Client Selection Criteria and Performance of Incubator Centers in Kenya: A Resource based Approach

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Abstract

Business incubators are regarded as entrepreneurial hubs, unleashing entrepreneur’s ideas and businesses into the market, in turn, jobs are created and the economy of the area is improved. Due to the stiff competition for placement into an incubator program it is imperative for incubator management come-up with strategies of being more efficient and effective in utilizing resources to achieve superior performance. Hence the need to critically select clients, whose ideas fit the incubator’s mission and upon graduation create high growth businesses, with a higher survival rate of 90%. The study is anchored on Resource Based Theory. The study used a correlation design that focused on causal relationship of client selection criteria and incubator centre performance (ICP). The study population was 41 incubator managers in Kenya. After missing data analysis two respondents were expunged leaving 39 respondents. Secondary data was obtained from published sources such as company reports, manuals and research done by other scholars. Structural Equation Modelling (SEM) approach was used to analyze the measurement model and test the hypothesized relationship in this study. Simple linear regression model was used to measure the strength of the relationship between client selection criteria and performance incubator centre in Kenya. The results of the combined effect model indicated that client selection criteria had a significant relationship with performance of incubator centres.

Key words: client selection criteria, resource based view, Structural Equation Model, Incubator centres.

JEL classification: H20, H26, H30
Introduction

Globally the economy is getting competitive and entrepreneurial, thus compelling entrepreneurs to identify innovative ideas to keep abreast with market changes. Kenya’s overall economic performance has been impressive but it is evident that this growth is mainly service driven (Baier, Agakar, Sinha, et al., 2015), while industries such as agriculture and manufacturing registered a lower share in GDP between 2012 and 2016 (KNBS, 2017). Based on these statistics, the concern here is the high growth rate of the service sector yet the sector has a comparatively low job-generating potential, with fewer forward linkages to other parts of the economy, while other employment generating sectors remain stagnant.

Kenya is dubbed, "Silicon Savannah" because of the ICT service sector with a large number of technology-based firms both local and international (Baier, Agakar, Sinha, et al., 2015). This report further indicates that despite the sector’s success, the industrial and agricultural sectors in Kenya and major employers are yet to realize the benefits of the home-grown digital revolution, including greater productivity, faster growth, and more jobs. The Kenyan innovation and entrepreneurship ecosystem can be improved by bridging the gap between traditional industry and young technology firms. Business incubation is envisaged as the strategy that will bridge this gap by providing the much needed resources to turn ideas into businesses that are market driven (Bruneel, Ratinho, Clarysea and Groenc, 2012). This intervention will also create a pipeline for more innovative ideas into the market through a screening process.

Many scholars postulate that client selection criteria is important and determines the success of any business incubation program (Ahmad & Ingle, 2011; Bergek & Norrman, 2008; Lalkaka, 1997 and Ganamotse, 2011). Wulung, Takahashi, & Morikawa (2014) argue that despite the incubatee selection process being critical, there is little evidence of the existence of a mathematical model that addresses multi-criterion incubatee selection strategy, to select promising incubatees. The scholars further argue that, selection strategy is complicated by the inability of the panelists to validate data presented by Incubatees. This data is exaggerated, hence judgment made is biased. In the absence of a mathematical model to guide the panelists, incubators must put in place clear parameters to vet clients into an incubator to ensure the ultimate goal of the incubator are realized.

University based incubator strategy on enterprise growth in Kenya, postulate that incubator selection strategy mainly focuses on start-ups with potential to become high growth business in three years (Wachira, 2017). The study concluded that most incubators fail to stick to strict selection criteria due weak financial capacity and instead open up the incubator to any client who has ability to pay rent to bridge the cash flow gaps. Other challenges postulated in the study were failure to select ideas aligned to university vision hence any client would get admitted into the subsidized rent establishments. To eradicate this problem, the incubator centres must be adequately financed and select innovative ideas in sectors that have comparatively high job-generating potential, and more forward linkages to other parts of the economy. Little empirical studies in Kenya have explored the role of client selection criteria for improved performance of incubators in Kenya. The few existing studies have a limitation of the scope; hence generalization of results is unreliable. This study explored the need for incubator management coming-up with strategies of being more efficient and effective in utilizing resources to achieve superior performance. Hence the need to critically select clients, whose ideas fit the incubator’s mission and upon graduation create high growth businesses, with a higher survival rate of about 90% of Kenyan SME’s who are the engine behind the Kenyan economy (Ruhii, Ngugi & Waititu, 2015).

Literature Review

Theoretical Review on Client Selection Criteria 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 (Ahmad, 2014). The theory views the entrepreneur as a resource that recognizes and creates options. They appreciate an entrepreneur as someone alert to opportunities that can be profitably exploited. Alertness is seeing value in a product that other people cannot
Ahmad (2014) asserts that clients can be rationally selected from a pool of available real options by employing selection criteria, but the Real Option theory 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. 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.

**Incubator Center Performance**

This resource based 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. Porter purport that determination of boundaries of a firm within an industry is the starting point. First firms identify and classify firms’ resources and appraise their strength and weakness relative to competitors, firm’s capabilities are identified paying attention to resource input to each capability and the complexity of each capability. Ahmad (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 helps 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 Ahmad (2014) noted that in the second tier, for clients to effectively exploit resources within an incubator, it calls for competent management team to assist theincubatees exploit resources within and without the incubation centres for superior positioning.

**Client selection criteria and incubator centre performance**

Bergek & 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. Hackett and Dilts (2004) support the above view that the selection process is an important management task. Ganamotse (2011) assessed 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 affect 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. Lewis et al (2011) support that the main goal of an incubator is release of financially stable and free standing firms after incubation. The scholars also stressed the importance of selecting ideas that are culturally fit. This study focused on start ups and emphasized that if all the laid down parameters are met, the incubated firms will survive, 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, failed and exited incubator and number still in operation after graduation.
Research and Methodology

Questionnaire Development

The study used primary data that was collected from the incubator managers as respondents. Semi-structured questionnaires were used to collect the primary data. Client selection criteria were measured through a model that matched program goals, uniqueness of ideas, and standard selection tools. Likert scale dominated the study because it is widely used (Chimi & Russel, 2009). This scale, examined how strongly subjects agree or disagree with a statement (Cooper & Schindler, 2011). The use of Likert scale was best suited when the value sought is a belief or opinion, and the effect or value sought cannot be given with definite precision, or it is considered sensitive. Such data was to be collected in this study. Dichotomous scale and open-ended questions were also used to allow respondents to provide extra information not included in the Likert scale. The study used a multi-dimensional scale to measure incubator center performance. Client selection criteria was measured under the three sub dimensions which were considered as independent variables for this paper. The variables for this paper therefore consisted of three independent variables (X) and one dependent variable (Y).

![Conceptual framework](image)

**Figure 1:** Conceptual framework

The study adopted a causal approach which required the use of statistical estimation techniques to fit the model used to draw conclusions on the objectives of the study. This was achieved by the use of inferential statistics for analysis and hypothesis testing. The study tested hypotheses that the sub dimensions of client selection criteria influence incubator performance.

- $H_{01}$ Model that matches program goals have no significant influence on Incubator centre performance.
- $H_{02}$ Uniqueness of ideas has no significant influence on Incubator centre performance.
- $H_{03}$ Standard selection tool has no significant influence on Incubator centre performance.

Sampling and Data Collection

The current study adopted a census approach considering the small population of 51 incubator managers that target SME start-ups. According to Israel (2012) a census is cost effective and thus attractive for small populations such as 200 or less. All the 51 incubator managers were therefore included in the study without sampling. The statistical tool SEM used in this paper was bases on various sampling conditions. MacCallum, Widaman, Zhang, & Hong, (1999), purport that SEM has flexibility strength but with the flexibility, it is difficult to develop generalized sample size requirements guidelines. Various rules of thumb that include sample sizes below 100 have been advanced. Considering the proposal by Nunnally (1967) of 10 cases per latent variable, the size of 51 respondents considered on the study was found to be adequately above the requirement for 4 latent variables ($10 \times 4 = 40$).

Primary data was obtained from incubator managers as key informants. Secondary data sources included books, documented research, journal articles, and electronically stored information (internet). 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. Close-ended questionnaire detailing all the variables of the study with open spaces for comments was used for this study.
Open-ended questions were used for each section to yield qualitative data. The questionnaires yielded both qualitative and quantitative data in the following sections: Section one- background information; Section two- Client selection criteria; Section three- performance of incubator centres.

The researcher dropped and picked the questionnaires later. Most incubator managers were busy serving clients, hence had no time within office hours to fill the questionnaires.

Secondary data was collected from published sources such as library, internet and research done by other scholars. Telephone calls were made prior to establish a rapport with the respondents to motivate them to fill the questionnaires and mitigate the non response cases.

Analysis

Structural equation modeling (SEM) was used for model estimation and hypothesis testing. The IBM AMOS package (Analysis of Moment Structure) version 23 was used to carry out SEM which involved the two stages; the measurement model and the structural model. Tests were carried out to prove reliability and validity of the data collected for use in SEM. The structural equation modeling technique used was based on maximum likelihood estimation (MLE) thus the classical assumptions of MLE were tested to ensure that the model fitted met the assumptions. Goodness of fit tests were also carried out for the fitted model to gauge how well the model fits the data. The assumptions of normality, autocorrelation, multicollinearity, heteroscedasticity and multivariate outliers were tested.

Normality test

Maximum likelihood estimation assumes that the residuals of the fitted model follow a normal distribution. Normal distribution is attributed to a low skewness that tends to zero and a kurtosis of that tends to 3. Normality of the residuals of the fitted model was tested using Shapiro-Wilk test. The Shapiro-Wilk statistic was found to be with a p-value of 0.089 which is more than 0.05 implying that the residuals follow a normal distribution.

Heteroscedasticity test

Heteroscedasticity is of a variable implies that the variable does not exhibit a constant variance. MLE assumes that the residuals of the fitted model have a constant variance and are therefore homoscedastic. Heteroscedasticity of the residuals was tested using the Breusch-Pagan (BP) test. The (BP) Lagrange multiplier (LM) statistic which was computed for the residual was found to be with a p-value of 0.056. The p-value being greater than 0.056 implied that the residuals re not heteroscedastic but have constant variance as assumed.

Autocorrelation test

Independence of the residuals was also tested as an assumption of MLE. The assumption states that the residuals of the fitted model exhibit non-autocorrelation. This was tested by computing Durbin-Watson statistics and comparing with tabulated Durbin-Watson values. The calculated Durbin Watson statistic was found to be 1.869 which is higher than the upper limit 1.842 of the tabulated value at 0.05 level of significance. This implies that the residuals were independent as required.

Multicollinearity test

Multicollinearity in statistical regression analysis is said to exist when the one or more exogenous variables can be expresses as a linear function of other exogenous variables. Multicollinearity exists if the independent variables are highly correlated to each other. Structural equation model estimation assumes that the independent variables are not multicollinear. To test for multicollinearity, variance inflation factors (VIFs) were computed for each independent variable. Multicollinearity of a variable is attributed to a VIF above 5. The VIFs for the three independent variables were found to range between 1.03 and 1.107. No independent variable had a VIF above 5 which implies that the model fitted did not exhibit multicollinearity.
Outliers test

Structural equation modeling being a multivariate process assumes that the data do not contain significant multivariate outliers. To test for existence of significant multivariate outliers, Mahalanobis distance ($D^2$) were computed and tested for significance by also computing the probabilities of the Chi-square distribution of the distances. The P-values of all the distances were above 0.05 implying no significant outliers.

Findings

Measurement Model

The measurement model of SEM examines each latent variable and it’s measurements (indicators). The results on the measurement model analysis is summarized in table 1. The measurements for each construct were examined for reliability and validity. Reliability was examined using Cronbach alpha statistics where reliability of each latent variable is attributed to a Cronbach alpha above 0.7. All the variables in the paper had Cronbach alpha statistics above 0.7 which showed that the indicators were reliable measurements for the constructs.

Construct validity of the latent were tested considering both convergent and discriminant validity. Construct validity is based on factor analysis results. All the indicators were found to all have loadings above 0.4 on the latent variables. Considering EFA, the KMO statistic for client selection criteria was found to be 0.89 which tends to one and Bartlett’s chi-square statistics found to have a p-value less than 0.05. This implies compactness and that the factor analysis results were reliable. Average variance extractions for each latent variable were computed which were all found to be above 0.5 implying convergent validity. All the square multiple correlations for each variable were found to be less than the respective average variance extracted (AVE) implying discriminant validity. The results therefore confirmed construct validity and reliability of the measurements to the latent variables.

Table 1: Measurement model Summary

| Latent variable          | Indicator     | Loading | Squared multiple correlations | AVE  | Cronbach |
|--------------------------|---------------|---------|--------------------------------|------|----------|
| Client selection criteria| Model that match program goals | VAR0001 | 0.925                          | 0.587 | 0.834    | 0.857    |
|                          |               | VAR0002 | 0.769                          | 0.367 |           |          |
|                          |               | VAR0003 | 0.709                          | 0.281 |           |          |
|                          |               | VAR0004 | 0.932                          | 0.685 |           |          |
| Uniqueness of ideas      |               | VAR0005 | 0.932                          | 0.790 | 0.939    | 0.890    |
|                          |               | VAR0006 | 0.945                          | 0.857 |           |          |
|                          |               | VAR0007 | 0.939                          | 0.817 |           |          |
| Standard selection tool  |               | VAR0008 | 0.786                          | 0.385 | 0.883    | 0.821    |
|                          |               | VAR0009 | 0.929                          | 0.847 |           |          |
|                          |               | VAR0010 | 0.933                          | 0.890 |           |          |
| Incubator centre performance |               | VAR00044 | 0.967                          | 0.832 | 0.923    | 0.913    |
|                          |               | VAR00043 | 0.860                          | 0.523 |           |          |
|                          |               | VAR00042 | 0.942                          | 0.736 |           |          |

Source: Research Data

Confirmatory structural model

The objective of the study was to explore the relationship between client selection criteria and incubator centre performance and to determine the influence of client selection criteria on incubator centre performance. A structural equation model was fitted to examine this causal relationship. The Model fitted was tested for goodness of fit using both absolute and incremental fitness indices. The absolute fit indices used were GFI and RMSEA which were found to be 0.953 and 0.040 respectively indicating good fit of model.
Other fit measures showed that model adequately fit the observed data as shown in table 2. The likelihood chi-square ($\chi^2 = 429.661$; DF = 59; $p = 0.000$) showed significant fitness significant ($p < .05$).

| Model   | Chi-square | CFI | NFI | GFI | AGFI | RMSEA |
|---------|------------|-----|-----|-----|------|-------|
| Statistic | 117.961    | 0.863 | 0.876 | .953 | .943 | 0.04  |
| Cut-off | $P$-value $<0.05$ | $\geq 0.90$ | $\geq 0.8$ | $\geq 0.90$ | $\geq 0.8$ | $\leq 0.08$ |

Source: Research Data

Table 3: Coefficient estimates

|   | Estimate | S.E. | C.R. | P   |
|---|----------|------|------|-----|
| ICP | U11 | 0.102 | 0.049 | 2.069 | 0.004 |
| ICP | MMP | 0.357 | 0.119 | 2.991 | 0.003 |
| ICP | SST | -0.010 | 0.157 | -0.061 | 0.952 |
| VAR00010 | SST1 | 1.095 | 0.252 | 4.346 | *** |
| VAR0009 | SST1 | 0.907 | 0.208 | 4.369 | *** |
| VAR0008 | SST1 | 1.000 | | | |
| VAR0007 | U11 | 1.000 | | | |
| VAR0006 | U11 | 0.585 | 0.067 | 8.782 | *** |
| VAR0005 | U11 | 0.560 | 0.069 | 8.170 | *** |
| VAR0004 | MMP1 | 1.000 | | | |
| VAR0001 | MMP1 | 0.848 | 0.068 | 12.456 | *** |
| VAR00042 | ICP | 1.000 | | | |
| VAR00043 | ICP | 0.693 | 0.113 | 6.148 | *** |
| VAR00044 | ICP | 0.849 | 0.073 | 11.606 | *** |
| VAR0003 | MMP1 | 0.458 | 0.122 | 3.755 | *** |
| VAR0002 | MMP1 | 0.580 | 0.128 | 4.539 | *** |

Source: Research Data

The coefficient of X1 ($\beta_1=0.357$, C.R =2.991) and of X2 ($\beta=0.102$, C.R =2.069) both have critical ratios that are above 1.96 implying significance at 0.05 level of significance. The coefficients for X3 ($\beta_1=-0.010$, C.R =-0.061) is however insignificant. The absolute critical ratio 0.061 is less than 1.96 implying that Standard selection tool has no significant influence on incubator centre performance. The path diagram for the SEM results is shown in figure 2.
The results support the hypotheses that 2 sub-dimensions of client selection criteria, model that match program goals and uniqueness of idea significantly influence incubator performance. These findings agree with Ganamotse (2011) findings that indicated, due to limited resource base only high growth potential ventures are supported and those that are aligned to incubator objectives. The study concluded, 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.

The results however do not support the influence of one of the sub dimensions, standard selection tool. Results are shown in table 4. Our results resonates with the findings of Wachira (2017) and Kimuyu (2007) reval that corruption has permeated in most sectors of the economy hence the need for respect for laid down procedures, if firms are to realize their objectives.

Table 4: Hypothesis testing

| Hypothesis                                                                 | Statistic       | Sig. level p-value) | Conclusion    |
|---------------------------------------------------------------------------|-----------------|---------------------|---------------|
| **H01** Model that match program goals have no significant influence on incubator centre performance. | Coefficient estimate = 0.357 | 0.004              | Reject H01    |
| **H02** Uniqueness of ideas have no significant influence on incubator centre performance. | Coefficient estimate = 0.102 | 0.003              | Reject H02    |
| **H03** Standard selection tool has no significant influence on incubator centre performance. | Coefficient estimate = -0.010 | 0.952              | Accept H03    |
Conclusions

The study concluded that incubators are entrepreneurial hubs that assist entrepreneurs unleash ideas into the market with a higher survival rate of about 90%, hence improving the economy of country that embrace best client selection procedures.

Incubation management must put client selection criteria in place that is aligned to the vision of the incubator program and the needs of the immediate community if the incubation program is get support from the immediate community.

Incubation management must come up with business models that match the local community.

Based on the study findings, a number of policy implications are derived. One, 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. Two, the study revealed that incubated businesses have a higher chance of surviving unlike the un-incubated ones. This process of incubation assures superior performance of firms. Hence to improve the performance of incubator centres this can be realized by creating a conducive environment by embracing best practices in client selection that assure sustainable competitive advantage. The study 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 for improvement. Thirdly, the study recommends that, the incubator centres should put proper institutional systems in place to track and categorize clients through proper record keeping of the previous client history. Fourth, monitoring and evaluation framework should be developed to determine the client’s success history which can act as a measure of improvement in selection process. Fifth, the government must fight corruption to ensure resources are not misused and all corrupt officers are held accountable.

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.

Acknowledgement

We wish also to thank the management of the incubator centres who found time out of their busy schedules to participate in the study and Ministry of Industrialization for valuable information on matters of policy and Government Strategy on incubation.

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