

**Research Article**

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# **Effect of Technological Environmental factors on Growth of MSME's owned by Entrepreneurs with Disabilities in Rural areas in Kenya**

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## **Abstract**

The study sought to establish the relationship between the technological environmental factors on growth of MSME's owned by entrepreneurs with disabilities in rural areas in Kenya. The target population was 2021 registered persons with disability. The study used of questionnaires for data collection. The researcher opted for stratified purposive sampling technique in selecting Entrepreneurs with disabilities and purposive sampling in managers in Youth Polytechnics (YPs). A sample size of 200 was selected. Quantitative data obtained was analyzed using SPSS software. The researcher conducted correlation coefficient test and significant levels to check the strength of the relationships between variables. Additionally, logistic regression model was used to examine the relationship between the independent variables and dependent variable. The study results indicated that technological environmental factors affect the growth of MSME's owned by Entrepreneurs with disabilities in rural areas in Kenya significantly and positively.

The study recommended that vocational and technical training institutions should invest more on ICT infrastructure and also establish partnerships with private sectors which are critical in running successful incubation centres within their institutions

## **Keywords**

Effect,  
Technological,  
MSMEs,  
Entrepreneurs,  
disability,  
Rural Kenya

## **Introduction**

A disability is a term covering a wide range of impairments that bring about limitations and restriction in activity and participation. According to Persons with Disabilities Act 2003, disabilities refers to physical, sensory, mental or other

impairments which adversely affect an individual's capacity to participate in social, economic or environmental activities (GOK, 2004). The constitution of Kenya further developed this definition to include any other impairments, conditions or illness which a community perceives to have, a substantial or

long-term effect on an individual's capacity to carry out every day's activities (GOK, 2010).

## **Research objective**

The objective of the study was;

To establish the effect of technological environmental factors on growth of MSME's owned by Entrepreneurs with disabilities in rural areas in Kenya.

## **Literature Review**

### **Technology-Organization-Environment (TOE) Framework**

The TOE framework has been used by different researchers investigating how businesses embrace technological innovations. For instance, Zhu, Kraemer & Xu, (2006) used TOE in analyzing how businesses in 10 countries were adopting e-business. Similarly, Hackney, Xu & Ranchhod (2006) used TOE in analyzing how 5 U.K. firms businesses were adopting Web services. The technology- organization-environment (TOE) framework which was introduced by Tornatzky and Fleischer (1990) analyzed technological adoption using three elements—the environmental context, the organization context, and the technological context.

The environmental context refers to the different take holders surrounding the enterprise including such as industry players, competitors, dealers, clients, the government, the society, among others (Angeles, 2013). She further argues that such stakeholders influence a business's understanding of innovation as well as its ability to acquire the resources necessary to pursue and deploy such innovations. These take holders could either support or block technological innovation (Zhu et al, 2006). On the other hand, the organizational context refers to various characteristics of an organization including its size, structure of management, excellence of its human resources, internal decision-making procedures and methods of internal communications, internal and external networks among others (Hackney et al, 2006).

Such factors affect not only the level of technological innovation but also the level of uses of such innovations (Angeles, 2013).

The technological context encompasses all of the technologies that are relevant a business including technologies already in use as well as those that are available in the market place but not currently in use (Zhu et al, 2006). They further note that a business's existing technologies determines how it adopts future technologies both in scope and pace. Additionally, technological innovations existing but not yet in use in the business also influence innovation by showing the limits of what is possible as well as by showing businesses ways in which they can use technology to evolve and adapt (Awa, Ukoha & Emecheta, 2012).

According to Tornatzky and Fleischer (1990) there are different approaches that organization use in implementing technological innovations: techno-centric, socio-centric, conflict/bargaining, systems life cycle, and socio-technical systems approaches. The techno-centric approach exclusively focus on the technology processes, methods, tools, machines, and surrounding knowledge are as totally excluding end user's needs and issues. On the other hand, the socio-centric approach focuses on the social setting of technological innovations. The conflict/bargaining perspective focuses all key stakeholders with a view to encourage cooperation and collaboration in resolving differences that may arise in the process of implementation of technological innovations. The systems life cycle approach is a methodology used to develop Information System solutions covering system planning all the way to systems maintenance. The socio-technical approach seeks address main concerns of the social system and the technical system (i.e., process, technology, tools, machines, and methods) in pursuing the implementation of technological innovation in an organization (Tornatzky & Fleischer, 1990).

## Technological Environment and Growth of MSME's

Technological shifts are the norm in today's business and only technological innovative MSME's will thrive and maintain a competitive edge (Bogliacino, Piva, & Vivarelli, 2012). By nature, MSME's are generally more flexible and are therefore best suited to develop and implement innovative ideas (Chaminade & Vang, 2006). Moyi (2003) further asserts that technology has the potential of linking MSME's with buyers in different places and giving them the ability to improve their negotiating power. Additionally, technological innovation can support SMEs to achieve cost effectiveness, improve quality of existing products, or altogether develop new product development (Czarnitzki & Delanote, 2012). Regardless of whether a business is a technology start-up or a trader in traditional products or services, ICT is a great enabler for businesses.

Information and communication technologies (ICT) have the capacity to empower PwD's economic, political, and social empowerment through improved their access to information and networks as well as increased competitiveness and market outreach (Kiveu, 2008; Chaminade & Vang, 2006). However, Shahkooch & KhodaBandeh (2006) noted that without equal access to ICT, EwD's risk becoming marginalized in the new technology driven economy. They further pointed out that ICT solutions targeting PwD's must be based on a clear understanding of PwD's knowledge, needs and expectations and be delivered in the most appropriate and accessible way. Additionally providers of such solutions must be avail their knowledge, skills, and expertise so that use and adoption of ICT is fully inclusive (Shahkooch & Khoda Bandeh, 2006).

### Independent variable

Technologic Environment	Business
<ul style="list-style-type: none"> <li>• Use of internet and mobile phones</li> <li>• Level of use of internet and mobile phones</li> </ul>	

### Dependent Variable

Business growth
<ul style="list-style-type: none"> <li>• Number of employees.</li> <li>• Sales turnover</li> <li>• Profits margins.</li> </ul>

This study adopted a survey research design for the purposes of investigating external business factors affecting growth of MSME's owned by entrepreneurs with disabilities in Meru County. This design was appropriate for gathering information, summarizing and reporting the way things are (Mugenda & Mugenda, 2003).

The targeted population comprised the following informant resource persons: 2021 registered PwD's, 16 managers in youth polytechnics, 6 principals in technical training institute, Women Enterprise Fund officers (9), Youth Enterprise

Development Fund officers (18), Uwezo Fund officers (9), National Council for Persons with Disabilities officer (1), Micro and Small Enterprise Authority officer (at the county level) (1) and Meru County Government's disabilities office (1)

The researcher opted for stratified purposive sampling technique in selecting Entrepreneurs with disabilities and purposive sampling in managers in Youth Polytechnics (YPs) to participate in the study. The study used of questionnaires for data collection.

## Results Findings

The study sought to determine the effect of technological environmental factors on growth of MSME's owned by Entrepreneurs with

disabilities in rural areas in Kenya. The respondents were asked to indicate their level of agreement with various statements. Their replies were as shown in Table 1.

**Table 1 : Level of Agreement with Statements on Technological Environment**

	Mean	Std. Dev.
The government of Kenya should invest more to ensure that more people have access to internet and other ICT infrastructures such as fiber optic and Web hostings	4.5668	.4968
Information communication technology (ICT) have the potential to boost PWDs business growth	4.1337	.7096
ICT business applications such as M-PESA, mobile banking, bank agencies etc. have opened up the business opportunities for many PWDs in Kenya.	2.3904	.6579
Internet applications such as websites, OLX, Facebooks etc have boosted PWDs business by providing accessibility to global markets for their products and services.	3.6257	.5764
My business venture has adopted and thus taking advantage of the existing ICTs within the country	4.1016	.6094
There is a great ease when accessing ICT related facilities such as internet, Facebook, E-mail and mobile phones	4.2246	.5892
Skilled ICT personnel are readily available and affordable in the country hence easily accessible ICT user support and services	3.6845	.6238
Registering a business that is ICT-enebled has a complicated process and thus discourages people from such business	3.4225	.5756

From the findings, the respondents agreed that the government of Kenya should invest more to ensure that more people have access to internet and other ICT infrastructures such as fiber optic and Web hostings as expressed by a mean of 4.5668, that there is a great ease when accessing ICT related facilities such as internet, Facebook, E-mail and mobile phones as shown by a mean of 4.2246, that information communication technology (ICT) have the potential to boost PWDs business growth as illustrated by a mean of 4.1337 and that their business venture has adopted and thus taking advantage of the existing ICTs within the country as expressed by a mean of 4.1016. These findings are consistent with Moyi (2003) who further asserts that technology has the potential of linking MSME's with buyers in different places and giving them the ability to improve their negotiating power. Additionally, technological

innovation can support SMEs to achieve cost effectiveness, improve quality of existing products, or altogether develop new product development.

Moreover, the respondents agreed that skilled ICT personnel are readily available and affordable in the country hence easily accessible ICT user support and services as shown by a mean of 3.6845 and that internet applications such as websites, OLX, Facebooks etc have boosted PWDs business by providing accessibility to global markets for their products and services as illustrated by a mean of 3.6257. Further, the respondents were neutral on the fact that registering a business that is ICT-enabled has a complicated process and thus discourages people from such business as expressed by a mean of 3.4225 and disagreed that ICT business

applications such as M-PESA, mobile banking, bank agencies etc. have opened up the business opportunities for many PWDs in Kenya as shown by a mean of 2.3904. These findings are in line with Shahkooch & Khoda Bandeh (2006) who noted that without equal access to ICT, EwD's risk becoming marginalized in the new technology driven economy. They further pointed out that ICT solutions targeting PwD's must be based on a clear understanding of PwD's knowledge, needs and expectations and be

delivered in the most appropriate and accessible way. Additionally providers of such solutions must be avail their knowledge, skills, and expertise so that use and adoption of ICT is fully inclusive

Moreover, the respondents were asked to indicate extent of the usage of ICT in businesses being run by PWDs. Their responses were shown in Table 4.27

**Table 2: Extent of the Usage of ICT in Businesses**

	Frequency	Percent
Low extent	31	16.8
Moderate extent	77	41.6
Great extent	43	23
Very great extent	36	18.6
<b>Total</b>	<b>187</b>	<b>100</b>

From the results, the respondents revealed that they moderately use ICT in businesses as shown by 41.6%, greatly as shown by 23.0%, very greatly as shown by 18.6% and lowly as shown by 16.8%. This shows that there is great use of

ICT in businesses run by PWDs. They also indicated that ICT ensures quality of customer service, ensures greater collaboration and improved financial performance.

**Table 3 : Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.951	0.217		4.382	.000
Technological Environment	0.799	0.196	0.834	4.077	.000

The findings show that a unit increase in the score of environment would lead to a 0.799 significant

increase in the score of business growth since p-value (0.000) was less than 0.05.

**Summary, Conclusions and Recommendations**

The study also found that the government of Kenya should invest more to ensure that more people have access to internet and other ICT infrastructures such as fiber optic and Web hostings, that there is a great ease when accessing

ICT related facilities such as internet, Facebook, E-mail and mobile phones, that information communication technology (ICT) have the potential to boost PWDs business growth and that their business venture has adopted and thus taking advantage of the existing ICTs within the country. Moreover, the study found that skilled ICT personnel are readily available and affordable in

the country hence easily accessible ICT user support and services and that internet applications such as websites, OLX, Face books etc have boosted PWDs business by providing accessibility to global markets for their products and services. Further, the study found that registering a business that is ICT-enabled has a complicated process and thus discourages people from such business and disagreed that ICT business applications such as M-PESA, mobile banking, bank agencies etc. have opened up the business opportunities for many PWDs in Kenya.

The study also concluded that technologic environmental factors affect growth of MSME's owned by Entrepreneurs with disabilities in rural areas in Kenya positively. It was clear that government of Kenya need should invest more to ensure that more people have access to internet and other ICT infrastructures such as fiber optic and Web hosting where accessing the ICT related facilities such as internet, Facebook, E-mail and mobile phones is easy. Further PWDs business growth is boosted by information communication technology (ICT) where skilled ICT personnel are readily available and affordable in the country hence easily accessible ICT user support and services. Moreover, the study found that registering a business that is ICT-enabled has a complicated process and thus discouraging people from such business.

The government should provide adequate and timely funding to vocational and technical training institutions. On the other hand, vocational and technical training institutions should invest more on ICT infrastructure and also establish partnerships with private sectors which are critical in running successful incubation centers within their institutions. The vocational and technical training Youth polytechnics institutions should also recognize and rewards members of staff undertaking entrepreneurial activities in various academic units and invest in tracer studies on status of their graduates

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