

Analysis of Factors Influencing Transfer of Technology among Micro and Small Enterprises in Kenya

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Abstract

Kenya's Micro and Small Enterprises (MSEs) are characterized by restricted levels of technology, inappropriate technology and inadequate institutional capacities to support adaptation and absorption of modern technological skills. Many MSEs produce products with moderate quality, applying to a great extent outdated technologies, therefore facing tough competition with imported products. In order for businesses to be competitive there is dire need for them to produce quality products. The study sought to fill a gap in knowledge concerning transfer of technology among MSEs by addressing the factors that influence the transfer of technology among MSEs in Kenya with great emphasis on the Jua kali Metal workshops in Nyeri Municipality. The study concludes that the level of education and training is the main determinant of transfer of technology other factors held constant. The study found no evidence to suggest that technological information, finances, technological infrastructure and governments support have positively influenced transfer of technology among MSEs in Kenya.

Key Words: Technology transfer, Micro and Small Enterprises, Government's support, Technological information, Education and training, Finances, Technological infrastructure

Introduction

Technology is essential not only for the development of smaller enterprises but the overall economy of any nation. Many developing countries consider the transfer of technology from developed countries as an important element of growth. Dabadi (2003) argues that access to technology is a major determinant of efficiency. The investment efficiency to a great extent depends on the capacities of the firms to acquire new technologies and adopt them to local conditions.

This study is based on Porter (1980) Five Forces Model. Porter suggests five competitive forces that drive any organization namely; (i) existing competitive rivalry between suppliers (ii) threat of new market entrant (iii) bargaining power of buyer (iv) power of suppliers and (v) threats of substitute products including technology change. Technology helps to improve quality products so that firms remain relevant and competitive.

Technology enhances competitiveness in business and also promotes industrial development. For a firm to acquire customers and access to markets which constitute future profitable growth, it must enhance competitiveness. Competitive forces drive firms to innovate in order to develop more efficient production processes and adjust their products in response to changing consumer demand.

Policies to stimulate competition are a key driver for improving the micro and macro performance of an economy. Aduda and Kaane (1999) define technology as a body of techniques, methods, processes and designs. Dabadi (2003) defines technology as a tool as well as the know-how to use the tool. Nepal et al (2003) define technology transfer as dissemination of information, matching technology with needs and creative adaptation of items for new uses. Technology transfer is the use of knowledge; it is application of technology that is considered as a process by which technology developed for one purpose is used either in a different application or by a new user. Micro and Small Enterprises (MSEs) in Less Developed Countries are heavily dependent on imported skills for the maintenance and operation of plant. This is happening because these countries have not given proper thought to technology transfer process. Technology transfer and development process requires huge investment and adequate infrastructure (Nepal, Kirki & Niraki, 2003).

The Sessional Paper 2 of 2005 defines MSEs as businesses in both formal and informal sectors, classified into farm and non-farm categories employing between one and fifty workers. These enterprises cut across all sectors of the Kenyan Economy and provide one of the most prolific sources of employment creation, income generation and poverty reduction. The MSE sector is not only a provider of goods and services, but also a driver in promoting competition, innovation and enhancing enterprise culture which is necessary for private sector development and industrialization. The MSEs performance and competitiveness must therefore be increased to effectively respond to the challenges of creating productive and suitable employment opportunities, promoting economic growth, and poverty reduction in the country (Government of Kenya, 2005).

Kenya's MSEs are characterized by restricted levels of technology, inappropriate technology and inadequate institutional capacities to support adaptation and absorption of modern technological skills. They also suffer from lack of information on existing technologies and their potential for increased trade. Specifically, MSEs suffer from a weak environment that hampers coordination and transfer of appropriate technology. Consequently, the sector continues to experience low productivity, poor quality and limited range of products, resulting in low competitiveness of MSEs' products (Sessional Paper 2 of 2005). Kenya Vision 2030 recognizes the role played by manufacturing sector in the realization of making Kenya a newly industrialized country by the year 2030. For Kenya to be industrialized and to become a middle-income nation by the year 2030, Micro, Small and Medium Industries (MSMIs) will be the critical engine to propel the industrialization process. The importance of technology in the modern day economy can hardly be exaggerated as it is the technological ability that makes the firms and companies competitive. The technological level of firms and companies determines their success or failure in the world market. In this age of globalization only those firms and companies which are using the cutting edge technology can think of their global success (Government of Kenya, 2007).

The purpose of technology transfer and development is to improve productivity of enterprises, and enhance the quality of goods produced by enterprises to help withstand local and international competition (ILO/UNDP, 2000). In employing relevant technology, the entrepreneur must grow his customer base by further penetrating the market (Dadabi, 2003). Technology transfer is a fast-growing activity in the world's research and development system and one which has received substantial attention by governments, industries and institutions. In Kenya, though government has come up with many policy papers, very little attention has been made on transfer of technology among MSEs.

According to Moyi and Njiraini (2005), it is not possible for MSEs to grow and become competitive without technological change and accumulation of knowledge. Without access to technology MSEs lack the capacity to produce efficiently, meet deadlines, upgrade quality and evolve new product designs. According to Ngahu (1992), technology choice has important implications for growth and productivity in an industry. The enterprise adoption of appropriate technology keeps the firm aware of the latest developments, helps in adapting to changing markets and protects the firm from obsolescence. This will enhance quality of products in a competitive market and a source of income to the entrepreneurs. Technology used in most MSEs is outdated and will need to be modernized through research. It is for this reason that the study aimed at analyzing factors influencing transfer of technology among MSEs in Kenya focusing on Jua kali Metal Workshops in Nyeri Municipality.

Research questions addressed in this paper are ;(i) what are the factors that influence transfer of technology among MSEs? (ii) What measures can be put in place to facilitate transfer of technology among MSEs? Enterprises decide at the enterprise level which technologies to use. The main factors influencing choice of technology are ; the cost of technology, government's support, technological information, level of education and technical skills and technological infrastructure. Many MSEs lack information about technologies due to their economic and organizational characteristics and therefore not able to gauge the appropriateness of those that are available.

The study aimed at bridging the gap in knowledge on the transfer of technology among MSEs in Kenya. This will help shape policies that will eventually facilitate transfer of technology. By understanding factors that influence transfer of technology, control measures can be put in place to encourage and sustain productivity and quality of products.

The findings of the study will provide useful information to the Ministry of Trade, Science and Technology in order to facilitate transfer of technology by assessing factors affecting it and therefore spur productivity in MSEs. It will also facilitate accessibility of information on relevant technologies, provision of financial resources, and assist in training MSEs for acquisition of managerial, technical and entrepreneurial skills. This will enhance quality of products that are marketable and beneficial to the entrepreneurs. MSEs will benefit from this study by using the information gained to make better decision making concerning their businesses. They will also be in a position to use appropriate technology that is less expensive, using locally available materials that are environmental friendly. The universities will use the study as a copy for future reference in their library as addition of new knowledge.

The purpose of the study was to analyze factors influencing transfer of technology among MSEs in Kenya with the aim of providing appropriate recommendations. The objectives of the study were:-

- To test the relationship between government's support, technological information, level of education and training, availability of finances and technological infrastructure on transfer of technology among MSEs in Kenya.
- To discuss policy implications in regard to transfer of technology among MSEs in Kenya.
- To develop a model of technology transfer.

Literature Review

The history of technology development in relation to small enterprises in developing countries started with the emergence of Appropriate Technology (AT) Movements in the 1970s. The AT movements saw technology as a resource that can only be useful if adapted by businesses to improve their efficiency and factor productivity. The AT was initiated by international organizations (ILO/ UNDP, 2000). Technology is judged appropriate not just in terms of their level of sophistication and complexity but also with regard to their suitability to particular social contexts and their consistency with desired social goals. Technologies used by SSEs in developing countries might be inappropriate because their choice is based on insufficient information and ineffective evaluation (Harper, 1987).

Technology transfer can be defined as the process that allows techniques, knowledge as well as products and management practices to flow from one entity (a firm, region or country) to another entity (Moyi & Njiraini, 2005). There are five broad means to acquire technology: -through indigenous research and development, direct foreign investment, purchasing or leasing "off-the-shelf" overseas training and accessing patent documents in public domain kept in patent offices such as Kenya Industrial Property Offices (KIPO) (Sessional Paper 2, 1996).

Most modern economies hinge their growth strategies on their resources, research, innovation and technological abilities. Research, Innovation and Technology (RIT) sector explores opportunities associated with the convergence of research, innovation and technology to spur economic growth in the country (Medium Term Expenditure Framework, 2010). A knowledge based economy relies heavily on innovation to transform resources into products, processes and services (Government of Kenya, 2008). To promote skills acquisition and development within the MSE sector, there is need to develop programs to encourage private sector participation in skills upgrading within the MSE sector (Government of Kenya, 2005).

Government's policy on technological use and production of goods and services encourages "the application of technologies that minimize waste and exhibit recycling possibilities and the active development of innovations and inventions" (Government of Kenya, 1989).

According to Dhungana (2003), the direct effect of technology acquisition in host countries occurs to the local employed population, both skilled and non skilled workers who get instructions and training and local managers get hands-on-experience and on-the-job training. He suggests that developing countries and enterprises in developing economies need to fully realize their technological capability for competition. Romijn (2001) suggests that the best technology development model involves close and ongoing interaction between users, institutes and producers as equal partners with complementary knowledge and skills. Meyanathan (1994) indicated that in a dynamic industrial environment small firm's competitiveness begins to be perceived as an integral part of national competitiveness. According to Shrestha (2004), the Asian experience has shown that SMEs with highly favourable 'cooperative inter-firm relationships' have fared better in applying technology to enhance competitiveness.

According to Ngahu (1992), Small Scale Enterprises (SSEs) are obviously incapable of sourcing, evaluating and adapting technologies effectively. Government policy should encourage the development of assistance programs to facilitate SSEs access to resources, information, training and technology. He suggested that policy should promote development of technologies appropriate to SSEs and those compatible with their circumstances. Romijn (2001) suggests that the first led policy makers to promote research institutes aimed at developing small scale efficient technologies. According to Moyi and Njiraini (2005), the role of government in technology transfer includes ; (a) creating effective national systems of innovations (b) developing science and technology policy and promoting science and technology planning (c) establishing institutions for regulating technology (d) encouraging university linkage programmes by offering assistance in focusing on MSEs technological development (e) developing organizations to provide technological information services and (f) strengthening affirmative policies for MSEs and encouraging sub-contracting of technology-intensive goods and services to be procured from MSEs.

A study by Ngahu (1992) pointed out that in order to get information about products, tools, equipment and processes to be used in business, many SSEs rely heavily on friends and competitions. According to Kalenje (2001), efforts to enhance entrepreneur's awareness and participation in e-commerce leads to increased business activities. Romjin (2001) suggests that owing to resource constraints, small firms' investments in training and education tend to be restrictive. Agarwal (2003) argues that technology capacity building in most MSEs is through easier access to technologies since their internal R& D or innovation capacities are generally limited. It is only a small percentage of technology based small and medium enterprises that are innovative or are developers of technologies.

According to Kaplan (2000), firms should have new approaches that examine accumulation of technological capacity at the level of the firm. Lall (1992) suggests that capabilities assist a firm to access, identify, implement, absorb and develop knowledge that advances its position in the market. Dhungana (2003) argues that the ability of developing countries to receive, transfer, adopt, develop and manage technologies depends on development of endogenous technological capability and human resources. Onsomu et al (2007) noted that Kenya has put a lot of emphasis on human capital development as a way of facilitating economic growth. Training nurtures creativity, critical thinking, produces innovative and adaptive human resources with appropriate skills and improves attitude and values for wealth creation, employment and prosperity. Lall (1999) suggests that education, on the other hand contributes to development of technical skills. The desire for competitiveness requires that countries shift from simple operational skills to advanced innovative skills.

According to Moyi and Njiraini (2005), low educational achievement leads to general failure of most SMEs proprietors to appreciate the role played by technology in its production processes, product's quality and market competitiveness. Romjin (2001) points out that lack of finance, skill and expertise combined with high uncertainty depress investments in technology. Dadabi (2003) suggests that good technology may cost more initially but it later works effectively for a longer time. The firms that try to minimize initial capital investment end-up acquiring outdated and inefficient technologies. They are forced to look at short-term profit, rather than long-term returns. They end up obtaining obsolete tools and equipments which makes their operation unviable in the longer-run.

Model

The model indicates dependent and independent variables. A multi regression model was used in the study that expressed Transfer of technology as a function of Government's Support, Technological Information, Education and training, Finances and Technological infrastructure.

$Y = f(\text{Government's support, Technological information, Education and training, Finances and Technological infrastructure})$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Y = Technology Transfer

X₁ = Government's support

X₂ = Technological Information

X₃ = Education and training

X₄ = Finances

X₅ = Technological infrastructure

It is expected that the above independent variables influence transfer of technology. Entrepreneurs need government's support, information, knowledge and skills empowered through finances and proper infrastructure. The researcher hypothesized that government's support positively influence transfer of technology among MSEs in Kenya. Government is charged with the responsibility of creating an effective national innovation system. This involves coming up with institutions and organizations that support invention, innovation, technology transfer, diffusion and adoption. Some of these are public and private institutions involved in Research and Development (R&D) as well as institutes that emphasize technology extension services. It is also charged with the role of developing a science and technology policy. It also plays a key role in establishing institutions to regulate technology including metrology, standards and intellectual property rights (KIPPRA, 2005).

The researcher hypothesized that technological information positively influences transfer of technology among MSEs in Kenya. Ngahu (1992) indicated that lack of information is a key problem affecting MSE's access to technology. MSEs at times face a problem of accessing information due to inadequate support institutions. There is need for a supportive policy to encourage the establishment of documentation centres and information network to provide information to MSEs at affordable prices. Harper (1987) suggested that technologies used by SSEs in developing countries might be inappropriate because their choice is based on insufficient information and ineffective evaluation. Advancement of information technology and information systems has increased technology transfer in MSEs through dissemination of knowledge. Access to information on recent technology facilitates transfer of appropriate technology and varieties of choices.

The researcher hypothesized that education and training positively influence transfer of technology among MSEs in Kenya. Ngahu (1992) suggested that ignorance is a key constraint that affects choice of technology for SSEs. Education is relevant as it may determine the entrepreneur's access to information. Anderson (1985) suggested that the ability to read and write, exposure to a broader world, and training in the sciences enhance one's ability to understand, respond to, use, and control technologies. The biggest hindrance to the success of MSEs is the quality of manpower. The human resources involved in the MSEs should have adequate skills i.e. technical, managerial and entrepreneurial skills in order to absorb, diffuse and assimilate technology. Boey and Chiain-Lee (1994) pointed out that to keep up with industry trends and changes small businesses need to constantly retain and retool their staff. There is need for employers to invest in human capital.

The researcher hypothesized that availability of finances facilitates technology transfer. Ngahu (1992) suggested that lack of access to credit is indicated as a key problem for SSEs. This affects choice of technology by limiting the number of alternatives that can be considered. Technology transfer and development is an area where lot of investment is needed because it requires adequate financial support to carry out R&D and buying of appropriate technology. The role of finance to facilitate an enterprise's ability to acquire, diffuse and master technology has largely been ignored.

The difficulties MSEs face in obtaining finance are more pronounced when it comes to technology investments especially in R&D projects, establishing technology start ups, launching new products and adapting new products. Availability of finance is highly uncertain with possible returns to the investment materializing only after a lengthy period.

The researcher hypothesized that technological infrastructure positively influence transfer of technology among MSEs in Kenya. Technological infrastructure is important since it deals with accessibility of electricity, telephones, equipment and internet. Electricity provision constitutes one of the greatest infrastructural problems among small firms. MSEs' accessibility to electricity is further constrained by high costs and connection charges. According to Aduda and Kaane (1999) modern technologies are based on electricity. Internet penetration is also a factor in infrastructure that affects MSEs. Information on internet is vital not only for business purpose, but also in accessing knowledge in a world that has changed to knowledge- based technologies. Moyo and Njiraini (2005) noted that internet accessibility revolutionized the ability to collect, analyze, transmit data and information. Firms are using internet to make contacts, check prices, display goods and enter into contracts.

Research Methodology

The study used a quantitative research strategy which involved collection of numeric data. The researcher used descriptive survey design. Oso and Onen (2009) pointed out that this design presents oriented methodology used to investigate populations by selecting samples to analyze and discover occurrences. Data was collected by questionnaires with open and closed ended questions. The researcher used both primary and secondary data. The target population of the study was 148 Jua Kali metal workshops within Nyeri Municipality sourced from Nyeri Municipal Council for entrepreneurs who have procured trade licenses by January 2011.

Due to distance and geographical constraints, the researcher used cluster random sampling method of selecting the sample; this is because the respondents were distributed in a wide geographical region which contained many sub-urban shopping centres. It is from this list that the sample of 44 Jua Kali metal workshops was selected. The researcher used a sample of 30 percent from the target population (Cochran, 1977). The questionnaires were administered to the sample.

Validity and Reliability was achieved through pre-testing of research instruments conducted as a pilot test in 10 MSEs Jua Kali metal workshops in Mukurweini Town which was not included in the actual study.

Results and Discussion

The data collected was edited to inspect pieces for consistency. The researcher classified and coded the information into distribution tables. It was analyzed by descriptive statistics and advanced inferential statistics using Statistical Package of Social Sciences (SPSS) software. The researcher used the multi regression model and hypothesis tests to prove and disapprove the null hypothesis at 95 percent confidence level. Data was presented by use of frequency distribution tables for easy presentation. These are useful in summarizing a lot of information in a small space.

The sample size was 44 respondents out of which 41 responded. This represented 93.2% of the total respondents. The rest 6.8% did not respond. An overwhelming majority (90.2%) of the respondents were males. Females were only 9.8%. This implies that these types of businesses are dominated by men and therefore attract few women entrepreneurs. The researcher found out that the age group between 18-35 years had 42% and 36-40 had 27%. This implies that majority entrepreneurs were young people below 40 years old. This is explained by the fact that majority of the youth in Kenya are unemployed. Therefore majority have joined Jua Kali sector for self-employment.

Entrepreneurs who operated alone without any employee were 25% .Those entrepreneurs who had employed 1-2 employees were 39% and between 3-5 people were 24%. This showed that 88% had less than 5 workers. Majority of the businesses therefore are sole proprietorship. This implies that most Jua kali metal workshops are micro businesses (Republic of Kenya 1999). This is due to the fact that entrepreneurs are limited in assessing financial resources to expand their businesses. Majority of the businesses indicated that they had operated for for almost 10 years, this confirms that these businesses have limited growth.

On academic qualification those who had managed to go to primary school level were 19.5%, secondary level 31.7% and technical level are 43.9%. Only 4.8% had degrees and masters. This implies that majority of the respondents had attained secondary education and had undergone some basic technical training in order to acquire skills and hence able to conduct simple business transactions.

Regression and Hypothesis Testing

The data collected from the sample gave the regression results from SPSS package as shown in tables below. The data was analyzed at 5% level of significance ($\alpha=0.05$).

Regression Results

Table 1.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.913(a)	.833	.809	.542

Predictors: (Constant), X5, X4, X3, X1, X2

Table 1.2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.263	5	10.253	34.846	.000
	Residual	10.298	35	.294		
	Total	61.561	40			

Predictors: (Constant), X5, X4, X3, X1, X2

An F Test was performed to determine whether the overall model was useful or not as shown in Table 1.2 above.

Ho; $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

Ha=At least one β_1 is not equal to zero

F=38.846, p- value = 0.000

This implies that $p < \alpha$, there is sufficient evidence to show that the overall model was useful. The coefficient of Adjusted $R^2=0.809$ as shown in Table 1.1. This means that 80.9% of all factors influencing technology transfer can be explained by government's support, technological information, education and training, availability of finances and technological infrastructure. The remaining 19.1 % are other factors that are unexplained in the model.

Table 1.3 : Coefficients

Model		Un standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.376	.373		1.009	.320
	X1	.151	.145	.161	1.041	.305
	X2	.014	.163	.014	.083	.934
	X3	.806	.162	.790	4.961	.000
	X4	-.093	.066	-.100	-1.403	.169
	X5	-.015	.162	-.018	-.094	.926

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

$$Y = 0.376 + 0.151X_1 + 0.014X_2 + 0.806X_3 - 0.093X_4 - 0.015X_5 \text{ where;}$$

X_1 = Government's support

X_2 = Technological Information

X_3 = Education and training

X_4 = Finances

X_5 = Technological infrastructure

To test on independent variables that predicted technology transfer t tests were performed and p-values obtained as shown in Table 1.3 above.

Ho: $\beta_i = 0$ where $i=1, 2, 3, 4$ or 5

Ha: $\beta_i \neq 0$

The coefficient of government's support is positive with p-value = 0.305 and $\alpha = 0.05$, $0.305 > 0.05$ therefore we fail to reject the null hypothesis. This means that there is no significant relationship between government's support and technology transfer among MSEs in Kenya.

This is consistent with a study by Moyo and Njiraini (2005) that pointed out that government lacks a coherent and comprehensive science, technology and innovative policy to guide decision making. Ngahu (1992) suggested that government policies should encourage assistance programs which promote development of appropriate technologies.

The coefficient of accessibility to technological information was positive and but not significant at 5% level of significance with a p-value of 0.934. This implied that access to technological information was not significant to technology transfer among MSEs in Kenya. We therefore fail to reject the null hypothesis since $0.934 > 0.05$. This differs from a study by Ngahu (1992) which pointed out that lack of information is a key problem affecting MSE's access to technology. There is need for a supportive policy to encourage establishment of documentation centers and information network to provide information to MSEs at the affordable prices. Harper (1987) also suggested that technologies used by SSEs in developing countries might be inappropriate because their choice is based on insufficient information and ineffective evaluation.

The coefficient of education and training was positive and significant at 5% significance level. The p-value = 0.000, therefore $0.000 < 0.05$ we therefore reject the null hypothesis. Therefore there was significant relationship between education and training and technology transfer among MSEs in Kenya. This is consistent with study done by Onsomu et al that Kenya has put a lot of emphasis on human capital as a way of facilitating economic growth. Training seeks to modify the entrepreneurs' technical and interpersonal skills in order to achieve their goals.

The coefficient of availability of finances and technology transfer was negative but not significant at 5% level. The sig value used to test the hypothesis was given by 0.169. We therefore fail to reject the null hypothesis. We conclude that there was no evidence to suggest that finances influence technology. Jua kali operators suffer from inadequate financial capacity to acquire available technology and infrastructure. Technology transfer and development process requires huge investment and adequate infrastructure. Most entrepreneurs are limited in accessing financial assistance due high interest rates and contingent measures set by financial institutions. This is consistent with a study done by Ngahu (1992) who suggested that access to credit is indicated as a key problem for small scale enterprises. This affects technology choice by limiting the number of alternatives that can be considered. Romjin (2001) points out that lack of finance, skill and expertise depress investments in technological effort. Dababi (2003) indicated that lack of finance leads to outdated and inefficient technologies.

The coefficient of technological infrastructure was negative but not significant at 5% level. The p-value got was 0.926; we therefore fail to reject the null hypothesis. We conclude that there was no evidence to suggest that technological infrastructure influences technology. This is consistent with a study done by Romijn (2001) who pointed out that whereas technological hardware (equipment hardware) can be transferred, the capacity to make use of that hardware has to be developed through a gradual learning process resulting from purposive efforts to assimilate, adapt and modify the new technology. Upgrading of technological capacity is essential to satisfying customer demand for new or imported products. Moyo and Njiraini (2005) pointed out that MSEs are constrained by limited access to appropriate technology and key technological infrastructures (power and electricity) and high importation costs of equipments that limit technological capacities of MSEs.

Conclusion and Recommendation

The study concludes that education and training is the key determinant of transfer of technology. The study also concludes that technological information, finances, technological infrastructure and government's support do not significantly influence transfer of technology among MSEs. Kenya's MSEs are characterized by restricted levels of technology, inappropriate technology and inadequate institutional capacities to support adaptation and absorption of modern technological skills. MSEs remain one of the most important sectors of Kenya that contribute significantly to the Gross Domestic Product (GDP), create employment and earn foreign currency through export.

One of the main factors that influences the success or failure of an enterprise is technology. There is need to promote our MSEs on issues of quality, productivity and market access facilitate generation and distribution of wealth and job creation in the country for the benefit of all. In terms of policy government should enhance technological capability of entrepreneurs.

Once a suitable technology has been imported, a process of adaptation of this technology should take place to absorb it efficiently and an appropriate institutional framework to fulfil specific institutional formulation, development, financing, training and infrastructure. Government should strengthen facilities for promoting and developing appropriate technical education and training. Every effort should be made to make such training facilities available for MSEs' entrepreneurs through workshops and seminars. Department of Micro and Small Development (DMSD) should be more aggressive in coming up with better strategies to help MSEs in technology transfer. Research findings from higher institutions should be made available to MSEs at the grass root level. Government should endeavour to encourage commercialization of technology and viable innovations.

To promote skills acquisition and development within the MSE sector, programs should be developed to encourage skills upgrading in entrepreneurs. This should be facilitated by enhancing Technical Training Institutions, MSE training and Demonstration centers, Youth Polytechnics, , Skills Development Centers to offer appropriate skills to MSEs. Lack of access to finances appears to be a significant impediment to the conduct of business by Jua kali sector. The government, financial institutions and Micro finance Institutions should implement special credit programs to MSEs in order to facilitate technology transfer.

Jua kali entrepreneurs should be advised to join business associations for MSEs which may help to solve constraints such as research and development, collaborate with universities and research institutes to facilitate technological information and regular technology markets. They disseminate and enforce a stock of common standards, rules and norms. They also help to disseminate technical knowledge within the sector, provide forum for technological learning and advance soft loans to their members. The costs of electricity and internet should be reduced reasonably in order to help entrepreneurs to reduce operational costs. Taxes on some tools and equipment used by MSEs should be reduced to make those items affordable.

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