



INTERNATIONAL JOURNAL OF BUSINESS, SOCIAL SCIENCES & EDUCATION

Influence of new technology adoption on the use of business advisory services in micro and small enterprises in Kenya

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CITATION: *O. Magdalene, M. Elegwa & K. Christophe. November (2015), Influence of new technology adoption on the use of business advisory services in micro and small enterprises in Kenya: International journal of Economics & Finance (IJEF), volume 1 (4), 174 -189. ISSN 2105 6008.*

ABSTRACT

Technology adoption is acquisition of new technology that leads to effective and efficient methods of execution of organisation business functions. Adapting to changes in technology is a challenge facing many MSEs in Kenya. Many MSEs are unfamiliar with new technologies and on sourcing for external advice. The objective of the study was to determine the influence of new technology adoption on the use of business advisory services in micro and small enterprises in Kenya. The study adopted a descriptive survey research design and the target population was 58 registered micro and small manufacturing enterprises in Kenya, industrial area of Nairobi County. A census approach was used as a sample size of the population targeted. Purposive sampling method was used by the researcher to purposely reach the target group of micro and small enterprises owners. The respondents were the chief executive officers of the micro and small enterprises within the sample frame. Questionnaires were used as the main data collection instruments and the data collected was analyzed using measures of central tendency, dispersion and inferential statistics. Statistical software for social sciences (SPSS) was used as statistical tool for data analysis. Multiple regression models were used to establish the influence that the independent variables under study had on the dependent variable. Data was presented by frequency tables, pie charts and bar graphs. The study found that the extent of adoption of technology has a positive relationship with the use of business advisory services. The study thus concluded that the use of business advisory services is influenced by the level of new technology adoption in many MSEs in Kenya. The owners and managers of microenterprises in Kenya should seek business advisory services on how to adopt new technology in their operations. Microenterprises should adopt new technology in development of new products, new services, marketing methods and production processes. Microenterprises should seek research collaboration with research institutions in order to improve on new technology adoption.

Key Words: New Technology Adoption, Business Advisory services.

INTRODUCTION

Worldwide, micro and Small sized enterprises are of major importance for economic growth. Proportional to their size, small firms create more jobs than large firms do. According to the annual report of 2009 on European Union, SMEs in 2008, there were over 20 million enterprises in the European Union. Out of which about 43,000 were large scale enterprises, while the vast majority (99.8%) were Micro, Small including enterprises (Fostering Dynamism in MSEs in Asia, 2009). This paper further indicates that micro and small enterprises create a higher degree of competition leading to a positive effect on aggregate employment growth five to eight years later. Similar studies on enterprises in Asia by Asian Development Bank (2009) indicate that a large share of Asian workers are engaged in MSEs, therefore they are a major source of the employment in the country.

Technology adoption is acquisition of new technology that leads to effective and efficient methods of execution of organisation business functions. Adapting to changes in technology is a challenge to MSEs. Many are unfamiliar with new technologies and on sourcing for external

advice. Greater products, production process and accessing the right market with the right product requires external assistance in terms of training, technical support and collaboration with external organization such as universities, research institutions and other businesses. The more complex the technology that a firm is using, the more likely there is a gap between internal resources and the resources required in order to make the most effective use of technology (Lau, 2008).

Business advisory is an independent professional advisory service assisting managers and organization in achieving organizational purposes and objectives by solving management and business problems, identifying and seizing new opportunities, enhancing learning and implementing changes. Business Advisory is a professional advice which can be provided to owners or managers of micro and small enterprises at request and cannot be forced. It is a service which can be sought for or not depending on whether the manager or owner of the enterprise considers it necessary, hence can bring gain to a business or not. Businesses seek for advisory services to maximize profits and grow, if they face definite difficulties which can be solved by advisory services, if they detect uncertainties and are not sure on how to position and for periodic checkups to detect hidden pitfalls and evaluate performance (Zihnija, 2010).

Miller (2010) study showed that worldwide, many micro and small enterprises encounter many challenges when it comes to adoption of new technology due to limited financial resources as new technology and the cost of acquiring new technology is normally very high in comparison to the enterprises budget. The study also noted that in developed nations such as UK, USA, Canada, China and Japan, many micro enterprises have been able to adopt new technology due to easier accessibility of business advisory services. Nguyen (2012) study of the factors influencing technology adoption in 126 SMEs in the retail, manufacturing and service sectors in USA, Southern California. The findings showed that management characteristic, the firm's characteristics, employee characteristics, and IT resources influenced technology adoption. The results of the study also indicated that management's innovativeness affects the firm's perception of CRM technology adoption, but age, education and gender do not.

A study by Miguel (2008) adoption of new technology is critical challenge that affects the growth of micro enterprises in Africa since it hinders enterprises capacity to access various business advisory services that are normally offered using ICT platforms like internet. The study findings showed that microenterprises have much to gain by adopting new technology since it helps in new knowledge absorption by reaching a wide range of business advisory services. The study also noted that many microenterprises in Africa, fails to offer new products and reach global market due to limited access of ICT.

According to Wanjohi (2008) accessing business advisory services can help micro and small enterprises to improve their performance and also help them eliminate wasteful resources. He advocates that Firms which engage business advisory service are always ahead of time in terms of strategic business practices, such as new product development, organizational restructuring, operational improvements, market research, financial information systems, manufacturing

information systems, standardization and environment energy and efficiency. He suggested that greater systematic support in the provision of infrastructure, information and advisory services to MSEs will help them cope with the new competitive domestic and global markets.

According to a survey carried out by the Asian Development Bank (2009) MSEs can be helped to adopt technologies and enter into new markets by the government by providing information and business advisory services on improved production methods, products, markets, technical support and vocational training. The government can also foster links between MSEs and large enterprises and encourage cluster-based development whereby many enterprises that make and sell related or complimentary products are grouped in close proximity with their suppliers and buyers. Business advisory services enhance innovation, higher production and human resource management and this plays a major role in determining the extent to which microenterprises adopts new technology.

Innovation leads to technology development, intellectual property diagnostic and business thinking design. It also leads to high production involving quality management, production management and service excellence. Innovation further leads to human resource management which entails manpower planning, recruitment and selection, compensation and benefits, performance management, career management, learning and development of employees. Accessing business advisory services leads to financial management and this helps in adoption of new technology that leads to increased business performance (Mburu, 2012). Despite the technology adoption challenges they face, MSEs are important because they are able to provide economic benefits. They generate new jobs and also reduce the erosion of human capital by providing alternative employment opportunities for relatively skilled yet unemployed workers (Kenyan economic survey, 2011). The economic survey of 2006 indicated that 50% of new jobs created in 2005 were contributed by MSEs (GoK, 2006). The economic survey conducted in Kenya in 2003 indicated that the MSEs sector contributed to 18.4% of the country's gross domestic product, which is an important indicator of a country's economic growth. Hasovic (2010) emphasizes that access to business advisory services by MSEs can provide an all-round solution to the above problems. According to KIM study (2012) lack of business advisory services as one of the causes of failure of MSEs in Africa, Kenya since business counseling, research consultancy and monitoring by the MSEs sector as some of the ways of enhancing business performance. However, the study did not explore how new technology adoption affects the use of business advisory services in MSEs. This study intended to fill the missing knowledge gap by determining the influence of adoption of new technology on the use of business advisory services in micro and small enterprises in Kenya.

LITERATURE REVIEW

Theoretical Framework

The theoretical framework relates to the philosophical basis on which the research was carried. In this study the theoretical framework comprised of technology adoption theory/model and the theory of economic development.

Technology Adoption Theory (model)

This theory explains how, why and at what rate new ideas and technology spread through cultures operating at the individual and the firm level (Venkatesh, V. Morris, Davis, and Davis, 2003). Technology adoption theory sees acceptance of technology (innovation) as being communicated through channels over time and within a particular social system. Individuals are seen as possessing different degrees of willingness to adopt innovation and thus, it is generally observed that the portion of the population adopting innovation is normally distributed over time. Technology adoption in an organisation is related to individual leader characteristics and external characteristics of the organisation. Adoption of technology in an organization leads to innovation on methods of production, development of new products, services provided in an organization marketing systems and accessing information on new markets for products, new products and better methods of production. This information can be accessed through business advisory services by the providers. The study used this theory to determine the influence of adoption of technology on the use of business advisory services in micro and small enterprises in Kenya.

Theory of Economic Development

According to this theory, entrepreneurs are agents of change since they introduce new goods and new methods of production, open new markets and discover new sources of supply or carries out a new organization of an industry. This theory advocates that most successful businesses tend to be founded by talented individuals who continually receive ideas of unknown value that they use to develop their own firms. These ideas play an important role in determining how owners and managers of microenterprises acquire and use new technology (Wagner, 2006). As individuals gain experience as workers, they become better and able to assess the value of entrepreneurial ideas. They get to observe returns from ideas developed in their firms which provide useful information on importance of new technology adoption. The theory is thus relevant in investigating the influence of technology adoption on introduction of new products and new methods of production including discovering new sources of supply to an industry. The study hence used this theory to how new technology adoption is used by MSEs in enhancing the use of business advisory services among the MSEs.

Empirical Literature

In the UK, Carey (2005) study found out that many small and micro enterprises sought business advisory services from accountants. The study revealed that external accountants were consistently the most frequent source of professional services to the SME. Bennett and Robson (2002) report results from 2,474 SME respondents and find that 95% of respondents used external advisers for advice; of whom the main advisers were accountants (83%), banks (62%) solicitors (56%) customers (47%), suppliers (36%) consultants (32%) and trade/professional associations (31%). Xu (2009) advocates that lack of access to business advisory services is regarded by some policy makers as one of the significant barriers to micro and small, including medium enterprises development. Policy makers focus primarily upon the supply side of the business advice process with considerable attention paid to their availability, quality, cost and use of external advice services, whether provided by private sector organizations, legal advisors, management consultants or trainers, but relatively little is done on how small and medium enterprises owners can access these services. He further asserts that accessing advisory services requires investment in time and resources of an organization. This may be expressed in market terms as a willingness to pay for the services of a business adviser, information provider or

consultants and requires that the business organization seeking advisory services has the resources and any other relevant conditions required to access and implement the advice/service provided.

As study by Lau (2008) revealed that there are several drivers which have influenced ICTs adoption by SMEs South Africa. These drivers are categorized into internal and external. With respect to external factors, pressure from the competitors is considered as a major driver for ICTs adoption by SMEs. Similarly, internal factors such as to increase sales, customer demands and improving customer services are perceived as drivers of ICTs adoption in SMEs. Generally, internal drivers seem to be more influential than external drivers. The ICTs tools commonly used by SMEs are mobile phones, personal computers and photocopier machines. Diabate (2014) undertook a study on Factors Influencing Small and Medium Enterprises (SMEs) in Adoption and Use of Technology in Cote d'Ivoire. The findings of the study reveal that there is a high level of awareness of the importance of technology in management of SMEs; ICTs and other technologies can be mainstreamed into SMEs development agenda and that technology is a veritable tool for sustainable development of SMEs in Cote d'Ivoire. A study by Oligoiji (2006) showed that changes in the environment cause more uncertainties for technology adoption in many MSEs in Nigeria. The resources required by MSEs for acquiring information about the new trends in the market, new products and their development, information on accessing finance, new entrants in the industry and competition level are limited unlike large organizations due to their limitation on accessing business information. Large firms may even exit from one of their business areas but this is not usually in micro or small enterprises.

Lim (2007) study advocated that MSEs need to adopt new technologies that match day-to-day production processes. This will enable them enter new markets, access information and improved production methods, products and markets. Relevant technology will enable MSEs to adopt economies of scale in production. Freel (2000) suggest that the most innovative firms are involved in extensive and diverse links with a variety of external sources of knowledge and expertise. Acs & Karlsson (2002) concurred that entrepreneurial climate and limited access to knowledge is a major challenge affecting technology adoption and their growth and development in East Africa. Muteti (2005) opined lack of sufficient market information as a great challenge to MSEs in Uganda on technology adoption despite the vast amount of trade related information available and the possibility of accessing national and international databases. Many small enterprises in African countries continue to rely heavily on private and non-professional consultation or even physical contact for market related information. This is due to inability to interpret the statistical data and poor internet connectivity especially in the rural areas.

Ndiege (2014) did a study on Absorptive Capacity and ICT Adoption Strategies for SMEs in Kenya. The purpose of this study was to examine the role of absorptive capacity (AC) in SMEs' performance, as well as establish the correlation between SMEs' AC and their IT adoption process. The findings of this study, obtained by measuring different dimensions of AC using Jimenez-Barrionuevo, Garcia-Morales, and Molina's scale of 18 items, suggest that AC plays a critical role in the performance of SMEs in Kenya and that SMEs with strong AC employed the use of more superior IT adoption processes than did their counterparts with low levels of AC.

The researchers submitted that, if exploited, AC has the potential to improve the IT adoption strategies of SMEs in Kenya and those of other developing countries that operate within similar environments.

Kimwele (2005) undertook a study on the adoption of information technology security policies in Kenyan Small and Medium Enterprises (SMEs). Particularly this study looked at whether the roles and responsibilities of Information Technology (IT) security in SMEs are well defined, whether SMEs have a documented information security and if employees aware of the policy. Findings from the study showed IT security policies are not widely adopted and the benefits harnessed by Kenyan SMEs. The study further revealed that much more needs to be done if SMEs are to realize the benefits of information technology without compromising their security status. This was one of the first studies to explore IT security issues in Kenyan SMEs that can also help ICT adoption in microenterprises.

METHODOLOGY

The study adopted a descriptive survey research design. A population of 58 registered small and medium manufacturing enterprises in industrial area of Nairobi County. A census approach was used as a sample size of the population target as a census. Purposive sampling method was used by the researcher to purposely reach the target group of small and medium enterprises owners. The respondents were the chief executive officers of the small and medium enterprises within the sample frame. A pilot study was done to pre-test the research questionnaires to ensure reliability and validity. Data collected was analyzed using measures of central tendency, dispersion and inferential statistics. Statistical software for social sciences (SPSS) was used as statistical tool for data analysis. Multiple regression models were used to the influence of new technology adoption on the use of business advisory services in micro and small enterprises in Kenya. Data was presented by frequency tables, pie charts and bar graphs

The multiple regression model applied was if the form;

$$Y = B_0 + B_1X_1 + \epsilon$$

Where:

Y= Use of Business advisory services

X₁= New technology adoption

B₀ = Constant of Regression

B = slope (gradient) showing rate dependent variable is changing for each unit change of the independent variable.

RESULTS AND DISCUSSION

The extent of adoption of technology was analyzed based on the indicators notably new products, services, markets and research collaboration. These inductors are the major factors that determine the extent to which microenterprises seeks business advisory services in Kenya. Descriptive statistics results showed that 24 MSEs introduced no new products in the market in the last three years, 14 MSEs introduced 1 new product each. 4 MSEs introduced 2 products, 7 introduced 3 and 3 of the sampled MSEs each introduced 4 new products in the market in the three years. The modal class was 1, On average the none of the enterprises introduced any new product in the three years. 0 MSEs provides 0 services to the customers, 10 MSEs provides at

least 1 service, 16 MSEs provide 2 services each, 15 provide 3 and 11 MSEs provide at least 4 services to the customers. The modal class was 3. On average the enterprises provide at least two services to their customers. The enterprises were better thus better at providing services than introduction of new products.

The enterprises also stood better chances at capturing new markets. 8 MSEs captured 0 new markets in the last three years, 11 MSEs captured 1 new market, 21 MSEs captured 2 new markets, 8 captured 3 and 4 MSEs captured 4 new markets in the market in the last three years. The modal class was 3. On average, an enterprise captured two new markets in the three years 2012 to 2014. 10 MSEs collaborated with no research institution at all since start of business, 20 MSEs collaborated with 1 research institution, 12 MSEs collaborated with a total of 2 research institutions, 6 MSEs collaborated with 3 research institutions and 4 MSEs collaborated with 4 research institutions since start of business. The modal class was 2. On average an enterprise collaborated with at least one research institution. 13 MSEs did not collaborate with any research institutions on product development in the year 2012, 30 MSEs collaborated with 1 research institution on product development in the same year, 7 MSEs collaborated with 2 research institutions on product development, 2 MSEs collaborated with 3 institutions and No MSEs had collaborated with 4 or more research institutions on product development in the year 2012. The modal class was 2. On an enterprise among those in study collaborated with at least one institution on matters regarding product development in the year 2012. The study identified that 13 MSEs did not collaborate with any research institutions on product development in the year 2013, 29 MSEs collaborated with only 1 research institution on product development in the same year, 7 MSEs collaborated with 2 research institutions on product development, 2 MSEs collaborated with 3 institutions and only 1 MSEs collaborated with at least 4 research institutions on product development in the year 2013. The modal class was 2. On an enterprise among those in study collaborated with at least one institution on matters regarding product development in the year 2013.

It was revealed that 12 MSEs did not collaborate with any research institutions on product development in the year 2014, 19 MSEs collaborated with only 1 research institution on product development in the same year, 15 MSEs collaborated with 2 research institutions on product development, 4 MSEs collaborated with 3 institutions and only 2 MSEs collaborated with at least 4 research institutions on product development in the year 2014. The modal class was 2 implying that an enterprise among those in study collaborated with at least one institution on matters regarding product development in the year 2014. 6 MSEs have adopted only 0 - 9% of the new production processes in the industry, 12 MSEs have adopted between 10 – 19% new production processes, 18 have adopted 20 – 29%, of the processes 8 MSEs have adopted 30 - 39% and 4 MSEs have adopted up to 40% - and above and above new production processes. The modal class was 3 showing that on average the the MSEs adopted between 20% to 29% of the new production processes in the industry. 10 Employees in MSE have embraced only 0 - 9% of the firms technology, 14 MSEs have employees who have embraced 10 – 19% of the firms technology, 10 MSEs employees have embraced 20 – 29%, of their firms technology 11 MSEs have employees who have embraced between 30 - 39% and 4 MSEs have employees who have embraced upto 40% and above of the firms technology. The modal class was 2. The MSEs employees have only embraced between 10% to 19% of the firms technology averagely.

8 MSEs have only 0 - 9% levels of economies of scale in production, 11 MSEs have between 10 – 19% levels of economies of scale in production, 12 have between 20 – 29%, levels of economies of scale in production 11 MSEs have 30 - 39% and 4 MSEs have upto 40% - and above and above levels of economies of scale in production. The modal class was 3. This implies that on average, an MSE under study has achieved between 20% to 29% levels of economies of scale. Collaboration of an individual Mse with a research institution was considered as a measure of extent of adoption of technology on product development. The research findings indicated that 38 Mses did not collaborate with any research institution on product development across the 3 years. This implies that most of the Mses do not collaborate with research institutions on product development.

Similarly only 4mse out of the 52 Smes studied on had adopted upto 40% and above on new production processes. The research findings also indicated that only 4Mses have employees who have embraced upto 40% and above of the firms technology. This confirms millers (2010) findings that many micro and small enterprises in developing nations encounter challenge when it comes to adoption of new technology due to limited financial resources as the cost of acquiring new technology is normally very high, however in developed nations such as UK, USA Canada, China and Japan, many micro enterprises have been able to adopt new technologies due to financial resources and also accessibility to business advisory services. Miguel (2008) concurs that adoption of new technology is a critical challenge that affects the growth of micro enterprise in Africa since it hinders enterprise capacity to access various business advisory services that are normally offered using ICT platforms like internet. His study indicated that micro enterprises have much to gain by adopting new technologies since it helps in new knowledge absorption by far reaching a wide range of business advisory services. The study further indicated that many micro enterprises in Africa fail to offer new products and reach global market due to limited access to ICT

The study further indicated that only 4 Mses out of the 52 Mse studied had upto 40% and above levels of economies of scale in production. This implies that most of the Mses have inadequate level of economies of scale in production. Lim (2007) advocates that Mses need to adopt technologies that match day to day production processes to enable them enter new markets, access information, improve production methods, products and markets. Relevant technology will enable Mses to adopt economies of scale in production. Freel (2000) asserts that the most innovative firms are involved in extensive business links (advice) with a variety of external sources of knowledge and expertise.

The study further revealed that most of the MSEs do not seek business advisory services from the providers and majority of those that seek help need only as low as 0-9%.of the advice, 17 out of 52 business organization studied need help in training in order for their business to grow and most of the MSEs studied needed training in production in order for their businesses to grow. Need for training in marketing of the products of the business also ranked very high in the study. The above findings indicate that most MSEs recognize training as an important phenomenon in the success of their businesses. The most important types of training they need include

management, marketing and production. Wanjohi and Mugure (2008) concurs with this research finding. In their research in the rural areas in Kenya on challenges affecting Mses, they cited lack of managerial training, experience, inadequate education, lack of skills, lack of credit, national policy and regulatory enrolment as some of the factors affecting growth of Smes. Training is considered as part of collaboration with service providers (advice providers). Inadequate training in this study is considered as inadequate collaboration with advice providers therefore a cause of inadequate performance of Mses. Kubr (2002) cites the importance of business advisory services and clearly states that it brings in new and fresh ideas into the business organization, which helps an organization perform better.

The regression model summary results of new technology adoption versus use of business advisory services by microenterprises in table 1 showed that the value of R and R² were .978 and .956 respectively. This showed that there is a positive linear relationship between Extent of adoption of technology and use of business advisory services. This means that 95.6% of the variation in the variable use of business advisory services is explained by the variation of the variable extent of new adoption of technology in the model $Y = \beta_0 + \beta_1 X_1$. The remaining 4.4% of the variation in the dependent variable unexplained by this one predictor model but by other factors. The results of the analysis of variance ANOVA on the variables use of business advisory services versus extent of adoption of technology reveals that there is a significant effect on Mses use of business services. The findings of this analysis are similar to Miguel (2008) view that adoption of new technology is critical because it helps in new knowledge absorption by reaching a wide range of business advisory services. The study is also in line with Diabete (2014) findings in a study on factors influencing small and medium enterprises in adoption and use of technology in Cote de Ivoire. The findings of his study revealed that there is a high level of importance of adoption of technology in management, production, processes, accessing information, new products, markets and economies of scale. All the above are easily accessed through business advisory services. Freed (2000) view also supports the result of this analysis. He affirms that the most innovative firms are involved in extensive and diverse links with a variety of external services of knowledge and expertise which is accessed by adopting technology.

Table 1 Model summary Extent of adoption of technology and use of business advisory services

R	R Square	Adjusted R Square	Std. Error of the Estimate
.978^a	0.955611433	0.95472	0.21278

The results of the Analysis of Variance ANOVA in table 2 on the variables use of business advisory services versus Extent of adoption of technology. The test reveals that extent of new adoption of technology has significant effect on the use of business advisory services by MSEs. The P value is actually 0.000 which is less than 5% level of significance implying that the coefficient of Extent of adoption of technology is at least not equal to zero.

Table 2 ANOVA table Extent of adoption of technology and use of business advisory services.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.73618306	1	48.7362	1076.416167	.000 ^b
Residual	2.263816939	50	0.04528		
Total	51	51			

The study further determined the beta coefficients of Extent of adoption of technology. Table 4.24 shows the results of Coefficient of Extent of adoption of technology as 0.978 which helps to generate the model $Y=0.000+0.978X_1$ for business advisory services versus Extent of adoption of technology This model implies that every unit increase in the measure of Extent of adoption of technology of an MSE leads to a 0.978 increase in the level of the MSEs use of business advisory services.

Table 3 Coefficients Extent of adoption of technology and use of business advisory services.

	Coefficients	Std. Error	T	Sig.
(Constant)	-2.47692E-16	0.02951	0.000	1
Extent of adoption of technology	0.9775538	0.0298	32.8088	0.000

The findings of this analysis also confirms the Technology adoption theory (model) (Venkatesh, Morris and Davis 2003) which asserts that adoption of technology in an organization leads to innovation on methods of production, development of new products, services provided in an organization, marketing systems accessing information on new products and better methods of production. This information can be accessed through business advisory service providers.

CONCLUSIONS AND RECOMMENDATIONS

The study sought to find the level of influences of adoption of technology on the use of business advisory services. The study found that extent of adoption of technology has a positive relationship with the use of business advisory services. A bivariate study results showed that every unit increase in the measure of Extent of adoption of technology of an MSE leads to a 0.978 increase in the level of the MSEs use of business advisory services. The multiple regression analysis showed the combined influence of extent of adoption of technology on use of business advisory services considering other factors influencing the same dependent variable. The result of the optimal model showed that that every unit increase in the levels of extent of adoption of technology of an MSE leads to a 0.242 increase in the level of the MSEs use of business advisory services.

The study thus concluded that the use of business advisory services is influenced by the level of new technology adoption in many MSEs in Kenya. New technology adoption factors notably; new products, services, markets and research collaboration influences the use of business advisory services by MSEs in Kenya. The study recommended that the owners and managers of microenterprises in Kenya should seek business advisory services on how to adopt new

technology in their operations. Microenterprises should adopt new technology in development of new products, new services, marketing methods and production processes. Microenterprises should seek research collaboration with research institutions in order to improve on new technology adoption. The government of Kenya should ensure that basic training and skills acquisitions are provided to both formal and informal sector in order to equip them with knowledge and skills on how to adopt new technology in business functions.

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