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EFFECT OF INFRASTRUCTURAL FACILITIES SUPPORT PROVIDED BY BUSINESS INCUBATORS ON TECHNOLOGY BASED NEW VENTURE CREATION IN KENYA

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Abstract

Purpose: The study sought to assess the effect of infrastructural facilities support provided by business incubators on technology based new venture creation in Kenya.

Methodology: The study adopted descriptive research design. The population of study was 9 business incubator managers and 384 incubatees in Nairobi Metropolitan. Census was applied for the incubator managers and Stratified Random sampling was used to arrive at a sample size of 185 incubatees, and the response rate was 82.2 % for incubatees and 88.9% for incubator managers respectively. Data from incubator managers was collected using a structured interview schedule while cross sectional survey was conducted for the incubatees using a structured questionnaire. Quantitative data was analysed using descriptive and inferential statistics while qualitative data was analysed using qualitative data analysis method.

Results: The study revealed that infrastructural facilities support had a positive significant effect on technology based new venture creation. The Pearson's correlation coefficient was $r=0.343$, $p<0.05$ and the beta value was 0.260, $p<0.05$ and t test value was 8.518, $p<0.05$. Therefore, the null hypothesis was rejected at 0.005 significance level.

Unique contribution to theory, practice and policy: The study recommends integration of incubation models for a better understanding of the business incubation process. The business incubation practitioners can use the finding of this study to model a roadmap for incubation of technology based new venture creation in Kenya while entrepreneurs will be able to appreciate how infrastructural facilities support provided by business incubators can help them to overcome the liability of smallness and newness. On policy implications, the study identified the policy gaps that need to be addressed in relation to provision of infrastructural facilities support in the new venture creation ecosystem by business incubators in Kenya.

Key words: *Infrastructural facilities support, Business incubation, Technology based new venture creation.*

1.0 INTRODUCTION

Globally government policy makers and development partners have invested in a number of interventions aimed at creating favourable conditions for new venture creation. Within this landscape of interventions, business incubators and related business development systems have emerged across the world as highly popular avenues for promotion of economic development (Ozdemir & Şehitoglu, 2013). Business incubators have become a ubiquitous phenomenon worldwide and are being used as a mechanism for promoting the development of technology based growth oriented new ventures. Business incubation process entails a focus on strengthening dynamic, growth oriented, early stage enterprises and hence achieve economic growth. (Adelowo, 2012). The concept is normally used to refer to organizations that constitute or create a favourable environment for "hatching" and development of nascent ventures (Bergek & Norman, 2008). Business incubators actively support the process of creating new ventures by providing a variety of services that include infrastructure, access to networks and business support. Nicola (2012) asserts that the primary focus of business incubation is to increase probability of survival of incubated firms during their formative years. Lewis (2002) observes that accessibility to targeted business support enables entrepreneurs to stand a better chance of turning business ideas into successful new firms. This again depends on properly-developed and properly-operated business incubators programs.

Business incubation has been linked to economic development across the world. For example, incubation system in Asia and Pacific region sprouted as mechanism for promoting continuous regional and national industrial, economic growth a means for industrial restructuring, wealth generation and natural resources utilization. Countries that embraced incubation early include China, Japan, India, Korea, Malaysia and Indonesia with more than 1,500 business incubators operating in Asia alone. A more recent study on business incubation in China shows that the number of technology business incubators has increased from 378 technology incubators in 2002 to 1,239 in 2012. The number of firms graduating from the incubators has also increased indicating that performance of technology incubators has also improved. This enormous quantum growth of business incubators has played a massive role in enabling China's transitions from a socialist country to a market based economy as well as contributing to employment creation, promotion of innovation culture and commercialization of technological development (Jamil *et al*., 2016; Mahmood *et al*., 2015).

Irwin and Jackson (2009) observed that incubation in African is in its infancy, more so in the Sub-Saharan Africa. Opportunities for entrepreneurial networking and innovation are not as developed as compared with regions that have a longer history of incubation such as North America, Eastern Europe, Brazil in Latin America and Asian Pacific. Therefore, the level of entrepreneurship is relatively low in African compared to other regions of the world. For example, despite the perceived opportunities that the South African MSME sector portrays, the country registers a surprisingly low level of entrepreneurship. Studies indicate failure rate of new ventures to be considerably high ranging between 50% and 95%. Given the high failure rate, the government of South Africa introduced and embarked on promotion of business incubators as a vehicle of fostering development of new business (Tengeh & Choto, 2015). Their research findings indicated out of the total number of entrepreneurs who enrolled in incubation programs, only 55.1% acknowledged that they benefitted from enrolling their businesses in the incubation programs. This implies that there are gaps in incubation programs that need to be addressed in order to achieve the intended impact of successful new venture creation.

The role of small enterprises in economic growth in Kenya is compromised by the challenges affecting the sector. These challenges include; cumbersome regulatory environment characterized by multiple licenses, lack of capital, expensive loans, lack of markets, stiff competition, insecurity and poor infrastructure (GoK, 2005). There is need for intervention in this sector especially in mitigating business failure and stagnation among many business start- ups. Some of the business assistance interventions geared towards supporting budding entrepreneurs include; work space, sheltered estates, business development services and financial assistance schemes. Business incubation is a good example of business development services that is being used to support new venture creation in Kenya. The ministry of trade is taking a strategic direction by embracing Business Incubation as an engine of growth of the small business sector (Kinoti & Struwig, 2011). Although business incubation is gradually taking root in Kenya, there is scanty evidence that infrastructural facilities support value proposition is meeting the expectations of incubatees in Kenyan business incubators. There is a need to assess the effect of infrastructural facilities support offered by business incubators on technology based new venture creation and whether that covers the needs of technology based new ventures in Kenya.

1.2 Problem Statement

The government of Kenya recognize the critical role played by the Micro, Small and Medium Enterprises in economic development through job and wealth creation, fostering of innovation and creation of new products. Contribution of the sector to the Gross Domestic Product is estimated to be over 30% of the total output. Despite the important role that the Micro Small and Medium Enterprises play in the Kenyan economy, a number of challenges affecting the sector have been identified. These include; lack of work space, sheltered estates, inadequate access to skills and access to markets. The overall effect of these challenges is business failure and stagnation among many business start- ups. The vision 2030 blue print underscores the need for capacity building and appropriate financial services for the sector and proposes establishment of Small and Medium Enterprises industrial parks in five regions in Kenya. Incubation of start-ups will enable the Kenyan government to promote industrialization and technological innovations in the regions. However, review of literature shows that there is little documented evidence and broad based statistics on the impact of business incubation programs in supporting technology based new venture creation in Kenya. There is a need to assess the effect incubation components that encompass the support provided by business incubators on new ventures. Given this back drop, the study sought to assess the effect of infrastructural facilities support provided by business incubators on technology based new business venture creation in Kenya.

1.3 Objective of the Study

The main objective of this study was to assess the effects of infrastructural facilities support provided by business incubators on technology based new venture creation in Kenya.

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Smilor's Incubation Model (1987)

Smilor's model was an outcome of national survey interviews, in-depth analysis of case studies and observations (Smilor, 1987). Smilor's work is perhaps one of the most comprehensive undertakings that has tried to analyse the components of the incubation system (Hackett & Dilts, 2004). Smilor portrays incubation as a tool for reshaping the way that academia, industry and government interrelate. Furthermore, Smilor's model categorizes the benefits that incubatees get from the

business incubator into four dimensions: shortening of the entrepreneurial learning curve, development of credibility, access to entrepreneurial networks and quicker solution of problems (Smilor, 1987). This model gives a detailed framework of how the various components and activities in the business incubator interact to facilitate the transformation of a business proposal into a viable business enterprise. The model envisage business incubator as a facilitator of new venture creation through provision of consulting services, secretarial services, administrative services and shared facilities.

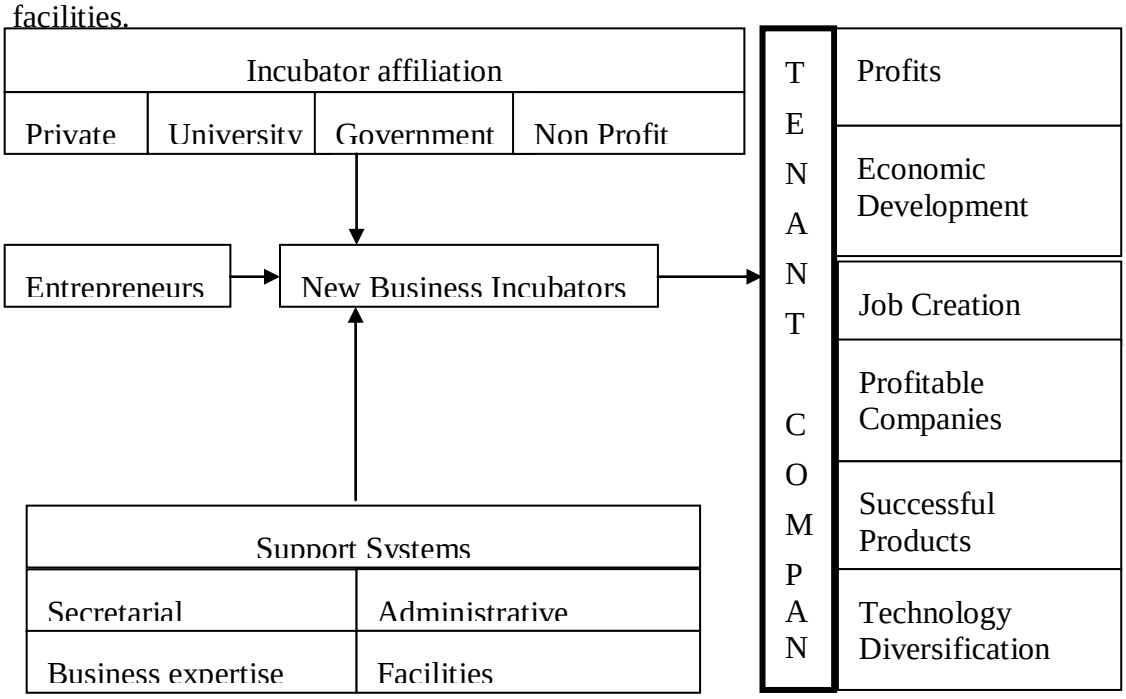

Figure 1: Smilor's Incubation Model (1987)

Based on Smilor's (1987) incubation model, the proposition is that incubatees' accesses infrastructural facilities support from the business incubators that leads to technology based new venture creation. Smilor underpins business incubation as a mechanism that confers "structure and credibility" on tenants while controlling a set of business support resources (Hackett & Dilts, 2004). This model's relevance to this study is underscored by its focus on the entrepreneur in the incubation process having access to infrastructural facilities that are normally out of reach for most nascent firms. In addition, the model clearly states the outcome of the business incubator.

Empirical Literature Review

Infrastructural facilities support and technology based new venture creation

Infrastructure is the basic resources provided by all kinds of Business incubators. It is often associated with office space normally rented at or below market prices and shared resources. Empirical evidence puts provision of space as the most important incubation feature to tenants, particularly entrepreneurs with ventures in the early stages of venture development (Ratinho, Harms & Groen, 2009). The common value proposition is underscored by the economies of scale, which allows tenants to cut on cost of operating the new venture. The economies of scale are achieved through shared office space and resources. These include; equipment and administrative facilities like fax, telephone and internet lines and rental space. Also included here is the maintenance of efficient operations through provision of basic office support such as secretarial and reception

services, faxing and copying services, mail handling, bookkeeping and computer network support (Ratinho, 2011; Macadam & Macadam, 2008).

The scale and scope economies associated with shared infrastructure deliver several advantages to the tenants. First, sharing of resources in the incubator's infrastructure enables incubates to cut on overhead cost. Second, nascent firms enjoy services such as reception and meeting rooms, which would be a mirage for the new ventures to attain alone. Thirdly, workspace provided removes the burden of dealing with individual providers freeing time to concentrate on venture core activities. Finally, Business incubators have the ability to generate subsidies that are transferred to their tenants (Ratinho, 2011). A study by Ratinho, Harms and Groen (2009) on technology business incubators as engines of growth underscores the importance of infrastructure support during technology based business incubation process. The research findings from this study indicate that all technology incubators in the sample of study provided tenants with infrastructure facility support in terms space of and shared resources. The study compared the value proposition of infrastructure support across three generations of business incubators and did not yield any statistical differences across the three generations of business incubators. This implies that infrastructure and facility support has remained important over time as incubation continue to evolve.

A study by Inanga and Azih (2014) on the performance effectiveness of technology business incubators in Nigeria also found infrastructure facilities do not have significant relationship with performance of business incubators. The study while applying explorative case study design found that 43.91% of the entrepreneurs agreed that technology incubation centers provide physical facilities necessary for a successful business growth, 39.42% disagree while 16.67% remained neutral. These results showed that physical space and other facilities had little impact on new technology ventures because of the quality the facilities were not meeting incubatees' expectation. Vital facilities like workstations, training room and first aid room were not adequate to meet incubatee needs.

A study by Arumugam and Ravundran (2014) on success factors of incubatee startups and the incubation environment influences also underscores the importance of infrastructure support as a determinant of firm's success. The study focused on incubatees startups in five incubators found in the southern Indian states. The survey involved 53 startup firms still under incubation and 35 responded to the questionnaire yielding a response rate of 66.04%. Analysis of data on access to infrastructure as a determinant of success yielded a mean score of 3.91. A further probing of the contributing factors under access to infrastructure yielded a mean score rating as follows; access to product development facilities 3.74, access to testing/ validation facilities 3.63, access to other common facilities like library, conference and training facilities 3.37 and lower or subsidized cost of access to these facilities 3.89. This implies that infrastructural facility support could be one of the reasons that make startups to seek incubation support.

Kibuchi (2016) did a study on business incubation services offered to startups in Kenya. The research applied case study design to do the study. The study employed Semi structured questionnaire to collect data. A one way ANOVA on the influence of physical infrastructure on performance of incubated business venture in Kenya had a significance of 00.91 with an F value of 1.699. This level of significance was higher than 0.05 implying that physical infrastructure does not show significant relationship with performance of business ventures incubated in iHub. This could be attributed to the fact that iHub mostly incubates technology businesses ideas that rely on virtual platforms that do not need much of the physical facilities especially in terms of office space.

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3.0 RESEARCH METHODOLOGY

This research adopted descriptive research design because the intention of this research was to explain the current phenomenon through application of systematic and controlled data collection and analysis (Saunders, Lewis & Thornhill, 2009, Creswell, 2013). The choice of descriptive research design was relevant to this study because this design is used in research when the purpose is to ascertain and describe characteristics of the variables of a study and understand organizational characteristics that share common characteristics. The population for this study comprised of 9 business incubators (BIs) in Nairobi Metropolitan and 364 new technology based ventures that include those undergoing incubation and those that have successfully exited from these incubators in the last three years. Census was applied for the incubator managers and Stratified Random sampling was used to arrive at a sample size of 185 incubatees in business incubators located in Nairobi Metropolitan. Data from incubator managers was collected using a structured interview schedule while a cross sectional survey was conducted for the incubatees using a structured questionnaire. Quantitative data was analysed using descriptive and inferential statistics while qualitative data was analysed using qualitative data analysis method. The response rate was 82.2 % for incubatees and 88.9% for incubator managers respectively.

4.0 RESULTS AND DISCUSSIONS

4.1 Descriptive Statistics

4.1.1 Area of technology and innovation of the new ventures

Majority of the businesses' area of technology and innovation included information, communication and technology (ICT), agriculture and engineering as depicted in Figure 2

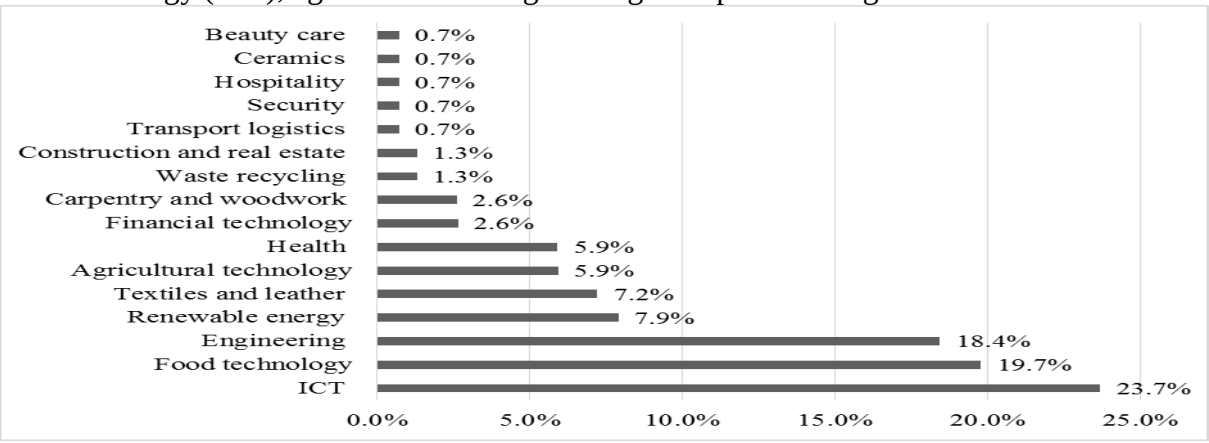

Figure 2: Area of technology and innovation of the new ventures in Kenya

Businesses whose area of technology and innovation was in the field of ICT comprised about 23.7%. Businesses whose technology and innovation revolved around food technology comprised about 19.7% of the total responses. This was closely followed by 18.4% of the businesses that engaged in ventures that had engineering related technology and innovation. Businesses whose technology and innovation related with renewable energy, textile/leather, agricultural technology and health comprised about 7.9%, 7.2%, 5.9% and 5.9% respectively. These findings indicated that Kenyan entrepreneurs have taken a cue from the vision 2030 that envisage mainstreaming of agriculture, manufacturing, ICT and business outsourcing, financial services and whole sale and retail trade sectors based on their potential to contribute to 10% GDP growth (Government of Kenya, 2007). A

few businesses (with a representation of less than 5% each) operated in financial technology, carpentry/woodwork, waste recycling, construction/real estate, transport logistics, security, hospitality, ceramics and beauty care areas of technology and innovation. Analysis of these findings indication that majority of entrepreneurs that are seeking business incubation in Kenya are developing technology based ventures that requires a lot of infrastructural facilities support.

4.1.2 Infrastructural facilities support and technology based new venture creation

Nine items were constructed to measure infrastructural facilities support provided to incubated technology based new ventures on a scale of 1 to 5 points in Likert-type survey instrument where: No extent = 1; Little extent = 2; Moderate extent = 3; Great extent = 4 and Very great extent = 5. The results were analyzed and summarized in 1.

Table 1: Infrastructural facilities support and technology based new venture creation

Statements	No extent	Little extent	Moderate extent	Great extent	Very great extent	Total	Mean	Std. Dev.
Provision of shared office space and resources to incubatees in the business incubator leads to technology based new venture creation.	6.6%	3.3%	21.7%	20.4%	48.0%	100%	4.00	1.196
Provision of sufficient office space to incubatees in the business incubator leads to technology based new venture creation.	6.6%	5.9%	26.3%	20.4%	40.8%	100%	3.83	1.217
Provision of common facilities like library, conference and training rooms to incubatees in the business incubator leads to technology based new venture creation.	5.9%	11.2%	23.7%	22.4%	36.8%	100%	3.73	1.234
Provision of accounting, secretarial services and reception services to incubatees in the business incubator leads to technology based new venture creation.	17.1%	17.1%	29.6%	23.0%	13.2%	100%	2.98	1.274
Provision of administrative facilities like fax, phone and internet lines to incubatees to incubatees in the business incubator leads to technology based new venture creation.	16.4%	22.4%	23.7%	22.4%	15.1%	100%	2.97	1.312
Provision of enabling technology to incubatees in the business incubator leads to technology based new venture creation.	5.3%	9.2%	36.2%	21.7%	27.6%	100%	3.57	1.143
Provision of innovation resources to incubatees in the business incubator leads to technology based new venture creation.	5.9 %	9.2%	28.9%	33.6%	22.4%	100%	3.57	1.113
Provision of Research and Development facilities to incubatees to incubatees to incubatees in the business incubator leads to technology based new venture creation.	10.5%	8.6%	28.3%	28.7%	23.7%	100%	3.47	1.239
Provision of access to product testing and validation facilities to incubatees in the business incubator leads to technology based new venture creation.	9.9%	21.1%	24.3%	25.0%	19.7%	100%	3.24	1.265
Grand mean							3.48	1.121

Infrastructural facilities support was operationalized using three parameters: Shared office space and resources, common facilities, innovation resources and enabling technologies. The overall extent to which incubators provided office space to incubatees leading to technology based new venture creation, combining moderate, great and very large extent yielded 90.1%. The second aspect of office space was about sufficient provision of space. The overall extent to which provision of sufficient space to incubatees leads to technology based new venture creation, combining moderate, great and very large extent yielded 87.5%. The findings allude that most of the incubators offered office space and the space provided is deemed sufficient by incubatees leading to technology based new venture creation. These findings concurs with Empirical evidence that put provision of space as the most important incubation feature to tenants, particularly entrepreneurs with ventures in the early stages of venture development (Ratinho, Harms & Groen, 2009).

Provision of specialized innovation resources by business incubators to incubatees leads to technology based new venture creation was second in rating among the four constructs that operationalized infrastructure facility support by the respondents. The overall extent to which provision of specialized innovation resources and enabling technologies by business incubators to incubatees lead to technology based new venture creation, combining moderate, great and very large extent yielded 85.5%. Concerning specific innovation resources, the study examined provision of Research and Development facilities to incubatees, the overall extent to which incubators provided Research and Development facilities to incubatees, combining moderate, great and very large extent yielded 80.7%. The study also sought to examine the extent of provision of product testing and validation to incubatees leads to technology based new venture creation. The overall extent to which incubators provided product testing and validation to incubatees, combining moderate, great and very large extent yielded 69%. This implies that 31% of respondents did not think incubators provided adequate Research and Development facilities.

Provision of common facilities such as library, conference and training rooms by business incubators to incubatees leads to technology based new venture creation was third in ranking. The overall extent to which provision of common facilities such as library , conference and training rooms to incubatees leads to technology based new venture creation, combining moderate, great and very large extent yielded 82.7%. The findings indicate that majority of the respondents felt that provision of specialized innovation resources and enabling technologies by business incubators leads to technology based new venture creation. However, provision of administrative facilities like fax, phone and internet lines to incubatees leads to technology based new venture creation had the lowest rating. The overall extent to which incubators provided administrative facilities like fax, phone and internet lines to incubatees, combining moderate, great and very large extent yielded 68.5%.

The research findings implies that Nairobi Metropolitan incubators do not excel in provision of administrative facilities such as fax, phone and internet lines to incubatees that leads to technology based new venture creation. A study by Inanga and Azih (2014) had similar observations. The study while applying explorative case study design found that 43.91% of the entrepreneurs agreed that technology incubation centers provide physical facilities necessary for a successful business growth, 39.42% disagree while 16.67% remained neutral. These results showed that physical space and other facilities had little impact on new technology ventures because of the quality of the facilities not meeting incubatees' expectation. Vital facilities such as workstations, training room and first aid room were not adequate to meet incubatee needs. This implies that infrastructural facility support could be one of the reasons that make startups to seek incubation support, though most incubators

seems not to provide adequate infrastructure facility support that leads to technology based new venture creation.

4.1.3 Incubator managers' views on provision of infrastructural facilities support

The study sought the opinions of incubators managers concerning provision of infrastructural facilities support to incubatees by the business incubators. Table 3 summarizes the respondents' comments and themes that emerged during the interviews with incubation managers.

Table 2: Analysis of incubator managers views on infrastructural facilities support

Variable	Emerging themes	Comments
Infrastructural facility support	Provision of office space by business incubators	Majority of the business incubators provide office space.
	Incubators have common facilities	Incubatees have access to common facilities such as board room, reception and laboratory facilities.
	Incubators provide administrative facilities support	Incubatees have access to administrative facilities such as internet and printing photocopying services
	Business incubators provides innovation resources	Incubatees access innovation resources such as laboratories for R&D and product testing and validation facilities
	Infrastructural facilities support is subsidized or free in some incubators	Infrastructure facility support reduces the overhead costs of the new ventures
	Inadequate space in some business incubators	A major barrier in delivering incubation to incubatees

Analysis of the results in table 2 indicates that business incubators in Kenya provide all the components that encompass infrastructural facilities support. These include office space and shared resources, administrative facilities, enabling technologies and innovation resources. It is also evident that provision of infrastructural facilities support leads to technology based new venture creation. The main contribution of infrastructural facilities support is the reduction of overhead cost since incubatees access these facilities either for free or at subsidized rates. Finally, the major impediment in infrastructural facilities support is lack adequate space in same of the business incubators involved in this study.

4.2 Inferential Statistics

4.2.1 Pearson's Product Movement Correlation Coefficient

Before carrying out a test on research hypotheses, the study examined how the variables of the study were correlated. Correlation coefficient was used to analyze the degree of relationship between independent variables; business incubation and the dependent variable; technology based new venture creation. The results of this analysis are show in Table 3.

Table 3: Correlation coefficients for infrastructural facilities support

		Infrastructure facility support	Technology based new venture creation
Infrastructure facility support(IDV4)	Pearson Correlation	1	
	Sig. (2-tailed)		
Technology based new venture creation (DV)	Pearson Correlation	.362**	1
	Sig. (2-tailed)	.000	

**. Correlation is significant at the 0.05 level (2-tailed).

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Table 4: Correlation coefficients for individual infrastructural facilities support constructs

Business incubator provides		Shared office space and resources	Sufficient office space.	Access to common facilities like library, conference and training rooms	Accounting, secretarial services and reception services	Specialized shared resources and enabling technology	Administrative facilities like fax, phone and internet lines	Research and development facilities	Access to product testing and validation facilities	Innovation resources	**Technology based new venture creation**
Shared office space and resources to incubatees.	Pearson Correlation	1									
	Sig. (2-tailed)										
Sufficient office space	Pearson Correlation	.860**	1								
	Sig. (2-tailed)	.000									
Access to common facilities like library, conference and training rooms.	Pearson Correlation	.722**	.697**	1							
	Sig. (2-tailed)	.000	.000								
Accounting, secretarial services and reception services	Pearson Correlation	.343**	.361**	.325**	1						
	Sig. (2-tailed)	.000	.000	.000							
Specialized shared resources and enabling technology	Pearson Correlation	.485**	.442**	.547**	.513**	1					
	Sig. (2-tailed)	.000	.000	.000	.000						
Administrative facilities like fax, phone and internet lines	Pearson Correlation	.418**	.404**	.413**	.582**	.571**	1				
	Sig. (2-tailed)	.000	.000	.000	.000	.000					
Research and Development facilities.	Pearson Correlation	.134	.132	.217**	.241**	.334**	.187*	1			
	Sig. (2-tailed)	.100	.104	.007	.003	.000	.021				
Access to product testing and validation facilities	Pearson Correlation	.285**	.259**	.309**	.180*	.387**	.215**	.614**	1		
	Sig. (2-tailed)	.000	.001	.000	.027	.000	.008	.000			
Innovation resources	Pearson Correlation	.174*	.171*	.301**	.171*	.376**	.192*	.626**	.623**	1	
	Sig. (2-tailed)	.032	.036	.000	.035	.000	.018	.000	.000		
Technology based new venture creation	Pearson Correlation	.108	.060	.193*	.266**	.240**	.198*	.417**	.259**	.336**	1
	Sig. (2-tailed)	.184	.464	.017	.001	.003	.014	.000	.001	.000	

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

*. Correlation is significant at the 0.05 level (2-tailed).

As indicated in the Table 3, there was a significant and positive correlation between infrastructural facilities support and technology based new venture creation (r=0.362, p<0.05). Since correlation value was between 0.3 and 0.7, it implies that there was a strong association between infrastructural facilities support and technology based new venture creation. The coefficient value was positive, implying that an increase in value of infrastructural facilities support leads to an increase in the value of technology based new venture creation.

The results in table 4 indicated the strongest association was between provision of Research and Development facilities by business incubator and technology based new venture creation (r= 0.417, p= 0.000). It was followed by provision of innovation resources and technology based new venture creation (r= 0.336, p= 0.000). Provision of accounting, secretarial services and reception services and technology based new venture creation were also positively related (0.266, p= 0.001). Provision of access to product testing and validation and technology based new venture creation were also positively and significantly correlated (r= 0.259, p= 0.001). The other factors with a positive and significant correlation with technology based new venture creation were; provision of administrative facilities like fax, phone and internet lines (r=0.198, p=0.014) and; access to common facilities like library, conference and training rooms (r=0.193, p=0.017). However, there was no statistically significant positive correlation between provision of shared office space and resources by business incubator and technology based new venture creation(r=0.108, p=0.184). Finally, there was also no statistically significant correlation between provision of sufficient office space and technology based new venture creation (r= 0.060, p= 0.464).

4.2.3 Regression analysis

The objective of the study was to analyse the effect of infrastructural facilities support provided by business incubators on technology based new venture creation in Kenya. Bivariate linear regression analysis was used to examine whether infrastructural facilities support had a significant effect on technology based new venture creation in Kenya. The research hypothesis was:-

H_0 Infrastructure facility support has no significant effect on technology based new venture creation in Kenya.

Testing the model fitness

Bivariate linear regression analysis was conducted to establish the effect of infrastructure facility support ($X_{2)}$ on the dependent variable; technology based new venture creation. Table 5 shows the Coefficients of determination (R^2) and adjusted (R^2).

Table 5: Coefficient of determination (R^2) and adjusted (R^2) for infrastructure facility support

Model Summary[b]

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	.289[a]	.084	.077	.17118	.084	13.685	1	150	.000

a. Predictors: (Constant), Infrastructural Facilities Support

b. Dependent Variable: Technology Based New Venture Creation

The R- square and adjusted R- square was (R^2) = 0.084, adj. (R^2) =0.084 respectively as highlighted in Table 5. This implies that access to networks was able explain at least 8.4 % variation in the dependent variable; technology based new venture creation. R^2 ranges from zero to one and the closer the value to one the better "fit" the model is.

ANOVA for regression

The analysis of variance was carried in order to provide information about the variability within the bivariate regression model in order to form the basis for test of significance. The outcome of analysis of variance is shown in Table 6.

Table 6: ANOVA results for access to infrastructure facility support

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.401	1	.401	13.685	.000[b]
	Residual	4.395	150	.029		
	Total	4.796	151			

a. Dependent Variable: Technology Based New Venture Creation

b. Predictors: (Constant), Infrastructural Facilities Support

The results of the significant test of the regression model for incubatee selection and technology based new venture creation had F statistics= 13.685 $_{(1,150)}$, p value < 0.05. This implies that the model had a significant statistical meaning and indicated "goodness" of fit of the model. According to field (2013), for the model to have significant statistical meaning, the F change value should be greater than 10. The study therefore concluded that the model was statistically significant to predict the relationship between infrastructure facility support and technology based new venture creation.

Coefficients of infrastructure facility support

Table 7 shows the coefficients of the regression output for access to networks and technology based new venture creation. The Coefficients values were used to generate the model for infrastructure facility support and technology based new venture creation $Y=1.086+0.238X_1 + \varepsilon$

Where;

Y= technology based new venture creation

X_1 = Access to network support

ε = Error term

Table 7: Coefficients of infrastructure facility support

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.086	.100		10.827	.000
	Infrastructural Facilities Support	.238	.064	.289	3.699	.000

a. Dependent Variable: Technology Based New Venture Creation

The results on Table 7 indicate that that there exist a statistically significant positive relationship between infrastructure facility support and technology based new venture creation in Nairobi Metropolitan ($\beta = 0.238$, $p<0.05$), implying that if infrastructure facility support increases by one unit, technology based new venture creation would increase by 0.238. The computed P value of 0.000 was less than 0.005 level of significance implying that infrastructure facility support had significant effect on technology based new venture creation in Nairobi metropolitan business incubators. The critical t value is supposed to be between -1.96 to + 1.96 to accept the null hypothesis. The computed t value was 3.699, $p<0.05$. Thus, null hypothesis $(\mathbf{H_0})$ was rejected and the alternative hypothesis $(\mathbf{H_a})$ accepted implying that infrastructure facility support had significant effect on technology based new venture creation in Nairobi Metropolitan. Therefore, the study concluded that infrastructure facility support had a significant effect on technology based new venture creation in Kenya.

5.0 CONCLUSION AND RECOMMENDATION

Conclusions

The findings on infrastructure facility support indicate that it was positively correlated with technology based new venture creation. Infrastructure facility support also had a significant effect on technology based new venture creation. Empirical findings indicate that access to infrastructural facilities support affected business survival, business growth and product launching. Specifically, lack of adequate access to innovation infrastructure available in the local innovation system necessary to underpin growth was major concern to incubatees. Provision of infrastructure facility support can enable the new ventures to cut on the cost of production that was found to affect business survival, business growth and product launching. Business incubators were rated highly by the respondents in the provision of shared offices and resources. However, majority of the respondents indicated that provision of shared office space and resources was not adequate. Provision of shared resources and innovation technologies was second in rating. Since infrastructure facility support has emerged to be the second most important component of business incubation among incubatees, it would be imperative for business incubators in Kenya to improve this component in order to achieve higher impact in technology based new venture creation in the context of business incubation.

Recommendations

Infrastructure facility support had a significant effect on technology based new venture creation even when it was jointly considered with the other incubation components. Among the constructs of infrastructure facility support that lead to technology based new venture creation, business incubators ranked highly in terms of provision of office space and shared resources, provision of common facilities such as libraries, conference and training rooms, provision of enabling technologies and, provision of innovation resources. However, aspects like provision of administrative facilities like fax, phone and internet lines to incubatees, Research and Development facilities to incubatees and access to product testing and validation facilities to incubatees had a low rating by the respondents. The latter elements are very important in product development and launching. Majority of the respondents indicated that they had a challenge in access information related to market and suppliers and validation of the new products. Therefore, the study recommends business incubators to model their infrastructure facility support that increases new venture survival, promotes business growth and ensures successful product launching. Where business incubators could be facing inadequacy

especially in innovation infrastructure, laboratories for research and development and product testing and validation, collaboration with research institutions and universities can come in handy to fill the gap, and thus, meet the needs of incubatees sufficiently.

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