Interplay between Technological Innovation and Employee Skills in Accelerating Small Medium Enterprise Growth

Peter Paul Kithae[1], and Rosalid Githendu[2],

[1]Associate Professor, The management University of Africa

[2]Masters student, The management University of Africa

ABSTRACT

Past statistics have shown that among five SMEs start-ups, three of them dissolve before a lifespan of five years. There are numerous factors that affect SMEs growth among them technology and employee skills. It would be important to consider the influence of technology and employee skills on the growth of SMEs. This study investigating the inter play between technological innovation and employee skills in accelerating the Small Medium Enterprise (SMEs) growth. A descriptive research design was applied to implement the study targeting a total population of 174 firms. This study employed stratified random sampling technique to categorize the firms in to three different sections of interior design firms, interior decoration firms and architectural firms as they show different heterogeneous characteristics. A sample of 54 respondents was selected from the population using simple random sampling. Questionnaires were the main primary data collection instruments. A pilot study was used to confirm content validity of the data gathering instruments while the Cronbach's coefficient alpha was used to establish reliability. Quantitative data collected was analyzed using descriptive statistics and expressed as percentages and frequencies. Chi square test was conducted to test the relationship between the independent and dependent variables. Besides, regression analysis was done to determine the extent to which the independent variables influenced SMEs growth. Inferential statistics was tested at 95% confidence level and p-value $\leq$ 0.05. The chi square results indicated that employee skills were significantly associated with SMEs sales (χ^2=9.000, p=0.03), profits (χ^2=20.700, p=0.002) but not net assets (χ^2=3.706, p=0.282) and number of employees (χ^2=2.753, p=0.427). Further, technological innovation was significantly associated with SMEs sales (χ^2=8.322, p=0.040), profits (χ^2=9.584, p=0.022) net assets (χ^2=13.846, p=0.004) but not the number of employees (χ^2=0.800, p=0.722).Further, the regression analysis indicated thata unit rise in technological innovation would result in 0.756 whereas a unit increase in employee skills would cause 0.352unit increase in growth of SMEs. The study concluded thattechnological innovation and employee skills are associated with growth of Interior Design SMEs in Nairobi County. This study recommends that SMEs should enhance their technology to facilitate innovation of new products hence spur their growth. Likewise, SMEs should enhance their employees' skills to expand their growth.

Key terms: Small Enterprise Growth, Employee Skills, Interior Design SMEs, Technological Innovation

INTRODUCTION

Background Information

Small and Medium scale Enterprises (SMEs) are pivotal to economic development of states globally. The

significantly low unemployment rates, the relatively high incomes and the general acceptable economic growth of most European countries have been to a large part accredited to the presence of SMEs (Woźniak *et al.,* 2019). In the developed world, SMEs are important largely due to the fact that they accept innovations more quickly than big corporations. They are more flexible in their management structure and have creative options to change with the times due to their size than big corporations (Gherghina *et al.,* 2020). Some study approximations are that SMEs account for 35-50% of GDP in many developing nations particularly in Africa (Seseni and Mbohwa, 2019). In fact, Africa's economic growth is enhanced by SMEs. SMEs offer a lifeline for millions of populations who would otherwise be jobless in countries whose formal sector is constricted and saturated (Moodley, 2021). The SMEs also present a worthwhile potential for exponential growth in most African countries (Chao *et al.,* 2020; Mungal, 2020).

Consequently, in Kenya, the SME sector accounts for an estimated 25% of the national GDP and 93% of labor market (MITED, 2020). Further, over 60% of employees in the SMEs are youth whose age ranges between eighteen and thirty-five years, and a significant 50% being of the female gender (Omondi, 2019). The baseline survey on Small & Medium Enterprises (1993) showed that there were roughly 910,000 SMEs giving jobs to about two million individuals. The 2nd SME survey (1995) showed a diminishing scope of the SME sector at 708,000 businesses giving jobs to about 1.2 million people (Daniels *et al.,* 1995). Linked to the other sectors of the economy, the effects of the SME sector increased the Gross Domestic Product (GDP) of the nation from 13.8% in 1993 to above 18% in 1999 (Moyi and Ronge, 2006). At the moment, SMEs employ approximately 14.9 million Kenyans in and contribute about 40% of the GDP (MSMEs, 2023).

Though SMEs has been pivotal in the world economy, particularly in Kenya, SMEs growth has not been without significant hindrances. Starting and maintaining any SME has inherent potential for success or failure considering competitive market trends from big corporations. Some of the factors that influence growth of SMEs include:

Technological Innovation

It has been noted that technological innovation enhances growth of SMEs which is associated with advanced productivity (Zhou, 2017). Indeed, adopting technological innovation can lead to enhanced product quality, increased market share as well as reduced cost of production (Zhou, 2017). The interior design industry is a creative economy with high demand for innovation to enhance quality and design new products (Braun, 2011; Samuel *et al.,* 2022). Technology involved in interior design sector includes software for developing designs, computer equipment printers for imagery production, among others. The demand for new designs and competition in this sector drives the demand for sophisticated technology and rapid evolution of technology. Besides, the complexity of these technologies makes them costly (Hasti and Kusnia, G. 2019).

It is worth noting that many of the advanced SMEs have also shown creative and deep adoption of technological innovativeness (Nurqamarani *et al.,* 2021). Sun (2021) noted

that interior design SMEs that embraced sustainable designing technology had sustainable innovative interior design capabilities as compared to those that didn't. It has been noted that embracing technology means interior companies can improve their designs, enhance efficiency and innovate spaces that effortlessly blend aesthetics as well as functionality (Rashdan, 2016; Ching and Binggeli, 2018). Machi and Kyalo (2016) indicated that generally SMEs in Nairobi County that adopted technological innovations recorded increased growth.

Unfortunately, one major issue that has stifled SME growth in Kenya is lack of sustainable technological innovations (Indrawati, 2020). Similar to the many budding economies, there is low science and technology

uptake of many SMEs in Kenya resulting in limited growth and industrialisation (Mallinguh *et al.,* 2020).

This could be serious and significant for SME growth both in the shorter and longer terms. It would thus be interesting to consider the extent to which technological innovation affects SME sector in the Interior Design Industry in Kenya.

Employee Skills

Competent technical skills among interior design professionals include architectural, graphic design, decorative arts and textile, furniture and furnishings, finishes and lighting design (Ontita *et al.,* 2019), among others. Besides, the professional should have the skills to utilise computer software to develop the required designs. Thus, a skilled interior design practitioner should be able to apply these skills to come up with creative and attractive products for the market demand (Ontita *et al.,* 2019).

In Kenya the demand for interior design labour is on the rise due to a rapidly expanding real estate sector. Interior designers are engaged in retail, commercial and residential segments as the real estate sector continues to proliferate in Kenya (Mwangalwa, 2015). Indeed, due to the increasing middle class in need of homes in Kenya, it is expected that there will be more demand and opportunities for ID (Mwangalwa, 2015).

Massa and Testa (2004) state that training of employees on emerging skill in SMEs will favour innovations translating to organization growth. In the past, authors have advocated for realignment of education and curriculum in interior design training institutes. The curriculum is expected to be flexible enough to accommodate training on the technological shifts that are associated with the industry (NCIDQ, 2014; Ontita *et al.,* 2019). It has been highlighted that the interior design in Kenya is unregulated. Thus, there is widespread use of untrained labour working in the interior design industry in Kenya (Joseph, 2019). Employers in the interior design industry have cited lack of competent skills in the labour market (Ntinyari, 2014). Thus there is need for improved curriculum in training of interior design practitioners (Ntinyari, 2014). Notably, there is limited literature on how this paucity of skill affects interior design industry in Kenya.

SME Growth

Business growth can be defined as the progressive measures or indicators that explain the upward change in the business (Blinova *et al.,* 2022; Chen and Huo, 2022). It includes factors such as profitability, sales, number of employees and the total net assets (Wahyuni *et al.,* 2019; Endri *et al.,* 2020). Turnover is one of the most frequently used measures of growth. Factors such lack of appropriate training and lack of technological innovation are some of the major challenges that lead to failure in growth of most SMEs (Rens *et al.,* 2021; Ismail and Naqshbandi, 2022). The resent study investigated the extent to which these factors would affect r the growth of SME's in Kenya.

Statement of the Problem

Past statistics have shown that three out of five SMEs started do not succeed beyond five years (MITED, 2020). About 2.2 million SMEs close within five years with 46% having not made it past the first year of operation (MITED, 2020). This is an indication that SMEs are wrought with significant hindrances such as lack of technological innovations and employee's competency. Setbacks for technological innovation in interior design industry include scarcity of specialists and technical skills, costly innovation and poor or lack of technologically advanced equipment (Nečadová and Scholleová, 2011), among others. Though it is recognised that interior design SMEs in Kenya have limited technological innovation and competency deficiencies, there is paucity of knowledge on the influence of these variables on SMEs growth, hence the concern of this study.

Objective

To establish the Interplay between technological innovation and employee skills in accelerating Small and Medium Enterprise growth in the interior design industry in Nairobi County.

Significance of the Study

The research findings are valuable to those practicing in this sector as it brings to the fore the key factors affecting growth of SMEs so that they can develop appropriate strategies and management practices to overcome the challenges paused by these factors. The findings also inform the Government of Kenya in their policy formulation so as to ensure that the SMEs grow to boost economic development. Further, it is hoped that the findings would contribute to the improvement of the academic knowledge of future scholars and academicians as it acts as empirical literature which can be referenced besides suggesting areas for further research.

Scope of the Study

The study focused on the determinants of the growth of Small and medium Scale Enterprises in the interior design industry in Nairobi County. It looked specifically at technological innovation, and employee skills. It targeted the 174 Interior design, interior decoration and architectural firms offering interior design services in Nairobi County of Kenya, licensed by Nairobi City County. The study was carried out between 2018 and 2023.

LITERATURE REVIEW

Theoretical Background

Theory of Planned Behavior (TPB)

This study was primarily anchored on the Theory of Planned Behavior (TPB) as propagated by Ajzen (1991). According to Ajzen (1991) TPB is defined as attitude (that leads to behaviour creation), subjective norms and perceived behavioral control that profile an individual's behaviors and behavioral intents. TPB basically was extended from the Theory of Reasoned Action (TRA). The TRA expounds on a person or group of individual's reasons that enable them to finally make a decision that then shaped a behavior or action. The TPB extension of TRA is characterized by addition of perceived behavioral controls to the model (Ajzen, 1991). Thus, TRA is a model that forecasts behavioral intention, as well as predictions of attitude that eventually contributes to an individual course of action or behavior.

The relevance of TPB and TRA to this study is due to their importance as basis for effective SME growth. These theories somewhat control behavior and largely predict what behavior is expected so as to enhance growth and improve performance of a business. Thus, certain factors like leadership, credit access to improve capital and Employee skills are noted as they form the premises to which the growth processes of any SME are predicated. This theory also lends itself to the arguments herein adduced that growth of SMEs is wanting based largely on the owner's or employee's behavior towards development, access to credit and leadership.

Technology Acceptance Model Theory

Davis (1989) advanced and espoused the TAM. The model opines that perceived usefulness (PU) together with perceived ease of use (PEOU) make up the twin most significant aspects that explain individual

intentions to adopt and utilize a given technology. Thus, PU is described as the mark to which an individual is convinced that using a precise system will enhance their job output.

However, TAM has been criticized by some notable scholars, the most prominent being Hargis, Michael, John, Wyatt, and Piotrowski (2011) who noted that TAM presupposes that all technological innovation issues can be singularly tied to perceived usefulness and ease of use. He argues that other forces like complexity of the resource itself, training and skills and environment also plays on to the innovation process and these also need to be factored. In this context, lack of resources, training and difficulty in use of new technology led to rejection and resistance to change. Again, if the proposed technology is not profitable in an organization more than other old practices in the organization, the technology would not be accepted (Hargis *et al.* 2011). However, Technology Acceptance Model (TAM) is related to this research in regard to the influence of technological innovation on SMEs growth in the interior design industry in Nairobi County.

Empirical Literature Review

Technological Innovation and SME Growth

Nazir and Khan (2022) conducted an empirical study on small scale businesses embracing of information and communication technologies in Pakistan. The study significantly and comprehensively adopted TAM. The study investigated the major factors that affect the reception of ICT within the small businesses. One of the exact objectives rotated around the roles, effects of ICT as well as variables driving the ICT adoption in SMEs. Online survey design was adopted to collect data from 81 respondents and linear regression for data analysis. A qualitative research method was adopted which involved collection and analysis of qualitative narrative data from SMEs managers. The sample included 4 SMEs from manufacturing industry, 3 from tourism and hospitality sector and 3 from ICT sectors. The findings of their study showed that TAM was a significant enhanced reception of technological solution that resulted in massive growth indicators for the SMEs. Further, the study outcomes indicated that employees who like the concept of 'time savings' were expected adopt technology at a higher rate. However, the study only looked at ICT technology but not a broad spectrum of technologies that importantly could be used in SMEs for customer interaction, operational development and maintenance as this study will.

Cho *et al.* (2022) investigated acceptance of digital advertising among SMEs; out-of-home (OOH) advertising firms, in Korea. The study adopted TAM and technology-organization-environment framework. The study employed a sample of 1001 Korean OOH advertising firms from whom it collected data. The study acknowledged that OOH firms were hesitant to adopt digital technology due to the resulting implementation cost increase, limited differentiated technology, and lack of personnel resources. The data was gathered through structured surveys.

In Kenya, Agelyne and Musau (2021) evaluated effects of financial technology and inclusion on SME in Kabati market, Kitui County using a descriptive cross-sectional study design. Primary data were collected using closed and open-ended questionnaires. The authors noted that though there is increase financial technology in Kenya, there is still low uptake of this technology among SMEs in Kenya. Their research was supported by many theories namely TAM, Pecking Order Theory (POT), Theory of Asymmetric Information, and Financial Intermediation Theory. According to the outcome from the study, financial technology significantly affects SMEs financial inclusion. Their research recommended that the government should promote and support FinTech technology like M-pesa services, agency banking and online banking to enhance availability of financial services to SMEs. It should be noted that while this study is useful to show the relevance of fintech to SMEs, it does not consider SME growth and how it is affected by technology; which is a huge gap that the present study filled.

Employee Skills and SME Growth

Horváth and Szabó (2019) conducted a study on factors driving and impeding 4th industry revolution among SMEs. The study was conducted in Hungary. It employed grounded theory. A qualitative case study design was applied and primary data was collected using semi-structured interviews. The sampling size included leading members including chief executive and chief digital officers of 26 firms in Hungary. The result indicated that one of the leading challenges to implementation of industry 4.0 technologies in SMEs is that they lack skilled workers with the competences required to exploit the proceeds of this revolution. It may also be challenging to retrain employees, because this takes a long time, increasing costs. Therefore, for SMEs, the increasing shortages of skilled labour are critical, because these SMEs largely depend on human capital for day-to-day operations. Thus, to drive adoption of technologies driving the fourth industrial revolution SMEs should develop innovative ways of training to equip employee with competences required to be productive in a rapidly changing 4th industrial space. Though this study provides insight on the state of employee's competencies among SMEs, it did not concern itself with impacts of these competencies on growth of SMEs, an intervention provided herein.

The relationship between employee skills and SMEs growth has been scantly investigated in Kenya. Stephen (2022) investigated how knowledge capture and acquisition affects firm performance in Kisumu City County. The author opined that knowledge is amongst the most instrumental strategic assets for ensuring long-term survival and success of an organisation. Moreover, knowledge gives employees skills required for innovation and adoption of new technology. The study targeted 150 SMEs in Kisumu City County from different sectors. The study design employed was descriptive research design and primary data was collected using questionnaires. The study was anchored to resource-based views, knowledge-based and organization learning theories. The study reported that knowledge creation, acquisition, sharing and implementation affects performance SMEs. What the study did concern with is the effects of knowledge on growth of SME, the gap which the present study addresses.

Conceptual Framework

The conceptual framework links the two variables in a schematic framework. It assumes that the aspects of technological innovation, Employee skills, leadership and capital adequacy have either a positive or negative effect on SME growth depending on how effectively they are used. Figure 2 shows how the variables are linked through conceptual framework.
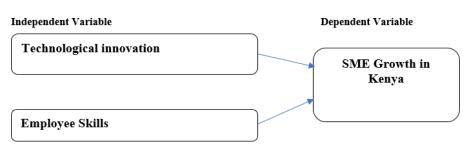
Figure 1: Conceptual framework

Table 1: Operationalization of Variables

Variables	Indicators	Tools of analysis
Effect of technological innovation on growth of small and medium sized enterprises	Availability of technological resources, Ease of use, perceived usefulness, development of new products, new features on products	Descriptive statistics, chi-square and regression

Effect of employee skills on growth of small and mediumsized enterprises in the interiordesign	Adequate qualified workforce, academic qualification, frequency of training, staff turnover, availability of in-service training	Descriptive statistics, chi-square and regression
SME Growth	Sales revenue, profit, increase in net assets, number of employees	Descriptive statistics, chi-square and regression

RESEARCH METHODOLOGY

Research Design

The study applied a descriptive research design. Kothari (2014) states that in a descriptive study, accuracy becomes a key consideration and a research design which minimizes bias and maximizes reliability is regarded as good. Mugenda and Mugenda (2013) asserted that descriptive research design reports on a phenomenon as is so as to help build a profile on it without altering it. Descriptive research design was preferred because the focus of the study was in a single County in Nairobi County (Kombo & Tromp, 2009). Descriptive research design ensures optimal reliability of data collected through elimination of biasness as one can engage research assistants.

The total target population was 174 firms that are licensed by the Nairobi County to offer the services of interior design, interior decoration and architectural services. This study used stratified random sampling technique to categorize the different types of firms in the industry which are interior design firms, interior decoration firms and architectural firms as they show different heterogenous characteristics. Mugenda and Mugenda (2013) recommends that a sample size of 10-30% adequately represents the target population. Thus, from each category, a sample 10% of the firms was selected using simple random sampling to ensure there is minimal opportunity for bias (Table 4.2). After this, questionnaire were administered to the owner-manager, one technical person preferably a supervisor and one other employee in each of the selected firms.

Table 2: Sample Size

Nature of firm	Number of SMEs(N)	Sample Size(n) (10%)	Sample Respondents	Percentage
Interior design	125	13	39	72.2
Interior decoration	38	4	12	22.2
Architectural	11	1	3	5.6
Total	**174**	**18**	**54**	**100.0%**

Data Collection

Data Collection Tool

Questionnaires were the main tool for primary data collection. A five-item likert scale questionnaire was used to gather the requisite data from the employees and managers. Questionnaire, is a research tool that combines data over a large sample and is the most reliable study tool as it allows gathering of data from a wide sample with varying background; the information remains private, saves time and as they are accessible in paper format there is no occasion for bias (Kombo & Tromp, 2009).

A pilot study was done to establish reliability and validity of the research instruments. It is recommended that the participants of the pilot study should be similar as possible to the target population and the sample size should range between 20-50 respondents (Van Teijlingen and Hundley, 2002; Sage, 2023). The piloting was conducted by randomly selecting 10 interior design firms in the study area. Once the piloting was

complete, the study was reviewed and necessary amendments were done.

The effectiveness of the instrument to capture the data regarding the variables under study was evaluated via content validity. Jankowicz (2005) posits that content validity signifies the extent to which a quantity characterizes all variables of a given social trend. The questionnaire was investigated for relevance, accuracy, completeness and consistency. The recommendation and amendments suggested were incorporated. The Cronbach's coefficient alpha was utilized to establish reliability of research instrument. Orodho (2003) categorized an alpha value greater or equal to 0.7 is a reliable measure of consistency.

Data Collection Procedure

The researcher personally visited their offices and administered the questionnaires. The collected data was scrutinized and analyzed to determine their trustworthiness.

Data Analysis and Presentation

Quantitative data collected was analyzed by the use of descriptive statistics in the form of percentages and frequencies with the aid of SPSS version 22. After tallying responses and computing percentages of response, results for each variable were presented in tables. Further, inferential statistics using chi square was used to test the association between the dependent and independent variables. Multiple regression analysis was done to determine the extent to which the independent variable influence the dependent variable. The inferential statistics were done at 95% confidence level and significance inferred at p value=0.05.

RESEARCH FINDINGS AND DISCUSSIONS

Response Rate

The study targeted to collect data from a sample size of 54 participants from which all questionnaires were filled and retrieved by the researcher recording 100% response rate. This was an appropriate response rate which enabled the research to draw satisfactory conclusions from the study. In fact, it has been documented by Mugenda and Mugenda (2013) that a response rate of above 50% is adequate, 60% is good and 70% excellent to be a representative of the population under study.

Reliability Test

A pilot study was administered on the sample respondents to determine the reliability of the data capture instruments. Cronbach's Alpha was analysed as the measure of internal consistency of the data capture construct. It has been established that any score above 0.7 shows acceptable consistency for the questionnaires (Orodho, 2003). The Cronbach Alpha for every objective was determined. The index for capital adequacy (α=0.872) was the highest followed by technological innovation (α=0.816), leadership styles (α=0.786) and lastly employee skills (α=0.756). Thus, the coefficient for the variables were categorised as good: capital adequacy, technological innovation and acceptable: leadership styles and employee skills. Therefore, there was reliable instrument consistency for the objectives of the study since the Cronbach Alpha was above the threshold of 0.7.

Demographics

The research sought to determine the gender, age and level of education and years of service of the study participants (Table 6). Majority of the participants were male at 68.5 % while female were only 31.5 %. This could have indicated that the workforce in the industry is male dominated. Most of the respondents

were in the age bracket of 27-36 years at 50% followed by 19-26 years (31.5%), 37-46 years (16.7%) then 47-56 years at 1.9%. This suggested most of the workforce in the interior design industry were youthful. As established by findings of the study, most of the participants as indicted by 59.3% were diploma holders while bachelor degree holders were 37% and 3.7 % post graduate holders. Thus, the workforce of the interior design industry were educated. Further, the results revealed that most of the respondents as shown by 31.5% had worked at the SMEs for 2-4 years while those who had served for 5-7 years were 24.1%, above 9 years included 18.5%, below 2years were 14.8% while the minority of 11.1% had served for 7-9 years. Thereby, the results showed that most of the workforce in the interior design industry had experience of more than two years.

SME Growth

The study determined the growth of SMEs within a duration of the last 3 years in regard to sales, profit before tax, net assets and number of employees. As results showed, 27.8% of the respondents reported that the SMEs had over 25 %, 10-24% and 1-9% growth in sales turnover. On the other hand, 16.7% reported that the SMEs got smaller (Table 3). About 27.8% of the respondents indicated that the SMEs had 25%, 10-24% and 1-9% profit before paying taxes while 16.7% of the respondents reported that the SMEs had reduced profits before tax. As the results showed, 50% and 22.2% of the workers indicated that the SMEs had net assets growth of 1-9% and 10-24% respectively whereas 27.8% of the respondents reported that their SMEs showed no growth of the net assets. Further, majority of the respondents at 72.2% reported the SMEs had 1-9% growth in the number of employees but 27.8% of the respondents reported that the workforce of the SMEs had reduced over the duration of 3 years

Table 3: SME Growth

Growth Indicator	Over 25%		10-24%		1-9%		No Growth		Become Smaller	
	N	%	N	%	N	%	N	%	N	%
Sales/Turnover	15	27.8	15	27.8	15	27.8	0	0	9	16.7
Profit Before Tax	15	27.8	15	27.8	15	27.8	0	0	9	16.7
Net Assets	0	0	12	22.2	27	50	15	27.8	0	0
Number of Employees	0	0	0	0	39	72.2	0	0	15	27.8

N=Number/frequency

Effect of technological innovation on the growth of small and medium sized interior design enterprises

The researcher sought to determine the effect of technological innovation on the growth of SMEs in interior design enterprises. As observed, majority of the respondents at 33.3% agreed that their SME had adequate technological innovations to improve their enterprise growth (Table 4). An equal population of 33.3% of the respondents strongly disagreed that their enterprises had sufficient technological innovations to spur growth. About 11.1% strongly agreed, 5.6% were undecided while 16.7% disagreed on the adequacy of technological innovation at their companies. From the findings, most of the respondents at 72.2% strongly agreed while 27.8% agreed that technology to be used at the enterprises should be friendly and easy to use to facilitate acceptability. On the other hand, 83.3% strongly agreed whereas 16.7% agreed that their SMEs choose their technology on the basis of usefulness to the enterprise.

Half of the respondents (50%) strongly agreed while the other 50% agreed that through application of technological innovation their company had introduced new products to the interior design market. Further, 94.4% of the participants strongly agreed followed 5.6% who agreed that their companies had added more

features to some of their products through technological innovation. In fact, 94.4% of the respondents strongly agreed and 5.6% agreed that investment in technology would spur their SMEs to achieve higher profits

Table 4: Technological Innovation

Parameters	SA		A		U		D		SD	
	N	%	N	%	N	%		%	N	%
Our SME has adequate technological innovation resources to improve growth	6	11.1	18	33.3	3	5.6	9	16.7	18	33.3
Technology should be friendly and easy to use to improve acceptability	39	72.2	15	27.8	0	0	0	0	0	0
Our SME considers the usefulness of technology as a key factor while choosing the technology to implement	45	83.3	9	16.7	0	0	0	0	0	0
Our SME has through the use of technological innovation processes introduced new products	27	50	27	50	0	0	0	0	0	0
Our SME has through the use of technological innovation processes added more features to some of our products	51	94.4	3	5.6	0	0	0	0	0	0
Investment in technology would help our SME realize higher profits	51	94.4	3	5.6	0	0	0	0	0	0

N=Number/frequency

Chi square test showed significant association between technological innovation and SME growth. The observed parameters including net assets, profits and sales were significantly associated with technological innovation at p values of 0.004, 0.022 and 0.040, respectively. However, the number of employees was not significantly associated with technological innovation (p=0.722) (Table 5).

Table 5: Chi square Statistics for Technological Innovation

Growth Indicator	χ^2	P value
Sales/Turnover	8.322	0.040
Profit Before Tax	9.584	0.022
Net Assets	13.846	0.004
Number of Employees	0.800	0.722

Effect of employee skills on the growth of small and medium sized interior design enterprises

The study sought to determine the impact of employee skills on growth of small and medium interior design companies (Table 6). The majority of the respondents disagreed (66.7%) with the notion that their companies could not be having proper employees' skills. On the other hand, 27.5% strongly disagreed while 5.6% were undecided on the level of employee skills in their companies. Additionally, 61.1% disagreed while 38.9% strongly disagreed with the view that there is no adequate qualified workforce to support the SMEs growth strategy (Table 6). The findings of the study showed that 44.4% of the respondents strongly disagreed, an equal percentage disagreed while 11.1% strongly agreed that lack of highly skilled labour affects the firms negatively and hampered growth of the enterprises.

The study results showed that 61.1% of the respondents agreed and 38.9% strongly disagreed with the

statement that training and knowledge is a continuous process at the enterprise. Majority of the respondents at 55.6% agreed and 44.4% strongly agreed that improvement of in-service training and skill development would greatly increase growth of the SMEs. Majority of the respondents at 61.1% disagreed with the view that high turnover of staff limits continuous training and skills development which could hamper SME growth. On the other hand, 27.8% of the respondents strongly agreed and 11.1% agreed that high turnover would limit continuous training and skills development hampering SME growth.

Table 6: Employee Skills

Parameters	SA		A		U		D		SD	
	N	%	N	%	N	%	N	%	N	%
There is no proper employee skills in my SME and this affects the growth of my SME	0	0	0	0	3	5.6	36	66.7	15	27.5
The SME based on its growth strategy does not have adequate qualified workforce	0	0	0	0	0	0	33	61.1	21	38.9
It is my opinion that the lack of highly skilled labour affects us negatively when growing	6	11.1	0	0	0	0	24	44.4	24	44.4
Training and knowledge is a continuous exercise at our SME	0	0	33	61.1	0	0	0	0	21	38.9
If we could greatly improve on in-service training and skill development, our SME growth will increase	24	44.4	30	55.6	0	0	0	0	0	0
The high turnover of staff at the SME limit continuous training and skills development thus hampers growth of my SME	15	27.8	6	11.1	0	0	33	61.1	0	0

N=Number/frequency

As observed, statistical analysis showed that employee skills significantly affected SME growth on the aspects of sales (p=0.029) and profit (p=0.002). Nonetheless, there was no association between employee skills (p=0.427) and net assets (p=0.282) as well number of employees (Table 7).

Table 7: Chi square Statistics for Employees' Skills

Growth Indicator	χ^2
Sales/Turnover	9.000
Profit Before Tax	20.700
Net Assets	3.706
Number of Employees	2.753

Regression Analysis

This study determined to what extent the independent variables: technological innovation, and employee skills influences SMEs growth.

Diagnostic Tests for Assumptions of Regression Analysis

For data to qualify for regression analysis it is required to fulfil the assumption of normal distribution, no multi-collinearity and heteroscedasticity. Normality test was assessed using the levene test. The null hypothesis for this test states that the variance is homogeneous. The p value for the test was > 0.05 (Table 8)

hence the null hypothesis was not rejected. Thus, the data showed homogeneity of variances

Table 8: Test of Homogeneity of Variances

Variables	Levene Statistic	Sig.
Technological innovation	3.790	.069
Employee skills	0.187	.671

Multicollinearity was assessed using the variance inflation factors (VIF). Multicollinearity is a term used to describe high correlation among the predictor variables. The VIF values above 10 indicates multicollinearity. Regression analysis requires absence of multicollinearity in the data. In this study the VIF values were < 10 (Table 9) indicating absence of multicollinearity.

Table 9: Test for Multicollinearity

Variables	VIF
Technological innovation	6.277
Employee skills	3.731

Heteroscedasticity refers to scenario where variance of a given value is unequal. Regression analyses assumes absence of heteroscedasticity. It was tested using the Breusch-Pagan test whose null hypothesis is absence of heteroscedasticity. The test showed a p-value > 0.05 (Table 10) hence, the null hypothesis was not rejected. Hence, the residuals were assumed to be equally distributed.

Table 10: Test for Heteroscedasticity

Type of Test	Co-efficient	Probability
Breusch-Pagan Test (Chi square df=p)	2.6162	0.8585

Model Summary

The model's goodness of fit was assessed by the coefficient of determination/R-square (R2). The R^2= 0.948 (Table 11) showing that the independent variables could be 94.8 % of the total variation in growth of small and medium enterprises in Kenya.

Table 11: Model's Goodness of Fit

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.973[a]	.948	.932	.12061
a. Predictors: (Constant), Technological innovation, Leadership style, Employee skills, Capital adequacy				

Discussion

Productivity of a firm is a function of the technological relationship through which production inputs are efficiently converted into the output as goods and services to achieve customer demands (Kiveu *et al.,* 2019; Skare *et al.,* 2023). As observed in this study, and similarly, a study conducted among SMEs in Nairobi County by Mwavali (2021) reported low adoption of new technology such as cloud computing which could enhance information technology proficiency among SMEs. This could be attributed to some technologies

being not locally available, unawareness for existence of the technology by the investor and unaffordability of the technology (Mwavali, 2021; Meng *et al.,* 2021). Further, the results of this study agree with Amoah and Jibril (2020) observation that technological innovations pose a great challenge to growth of SMEs in developing countries.

In agreement to the current study, in Trans-Nzoia County 43.5% of the respondents indicated that technological changes affect SMEs profits earning (Mugodo, 2014). In Huruma Division, Nairobi County a population of 37.6% indicated that technological innovation affected growth and development of their SMEs business (Kedogo, 2013). Additionally, in Huruma Division, Nairobi County, 32.7 % of the respondents reported that technology had helped to increase the number of customers, sales, profitability and increased new product levels in their SMEs (Kedogo, 2013). Additionally, in a study conducted in Maseno Sub-County, Kisumu County, respondents reported that technology encourages creativity and innovativeness that could contribute to SMEs overall growth (Boneface, 2017).

Knowledge and skills of the human capital of an organization are the backbone of its performance (Berman *et al.,* 2019). Organizations should ensure investment into human capital so as to have full competitive advantage offered by competent human resource. Further, human capital management should ensure that employees' skills, knowledge, experience and innovations are all valued. The management should ensure that the human capital is developed, well mentored, coached and motivated to deliver their best performance (Berman *et al.,* 2019). Similar to the current study findings, Omar, 2018 reported that 48% of the respondents at Zenko Kenya Limited agreed that knowledge and training for team building affects performance of SMEs. Further, all the respondents sampled from SMEs in Maseno Sub-County, Kisumu County indicated that training is required to spur SMEs growth (Boneface, 2017). Further, majority (27%) of the respondents in Gikomba Market, Nairobi County, indicated that they did not get training on work skills which negatively implicated their business (Akinyi, 2018).

Human capital is considered the main resource of an organization (Macke and Genari, 2019; Sedyastuti *et al.,* 2021). Skills and knowledge diversity enable an organization to evaluate, identify and develop discoveries necessary for the business prosperity (Jøranli, 2018). Development of exceptional products and services requires combinative diverse skill. Skilled personnel with technical expertise and essential capabilities are likely to improve business products (Ryan *et al.,* 2018). Staff empowerment and support has been shown to positively affect team performance and customer satisfaction hence organization effectiveness. Organizations can develop competitive positions and strategies to exploit employee strengths as well as enhance their knowledge and skills which will widen their domain of new products, services, innovate new markets and colonize emerging markets, improve image and build customer loyalty (Zelek and Ojo, 2017).

Study Summary

The study findings may be summarised according to research objectives as follows:

Technological Innovation and SME Growth

The present study showed that technology affected growth of interior design industry SMEs in Nairobi County. It was established that the SMEs lack adequate technology to advance product innovations. Further, the findings suggest that the technology used at SMEs should be friendly and easy to use to ensure acceptability and applicability. Lastly, the technology should be useful and relevant to the enterprise. The results also indicated that through application of technology the SMEs could introduce new products with attractive features, which would stimulate the SMEs to achieve higher growth. Besides, the results showed that increased application of technology would result in higher SMEs growth.

Employee Skills and SME Growth

The study further determined the impact of employee skills on growth of the small and medium interior design companies. It was evident from the study findings that employee's skills affect growth of SMEs. Majority of the SMEs had adequate qualified personnel to provide services required by their customers. However, training is not perpetual at some interior design SMEs in Nairobi County. Besides, increment in employee skills was shown to promote growth of SMEs.

Conclusions

Insufficient technological innovations are hindering the growth of Interior Design SMEs in Nairobi County. Investing in technology has the potential to stimulate innovation and result in innovative products with unique characteristics and increased sales revenues. The technology should be user friendly, and easy to use. Nairobi County has insufficient skilled workforce in SMEs specializing in interior design. Regrettably, Interior Design SMEs are deficient in providing ongoing training to enhance employees' skills due to the frequent turnover of employees which disrupts the ongoing training and development of workers' technological skills.

Recommendations

The study makes the following recommendations;

SMEs should acquire the relevant technology so as to spur growth. Advanced technology will enable development of new products with customized features as per the client requirements. Further, they should ensure the acquired technology is useful, friendly and easy to operationalize. The SMEs should provide continuous training to improve employee skills. They should engage in continuous training of employees to spur growth and/or pursue retention strategies to reduce staff turnover hence ensure workers skills are maintained.

Suggestions for further Research

This study was limited to determine the effects of technological innovation and employee skills on the growth of interior design SMEs in Nairobi County. Further studies can determine the effects of these variables on other aspects of SMEs such sustainability and organisation culture.

REFERNCES

1. Agelyne, M., & Musau, M. (2021). Financial Technology and Financial Inclusion of Small and Medium Enterprises in Kabati Market Kitui County, Kenya. International Journal of Academic Research in Business and Social Sciences, 11(4), 362-377.
2. Ajzen, Icek (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes, 50 (2), 179–211.
3. Akinyi, R. J. (2018). Factors affecting performance of small and medium enteprises in kenya: a case study of Gikomba Market in Nairobi County (Doctoral dissertation, MUA).
4. Berman, E. M., Bowman, J. S., West, J. P., & Van Wart, M. R. (2019). Human resource management in public service: Paradoxes, processes, and problems. CQ Press.
5. Blinova, E., Ponomarenko, T., & Knysh, V. (2022). Analyzing the Concept of Corporate Sustainability in the Context of Sustainable Business Development in the Mining Sector with Elements of Circular Economy. Sustainability, 14(13), 8163.
6. Boneface, W. W. (2017). Factors affecting culture of small scale enterprises in Maseno Sub-County, Kisumu County, Kenya. Doctoral Dissertation, Management University of Africa.

7. Braun, R. (2011). The lobby as a living room: What interior design innovations and products do luxury hotels implement to attract guests to their lobby. Zavrsni rad. Modul University Bec.

8. Chao, J., Serwaah, P., Baah-Peprah, P., & Shneor, R. (2020). Crowdfunding in Africa: Opportunities and challenges. Advances in Crowdfunding: Research and Practice, 319-339.

9. Ching, F. D., & Binggeli, C. (2018). Interior design illustrated. John Wiley & Sons.

10. Cho, J., Cheon, Y., Jun, J. W., & Lee, S. (2022). Digital advertising policy acceptance by out-of-home advertising firms: a combination of TAM and TOE framework. International Journal of Advertising, 41(3), 500-518.

11. Daniel, A. M. (2018). The role of leadership styles on organizational performance within retail stores in Kenya: a case of Uchumi Retailers (Doctoral dissertation, MUA).

12. Daniels, L., Mead, D.C., & Musinga, M. (1995). Employment and Income in Micro and Small Enterprises in Kenya: Results of the 1995 Survey. K-Rep Research Paper 26

13. Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and End User Acceptance of Information Technology. MIS Quarterly, 13(3), 319-340.

14. Hargis, Michael B., John D., Wyatt, S., & Piotrowski C. (2011). Developing Leaders: Examining the Role of Transactional and Transformational Leadership across Contexts Business. Organization Development Journal. 29(3), 51–66.

15. Hasti, N., & Kusnia, G. (2019,). Role of Technology for Interior Design Sectors in Creative Economic Development. In IOP Conference Series: Materials Science and Engineering (Vol. 662, No. 4, p. 042027). IOP Publishing.

16. Indrawati, H. (2020). Barriers to technological innovations of SMEs: how to solve them? International Journal of Innovation Science, 12(5), 545-564.

17. Joseph, S. K. (2019). An Investigation On Sustainability Compliance In The Kenyan Construction Industry (A Perspective Of Key Interior Design Professionals In Nairobi City County) (Doctoral dissertation, UoN).

18. Kedogo, B. K. (2013). Factors Influencing Growth and Development of Small and Medium Enterprises in Kenya, A Case of Huruma Division, Nairobi County. Msc. Thesis, University of Nairobi.

19. Kenya National Bureau of Statistics (KNBS) (2015). Economic Survey 2015, Nairobi: Government Printers.

20. Khan, Y. K., Kasuma, J., & Ali, A. (2022). The Challenges of Small and Medium Businesses in Managing Human Capital towards SMEs Performance–A Qualitative Study. Asian Journal of Business and Accounting, 15(1).

21. Kombo, D. K., & Tromp, D. L. A. (2009). Proposal and Thesis Writing: An Introduction. Nairobi, Kenya: Paulines Publications Africa, Don Bosco Printing Press.

22. Kothari, C. R. (2014). Research Methodology: Methods and Techniques. New Age International.

23. Macke, J., & Genari, D. (2019). Systematic literature review on sustainable human resource management. Journal of cleaner production, 208, 806-815.

24. Mallinguh, E., Wasike, C., & Zoltan, Z. (2020). Technology acquisition and smes performance, the role of innovation, export and the perception of owner-managers. Journal of Risk and Financial Management, 13(11), 258.

25. Mansaray, H. E. (2019). The role of leadership style in organisational change management: a literature review. Journal of Human Resource Management, 7(1), 18-31.

26. Maroufkhani, P., Tseng, M. L., Iranmanesh, M., Ismail, W. K. W., & Khalid, H. (2020). Big data analytics adoption: Determinants and performances among small to medium-sized enterprises. International journal of information management, 54, 102190.

27. Massa, S and Testa, S (2004), „Innovation or imitation? Benchmarking: A knowledge-management process to innovate services‟, Benchmarking: An International Journal, 11, no.6,

28. MITED, (2020). Micro and Small Enterprises Policy for Promoting Micro and Small Enterprises (MSEs) for Wealth and Employment Creation, Kenya.

29. Moodley, J. (2021). An investigation into the financial challenges faced by SMMEs in the construction industry in Gauteng. Msc. thesis, University of South Africa.

30. Moyi, E., & Ronge, E. (2006). Taxation and tax modernisation in Kenya: A diagnosis of performance and options for further reform.

31. MSMEs, (2023). Micro and Small Enterprises Authority (Kenya), https://msea.go.ke/msea-background/

32. Mugenda, O., & Mugenda, A. (2013). Research Methods: Quantitative and Qualitative Approaches. Nairobi: Acts Press.

33. Mugodo, B. M. (2014). Factors affecting growth of small scale real estate companies in Trans-Nzoia County: a case of Setmark Properties (Doctoral dissertation, The Management University of Africa).

34. Mungal, N. (2020). A qualitative cross-sectional study describing the role Small Medium Enterprises play in reducing unemployment in Durban, Kwa-Zulu Natal. The IIE.

35. Mwangalwa, E. (2015). Cashing in on Kenya's interior design industry. CNBC Africa. Retrieved from https://www.youtube.com/watch?v=wU0-1ar8rog

36. Mwaniki, M. K. (2012). Factors Affecting Performance of Small and Medium Enterprises in Kenya: A Case Study of SMEs in Thika Municipality (Doctoral dissertation, Kenyatta University).

37. Mwavali, A. (2021). A framework for cloud computing adoption by SMEs in Kenya. World Journal of Innovative Research, 10(4), 111-117.

38. National Council of Interior Design Qualification (NCIDQ). (2014). Interior Design Curriculum: International Federation of Interior Architects / Interior Designers. Retrieved from: http:www.design.Iastate.edu /img

39. Nazir, M. A., & Khan, M. R. (2022). Identification of roles and factors influencing the adoption of ICTs in the SMEs of Pakistan by using an extended Technology Acceptance Model (TAM). Innovation and Development, 1-27.

40. Nečadová, M., & Scholleová, H. (2011). Motives and barriers of innovation behaviour of companies. Economics & Management, 16(2), 832-838.

41. Nizaeva, M., & Coskun, A. (2019). Investigating the relationship between financial constraint and growth of SMEs in South Eastern Europe. Sage Open, 9(3), 1-15.

42. Ntinyari, E. (2014). Competencies preferred by employers of interior design graduates in Kenya (Doctoral dissertation, University of Nairobi).

43. Ochieng, L. A., Koshal, J., & Bellows, S. (2023). Participative Leadership Style and Performance of Manufacturing Small and Medium Enterprises (SMEs) in Nairobi County, Kenya. Research Journal of Business and Finance, 2(1), 77-94.

44. Okechi, O., & Kepeghom, O. M. (2013). Empirical evaluation of customers' use of electronic banking systems in Nigeria. African journal of computing & ICT, 6(1), 7-20.

45. Omar, N. (2018). Influence of strategic leadership on performance of manufacturing companies in kenya: a case study of Zenko Kenya Limited (Doctoral dissertation, MUA).

46. Omondi, A. D. (2019). Factors affecting small and medium enterprises on VAT taxation In Kenya. Research Project, Jomo Kenyatta University of Agriculture and Technology

47. Ontita, G., Chepchumba, R., & Serem, D. (2019). An Investigation into the Training Needs of Interior Design Diploma Graduates: A Kenyan Perspective. Saudi Journal of Business and Management Studies. 585-591.

48. Orodho, A. J. (2003). Essentials of Educational and Social Science Research Method. Nairobi: Masola Publishers.

49. Owusu, A., & Agyemang, G. (2021). Impact of Market Segmentation Strategies on Customer Loyalty: The Mediating Role of Positioning Effectiveness of Interior Design Industries within the Kumasi Metropolis. European Business & Management, 7(1), 1-14.

50. Rashdan, W. (2016). The impact of innovative smart design solutions on achieving sustainable interior design. WIT Transactions on Ecology and the Environment, 204, 623-634.

51. Ryan, P., Giblin, M., Andersson, U., & Clancy, J. (2018). Subsidiary knowledge creation in co-evolving contexts. International Business Review, 27(5), 915-932.

52. Sage (2023). Pretesting and Pilot Sage Publishing.

53. Samuel, A., Mahanta, N. R., & Vitug, A. C. (2022). Computational Technology and Artificial Intelligence (AI) Revolutionizing Interior Design Graphics and Modelling. In 2022 13th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE.

54. Sedyastuti, K., Suwarni, E., Rahadi, D. R., & Handayani, M. A. (2021). Human Resources Competency at Micro, Small and Medium Enterprises in Palembang Songket Industry. In 2nd Annual Conference on Social Science and Humanities (ANCOSH 2020) (pp. 248-251). Atlantis Press.

55. Seseni, L., & Mbohwa, C. (2019). SMEs Managing Organisational Knowledge in The 4IR Era: A Case Study of Developing Countries. In Proceedings of the International Conference on Industrial Engineering and Operations Management Bangkok, Thailand (pp. 3014-3022).

56. Shibia, A. G., & Barako, D. G. (2017). Determinants of micro and small enterprises growth in Kenya. Journal of Small Business and Enterprise Development, 24(1), 105-118.

57. Stephen, P. (2022). Effects of knowledge capture and acquisition practices on organizational performance. European Journal of Information and Knowledge Management, 1(1), 43-55.

58. Sun, X. (2021). Green and ecological interior design based on network processor and embedded system. Microprocessors and Microsystems, 82, 103911.

59. Tidd, J., & Bessant, J. R. (2018). Managing innovation: integrating technological, market and organizational change. John Wiley & Sons.

60. Van Teijlingen, E., & Hundley, V. (2002). The importance of pilot studies. Nursing standard, 16(40), 33-36.

61. Wahyuni, L., Fahada, R., & Atmaja, B. (2019). The effect of business strategy, leverage, profitability and sales growth on tax avoidance. Indonesian Management and Accounting Research, 16(2), 66-80.

62. Wanjohi, A. M., & Mugure, A. (2008). Factors affecting the growth of MSEs in rural areas of Kenya: A case of ICT firms in Kiserian Township, Kajiado District of Kenya. Research Paper.

63. Winczorek, J., & Muszynski, K. (2023). Small and Medium Enterprises, Law and Business: Uncertainty and Justice. Taylor & Francis.

64. Woźniak, M., Duda, J., Gąsior, A., & Bernat, T. (2019). Relations of GDP growth and development of SMEs in Poland. Procedia Computer Science, 159, 2470-2480.

65. Zhou, Q., Fang, G., Yang, W., Wu, Y., & Ren, L. (2017). The performance effect of micro-innovation in SMEs: evidence from China. Chinese Management Studies, 11(1), 123-138.