of day-by-day operational aspects. In the case of public incubators management teams act as 'intermediaries' between new ventures and different external entities that are supposed to provide companies with the resources and competencies that they do not have in-house. The findings are in line with a study by Hortovanyi (2012) in the study "Entrepreneurial Management in Hungarian SMEs" and stressed that entrepreneurial managers strive their goals with ambition beyond the resources currently under their control.

Table 4.35: Entrepreneurial Management Dimensions

Entrepreneurial culture	1	2	3	4	5	Mean	Std. Deviation
We are not in short supply of ideas that we can convert into profitable products and services.	0%	10%	23%	33%	33%	3.650	1.350
Changes in the society often give us new ideas for products and services	0%	0%	5%	38%	56%	4.200	0.791
We are constrained by resources at hand in identifying opportunities.	5%	13%	15%	21%	46%	3.750	1.214
Average mean score						3.867	1.118
Reward philosophy	1	2	3	4	5		
Our employees are compensated based on the value they add to the firm as individuals.	8%	8%	26%	49%	10%	3.550	1.085
Our employees are rewarded for their outstanding performance.	8%	8%	28%	33%	23%	3.650	0.949
An employee is perceived based on the value s/he adds.	8%	0%	23%	54%	15%	3.775	1.000
Average mean score						3.658	1.011
Control	1	2	3	4	5		
Tight control of funds and operations by means of information systems is preferred.	8%	0%	36%	15%	41%	3.675	1.163
Staff should adhere closely to the formal job description.	15%	13%	15%	33%	23%	3.350	1.350
The organization's operating styles range from very formal to very informal.	5%	0%	23%	36%	36%	3.718	1.255
We prefer to totally own and control the resources we use.	5%	0%	21%	33%	41%	3.600	1.257
Average mean score						3.586	1.256
Strategic orientation	1	2	3	4	5		
We don't limit the opportunities we pursue on the basis of our current resources	5%	8%	8%	33%	46%	3.975	1.143
The centre is willing to rent resources to take advantage of an opportunity	18%	8%	13%	33%	28%	3.564	1.294
The resources the centre has, significantly influence the centre's business strategies	0%	0%	26%	15%	59%	3.975	1.187
Average mean score						3.838	1.208

4.9.2 Relationship between Entrepreneurial Management and Performance of Incubator Centres in Kenya

The third objective of this study was to establish the relationship between entrepreneurial management and performance of incubator centres in Kenya. The hypothesis to test this specific objective was as follows:

H₀₃: *There is no significant relationship between entrepreneurial management and performance of incubator centres in Kenya*

The goodness of fit indices indicates that the hypothesized Structural Sub Model 3 provides a good fit between the data and the model. The likelihood chi-square ($\chi^2 = 24.673$; DF = 13; $p = 0.025$) was significant ($p < .05$), other fit measures also showed that model adequately fit the observed data. The absolute fit measures i.e. GFI and RMSEA were 0.936 and 0.000 respectively indicating good fit of model. The goodness of fit indices between the data and the model gave AGFI was 0.962 which was greater than 0.90 cut off point, indicating acceptable fit between the data and the model. The values obtained in testing the model fit indices were within the thresholds as shown in Table 4.36.

Table 4.36: Fit Indices with Entrepreneurial Management as the Predictor

Model	Chi-square			CFI	NFI	GFI	AGFI	RMSEA
	χ^2	df	P-value					
Statistic	24.673	13	0.025	1.000	0.875	.936	.962	0.000
Cut-off	P-value < 0.05			≥ 0.90	≥ 0.8	≥ 0.90	≥ 0.8	≤ 0.08

As shown in Figure 4.9 and path coefficients table 4.37, there is a significant relationship between entrepreneurial management and performance of incubator centres in Kenya. The standardized path coefficients on the influence of

entrepreneurial management on performance of incubator centre was found to be significant ($\beta=0.399$, C.R =2.575). In this model, all the items measuring performance of incubator centres (number of graduating firms, number of firms that failed and withdrawn from incubation and number of businesses still in operation after graduation) were found to be significant indicators. The CR of the coefficient of entrepreneurial management was found to be 2.575 which is greater than 1.96 the critical ratio at the 0.5 level of significance. These findings therefore show that entrepreneurial management significantly affects performance of incubator centre positively, as shown in Table 4.37.

Entrepreneurial theories are in agreement that market opportunities are not readily available in the market, but it is enacted in an iterative process marked by evaluation, activities and reactions. Entrepreneurs need to scan the environment to identify viable business opportunities, to be exploited irrespective of the resources controlled. This is in agreement with Timmons (1994) entrepreneurial management model that proposes that entrepreneurial process is opportunity driven led by a team and parsimonious resources.

Table 4.37: Regression Weights for Entrepreneurial Management

			Estimate	S.E.	C.R.	P
ICP	<---	EM	0.399	0.155	2.575	0.01
NGF	<---	ICP	1			
NEF.	<---	ICP	-1.26	0.572	-2.203	0.028
RP	<---	EM	-1.189	0.13	-9.172	***
CO	<---	EM	1			
NSO	<---	ICP	1.293	0.528	2.451	0.014
SO	<---	EM	-1.769	0.158	-11.171	***
EC	<---	EM	0.071	0.102	0.69	0.49

P<0.05 *, P<0.01 **, P<0.001***

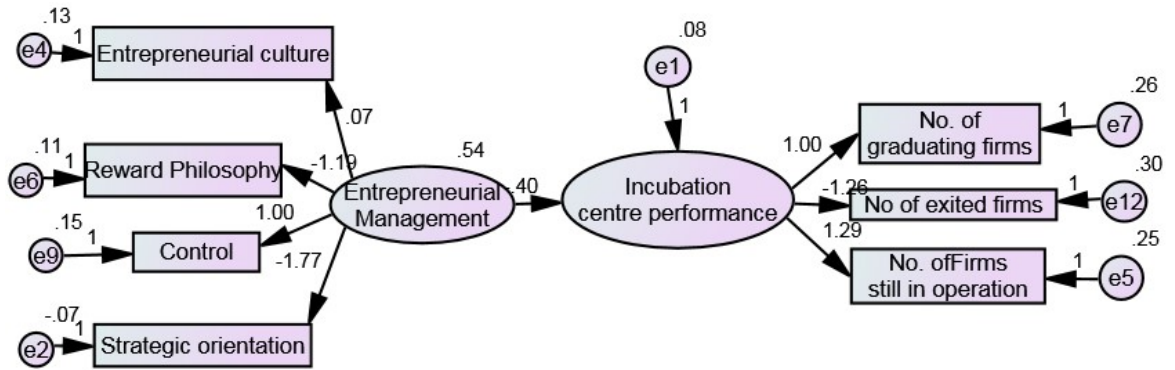


Figure 4.9: General Analysis of Moments Structures Model for the Hypothesised Relationship between EM and PIC

The study also explored the moderating effect of entrepreneurial orientation on the relationship between entrepreneurial management and performance of incubator centres. This was assessed by introducing the moderating variable entrepreneurial orientation and the interaction variable between entrepreneurial management and entrepreneurial orientation to the model. Figure 4.10 and the path coefficients table 4.38 show the test on the effect of moderation. The CR of the coefficient of the interaction effect between EM and EO was found to be 1.717 which are less than 1.96 the critical ratio at the 0.5 level of significance. The p-value of the estimate was also found to be 0.086 which is greater than 0.05. These findings therefore show that EO has no significant moderating effect on the relationship between entrepreneurial management and performance of incubator centres.

Table 4.38: Weights for the moderating effect of EO on EM and PIC

			Estimate	S.E.	C.R.	P
ICP	<---	EM	-3.311	1.947	-1.701	0.089
ICP	<---	EO	0.312	0.147	2.12	0.034
ICP	<---	X3Z	-0.983	0.572	-1.717	0.086
NGF	<---	ICP	1			
NF.	<---	ICP	-1.396	0.659	-2.117	0.034
RP	<---	EM	-1.276	0.125	-10.229	***
CO	<---	EM	1			
NSO	<---	ICP	2.219	0.912	2.433	0.015
SO	<---	EM	-1.66	0.18	-9.245	***
EC	<---	EM	-0.094	0.102	-0.923	0.356
PR	<---	EO	1			
RT	<---	EO	-0.396	0.161	-2.457	0.014
IN	<---	EO	0.838	0.114	7.362	***

P<0.05 *, P<0.01 **, P<0.001***

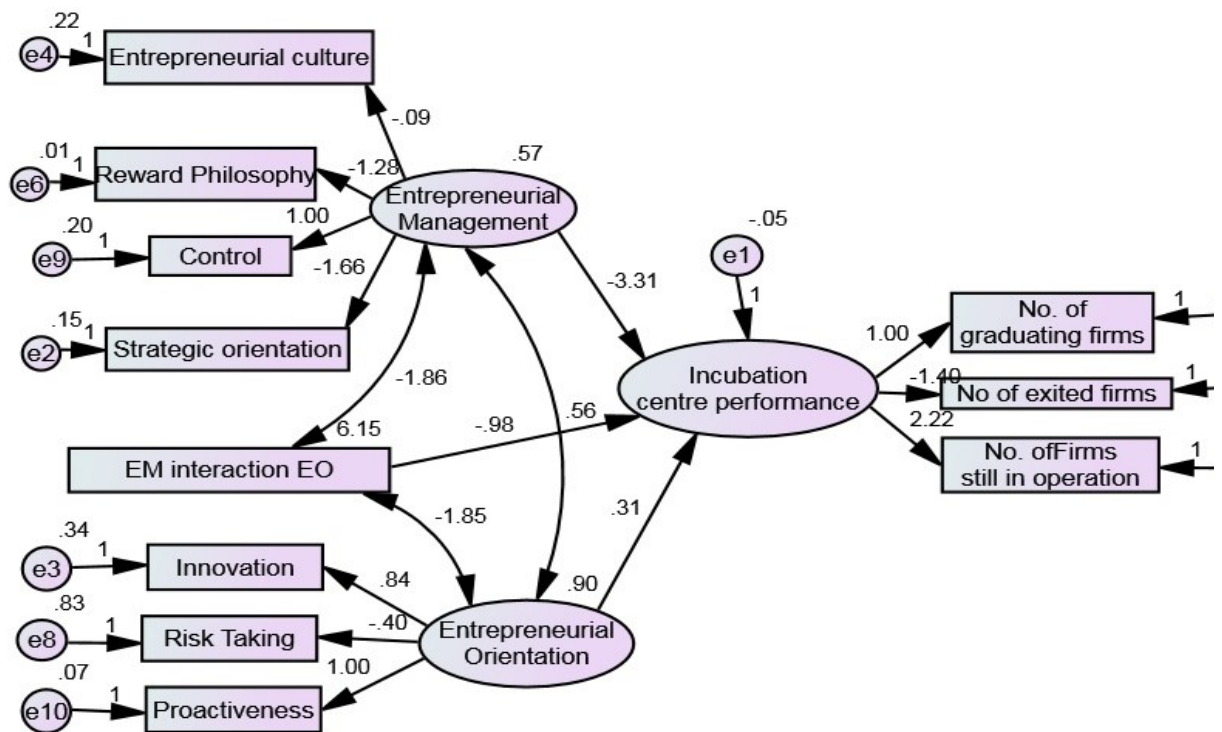


Figure 4.10: General analysis of moments structures model for the moderation effect of EO on the relationship between EM and PIC

4.9.2 Moderating Effect of Entrepreneurial Orientation on the Relationship between Entrepreneur Management and Incubator Performance in Kenya.

A hierarchical moderated regression model was also fitted considering entrepreneurial management was as the independent variable in model 1. In step one; entrepreneurial management was regressed as a predictor on performance of incubator centre. This was followed by step two where the moderating variable entrepreneurial orientation was introduced to the model and finally in step three, interaction term between entrepreneurial management and Entrepreneurial Orientation was introduced. The model summary results for this moderated multiple regression were presented in Table 4.39.

The results show that model 1 has an R-square of 0.291 which shows that 29.1% of the variation in performance of incubator centre is explained by the variation of entrepreneurial management in the model. The model is generally significant based on the ANOVA F statistic with a p-value of 0.000 which is less than 0.05. On introducing the moderating variable EO, the model experienced a change in R-square of 0.325. The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows that there is a significant 32.5% increase in the variation of performance of incubator centre explained by the predictors in the model due to addition of EO to the model. Addition of the interaction variable between EO and EM also exhibited a significant change in R-square. The R-square change was 0.102 with a p-value of 0.001 which is less than 0.05. This shows that considering the entrepreneurial management as the only independent variable in the model, EO has a moderating effect on the relationship between EM and PIC.

Table 4.39: MMR Model Summary with Entrepreneurial Management as Predictor

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.539a	0.291	0.272	0.853	0.291	15.189	1	37	0.000
2	.785b	0.616	0.595	0.637	0.325	30.469	1	36	0.000
3	.847c	0.718	0.694	0.553	0.102	12.648	1	35	0.001

a. Predictors: (Constant), Entrepreneurial Management

b. Predictors: (Constant), Entrepreneurial Management, Entrepreneurial Orientation

c. Predictors: (Constant), Entrepreneurial Management, Entrepreneurial Orientation, X3Z.

Table 4.39 shows the model coefficients of models 1, 2 and 3 of this stepwise regression model. Model 1 results show that entrepreneurial management (IF) has a significant influence on performance of incubator centres ($\beta = -0.539$, $t = -3.897$, $p < .05$). The coefficient of EM has a t-statistic of -3.897 and a p-value of 0.000 which is less than 0.05 implying significance at the 0.05 level of significance. The equation generated from model 1 becomes;

$$\hat{Y} = 0.00 - 0.539X_1 \dots \dots \dots \text{Equation 4.5}$$

Model 2 shows that adding entrepreneurial orientation to the model has a significant effect. The coefficient of EO in the model is significant at 0.05 level of significance ($\beta = 1.033$, $t = 5.891$, $p < .05$) showing that EO has a significant influence on PIC.

The equation generated from model 2 is given by;

$$\hat{Y} = 0.00 + 0.219X_1 + 0.949Z \dots \dots \dots \text{Equation 4.6}$$

According to model three, adding the interaction term to the model yielded a significant improvement to the model. The interaction term has a significant influence on ICP ($\beta = -0.44$, $t = -3.556$, $p < .05$). The p-value of the interaction term according to

this model was found to be 0.001 which is less than 0.05 implying significance. The equation generated from model 2 is given by;

$$\hat{Y} = 0.343 + 1.243X_1 + 0.906Z - 0.44X_1 * Z \dots\dots\dots \text{Equation 4.7}$$

Table 4.40: Model Coefficients with Entrepreneurial Management as Predictor

Model	Predictor	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.000	0.137		0.000	1.000
	Entrepreneurial Management	-0.539	0.138	-0.539	-3.897	0.000
2	(Constant)	0.000	0.102		0.000	1.000
	Entrepreneurial Management	0.219	0.172	0.219	1.274	0.211
	Entrepreneurial Orientation	0.949	0.172	0.949	5.520	0.000
3	(Constant)	0.343	0.131		2.618	0.013
	Entrepreneurial Management	1.243	0.324	1.243	3.832	0.001
	Entrepreneurial Orientation	0.906	0.150	0.906	6.045	0.000
	X3Z	-0.440	0.124	-1.106	-3.556	0.001

4.10 Overall Joint Effect of Incubation Practices on Performance of Incubation Centres

Structural equation models are fitted using maximum likelihood estimation (MLE) (Leedy & Ormrod, 2013). The estimations are therefore based on various estimation classical assumptions (Pallant, 2010; Leedy & Ormrod, 2013). Statistical assumptions were tested to establish if the data met the normality, linearity, independence, homogeneity and collinearity assumptions, and it was on the basis of these results, that the measures of central tendency, dispersion, tests of significance, tests of associations and prediction were performed.

4.10.1 Test of Normality

Statistical maximum likelihood estimation assumes that the residuals of fitted model follow normal distribution. The Shapiro-Wilk test was employed to test for normality. This test establishes the extent of normality of the data by detecting existence of skewness or kurtosis or both. Shapiro-Wilk statistic ranges from zero to one with figures higher than 0.05 indicating that the data is normal (Razali & Wah, 2011). The results showed that all the variables were above 0.05 ($p > 0.05$) hence confirming data normality. The test for normality was carried out on the residuals and all the variables for SEM. The results were summarized in Table 4.41.

Table 4.41: Normality Results

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Client selection criteria	0.108	39	.200*	0.958	39	0.157
Funding	0.092	39	.200*	0.983	39	0.818
Entrepreneurial management	0.117	39	.200*	0.968	39	0.316
Entrepreneurial orientation	0.128	39	0.110	0.989	39	0.958
Performance of incubator centres	0.075	39	.200*	0.981	39	0.729
Model residuals	0.097	39	.200*	0.977	39	0.606

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Data normality was also demonstrated by the plotted Quantile. Quantile plot (QQ plot). Q-Q plots are as presented in Appendix V. It is observed that the circles in the Q-Q plots show that all the observed values clustered along the line of best fit. This demonstrates the data was normal. Therefore all the variables had a good fit in the normal distribution.

4.10.2 Test of Multicollinearity

Multicollinearity test was conducted to assess whether high linear relationship existed between one or more variables in the study with one or more of the other independent variables. It was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. Multi-collinearity can be solved by omitting one of the highly correlated variables and re-computing the regression equation. A variable with collinearity tolerance below 0.2 implies that 80% of its variance is shared with some other independent variables which are a sign of multicollinearity. Multicollinearity is also associated with VIFs above 5. In the current study tolerance ranged from 0.427 to 0.880 which are all above 0.2 and therefore its reciprocal, the VIF was between 1 and 2.4, which is below the threshold value of 5. This indicated that the data set displayed no multicollinearity. Table 4.42 presents the result of tests for Multicollinearity.

Table 4.42: Multicollinearity Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	Client selection criteria	.427	2.342
	Funding	.880	1.136
	Entrepreneurial management	.512	1.954
	Entrepreneurial orientation	.500	2.001

a. Dependent Variable: Performance of incubator centres

4.10.3 Test of Heteroscedasticity

Heteroscedasticity was tested to establish whether the model residuals are homoscedastic. The statistical modelling assumes that the model residuals are homoscedastic. Homoscedasticity of the residuals refers to constant variance of the residuals. To test for Heteroscedasticity, the Breusch-Pagan test. The BP Lagrange multiplier (LM) statistic was computed for the residuals. The BP and Koenker tests

the hypothesis that H_0 : residuals do not exhibit heteroscedasticity (residuals are homoscedastic). The P-value of the BP-LM test were greater than 0.05 implying that the residuals do not exhibit heteroscedasticity thus meeting the homoscedasticity assumption. Results presented in Table 4. 43.

Table 4. 43: Heteroscedasticity Results

	LM	Sig	Conclusions
BP	3.977	0.264	Fail to reject H_0
Koenker	3.145	0.370	

4.10.4 Test of Linearity

Another classical assumption is that the model fitted is linear. To test for linearity, the ANOVA test was used which computes the F-statistics for both the linear and nonlinear components of a pair of variables. According to Zhang, Cheng and Liu (2011), linearity is significant if the value is above 0.05. The results of the ANOVA test of linearity showed all readings were above 0.05 hence confirming linear relationships (constant slope) between the predictor variables and the dependent variable. The results are presented in Table 4.44.

Table 4.44: Linearity Results

	F-Statistic (Deviation from Linearity)	p-value
Performance of incubator centres * Client Selection Criteria	1.75	0.114
Performance of incubator centres * Incubator Funding	1.165	0.359
Performance of incubator centres * Entrepreneurial Management	1.202	0.336

4.10.5 Test of Independence

Independence of error terms, which implies that observations are independent, was assessed through the Durbin-Watson test. Durbin Watson (DW) test check that the residuals of the models were not auto-correlated since independence of the residuals is one of the basic hypotheses of regression analysis. Its statistic ranges from zero to four. The calculated Durbin-Watson statistic is compared to the tabulated Durbin-Watson statistics for a model with 3 predictors excluding the intercept and sample size of 39. The tabulated Durbin-Watson table is shown in Appendix XI. The calculated Durbin Watson statistic is higher than the upper limit of the tabulated value that shows non-autocorrelation implying independence. The results are shown in Table 4.45.

Table 4.45: Durbin-Watson Results

Durbin-Watson statistic	Tabulated lower limit	Tabulated Upper limit
1.856	1.791	1.842

4.10.6 Test for Outliers

In statistical regression, it is assumed that the dependent variable in the dataset follow a normal distribution (Costello & Osborne, 2005). The sub-dimensions of the

constructs were therefore tested for normality. A normally distributed data is not skewed on either side. Skewness of a dataset is usually due to presence of outliers in the data (Hu & Bentler, 1999). The Mahalanobis distance was employed to evaluate the multivariate outliers. Multivariate testing of outliers on the dependent variable using Mahalanobis D-Squared (D2) was carried out and results presented in Appendix VII. The table shows the Mahalanobis distances furthest from the centroid and significant tests whether they qualify as outliers. The distances (d-square) of these furthest observations range 12.736 to 47.311. The probabilities of the Chi-square distribution of the distances are computed and the outlier observations associated with probabilities less than 0.05 tested. The p-values of the 39 observations confirm presence of insignificant outliers at the 0.05 level of significance. The results for the Mahalanobis test for outliers is shown in Appendix VII

4.10.7 Common Method Variance

Bias which is due to variation that is not attributed to the construct being measured but is attributed to the measurement is referred to as common method bias and is also known as common method variance (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Observed relationships among theoretical constructs tend to get inflated or deflated due to common method bias leading to errors. This bias is caused by using a common instrument such as the same questionnaire during the same period of data collection with cross-sectional research design. The constructs of the study were therefore tested for common method bias.

In the structural equation modelling (SEM), the paths from the items are subjected to a common factor and constrained to an equal variance weight to the common factor. The common variance is shared and is expected to be less than 0.5 across the sub-

dimensions. The results for the common method bias are shown in Figure 4.11. The items share a constrained common variance that was found to be 0.16 which is less than 0.5. This is an indication that the data collected does not exhibit common method bias.

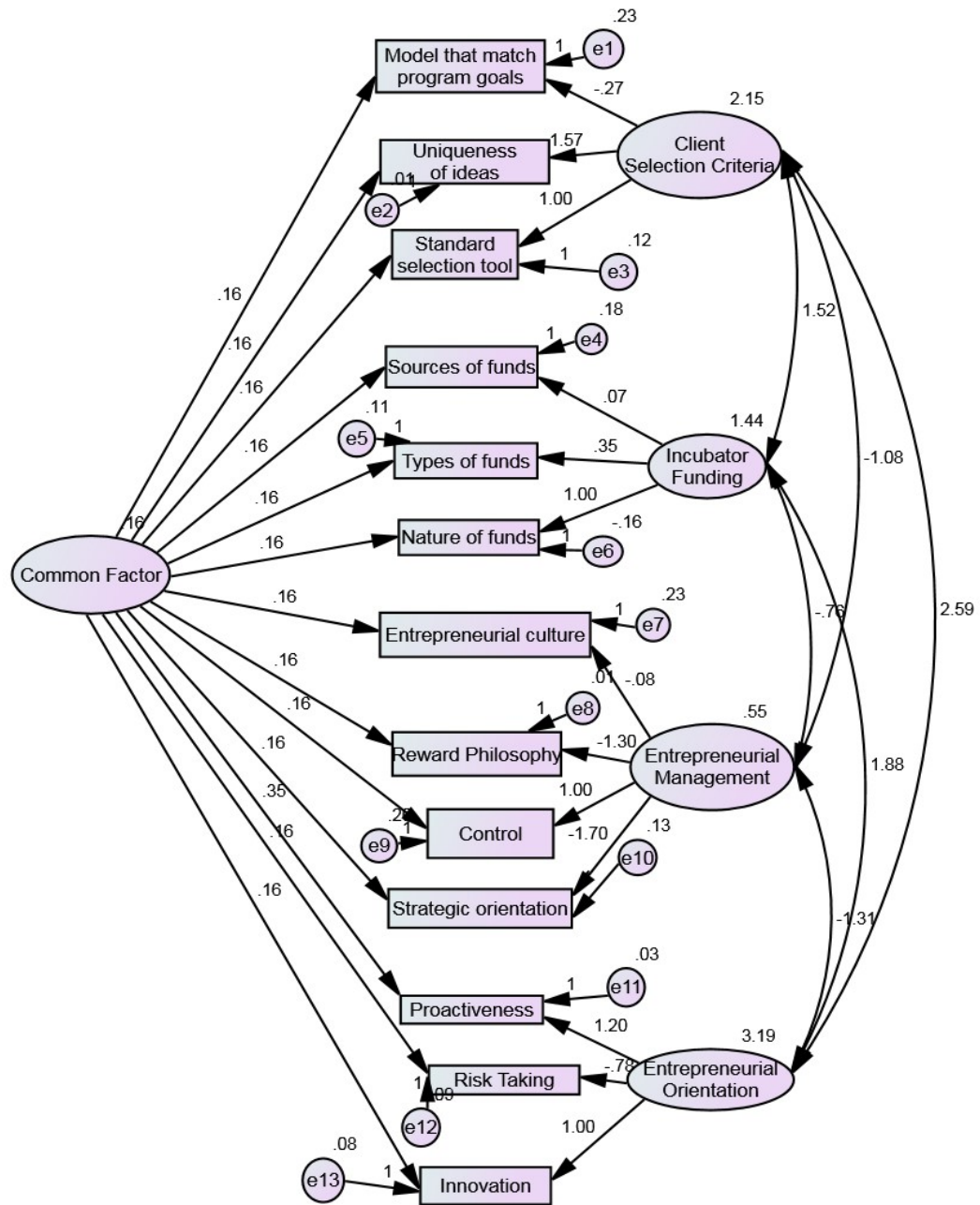


Figure 4.11: Common Method Bias(CMB)

4.10.5 Influence of Incubation Practices on Performance of Incubator Centres in Kenya.

The general objective of this study was to analyze the relationship between incubation practices, entrepreneurial orientation and performance of incubator in Kenya. An overall structural equation model was fitted to determine the joint effect of the 3 components of incubation practices (client selection criteria, incubator funding and entrepreneurial management) on performance of incubator centre.

The goodness of fit indices indicates that the hypothesized Structural Sub Model 4 provides a good fit between the data and the model. The likelihood chi-square ($\chi^2 = 429.661$; DF = 59; p = 0.000) was significant (p < .05), other fit measures showed that model adequately fit the observed data. The absolute fit measures i.e. GFI and RMSEA were 0.953 and 0.030 respectively indicating good fit of model. The goodness of fit indices between the data and the model gave AGFI was 0.943 which was greater than 0.90 cut-off point, indicating acceptable fit between the data and the model. The values obtained in testing the model fit indices were within the thresholds as shown in Table 4.46.

Table 4.46: Fit Indices for Overall General Analysis of Moments Structures Model.

Model	Chi-square			CFI	NFI	GFI	AGFI	RMSEA
	χ^2	df	P-value					
Statistic	429.661	59	0.000	0.840	0.877	.953	.943	0.03
Cut-off	P-value < 0.05			≥ 0.90	≥ 0.8	≥ 0.90	≥ 0.8	≤ 0.08

Considering the joint effect of incubation practices as shown in Figure 4.12 and path coefficients table 4.43, there is a significant relationship between incubator practices and incubator centres performance in Kenya. The path coefficients on the influence of client selection criteria on performance of incubator centres was found to be

significant ($\beta=1.359$, C.R =1.971). The coefficient estimate of incubator funding in the joint effect model was also found to be significant ($\beta=0.64$, C.R =2.159). These 2 coefficient estimates were significant at the 0.05 level of significance as shown by the C.R. which are both greater than 1.96. The coefficient estimate for entrepreneurial management was however found to be insignificant ($\beta=-3.118$, C.R =-1.889). The absolute C.R. was less than 1.96 implying that in the joint SEM the effect of incubator practices on performance of incubator centre, entrepreneurial management has no significant influence while both client selection criteria and incubator funding significantly influence performance.

Table 4.47: Overall General Analysis of Moments Structures Model
Regression Weights

			Estimate	S.E.	C.R.	P
ICP	<---	IF	0.64	0.296	2.159	0.031
ICP	<---	CSC	1.359	0.689	1.971	0.049
ICP	<---	EM	-3.118	1.65	-1.889	0.059
NGF	<---	ICP	1			
NEF.	<---	ICP	-0.576	0.287	-2.005	0.045
NSO	<---	ICP	1.078	0.32	3.364	***
NF	<---	IF	1			
TF	<---	IF	0.399	0.045	8.815	***
SF	<---	IF	0.074	0.061	1.222	0.222
SST	<---	CSC	1			
UI	<---	CSC	1.581	0.059	26.647	***
MMP	<---	CSC	-0.256	0.054	-4.731	***
RP	<---	EM	-1.296	0.134	-9.653	***
CO	<---	EM	1			
EC	<---	EM	-0.112	0.103	-1.084	0.278
SO	<---	EM	-1.695	0.19	-8.907	***

P<0.05 *, P<0.01 **, P<0.001***

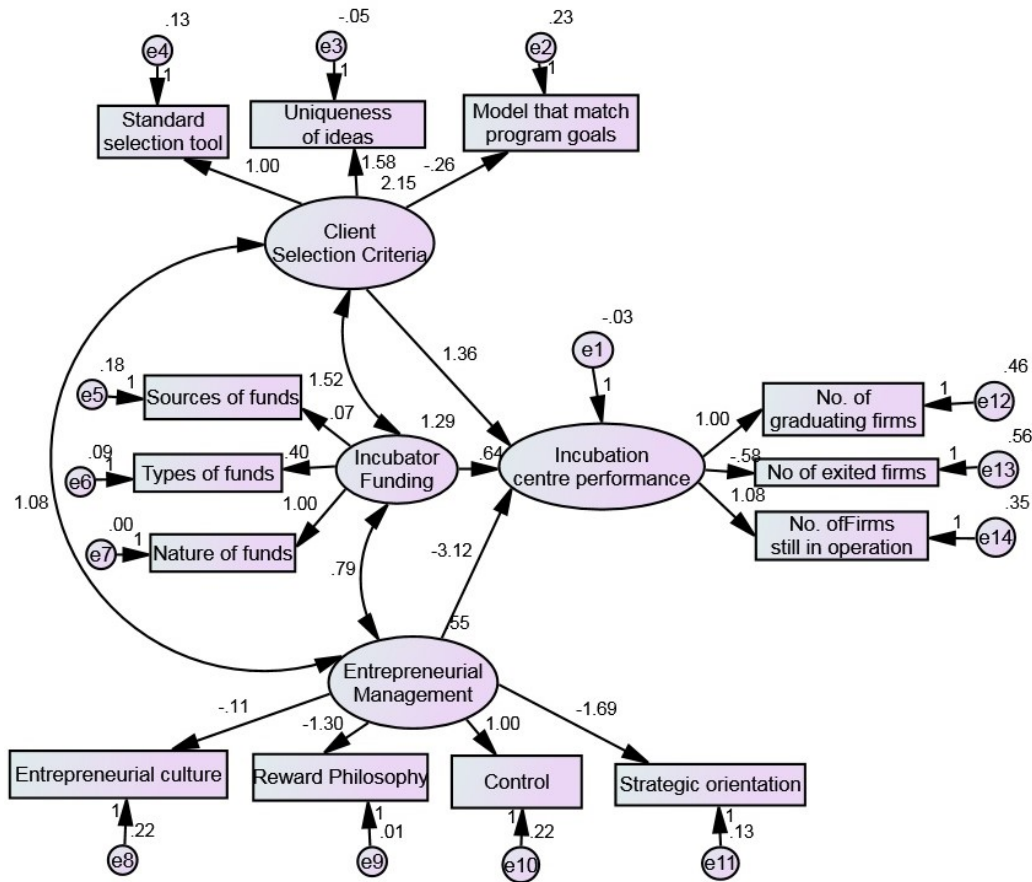


Figure 4.12: General Analysis of Moments Structures Model for the Hypothesised Relationship between IP and PIC

4.10.6 Moderating Effect of Entrepreneurial Orientation on the Relationship between Incubation Practices and Performance of Incubator Centres in Kenya.

Further to the objectives on the relationship between incubator practices and performance of incubator centre, the study also sought to explore the moderating effect of entrepreneurial orientation on the relationship between incubator funding and performance of incubator centres in Kenya. The hypothesis to test for this objective was as follows:

H₀₄. *Entrepreneurial Orientation does not moderate the relationship between incubation practices and performance of incubator centres in Kenya.*

The results for the overall general analysis of moments structures model with moderation is presented in table 4.44 and figure 4.13. The moderation effect SEM was carried out by introducing the moderating variable entrepreneurial orientation and the interaction variables between the moderator EO and incubator practices (CSC, IF and EM). The results show that the coefficient estimate for the moderating variable EO is significant at 0.05 level of significance ($\beta=0.123$, C.R. =20.500). The C.R. 20.500 is greater than 1.96 implying significance of the estimate. The interaction variables between EO and IF and that between EO and EM were found to be insignificant with absolute C.R. values of 0.879 and 1.080 that are both less than 1.96. The interaction variable between EO and client selection (CSC) was however found to be significant at the 0.05 level of significance with a C.R. value of 31.933 which is greater than 1.96. This shows that considering the overall SEM, entrepreneurial orientation has a moderating effect on the relationship between client selection criteria and performance of incubator centre.

Table 4.48: Regression Weights for the Overall SEM with Moderation

			Estimate	S.E.	C.R.	P
ICP	<---	IF	0.004	0.023	0.174	0.431
ICP	<---	CSC	0.310	0.007	44.286	***
ICP	<---	EM	-3.237	2.899	-1.117	0.868
ICP	<---	EO	0.123	0.006	20.500	***
ICP	<---	X2Z	-0.282	0.321	-0.879	0.810
ICP	<---	X3Z	-0.915	0.847	-1.080	0.860
ICP	<---	X1Z	0.958	0.030	31.933	***
NGF	<---	ICP	1			
NEF.	<---	ICP	-2.150	0.073	-29.360	***
NSO	<---	ICP	4.380	0.138	31.742	***
NF	<---	IF	1			
TF	<---	IF	0.399	0.045	8.819	***
SF	<---	IF	0.074	0.064	1.156	0.248
SST	<---	CSC	1			
UI	<---	CSC	1.154	0.108	10.674	***
MMP	<---	CSC	-0.02	0.015	-1.371	0.17
RP	<---	EM	5.155	4.61	1.118	0.263
CO	<---	EM	1			
EC	<---	EM	0.283	0.481	0.589	0.556
SO	<---	EM	6.631	5.939	1.117	0.264
IN	<---	EO	1			
RT	<---	EO	-0.771	0.040	-19.283	***
PR	<---	EO	1.213	0.035	34.265	***

P<0.05 *, P<0.01 **, P<0.001***

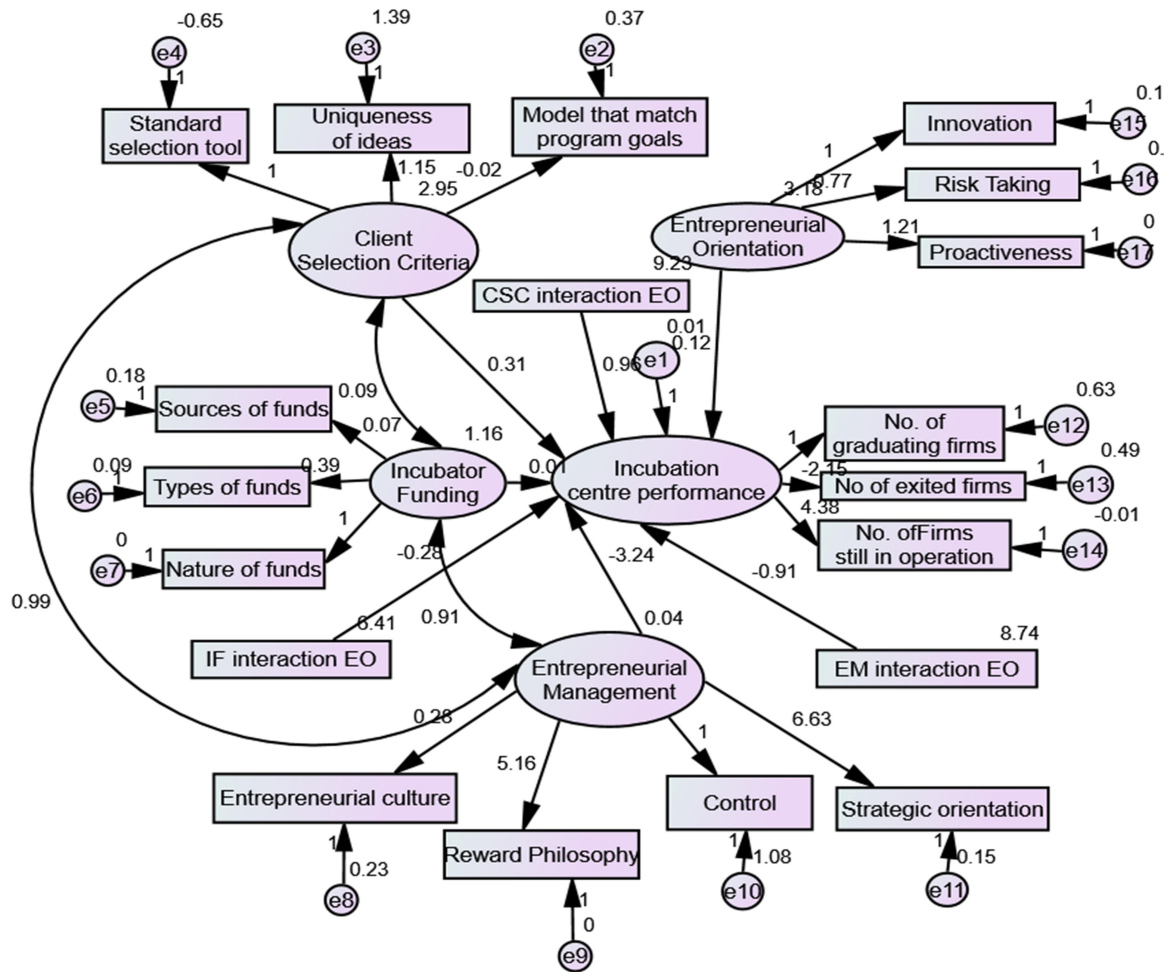


Figure 4.12: Overall Regression General Analysis of Moments Structures Model

To test study hypotheses and draw conclusions on the objectives of the study, a joint effect of incubator practices was tested by fitting a hierarchical moderated regression model considering the joint effect of all the three incubator practices (client selection criteria, incubation funding and entrepreneurial management). In step one; client selection criteria, incubator funding and entrepreneurial management were regressed as predictors on performance of incubator centre. In step two the moderating variable entrepreneurial orientation was introduced to the model and finally in step three, interaction terms between Entrepreneurial Orientation and incubator practices (client selection criteria, incubator funding and Entrepreneurial Management) were

introduced. The results for this moderated multiple regression are presented in Table 4.49.

The results show that model 1 has an R-square of 0.499, this showed that 49.9% of the variation in performance of incubator centre is explained by the variation of incubator practices in the model. The model is generally significant based on the ANOVA F statistic with a p-value of 0.000 which is less than 0.05. On introducing the moderating variable EO, the model experienced a change in R-square of 0.247. The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows that there is a significant 27.7% increase in the variation of performance of incubator centre explained by the predictors in the model due to addition of EO to the model. Addition of the interaction variables between EO and incubator practices, a significant change in R-square. The R-square change was 0.075 with a p-value of 0.011 which is less than 0.05. This shows that adding incubator practices to the model causes a significant increase of 7.5% in variation of performance of incubator centres explained. This also further showed that considering the joint effect model with all the three dimensions of incubator practices as independent variables in the model, EO has a significant moderating effect on the relationship between incubator practices and performance of incubator centres.

Table 4.49: Model Summary for the Overall MMR Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.707a	0.499	0.457	0.737	0.499	11.643	3	35	0.000
2	.864b	0.747	0.717	0.532	0.247	33.206	1	34	0.000
3	.907c	0.822	0.782	0.467	0.075	4.356	3	31	0.011

a. Predictors: (Constant), Entrepreneurial Management, Incubator funding, Client selection criteria

b. Predictors: (Constant), Entrepreneurial Management, Incubator funding, Client selection criteria, Entrepreneurial Orientation

c. Predictors: (Constant), Entrepreneurial Management, Incubator funding, Client selection criteria, Entrepreneurial Orientation, X2Z, X1Z, X3Z

Table 4.49 shows the model coefficients of models 1, 2 and 3 of this stepwise regression model. Model 1 results show that client selection criteria ($\beta= 1.441$, $t=3.614$, $p < .05$) and entrepreneurial management ($\beta= 0.79$, $t=2.116$, $p < .05$) have significant influences on performance of incubator centre. They both have coefficient estimates with p-values that are less than 0.05 implying significance at the 0.05 level of significance. Increasing the level of client selection criteria by a unit causes an increase in the levels of performance of incubator centre by 1.441 units. Increasing the levels of entrepreneurial management by a unit is expected to cause an increase in the levels of performance of incubator centre by 0.79 units. According to this joint effect model, incubator funding which is also a dimension of incubator practices had no significance influence on performance of incubator centre. ($\beta= -0.041$, $t=-0.183$, $p > .05$). Incubator funding had a coefficient estimate with a p-value of 0.856 which is greater than 0.05 implying that the joint effect model, incubator funding had no significant influence on performance of incubator centre. This is contrary to the bi-variate regression model that showed that incubator funding (IF) has a significant influence on performance of incubator centre (ICP) considering IF as the only predictor. This could be as a result of no shared variation in the bi-variate model while

in the joint effect model; the variation in PIC explained by the model was due to the shared variation of the three dimensions of incubator practices. Incubators have not explored more innovative ways to improve incubator funding thus the level of incubator funding is low such that the effect of funding on performance of incubator centre may not be detected in the joint effect scenario. Incubators should not depend solely on external funds to carry out their activities but also seek other innovative ways to finance the operations. The equation generated from model 1 becomes;

$$\hat{Y} = 0.00 + 1.441X_1 + 0.79X_3 \dots \dots \dots \text{Equation 4.8}$$

Model 2 shows that adding entrepreneurial orientation to the model had a significant effect. The coefficient of EO in the model was significant at 0.05 level of significance ($\beta= 0.953$, $t=5.762$, $p < .05$) showing that EO had a significant influence on PIC. The equation generated from model 2 is given by;

$$\hat{Y} = 0.00 + 1.135X_1 + 0.93X_3 + 0.953Z \dots \dots \dots \text{Equation 4.9}$$

According to model three, adding the interaction term to the model yielded a significant improvement to the model as shown by the significant change in R-square. The interaction term between EO and IF ($\beta= 0.246$, $t=0.767$, $p > .05$) and that between EO and EM, IF ($\beta= 1.242$, $t=1.466$, $p > .05$) however show no significant influence on ICP. The p-values of these interaction terms according to this model were found to be 0.449 and 0.153 respectively which are both greater than 0.05 implying insignificance. The interaction term between EO and CSC however has a significant influence on ICP ($\beta= 1.361$, $t=2.76$, $p < .05$). The p-value of the interaction term according to this

model was found to be 0.01 which is less than 0.05 implying significance. The equation generated from model 2 is given by;

$$\hat{Y} = 0.00 + 1.746X_1 - 0.49X_2 + 1.219X_3 + 0.759Z + 1.361X_1 * Z \dots \text{Equation 4.9}$$

Table 4.50: Coefficients for the Overall MMR Model

Model	Variable	Un-standardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	0.000	0.118		0.000	1.000
	Client selection criteria	1.441	0.399	1.441	3.614	0.001
	Incubator funding	-0.041	0.225	-0.041	-0.183	0.856
	Entrepreneurial Management	0.790	0.374	0.790	2.116	0.042
2	(Constant)	0.000	0.085		0.000	1.000
	Client selection criteria	1.135	0.292	1.135	3.882	0.000
	Incubator funding	-0.448	0.277	-0.448	-1.617	0.115
	Entrepreneurial Management	0.930	0.271	0.930	3.434	0.002
	Entrepreneurial Orientation	0.953	0.165	0.953	5.762	0.000
3	(Constant)	-0.076	0.238		-0.320	0.751
	Client selection criteria	1.746	0.826	1.746	2.113	0.043
	Incubator funding	-0.490	0.184	-0.490	-2.659	0.012
	Entrepreneurial Management	1.219	0.305	1.219	4.000	0.000
	Entrepreneurial Orientation	0.759	0.207	0.759	3.673	0.001
	X1Z	1.361	0.493	3.507	2.760	0.010
	X2Z	0.246	0.321	0.520	0.767	0.449
	X3Z	1.242	0.847	3.118	1.466	0.153

a Dependent Variable: Performance of incubator centres

The findings show that Entrepreneurial Orientation has a positive moderating effect on the relationship between client selection criteria and performance of incubator centre. This was shown in the graphical presentation slopes in figure 4.13 that indicate

steeper slopes with higher entrepreneurial orientation that flatten with low entrepreneurial orientation. This implies that with high Entrepreneurial Orientation, the increases in levels of client selection criteria cause higher and faster influence on performance of incubator Centre than in case of low Entrepreneurial Orientation. Therefore incubator centres need to embrace best practices and embrace entrepreneurial orientation for performance differential, placing the incubator centres in the global map, as centres that provide unique resources that are rare, valuable, and imperfectly imitable nor can they be substituted.

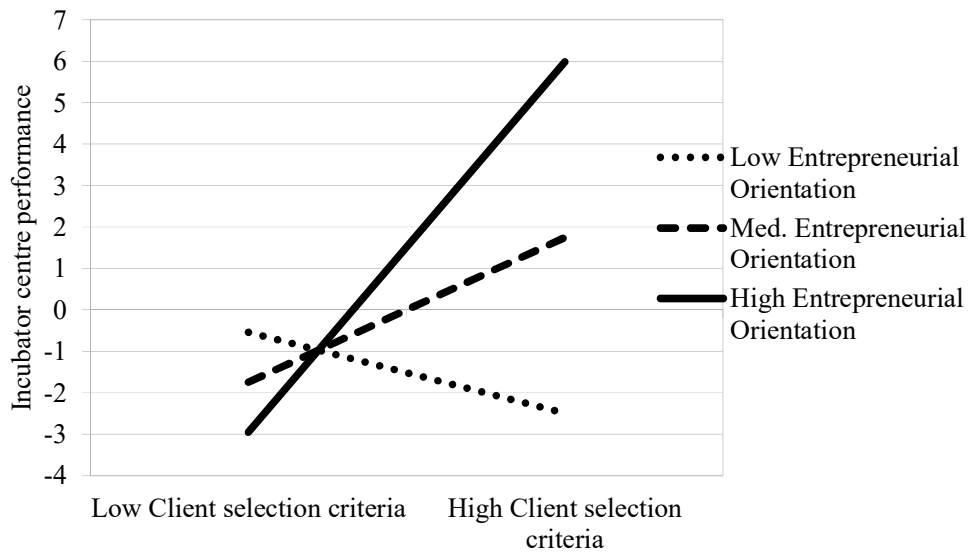


Figure 4.13: Slope of Performance of Incubator Centre on Client Selection Criteria Considering Entrepreneurial Orientation

4.11 Summary of Hypothesis Testing

The results for the overall MMR were used to test hypotheses and draw conclusions on the objectives of the study. A summary of the hypotheses tests and conclusions is shown in Table 4.51 below.

Table 4.51: Hypothesis Testing Results

Objective	Hypothesis	Statistic	Sig. level p-value)	Conclusion
To find out the relationship between client selection criteria and performance of incubator centres in Kenya.	: There is no significant relationship between client selection criteria and performance of incubator centres in Kenya.	Coefficient estimate =1.441	0.001	Client selection criteria has a significant relationship with performance of incubator centres in Kenya H ₀₁ was rejected
To determine the relationship between incubators funding and performance of incubator centres in Kenya.	. There is no significant relationship between funding and performance of incubator centre.	Coefficient estimate = 0.041	0.856	Incubator funding was predictor of performance of incubator Centre H ₀₂ was accepted
To assess the relationship between entrepreneurial management and performance of incubator centres in Kenya.	: There is no significant relationship between entrepreneurial management and performance of incubator centres in kenya.	Coefficient estimate =0.790	0.042	Entrepreneurial management has a significant relationship with performance of incubator Centre H ₀₃ was rejected

To evaluate if Entrepreneurial orientation moderates the relationship between incubation practices and performance of incubator Centres in Kenya.	Entrepreneurial orientation does not moderate the relationship between incubation practices and performance of incubator centres in Kenya.	Change in R-Square 0.075	0.011	Entrepreneurial orientation has a significant moderating influence on the relationship between incubation practices and performance of incubator centre. H ₀₄ was rejected
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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

The chapter discusses the summary of the study findings based on the proposed objectives and also discusses the findings of the study and makes conclusions thereafter. Recommendations of the study findings are also discussed. The chapter further makes suggestions for further research.

5.1 Summary of Findings

The objectives and hypothesis of the study were developed through review of empirical and theoretical studies and a well conceptualized model on the relationship between incubation practices and incubator performance in Kenya, moderated by entrepreneurial Orientation. Models were developed to measure each of the objective and their corresponding hypothesis and regression assumptions tested to ensure fitness of data. The existing relationships arising from the study are discussed herein.

5.1.1 The Relationship between Client Selection Criteria and Performance of incubator centres in Kenya

The influence of client selection criteria on performance of incubator centre was determined through both descriptive and inferential statistics. The constructs under measurement were model that match program goals, uniqueness of ideas and standard selection tool. The results showed that all the constructs had the means above average either with the affirmation that uniqueness of ideas was the highly agreed construct followed by standard selection tool and finally the model that match program goals construct. All the measurements of this construct were found to load client selection criteria with loadings above 0.4 thus all the three were retained. On testing the study hypothesis relating to this variable, it was determined that client

selection criteria has a significant positive influence performance of incubator centres. This was deduced due to the estimated coefficient in the joint effect model in the hierarchical moderated multiple regression that had a p-value less than 0.05. The null hypothesis was rejected.

Client selection criteria determine the quality of ideas that find their way into an incubator Centre. These centres must provide the necessary resources for the identified ideas to thrive, but it is evident that resources alone cannot assure a sustained competitive advantage (Ferreira & Azevedo, 2008). They argue that firms should be in a position to transform resources in capability that will in the end assure superior performance. The Scholars further purport that this kind of performance is not attributed to a firm having more or better resources, it calls for distinctive competencies that make a firm better than its competitors.

The findings are also in line with other previous researches. For instance, Bergek and Norrman (2008) aver that the task of identifying which firm to incubate and which to ignore is a challenge and it calls for a sophisticated understanding of the market and processes of new venture creation. Thus failure to identify the correct firms to incubate will hinder superior performance. However the findings contradicts Lumpkin and Ireland (1988) who indicated that the incubator's program ultimate goal of a client selection process is necessary since it establishes that there exists a match between the prospective/potential client's needs and incubator's mission and resources.

The findings are also in line with the real options theory because the proponents of the theory assert that management can invest resources in an incubatee whose idea at the selection stage may not indicate a net profit value, but through innovation, the value of the idea is improved. This will only be realized if the manager is keen and alert (Kirzner, 1979) to ensure he/she

keeps track of the idea and act appropriately to avoid losses by keeping the idea if it does not pick.

The RBV theory assumes firms to be bundles of productive differentiated resources. Management getting the right combination of these resources into the incubator centre, will be assured of superior performance. Entrepreneurial orientation affirms this relationship because it supports dynamic capabilities of incubator centres that embrace attributes such as innovation, risk taking and proactiveness in converting resources into advantage that assures superior performance of incubator centres.

The creative destructive theory support that, being entrepreneurial enhances introduction of new products, finding new customers, embracing new processes, new markets and also new successful organization. To achieve this, Raheem and Akhuemonkhan (2014) support innovation, risk taking and proactiveness necessary in client selection criteria. This move, will assist management select unique ideas that will assure innovative high growth ventures that will contribute to regional economic development. They will also assure quality innovative products that will enable them pursue a niche market that can be a springboard of industrialization.

5.1.2 The Relationship between Incubator Funding and Performance of Incubator Centres in Kenya

The study determined the influence of incubator funding on performance of incubator centres based on how funds are sourced, types of funds and nature of funds. Incubator funding was measured by looking at sources of funds, types of funds and nature of funds used by incubators. All the measurements showed an average mean above the moderate value. The hypothesis of the study regarding this variable was accepted and a conclusion drawn that incubator funding does not influence the performance of incubator centres in Kenya. The

acceptance criteria considered the joint effect model of the MMR where the coefficient estimate of incubator funding was found to be insignificant with a p-value greater than 0.05.

This was contrary to the findings on the bi-variate study where the results showed that incubator funding significantly influenced performance of incubator centres in Kenya. The study therefore deduced that very low exploration of innovative ways of funding, the levels of funding types, sources and nature of funds are low and unexplored thus, this would influence performance of incubator centres but when considered amidst other more explored factors such as client selection, the shared variation due to incubator funding was rendered insignificant. It was therefore advisable that incubators explore more innovative funding ways to improve the levels of funding since most financial institutions find these facilities risky for funding. Incubators should not depend solely on external funds to carry out their activities. Funds are sourced from both public and private sectors. Based on the results from the joint effect model, the study accepted the null hypothesis, that is, there is no significant relationship between funding and performance of incubator centres in Kenya. This implies that both private and public sectors are interested in funding the incubation activities.

The government should be keen on enhancing the entrepreneurial spirits among the youths through trainings and youth related funds, for example youth funds. The government has provided funds for women and people living with disability, these funds have been used to facilitate training special groups that are interested in pursuing entrepreneurship. Most incubators face financial challenges which might affect their performance in the long run. Cui, Zha and Zhang (2010) conducted a study to investigate financial support systems and strategies of SMEs in the incubation based on the business life cycle. They argued that at maturity stage, incubators are more mortgage assets hence can enjoy finance from Initial Public Offering (IPO) and bank finance. The findings revealed that, there was little support to

graduate incubatees, so most of their funds will be from the institutional investors and banks. This is also in line with UKBI (2009) who found that most of the incubation programmes are financed by public funds. Other studies (InfoDev, 2010; Wadhvani Foundation, 2013, Gastraunthaler 2010) argue that firms should vary the sources of finance and explore other innovative ways of financing their operations to avoid over reliance on one source that might not be the most suitable in terms of cost.

This study found out that, EO moderates the relationship between incubator funding and performance of incubator centre. In. Embracing EO by incubator centres assist management come up with innovative ways of financing incubator centre operations. Incubator centres operate with limited resources, so there is need to increase the revenue streams to ensure these centres have adequate resources. Despite the fact that incubators admit incubatees, the results of the study revealed that none of the incubators enjoy royalty fee. Incubator management should be keen to identify firms that are willing to partner with incubator Centres and collaborate in different activities aimed at improving productivity of the incubation centres. When the incubator centres embrace EO they will be the source of solutions to problems and this will be a way of marketing themselves in the country and create awareness of their existence in the market, otherwise few people are aware of the existence of the incubator facilities.. This will increase the number of incubatees. It will trigger entrepreneurial passion amongst the potential incubatees.

Real options theory avers that performance of incubators is measured through incubatees and their financial performance. This underpins the importance of monitoring client's performance. This also concurs with Lewis et al. (2011) in a study that revealed high achieving incubators collect client outcome data more often and for longer period of times. Findings further revealed, collecting outcome data demonstrated a positive return on

investment and guaranteed continued program of funding. It also implied that those who collect data have resources to implement best practices that lead to client success. If the local incubator centres are to embrace best practices, it will enhance their performance.

5.1.3 The Relationship between Entrepreneurial Management and Performance of Incubator Centres in Kenya

The study further determined the influence of entrepreneurial management performance of incubator centres in Kenya. The results from the computed responses indicated varying magnitude on how each construct of entrepreneurial management manifested in the firms. The overall mean score of entrepreneurial culture, reward philosophy, control and strategic orientation were above average. This depicted strong agreement from the respondents on the statements that measured each construct. In testing the null hypothesis, there was a positive regression weight relationship between entrepreneurial management and performance of incubator centres. Therefore the null hypothesis was rejected, implying, entrepreneurial management had a significant influence on performance of incubator centres. This depicted that entrepreneurial management was well exhibited within the incubation firms in Kenya which was interpreted to mean that a entrepreneurial management resulted in improved performance of the incubator Centres as opposed to conventional management.

This study presented two management behaviours: promoter and trustee behaviours. The promoter behaviour, exhibited by promoter firms pursue and exploit opportunities irrespective of the resources controlled by the firm. These are entrepreneurial firms because they are willing to innovate, take risks and act proactively and ensure success. Trustee firms on the other hand, make efficient use of the firm resources. These firms are risk averse and many opportunities are missed, resulting in poor performance. This behaviour is attributed to the fear of renting resources to exploit an opportunity whose return is uncertain.

The strategic orientation of promoter firms is opportunity driven and trustee is resources driven. The study revealed that the entrepreneurial incubator centres rent resources but trustee firms prefer to own their own resources. This explained why some of the centres lagged behind in terms of performance.

The RBV theory view firms from resources perspective. The theory purport that availability of resources, neutralizes a firm's competitive advantage. To achieve superior performance and competitive advantage, it calls for firms to marshal heterogeneous resources that are not easy to create, imitate, or be substituted by competitors. The incubator centres must embrace this strategy if they are to achieve superior performance.

It is therefore important to note that incubator Centres in Kenya must bring on board managers who have an entrepreneurial mind-set. The findings concur with those of Theodorakopoulos et al. (2014) and the real options theory that asserts entrepreneurial management can foster development of incubatees and be an overarching factor for theorizing on incubation effectiveness.

The study also supports strategic planning by top management as a strategy for superior performance. The findings are in line with those of Ahmad and Ingle (2011) who studied the nature of incubator and client relations and reported that the brokerage behaviour by the incubator manager improves the overall quality of the incubation experience. These findings underscore the importance of the management in any incubator centre that is interested in building competitive strengths across the value chain in the centres.

5.1.3 The Moderating Effect of Entrepreneurial Orientation on the Relationship between Incubation Practices and Performance of Incubator Centres in Kenya

The fourth objective of this study was to determine whether Entrepreneurial Orientation moderates the relationship between incubation practices and performance of incubator Centres in Kenya. The findings showed that, entrepreneurial orientation moderated the relationship between incubation practices and performance of incubator Centre. This was tested fitting an overall hierarchical moderated multiple regression model considering joint effect of incubator practices. The rejection criteria was the significance of the change in R-square due to addition of the interaction variables between incubator practices and entrepreneurial orientation. A significant R-square change was found and thus the null hypothesis rejected. Similar findings were recorded in a study conducted by Rauch et al. (2009) who established that risk-taking behaviour is described as being bold and aggressive in pursuing opportunities. Incubator centres in Kenya, are ready to act entrepreneurially in the hope of obtaining high returns. Incubator centres need to be proactive so as to continually identify and evaluate new opportunities. A proactive incubator centre will monitor market trends and align its activities accordingly.

The creative destructive theory support that failure to keep abreast with customer tastes and preferences, will turn an incubator centre to a traditional one, which cannot impart entrepreneurial behaviour on its incubatees. This scenario reflects the Schumpeterian wave of creative destruction of 1942, where the incubator cushions incubatees from hostile environment and as a result they introduce new products, find new customers, embrace new processes, new markets and establish new organizations. To achieve this, the resource based view theory stresses that firms must take an inside- out approach in analyzing resources of the firm to attain a competitive advantage position. Incubator centre can develop unique

graduate incubatees through training programmes that are valuable, rare, inimitable and non-substitutable.

5.2 Conclusions

The results on client selection criteria effect on performance of incubator centres found a significant relationship. The manifestations were exhibited among the firms as indicated in the statements measuring the constructs under client selection criteria. The study showed that, all the constructs had means above average either with the affirmation that uniqueness of ideas was highly manifested within the incubation firms. The results thus were an indication that client selection criteria does significantly influence performance of incubator centre although is manifested within the firms. Ganamotse (2011) indicated that due to limited resource base only high growth potential ventures are supported and those that are aligned to incubator objectives. The study concluded that due to the limitation of resources, economic development of a locality is achieved if incubators select only high growth potential ventures and not creation of new ventures. . This assures success of these ventures unlike the start-ups whose failure rate is high. There should be an umbrella body that champions incubation activities in the country. This body will put a monitoring and evaluation framework that will collect data that lacks in the country. The data will be the basis of client selection.

Funding of incubator centre, the study found that, funding had no significant influence on the performance of incubator centres. A conclusion was thus drawn that there is no significant relationship between incubator funding and performance of incubator centres in Kenya. InfoDev (2010) revealed that incubators are funded from public seed capital. The study also avers that direct ownership by government and universities is not a successful approach. This calls for collaboration between public and private organizations hence creating an opportunity for entrepreneurs to participate in incubation as venture capitalists or business Angels. It was also evident that if EO is infused in these centres, they will create an

entrepreneurial culture. An entrepreneurial culture allows the centre to pursue unique training programmes that will attract potential entrepreneurs in large numbers, hence increase in revenue. Entrepreneurial incubator Centres ignite entrepreneurial passion especially amongst the youth and special groups.

The findings of the study revealed that entrepreneurial management influences performance of incubator centres significantly. Entrepreneurial managers are visionary, good command communicators, self-confident and in possession of unlimited energy and strong passion for the work they do. This was evident in the incubator centres visited. These managers juggle with organization issues such as value statements, growth and financial strategies, resources and organizational capability towards realizing the vision of the organization. Amezcua (2010) observed that entrepreneurial traits showed evidence of measurable impact of performance of incubator ventures. Gurbus and Aykol (2009) postulate that, some firms are driven by opportunities others by resources. Those driven by opportunities are willing to rent resources to exploit opportunities unlike those driven by resources; they fail to exploit opportunities due to inadequate resources. The study also revealed that those incubator centres that plan, retrieval of required data was not a challenge and vice versa. The opportunity seeking organizations have a high affinity for risk unlike the resources based organizations. These firms are entrepreneurial and they achieve superior performance compared to their counterparts.

Strategic entrepreneurship is about carefully selecting viable alternatives leading to superior competitive advantage. If incubator Centres have to achieve superior competitive advantage, they have to strategically select business ideas, source for finance and recruit competent management for their centres and mobilize resources and prudently utilize these resources for differential performance.

The findings of the study indicated that incubation resources are very important to influencing performance and therefore very necessary to be taken into consideration by management during decision making. The study was cognizance of the resource based approach that support firm resources being fundamental determinants of competitive advantage and superior performance. It advocates that firms differentiate their resources to compete favourably and increase the rents generated from these resources and be assured of continued existence in the market.

The study draws a conclusion that Entrepreneurial orientation significantly moderates relationship between incubator practices and performance of incubator centre. This resulted in an increase of market share. Through EO, these incubator centres will be encouraged to pursue creative destructive approach and innovate products and services for superior performance. EO also increases entrepreneurial passion among incubator staff and incubatees in pursuing opportunities.

The core finding of this study was, incubation practices positively influences performance of incubator centres in Kenya. This study contributes to the field of strategic entrepreneurship. It enables firms to simultaneously engage in the search for opportunities and pursue competitive advantages. Strategic entrepreneurship requires that, firms be innovative if they will have to compete effectively in the market.

Incubator Managers need to look for strategic resources with the potential to deliver comparative advantage to a firm. These resources have the capacity to increase the incubators ability to build competitive strengths across the value chain. This competitive advantage will be achieved through differential access to key resources or the creation of internal processes that are valuable to customers and are difficult for competitors to copy.

This study concluded that client selection criteria and entrepreneurial management significantly contributes to the performance of incubator centres in Kenya, moderated by entrepreneurial orientation, as shown in Figure 5.1.

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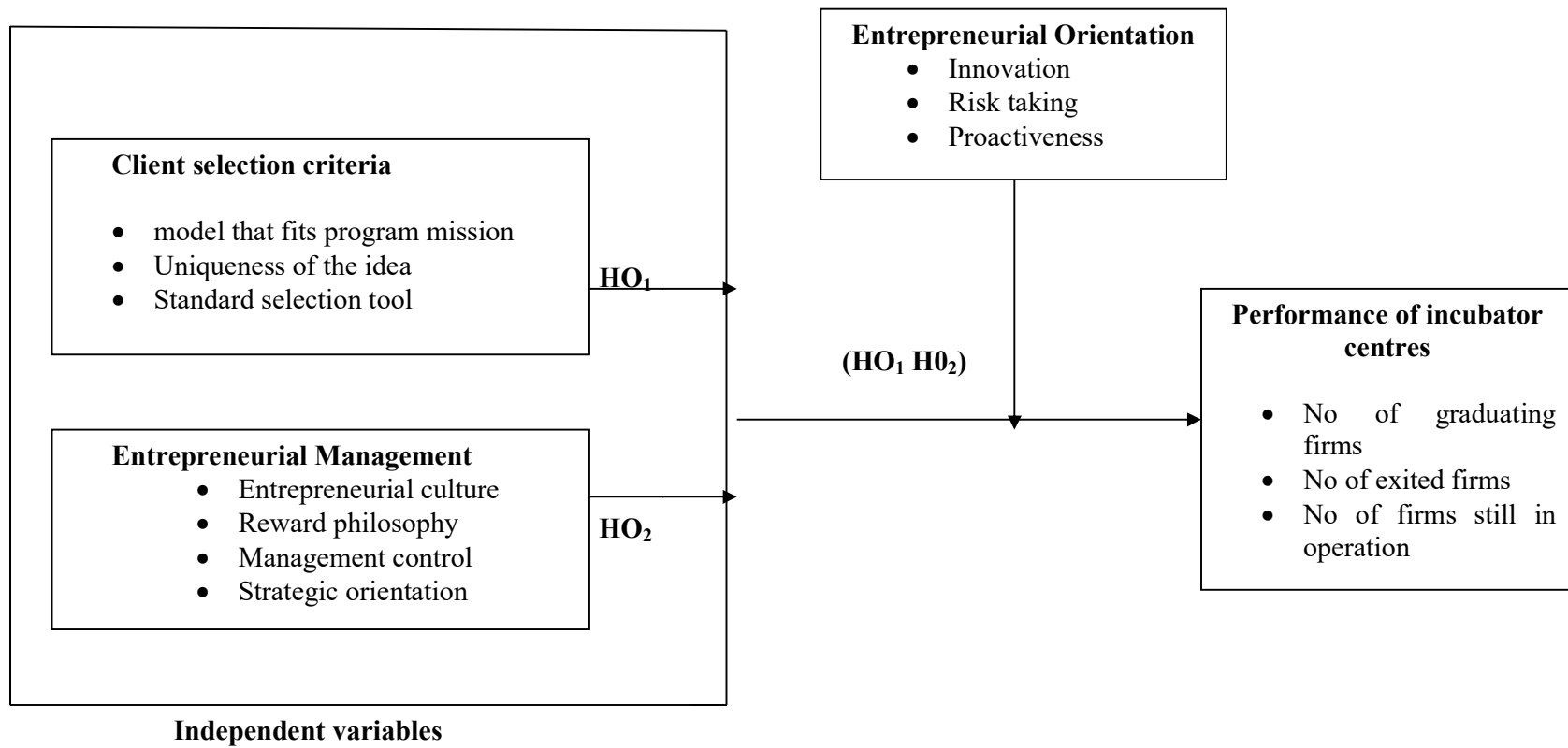


Figure 5.1: Optimal Model (Kinya, 2018).

5.3 Recommendations

The study revealed that the process of incubation coupled with EO assures superior performance of firms. To improve the performance of incubator centres this can only be realized by creating a conducive environment by embracing best practices that assure sustainable competitive advantage.

In client selection criteria, the study recommends that, the incubation institutions should determine the client's success history which acts as a measure of improvement in selection process. The centres select solution based ideas to encourage community buy in, this assures survivability of an incubator centre in a locality. The study further recommends the creation of good institutional memory that can be used to track the success stories of incubatees, who are occasionally invited as role models to encourage the incubatees and be a source of reference in identifying areas for improvement.

Despite the fact that funding was not significant, funds are a necessary resource for incubators. the study recommends measures of sustainability of both the incubator centre and the clients. Incubation management should encourage innovators to commercialize their ideas by walking them the journey until the innovations are patented and commercialized. This would be a source of revenue through royalty fee, which was evident enough that as a country, no incubator Centre enjoys this opportunity. The funding provided by these potential investors will catalyze both closed and open innovation amongst the graduate incubatees.

Government and private sector partnership should be encouraged in the areas of incubation to enable sharing of information and resources. The National, County Government and Kenya Private Sector Alliance (KEPSA) should develop a tripartite

partnership that will assist in creating innovation hubs in every county. This will encourage counties to create an entrepreneurial environment that will allow start-ups to grow exponentially fast and be able to utilize the resources within to develop products and services that are valuable , rare , inimitable and non-substitutable.

Incubators are considered risky ventures by most financial institutions. Solution to this problem is for incubators and other SMEs be de-risked. This will be achieved by putting proper structures and policy of incubation in place to streamline the incubation activities in the country to gain investor confidence that their money is safe, otherwise without proper structures and policy, most investors will shy away from the industry.

Incubator centres need to partner with financial institutions and work closely in coming up with tested business models to avoid business blind spots. This will save resources that would otherwise be wasted on business models that are not sustainable.

On Entrepreneurial Management the study found this construct significant. The study recommends that, to minimize failure of incubator centres, all staff must be involved in decision making and be allowed to create ideas that work in the organization. This helps them buy ownership of the organization through the innovations they have contributed.

Facilitators with entrepreneurship training background be recruited in these incubator Centres. This approach will help facilitators and incubator Centre managers understand the importance of entrepreneurial culture, introduce reward philosophy, control management and pursue strategic orientation. This will be enhanced if the centre keeps training ahead as a manager, and in turn keep centre thriving

On Entrepreneurial Orientation the study recommends development of an entrepreneurship policy by various stakeholders, through this policy, Kenya's entrepreneurial capacity and passion will be enhanced. Incubatees will be encouraged to register their businesses and bridge the unlicensed business gap which is currently at 5.9 million. This intervention will create an entrepreneurial ecosystem that will focus on creating favourable regulatory frameworks that are not inhibitive in nature to start ups (graduate incubatees) and SMEs in Kenya.

The study recommends that the incubator centres are trained about resource mobilization and prudent utilization. The centres incorporate EO as part of the operational policies. The Centres develop a checklist that guides them in evaluating whether they have been innovative, risk takers and their level of proactiveness

The study recommends that incubator centres be pragmatic by incubating solution based ideas that address societal needs. The centres should be fast in interpreting Kenya's blue print Vision 2030 targeting economic, political and societal pillars with the aim of transforming the country into a globally competitive and prosperous nation. Also, the government's big four agenda whose aim is critical in uplifting the standard of living of Kenyans on the path of becoming an upper middle income by 2030, through manufacturing, universal healthcare, affordable housing and food security sectors. The incubator centres are to strategically re-organize its resources and capabilities to enhance their entrepreneurial performance.

5.4 Areas of Future Research

This study has shown that, the relationship between incubation practices and performance of incubator Centre is moderated by other factors, by providing evidence on the contributory role of entrepreneurial orientation in influencing this association.

However, in future, additional studies are necessary to establish the role of other factors not covered in this study to gain more insights into the power of moderating elements. Factors to consider are client characteristics, market characteristics such as competition, the regulatory environment and technology could be the focus of future studies. A configuration can be considered for such studies

The study established that incubation data was not readily available; hence the study recommends a baseline study in the country to profile incubators and identify the different incubation models in the country.

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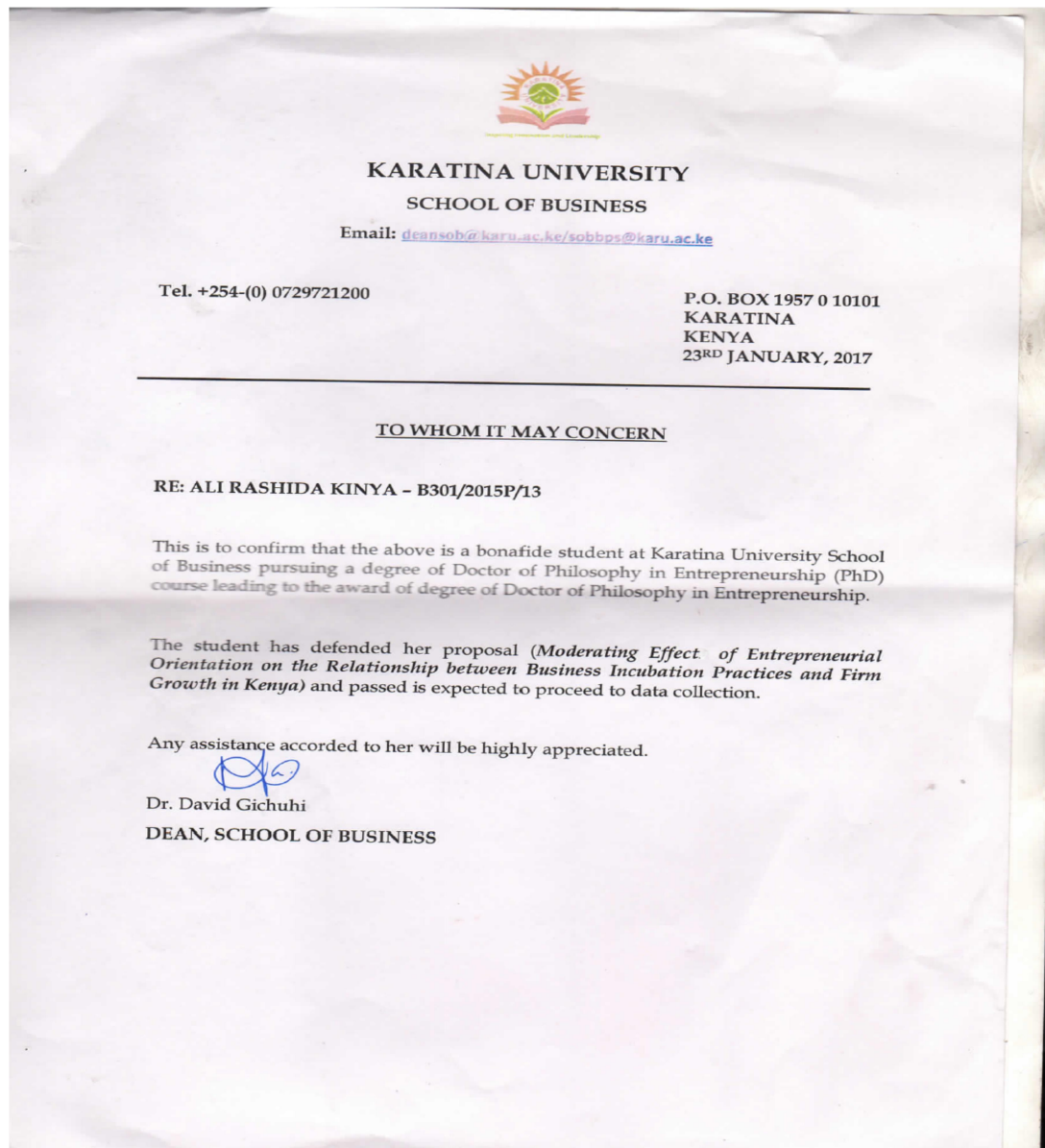
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APPENDICES

Appendix 1: Introduction Letter



Appendix II: Research Permit



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,
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9th Floor, Utalii House
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P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.

NACOSTI/P/17/42145/15646

Date:

9th February, 2017


Rashida Kinya Ali
Karatina University
P.O. Box 1957-10101
KARATINA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Moderating effect of entrepreneurial orientation on the relationship between best business incubation practices and firm growth in Kenya*," I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **9th February, 2018**.

You are advised to report to **the Chief Executive Officers of selected Government Agencies, the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


**BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO**

Copy to:


The Chief Executive Officers
Selected Government Agencies.

The County Commissioners
All Counties.

National Commission for Science, Technology and Innovation is ISO 9001:2008 Certified

THIS IS TO CERTIFY THAT:
MS. RASHIDA KINYA ALI
of **KARATINA UNIVERSITY, 1072-10400**
manyuki, has been permitted to conduct
research in All Counties
on the topic: **MODERATING EFFECT OF**
ENTREPRENEURIAL ORIENTATION ON
THE RELATIONSHIP BETWEEN BEST
BUSINESS INCUBATION PRACTICES AND
FIRM GROWTH IN KENYA
for the period ending:
9th February, 2018
Applicant's Signature
Director General
National Commission for Science,
Technology & Innovation

Permit No : **NACOSTI/P/17/42145/15646**
Date Of Issue : **9th February, 2017**
Fee Received : **Ksh 2000**



Appendix III Questionnaire on Performance of Incubator Centres In Kenya

The purpose of this questionnaire is to collect data for a study to investigate **The Relationship between incubation practices, Entrepreneurial Orientation and Performance of incubator centers in kenya: A Resource Based Approach**. All information provided will be treated with utmost confidentiality. Please do not write your name or any other personal identification mark on this questionnaire.

Kindly respond to all questions by either filling in the blank spaces or put a tick (✓) against the applicable option.

1. How long have you worked for this centre? _____ years
2. How long have you held the management position? _____ years
3. kindly indicate your gender? Male [] Female []
4. Kindly indicate your age,?,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, years
5. What is the highest educational level achieved
Secondary [] College [] Undergraduate [] Postgraduate [] Others []
6. How old is this incubator Centre? -----
7. How many clients are housed in your centre? ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
8. Please tick () in the table below the constitution of your board.

1	Graduates from incubator	
2	Practicing entrepreneur	
3	Accountant	
4	Lawyer	
5	Government representative	
6	Higher Education/University	
7	Research institutions	
8	Others	

9. Please select below the bracket which describes your firm’s average annual turn-over in the past 5 years (**in million Ksh, approximately**)
0-20[] 21-50[] 51-100[] 101-250[] 251-500[] Over 500[]

SECTION II: INCUBATION PRACTICES

The aim of this section is to determine how best business incubation practices and entrepreneurial behaviour affect performance of incubator centres in Kenya.

CLIENT SELECTION CRITERIA (model that fit program goals, uniqueness of idea, standard selection tool)

A) Does your centre have a standard checklist for client selection?

Yes [] No []

If **No**, please explain

.....

B) Does your centre select ideas based on cultural fit?

Yes [] No []

If **NO**, please explain

.....

.Is originality of ideas an important element considered during selection?

Yes [] No []

If **No**, please what is important

.....

For each of the statements given in the table below, place a tick (✓) in the appropriate cell to indicate your level of agreement with it. **Key: 1=SD (Strongly Disagree), 2= D (Disagree), 3=N (Neutral), 4= A(Agree),5=SA (Strongly Agree)**

	Statement	1 SD	2 D	3 N	4 A	5 SA
	Model that match program goals					
1	Management only selects ideas that match the centre resource base.					
2	The selection of ideas is based on prior experience of the management team					
3	Ideas selected are those with economic value					
4	Ideas selected are those with a multiplier effect					
	Uniqueness of ideas					
5	The selection of ideas is based on the ideas potential in creating new markets					

6	The selection of ideas is based on potential to attract investment participation from venture capitalists					
7	The model addresses the needs of the immediate community.					
	Standard selection tool					
8	Management has developed a selection criteria targeting specific sector.					
9	The tool targets innovative ideas that have potential to change the immediate community.					
10	Management adheres to the tool for standardization.					
11	Any other? Please specify in the space provided					

INCUBATOR FUNDING (sources of funds, types of funds and nature of funds)

The following questions address funding of business incubators in Kenya, kindly respond appropriately.

a) Is your centre financed to cater for all your activities?

Yes [] No []

If **No**, please explain

.....

b) Which sector funds your centre?

Public []

Private []

Both []

c) At least 80% of the grant goes into incubator services?

Yes [] No []

If **NO**, please explain

.....

For each of the statements given in the table below, place a tick (✓) in the appropriate cell to indicate your level of agreement with it.

	Statement	1	2	3	4	5
		SD	D	N	A	SA
	Sources of funds					
1	Management experiences challenges collecting rent from incubatees.					
2	Management gets royalty fee from its clients					
3	Management relies heavily on external sources of funds					
	Types of funds					
4	Management secures loans from banks for business operations					
5	Most of your proposals attract funding from stakeholders					
6	Your incubator Centre has attracted venture capitalists.					
	Nature of funds					
7	Your incubator Centre attracted seed funding from several sources					
8	Management allocates funds for re-engineer processes whenever required.					
9	The incubator centre has adequate funds for research and development.					
10	Any other? Please specify in the space provided					

ENTREPRENEURIAL MANAGEMENT (Entrepreneurial culture, Reward philosophy, Control, strategic orientation)

The following questions address Entrepreneurial management in incubator centres in Kenya. Kindly respond appropriately

a) Does management clearly communicate the centre’s mission to all?

Yes [] No []

If **No**, please explain

.....

b) Are all stakeholders involved in planning of the activities of the centre?

Yes [] No []

If **NO**, please explain

.....

c) Does Management monitor and evaluate the activities of the centre?

Yes [] No []

If **No**, please explain,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

For each of the statements given in the table below, place a tick (√) in the appropriate cell to indicate your level of agreement with it.

	Statement	1 SD	2 D	3 N	4 A	5 SA
	Entrepreneurial culture					
1	We are not in short supply of ideas that we can convert into profitable products and services.					
2	Changes in the society often give us new ideas for products and services					
3	We are constrained by resources at hand in identifying opportunities.					
	Reward Philosophy					
4	Our employees are compensated based on the value they add to the firm as individuals					

5	Our employees are rewarded for their outstanding performance					
6	An employee is perceived based on the value s/he adds					
	Control					
7	Tight control of funds and operations by means of information systems is preferred					
8	Staff should adhere closely to the formal job description.					
9	The organization's operating styles range from very formal to very informal.					
10	We prefer to totally own and control the resources we use.					
	Strategic orientation					
13	We don't limit the opportunities we pursue on the basis of our current resources					
14	The centre is willing to rent resources to take advantage of an opportunity					
15	The resources the centre has, significantly influence the centre's business strategies					
16	Any other? Please specify in the space provided					

SECTION III: ENTREPRENEURIAL ORIENTATION

This section contains statements that assess the intensity of entrepreneurial behaviour reflected in the strategic decisions of incubator centres. Kindly respond with a tick, (√), as appropriate.

- a) Does your centre re-engineer your processes to make them more efficient than your competitors’ process? Yes [] No []

If your centre does not re-engineer the processes please explain.

.....
.....

- (i) Does your centre provide resources to implement new ideas initiated by employees?

Yes [] No []

If no, please explain

.....

- b) Management allows quick decisions made to counter competition

Yes [] No []

If no, please explain

.....
...

If a manager makes a decision and fails, is he / she punished?

Yes [] No []

If no punishment is meted, please explain

.....
...

For each of the statements in the table below, place a tick (√) in the appropriate cell to indicate you level of agreement with the statement.

	Statement	1	2	3	4	5
		SD	D	N	A	SA
	Innovation					
1	During the last six months the centre has done something different to attract new clients.					

2	Your centre creates value for new and existing clients through partnerships.					
3	There is a budget for innovation is in place to encourage creativity in business.					
Risk Taking						
4	Clients are allowed to operate before paying rent					
5	During selection, weak ideas that show potential of growth are selected.					
6	In exploiting opportunities, Management is not afraid to take bold decisions.					
Proactiveness						
7	Our centre initiates changes before our competitors do.					
8	Our centre actively seeks new opportunities					
9	The centre anticipates changes and acts on them.					
	Any other? Please specify in the space provided.					

SECTION IV: PERFORMANCE OF INCUBATOR CENTRES

The aim of this section is to show performance of incubator centres over the past five years, i.e. 2012, 2013, 2014, 2015 and 2016.

1. Generally, have you experienced an improvement in the performance of your cen during this period (i.e. 2012-2016)? Yes [] No []

If No, please explain

.....

2. The performance improvement is as a result of the resources provided at the incubator Centre? Yes [] No []

If No please explain.....

.....

Place a tick (√) in the appropriate cell below to indicate your level of agreement with statement.

	Statement	1. Been reducing	2. Remained the same	3. Been increasing
G1	For the past five years, the number of graduating firms has			
G1	For the past five years, The number of firms that failed and left incubation has ...			
G3	For the past five years, number of operating business after graduation			

Please fill in the table below for the respective years 2012, 2013, 2014, 2015 and 2016

Component	2012	2013	2014	2015	2016
Number of graduating firms.					
Number of firms that failed and withdrawn from incubation.					
Number of businesses still in operation after graduation					

THANK YOU FOR YOUR PARTICIPATION

Appendix IV: Factor Analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.366	25.833	25.833	11.366	25.833	25.833
2	6.388	14.518	40.351	6.388	14.518	40.351
3	5.05	11.478	51.829	5.05	11.478	51.829
4	4.077	9.266	61.095	4.077	9.266	61.095
5	3.554	8.077	69.172	3.554	8.077	69.172
6	3.063	6.962	76.135	3.063	6.962	76.135
7	2.433	5.529	81.664	2.433	5.529	81.664
8	1.95	4.432	86.096	1.95	4.432	86.096
9	1.686	3.831	89.927	1.686	3.831	89.927
10	1.255	2.851	92.779	1.255	2.851	92.779
11	1.101	2.502	95.28	1.101	2.502	95.28
12	0.996	2.263	97.544			
13	0.565	1.284	98.828			
14	0.495	1.124	99.952			
15	0.021	0.048	100			
16	1.55E-15	3.53E-15	100			
17	1.41E-15	3.20E-15	100			
18	9.33E-16	2.12E-15	100			
19	9.01E-16	2.05E-15	100			
20	6.74E-16	1.53E-15	100			
21	6.66E-16	1.51E-15	100			
22	6.07E-16	1.38E-15	100			
23	5.24E-16	1.19E-15	100			
24	4.03E-16	9.15E-16	100			
25	3.80E-16	8.64E-16	100			
26	3.22E-16	7.31E-16	100			
27	2.46E-16	5.58E-16	100			
28	1.35E-16	3.08E-16	100			
29	5.03E-17	1.14E-16	100			
30	-1.00E-17	-2.28E-17	100			
31	-4.90E-17	-1.11E-16	100			
32	-1.37E-16	-3.12E-16	100			
33	-1.59E-16	-3.62E-16	100			
34	-2.98E-16	-6.77E-16	100			
35	-3.85E-16	-8.75E-16	100			
36	-4.53E-16	-1.03E-15	100			
37	-5.70E-16	-1.30E-15	100			
38	-6.46E-16	-1.47E-15	100			
39	-7.06E-16	-1.61E-15	100			
40	-7.60E-16	-1.73E-15	100			

41	-8.43E-16	-1.92E-15	100
42	-9.90E-16	-2.25E-15	100
43	-1.08E-15	-2.46E-15	100
44	-1.28E-15	-2.92E-15	100

Extraction Method: Principal Component Analysis.

Component Matrix

	Component 1	Component 2	Component 3	Component 4	Component 5	Status
VAR0001	0.543					Retained
VAR0002	-0.23					Expunged
VAR0003	0.583					Retained
VAR0004	0.751					Retained
VAR0005	0.468					Retained
VAR0006	0.596					Retained
VAR0007	0.832					Retained
VAR0008	0.799					Retained
VAR0009	0.898					Retained
VAR00010	0.836					Retained
VAR00011		-0.022				Expunged
VAR00012		0.626				Retained
VAR00013		0.25				Expunged
VAR00014		0.591				Retained
VAR00015		0.751				Retained
VAR00016		0.934				Retained
VAR00017		0.669				Retained
VAR00018		0.79				Retained
VAR00019		0.828				Retained
VAR00020		0.299				Expunged
VAR00021			0.362			Expunged
VAR00022			-0.798			Retained
VAR00023			0.826			Retained
VAR00024			0.832			Retained
VAR00025			0.958			Retained
VAR00026			0.865			Retained
VAR00027			0.846			Retained
VAR00028			-0.58			Retained
VAR00029			-0.413			Retained
VAR00030			0.46			Retained
VAR00031			0.435			Retained
VAR00032			-0.186			Expunged
VAR00033				0.892		Retained
VAR00034				0.696		Retained
VAR00035				0.777		Retained

VAR00036	-0.549	Retained
VAR00037	0.155	Expunged
VAR00038	0.75	Retained
VAR00039	0.895	Retained
VAR00040	0.944	Retained
VAR00041	0.761	Retained
VAR00042	0.526	Retained
VAR00043	-0.759	Retained
VAR00044	0.852	Retained

**Appendix V:
Test of Normality**

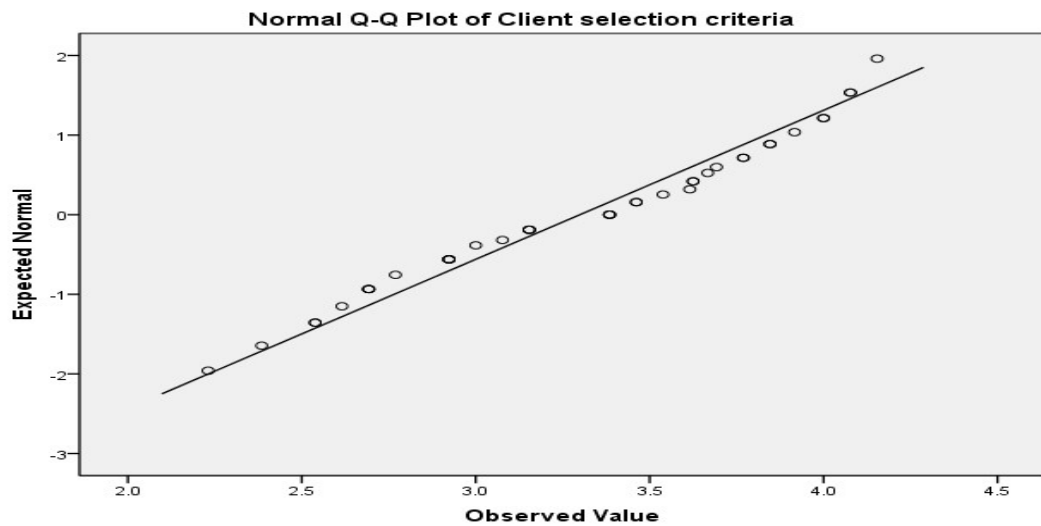


Figure 4.5(a): Normal Q-Q plot of Data on Client selection criteria

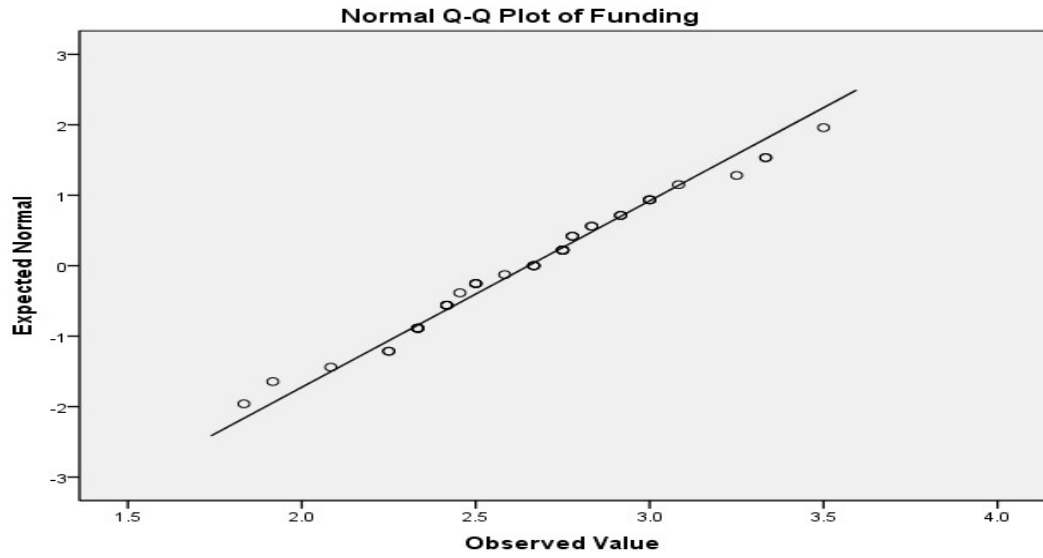


Figure 4.5(b): Normal Q-Q plot of Data on Funding

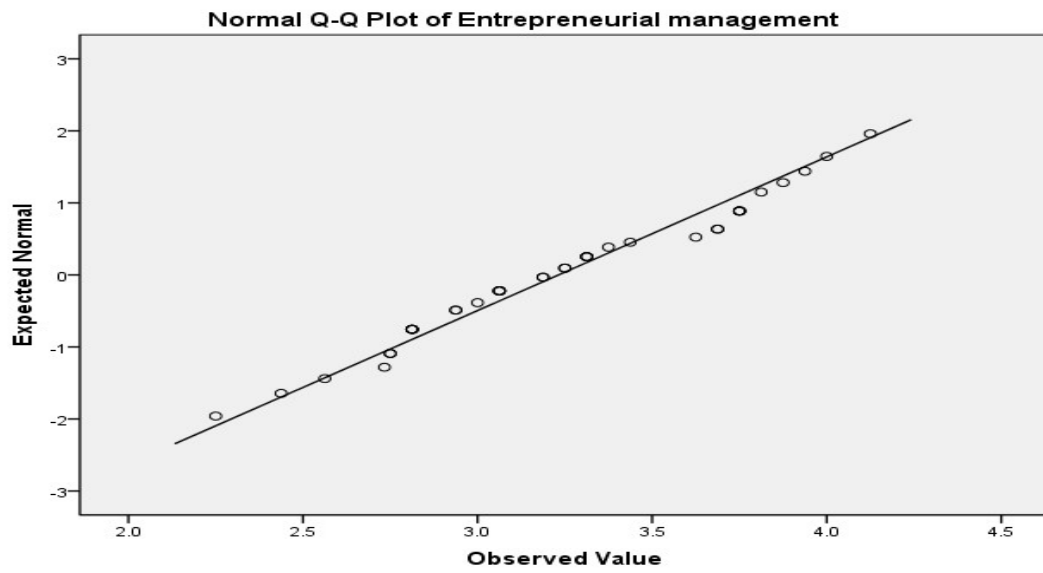


Figure 4.5(c): Normal Q-Q Plot of Data on Entrepreneurial management

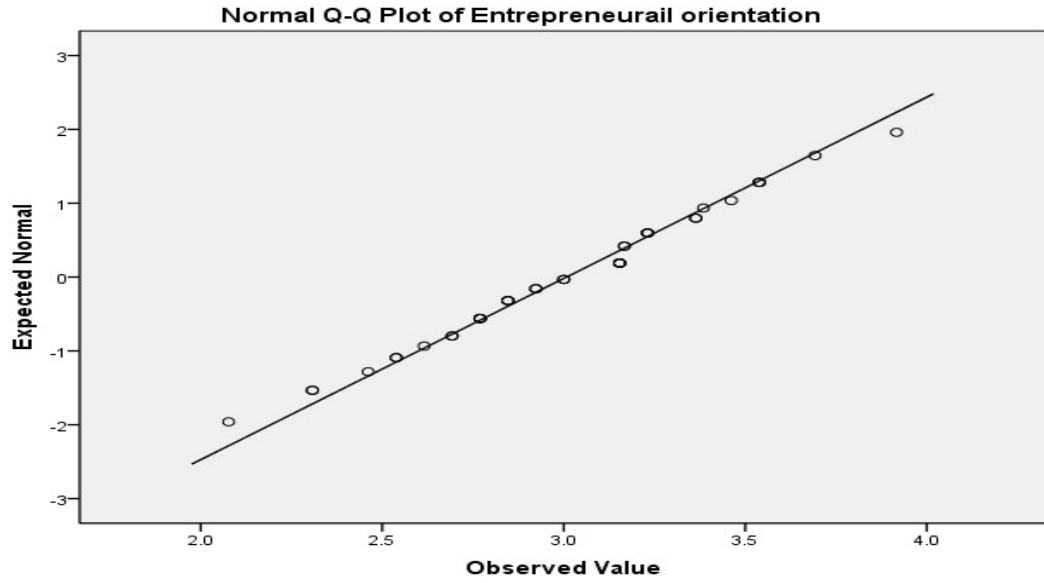


Figure 4.6(d): Normal Q-Q Plot of Data on Entrepreneurial orientation

Appendix VI:

Durbin Watson tables

Durbin-Watson "d" statistic: Significance points of dL and dU at 0.05 level of significance

k'=number of explanatory variables excluding the constant term

obs. N	k'=1		k'=2		k'=3		k'=4		k'=5		k'=6		k'=7
	dL	du	dL	du	dL	du	dL	du	dL	du	dL	du	dL
6	0.610	1.400	-	-	-	-	-	-	-	-	-	-	-
7	0.700	1.356	0.467	1.896	-	-	-	-	-	-	-	-	-
8	0.763	1.332	0.559	1.777	0.368	2.287	-	-	-	-	-	-	-
9	0.724	1.320	0.629	1.699	0.455	2.128	0.296	2.588	-	-	-	-	-
10	0.879	1.320	0.697	1.641	0.525	2.016	0.376	1.414	0.243	2.822	-	-	-
11	0.927	1.324	0.658	1.604	0.595	1.928	0.444	2.283	0.316	2.645	0.203	3.005	-
12	0.971	1.331	0.812	1.579	0.658	1.864	0.512	2.177	0.379	2.506	0.268	2.832	0.171
13	1.010	1.340	0.861	1.562	0.715	1.816	0.574	1.094	0.445	2.390	0.328	1.692	0.230
14	1.045	1.350	0.905	1.551	0.767	1.779	0.632	2.030	0.505	2.296	0.389	1.572	0.286
15	1.077	1.361	0.946	1.543	0.814	1.750	0.685	1.977	0.562	2.220	0.447	2.472	0.343
16	1.106	1.371	0.982	1.539	0.857	1.728	0.734	1.935	0.615	2.157	0.502	2.388	0.396
17	1.133	1.381	1.015	1.536	0.897	1.710	0.779	1.900	0.664	2.104	0.554	2.318	0.451
18	1.158	1.391	1.046	1.535	0.933	1.696	0.820	1.872	0.710	2.060	0.603	2.257	0.502
19	1.180	1.401	1.074	1.536	0.967	1.685	0.859	1.848	0.752	2.023	0.649	2.206	0.549
20	1.201	1.411	1.100	1.537	0.998	1.676	0.894	1.828	0.792	1.991	0.692	2.162	0.595
21	1.221	1.420	1.125	1.538	1.026	1.669	0.927	1.812	0.829	1.964	0.732	2.124	0.637
22	1.239	1.429	1.147	1.541	1.053	1.664	0.958	1.797	0.863	1.940	0.769	2.090	0.677
23	1.257	1.437	1.168	1.543	1.078	1.660	0.986	1.785	0.895	1.920	0.804	2.061	0.715
24	1.273	1.446	1.188	1.546	1.101	1.656	1.013	1.775	0.925	1.902	0.837	2.035	0.751
25	1.288	1.454	1.206	1.550	1.123	1.654	1.038	1.767	0.953	1.886	0.868	2.012	0.784
26	1.302	1.461	1.224	1.553	1.143	1.652	1.062	1.759	0.979	1.873	0.897	1.992	0.816
27	1.316	1.469	1.240	1.556	1.162	1.651	1.084	1.753	1.004	1.861	0.925	1.974	0.845
28	1.328	1.476	1.255	1.560	1.181	1.650	1.104	1.747	1.028	1.850	0.951	1.958	0.874
29	1.341	1.483	1.270	1.563	1.198	1.650	1.124	1.743	1.050	1.841	0.975	1.944	0.900
30	1.352	1.489	1.284	1.567	1.214	1.650	1.143	1.739	1.071	1.833	0.998	1.931	0.926
31	1.363	1.496	1.297	1.570	1.229	1.650	1.160	1.735	1.090	1.825	1.020	1.920	0.950
32	1.373	1.502	1.309	1.574	1.244	1.650	1.177	1.732	1.109	1.819	1.041	1.909	0.972
33	1.383	1.508	1.321	1.577	1.258	1.651	1.193	1.730	1.127	1.813	1.061	1.900	0.994
34	1.993	1.514	1.333	1.580	1.271	1.652	1.208	1.728	1.144	1.808	1.080	1.891	1.015
35	1.402	1.519	1.343	1.584	1.283	1.653	1.222	1.726	1.160	1.803	1.097	1.884	1.034
36	1.411	1.525	1.354	1.587	1.295	1.654	1.236	1.724	1.175	1.799	1.114	1.877	1.053
37	1.419	1.530	1.364	1.590	1.307	1.655	1.249	1.723	1.190	1.795	1.131	1.870	1.071
38	1.427	1.535	1.373	1.594	1.318	1.656	1.261	1.722	1.204	1.792	1.146	1.864	1.088
39	1.435	1.540	1.382	1.597	1.328	1.658	1.273	1.722	1.218	1.789	1.161	1.859	1.104
40	1.442	1.544	1.391	1.600	1.338	1.659	1.285	1.721	1.230	1.786	1.175	1.854	1.120
45	1.475	1.566	1.430	1.615	1.383	1.666	1.336	1.720	1.287	1.776	1.238	1.835	1.189
50	1.503	1.585	1.462	1.628	1.421	1.674	1.378	1.721	1.335	1.771	1.291	1.822	1.246
55	1.528	1.601	1.490	1.641	1.452	1.681	1.414	1.724	1.374	1.768	1.334	1.814	1.294
60	1.549	1.616	1.514	1.652	1.480	1.689	1.444	1.727	1.408	1.767	1.372	1.808	1.335
65	1.567	1.629	1.536	1.662	1.503	1.696	1.471	1.731	1.438	1.767	1.404	1.806	1.370
70	1.583	1.641	1.554	1.672	1.525	1.703	1.494	1.735	1.464	1.768	1.433	1.802	1.401

75	1.598	1.652	1.571	1.680	1.543	1.709	1.515	1.739	1.487	1.770	1.458	1.801	1.428
80	1.611	1.662	1.586	1.688	1.560	1.715	1.534	1.743	1.507	1.772	1.480	1.801	1.453
85	1.624	1.671	1.600	1.696	1.575	1.721	1.550	1.747	1.525	1.774	1.500	1.801	1.474
90	1.635	1.679	1.612	1.703	1.589	1.726	1.566	1.751	1.542	1.776	1.518	1.801	1.494
95	1.645	1.687	1.623	1.709	1.602	1.732	1.579	1.755	1.557	1.778	1.536	1.802	1.512
100	1.654	1.694	1.634	1.715	1.613	1.736	1.592	1.758	1.571	1.780	1.550	1.803	1.528
150	1.720	1.746	1.706	1.760	1.693	1.774	1.679	1.788	1.665	1.802	1.651	1.817	1.637
200	1.758	1.778	1.748	1.789	1.738	1.799	1.728	1.810	1.718	1.820	1.707	1.831	1.697

Appendix VII: Mahalanobis Distances

Observation number	Mahalanobis d-squared	p1	p2
17	35.144	0.001	0.051
6	18.369	0.144	0.982
21	18.369	0.144	0.934
10	18.265	0.148	0.848
25	18.265	0.148	0.702
8	18.259	0.148	0.527
23	18.259	0.148	0.353
5	17.584	0.174	0.366
20	17.584	0.174	0.228
9	17.313	0.185	0.173
24	17.313	0.185	0.093
1	11.999	0.528	0.998
16	11.999	0.528	0.995
35	11.999	0.528	0.989
15	11.998	0.528	0.975
30	11.998	0.528	0.949
34	11.998	0.528	0.905
13	11.988	0.529	0.841
28	11.988	0.529	0.752
32	11.988	0.529	0.641
4	11.844	0.54	0.575
19	11.844	0.54	0.448
38	11.844	0.54	0.326
3	11.281	0.587	0.427
18	11.281	0.587	0.305
37	11.281	0.587	0.2
12	10.688	0.637	0.294
27	10.688	0.637	0.189
31	10.688	0.637	0.11
14	9.805	0.71	0.266
29	9.805	0.71	0.16
33	9.805	0.71	0.085
11	8.473	0.811	0.379
26	8.473	0.811	0.23
2	7.906	0.85	0.283
36	7.906	0.85	0.142
7	6.906	0.907	0.284
22	6.906	0.907	0.111
39	6.906	0.907	0.022

Appendix VIII:
LIST OF INCUBATOR CENTRES
NAME OF CENTRES

1. IHUB
2. ILAB ARICA
3. IBIZ AFRICA
4. NAILAB
5. FAB LAB (UoN)
6. C4D LAB (UoN)
7. LAKE HUB
8. GEARBOX
9. NAIROBI GARAGE
10. CHANDARIA INCUBATOR CENTRE (KU)
11. MASENO INCUBATOR CENTRE
12. GRADUATE ENTERPRISE ACADEMY (MT KENYA UNI.)
13. SORGHUM VALUE CHAIN DEVELOPMENT CONSORTIUM
14. MAKUENI AGRICULTURE VALUE CHAIN INCUBATOR
15. SIAYA AGRI- VALUE CHAIN INCUBATOR
16. NANDI AGRICULTURAL VALUE CHAIN INCUBATOR
17. CENTRE OF EXCELLENCE IN LIVESTOCK INNOVATION AND BUSINESS (COELIB) INCUBATOR
18. UNITED STATES INTRENATIONAL UNIVERSIRT (USIU)
19. EXPORT PROMOTION ZONE AUTHORITY (EPZA)
20. EXPORT PROMOTION COUNCIL
21. VILLGRO KENYA
22. DARAJA ACADEMY TRANSITION PROGRAMME

23. KENYA INDUSTRIAL ESTATES (KIE)
24. KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE (KIRDI)
25. MICRO SMALL ENTERPRISE AUTHORITY (MSEA)
26. SOTE HUB
27. SWAHILI POT
28. INBOX AFRICA
29. ARO LAB
30. KCA UNIVERSITY BUSINESS INCUBATOR
31. OLEX TECHNO
32. CREATIVE GARAGE
33. DANDORA HIP HOP
34. DANDORA COMMUNITY CENTRE
35. CYTONN FOUNDATION
36. KENYA CLIMATE INCUBATOR CENTRE
37. RIFT VALLEY TECHNICAL TRAINING INSTITUTE
38. THIKA PRODUCTION SHOE LEATHER TRAINING
39. KENYA NATIONAL INNOVATION AUTHORITY
40. SEANET KENYA
41. EQUATOR FUEL WOOD ENERGY SAVING (EFES)
42. AKIRACHIX
43. SEVEN SEAS TECHNOLOGIES
44. INTERNATIONAL FINANCE CORPORATION (IFC)
45. KEROCHE FOUNDATION
46. PAWA
47. DEEP AFRICA
48. CRAFT SILICON
49. OPTIVEN
50. KENYA PRIVATE SECTOR ALLIANCE (KEPSA)
51. GO DOWN ARTS CENTRE