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## Article

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# Impact of Technological Change On Small and Medium Enterprises Performance in Lagos State

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**Abstract:** Organizations are restructuring, re-engineering and rethinking how they do business in an effort to keep pace with changes in technology and other economic conditions in the world. The goal of technological change under study is the ability of SMEs to accept new innovative methods that will lead to higher performance of humans and machines for increased productivity. Descriptive survey research with the sample population of 153 respondents made up of managers and owners of small and medium enterprises within the Lagos metropolis was used for this study. The major statistical technique used was a linear regression technique. The hypothesis tested found that technological change has effect on organizational performance of small and medium enterprise within the Lagos metropolis. The coefficient of determination ( $R^2 = 0.566$ ) showed that 56.6% of the success recorded in the SMEs performance is accounted for by technological change. This result is statistically significant because the p-value of the result (0.000) is less than 0.05 level of significance used for the study. This indicates that technological change has a positive and significant impact on SMEs performance in Lagos State. In order to achieve success in change management through technology; human resources, culture and innovation must be recognized and respected. This will enhance SMEs performance both in the short and long run. It will also prevent unnecessary resistance of employees to change through deviant workplace behaviour.

**Keywords:** Technological change, Change management, SMEs, Innovation, Performance

**JEL codes:** L10, L2, Q32, Q33

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## 1. Introduction

Technology is an external force so difficult to predict that managers are often puzzled about how to plan it effectively especially in Small and Medium Enterprises (SMEs) where investment in

technology is seen as very costly and expensive to manage. Spending much money on acquisition of new technology means a deviation from manual (simple) to sophisticated and automatic way. Technological change in most cases requires more training and capital intensive despite the achievement of new business opportunities for organizations. In SMEs engaged in manufacturing goods, slack time is discouraged in production. Also, service providers where ICT makes information processing becomes faster to network clients, customers and other stakeholders worldwide through internet facilities technological change is embraced. That is why many dynamic organizations through the adoption of new technologies are able to move ahead while others are left behind in competitive markets.

The demands of higher-technology firms require that much greater emphasis be placed on anticipations and positioning the firm for technological change that is necessary in other industries. The need to acquire technology creates basic tensions between the desire to use the best technology (often found outside the firm) and the desire for control which is weakened by reliance on outside sources. Organizations that have achieved a sophisticated understanding of the dynamics of technology are in a better position to develop competencies with which they can react appropriately to environmental and market changes. Therefore, in either reacting to or forecasting technological change, the nature of technological development must be well understood.

Sustainable growth and profitability require technological innovation and attentive control perspectives. Innovation through new products and technologies has a tremendous impact on organizations' growth. "Small and medium-sized enterprises (SMEs) furnish a strong increase to employment and economic growth specifically due to their innovative activities which become a main force of explaining competitive advantage and firm performance, (Ussahawanitchakit, 2012: 113)". "The comprehension of new technologies and all its potential abilities can actually become a source of weakness, because managers cannot use them against competitors or to profit from the opportunities that these technologies can offer (Albert, 2006: 307-312)".

Changes in technology, the marketplace, information systems, the global economy, social values, workforce demographics, and the political environment all have a significant effect on the processes, products and services produced. "The culmination of these forces has resulted in an external environment that is dynamic, unpredictable, demanding and often devastating to those organizations which are unprepared or unable to respond (Burnes, 2004)".

## **2. Statement of the Problem**

“Many organizations are occasionally faced with challenges that force them to adjust or change, (Burnes, 2004)”. Development organizations have to go through change processes when having to respond to new development scenarios or simply as part of their expansion or restructuring processes. The SMEs overall performance is affected by individual and group performance of its employees. That is why the management must be more supportive to the newer technology, while, at the same time, finding innovative ways of retaining human talent.

In Nigeria many entrepreneurs choose a technology that suits the firm’s products and information processing that will yield required investments and profitability whether manual or automatic. This may be due to the fear of competence in handling the needed issues required for the acquisition and maintenance of new technological innovation. However, general socio-economic environment and unfavourable financial policies regarding local development and research into production of needed equipment and machines is lacking on the part of government. The goal of this study therefore, is to provide suggestions to SMEs on how new innovative methods will lead to higher performance of humans and machines for increased productivity through the use of new technology. Ability to accept the new ways of doing things through technological change will reduce the use of obsolete (manual) ways of doing things to automated and easier ways of production that will result in more profits and enhance global competitiveness.

## **3. Theoretical Framework**

### **Lewin’s Change Management Model**

“Lewin (1951, cited in Robbins, et.al., 2008) argued that successful change in organizations should follow three steps:” Unfreezing: change efforts to overcome the pressures of both individual resistance and group conformity”. Movement: “a change process that transforms the organization from the status quo to a desired end state” and the third step is Refreezing: “stabilizing a change intervention by balancing driving and restraining forces”. In this respect, “Harper (2001) proposed that for effective change to take place, management must ensure that all relevant stakeholders are given the opportunity to be engaged in decision-making and problem solving in a collaborative manner. A better understanding of the needs and benefits of change may result in little or no

resistance on the part of change recipients. In the final step (refreezing), the emphasis is on the reinforcing of new processes and tasks in the organization by the employer. For this step to be successful, employees must be acknowledged, as reward is an important consideration. Reward is crucial for behaviour modification and employees should receive appropriate recognition for changes in behaviour if they embrace the technological change.

#### **4. Conceptual Framework**

##### **Change Management**

“Moran and Brighton (2011: 111 –118) defined change management as the process of continually renewing an organization direction, structure and capabilities to serve the ever-changing needs of external and internal customers”. “When change is announced in an organization, there is a general hope and feeling among the staff that the outcomes will be favorable to them (Kimaku, 2010)”. The norm indicates that most employees expect a positive outcome and their management will consider their needs. This also applies to new ideas, technology, products or service. “Therefore, trust becomes a key factor in determining how employees think, feel and act in respect to the current change (Sikasa, 2004)”. “Korir, et. al (2012) defined change management as the effective management of a business change such that executive leaders, managers and frontline employers work in concert to successfully implement the needed process, technology or organizational changes”.

Due to its importance, change management is becoming imperative and needs appropriate managerial skills and strategy. For firm to survive, succeed and remain competitive in today’s highly volatile and continuously evolving business environment, it must be able to successfully manage the change which is as a matter of fact a necessity. “Organizations today have increasingly become aware of the importance of change management practices. This awareness in a system is a critical dimension in the performance of organizations (Rees, 2008: 87-89)”. “Organizations were faced with threats of competition and changing employees needs which had to be met using different techniques and production models apart from the existing ones (Kotter, 2008)”.

When the issue of change is introduced to the employees, they tend to fear and often assume a defensive and resistant role. It is important to note that employees do not perceive change positively. Change interferes with their routine activities and they are subjected to a deviation from

what they are used to doing. They feel threatened and unsure of their future. This brings about mental and emotional instability, often with implications on their performance. During the implementation of change, the employees are noted to have negative feelings and they struggle in finding how to cope with the effects of change. “Resistance displayed is deeply rooted in pre-conditioned and routine subjection that the employees were previously exposed to within the work environment (Terziovsk, 2010: 892-902)”.

### **Challenges of Change**

It is necessary for leaders to note that changing the running of an organization from a command and control nature of management to the nurturing and motivational nature of leadership is important for effective change to take place. Without a consistent focus, it becomes incumbent on each member to interpret the environment and to make decisions on which opportunities to explore. In addition, individuals who are asked to make a change are really being asked to make a commitment of personal energy. Company resources must be devoted to help workers understand the impending change, convince them of its value, and manage the resistance that will inevitably surface.

### **Small and Medium Enterprises (SMEs) Definition**

“According to Central Bank of Nigeria (2014), Small and medium enterprise is defined as an establishment whose turnover is not more than one million naira.” Also in Nigeria, the 2010 National Micro Small and Medium Enterprises collaboration survey, collaboration between National Bureau of Statistics (NBS) and the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) define SMEs by adopting a classification based on dual criteria, employment and assets (excluding land and buildings) that:

Micro enterprises are those enterprises whose total assets (excluding land and buildings) are less than five million naira with a workforce not exceeding ten employees

Small enterprises are those enterprises whose total assets (excluding land and building) are above five million naira but not exceeding fifty million naira with a total workforce of above ten, but not exceeding 49 employees.

Medium enterprises are those enterprises with total assets excluding (land and building) are above fifty million naira, but not exceeding five hundred million naira with a total workforce of between 50 and 199 employees.

### **Dimensions of SMEs**

SMEs can increase their activities and businesses in some ways and grow in some dimensions. The following dimensions can be identified:

- a) **Raise the level of integration of the technologies** – The management of technologies and the exploitation of all their potential is strictly linked to the possibility of integrating their synergies.
- b) **Intensify innovative technology processes** – This direction of innovation is a decisive contribution for the modernization of businesses and the implementation of competitive strategies through new ideas and modifications of existing technologies to suit the present economic situation.
- c) **Increase the number of markets where the company operates** – Internationalization and globalization are direct consequences of this decision. This can be achieved where products are up to the global market standard and local consumptions.
- d) **Increase businesses' portfolios** – The Company that today is involved in a given industry can tomorrow widen its investment to other industries through product integration.
- e) **Increase the number of operational uses of technologies** – Many technologies can have applications in operations of a different nature. Investment in newer technologies will increase the productive activities and encourage training and development of human resources capacity.

### **Technological Change on Organizational Performance**

Technological change and its impact on the work force have become a focus of attention all over the world. However, there are conflicting views about the implications of changing technology for employment. Some experts say that the pace of technological change is accelerating and that thousands of workers in plants and offices are affected as labour saving innovations is diffused more widely. While others contend that recent innovations represent a sharp departure from earlier changes, and techniques for maintaining job security was essential. Technological change is beneficial for all groups in any society, it is believed that technology ultimately creates more jobs than it eliminates especially in small and medium enterprises. “Concerns about changing

technology have been continual over human history and usually increasing during periods of higher-than-average unemployment, and abating somewhat (Mark, 2010)."

Technological change and its impact on the work force have become a focus of attention all over the world. The innovations include advanced communication systems, industrial robots, flexible manufacturing systems, computer-assisted design (CAD), and computer-assisted manufacturing (CAM). "These modern technologies incorporate powerful and low-cost microelectronic devices that have the potential to increase productivity in office and factory production tasks (Smith, 2007: 427-450.)". In order to effectively carry out the desired change, executives must start as role model from their behaviours to issues, clients, employees and stakeholders before it gets to the subordinates. This must be approached gradually and systematically. Investment in technology will enable SMEs to solve problems related to their productions and combine human, technical and conceptual skills to handle change as it occurs in dynamic business environment.

### **Organizational Performance**

"Organizational performance is an important element from organizational perspective, as it leads to higher organizational commitment of employees and high commitment leads to overall organizational success and development (Senge, 1990)". "Performance serves as a significant predictor in organizational commitment and retention (Kim, et.al., 2004: 672–681)." When employees are satisfied with their job, they are more willing to provide service that exceeds customers' expectations and positively influence customers' attitude towards their service. In contrast, employees who are dissatisfied with their job are likely to have more occupational stress and be less productive (Skinner and Champion, 2008: 45-64). Where necessary, recruitment of new staff to collaborate the change should not be seen as disregard to the existing staff of the organization and disrespect to their human dignity when carrying out new assignment so that their loyalty to the organization will not be diminished.

Effective communication enhances both employees' and organizational performance especially in small and medium enterprises where majority of the employees are semi-skilled such as in agro-allied and other related businesses. Communication should be disseminated through appropriate methods or channels in order to avoid rumour mongering and misrepresentation of words that can jeopardize the reasons for undergoing change. Managers or chief executives of



organizations should understand that individuals have different background, culture, values, beliefs and norms. These differences in individual employees can affect organizational performance negatively or positively because behavioural approach acceptable to a particular individual may be strange and met with deviant workplace behavior by another employee.

## **5. Research Methods**

The research engages a descriptive survey research design. The choice of this survey design was due to the fact that it observed what happened to sample variables without any attempt to manipulate them (Asika, 2008). Structured questionnaire was used in gathering relevant data. The respondents' views were coded with the five Likert-type scaling measurement of 'strongly agree', 'agree', 'indifferent', 'disagree', and 'strongly disagree'.

The population of this study consists of all the SMEs in all the Local Governments areas in Lagos State with about 4535 registered SMEs. (Lagos State Ministry, 2014). The sampling unit consists of 6 LGAs (Alimosho, Oshodi-Isolo, Amuwo-Odofin, Ikorodu, Ibeju-Lekki and Lagos Mainland). 30 copies of questionnaires were administered to SME owners in each Local Government area making a total of 180 questionnaire copies. 153 copies of questionnaires were valid for data analysis. Content validity was used to test the validity of the research instrument while internal consistency result (Cronbach alpha was 0.75) showed the reliability of the instrument. The study used descriptive and inferential statistics to test the hypothesis.

## **6. Results and Discussion**

180 copies of questionnaires were administered and 153 were returned and used for analysis.

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**Table 1. Descriptive Statistics of Respondents' Demographic Information**

		Frequency	Percentage (%)
<b>Sex</b>	Male	69	45.1%
	Female	84	54.9%
<b>Age</b>	20-29	31	20.3%
	30-39	68	44.4%
	40-49	41	26.8%
	50 and above	13	8.5%
<b>Marital status:</b>	Single	92	60.1%
	Married	61	39.9%
<b>Educational background</b>			
	MSc/MBA	13	8.5%
	B.Sc / HND	19	12.4%
	OND/NCE	28	18.3%
	SSCE	31	20.3%
	No formal education	62	40.5%

Source: Researcher's field work (2017)

**Hypothesis One**

Change in technology does not have an impact on Small and Medium Enterprises Performance.

**Table 2. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F
1	.752 <sup>a</sup>	.566	.521	.46937	5.639

a. Predictors: (Constant), technological change

Source: Researcher field work (2017)

**Table 3. ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.755	1	9.755	8.866	.003 <sup>b</sup>
	Residual	166.146	151	1.100		
	Total	175.901	152			

a. Dependent Variable: SMEs performance

b. Predictors: (Constant), technological change

Source: Researcher's field work (2017)

**Table 4. Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.787	.388		9.762	.000
	Tech change	.226	.076	.235	2.978	.003

a. Dependent Variable: SMEs performance

Source: Researcher's field work (2017)

The model summary shows the extent to which technological change enhances SMEs performance. The coefficient of determination ( $R^2 = 0.566$ ) shows that 56.6% of the success recorded in the SMEs performance is accounted for by technological change. This result is statistically significant because the p-value of the result (0.000) is less than 0.05 level of significance used for the study. This indicates that technological change has a positive and significant impact on SMEs performance in Lagos State.

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The ANOVA value  $F$  of (3.90) while the calculated  $F$  value is (8.866), at the degree of freedom of 151 showed that technological change has a positive and significant impact on SMEs performance in Lagos State since the  $F$  value is lesser than  $F$  calculated.

The model signifies that a unit change in technological change increases SMEs performance by the rate of 0.226. This implies that technological change is very essential to the growth and development of SMEs. Therefore, the null hypothesis was rejected while alternative hypothesis was accepted.

### **7. Discussion of Findings**

The hypothesis was tested using regression analysis and the findings revealed that technology change has a significant impact on SMEs performance in Lagos State. Human resources are the most difficult to change and employers of labour must be sure they encourage employees job satisfaction and also promote organization citizenship behavior Robbins et al (2008). This will enable employees to perform maximally when change in whatever form such as technology takes place in the organization and promote harmonious cooperation between management and stakeholders.

According to Albert (2007: 51-57) sustainable growth and profitability require technological change and attentive control perspectives. Innovation through new products and technologies has a tremendous impact on SMEs growth especially in Lagos State. Lagos State has an estimated population of about 22 million in 2017. Of all the 36 Nigerian states, Lagos state is the smallest and at the same time the most populous state in Nigeria. The state of Lagos is considered to be among the fastest growing states in the world. (Population of 2017.com).

### **8. Conclusion and Recommendations**

Financial institution should also provide loan facility to SMEs at an affordable interest rate and less collateral security. Technical assistance is a factor that is often overlooked, misunderstood, or neglected which is as important as financial assistance to SMEs. Tax imposed on SMEs should be reduced so that SMEs can adopt technological change needed for the production of their goods and services. Lack of creativity and fear of the unknown hinders the small and medium enterprises

innovation towards competitive global technological driven business. Competent human resources should be developed that will contribute and manage the acquisition of new technologies when obsolete machines and equipment are to be changed in SMEs.

The new way of doing things, technology and skilled human resources where necessary must be discussed together as a team. This will eliminate any misrepresentation of genuine intentions of the management towards change action. Emotional and new ways of thinking especially through technology can only be supported with rational and participative decision making by the people who will be affected by change in the organization. Managers should also adopt a new way of combining human efforts with new technological developments. This will reduce antisocial actions that will intentionally violate established norms that may result in negative consequences for the organizations and its members in order to enhance organizational performance.

The impact of technological change will create more opportunities e.g employment, capital inflow, foreign exchange etc so that the economy will benefit maximally from the opportunities offered by technology-induced globalization in the export of goods manufactured by small and medium enterprises. In order to cope with the dynamics of change, small and medium enterprises should not relent on their effort towards improving and upgrading their obsolete machines and other equipment as at when necessary so that their operations will be standardized and be in compliance with what obtains in developed economy.

It was therefore recommended that;

- Tax imposed on SMEs should be reduced to allow the sub-sector to adopt to technology and acquisition.
- Financial institution should also provide loan facility to SMEs at an affordable interest rate and less collateral security. This will enable them acquire the necessary facilities needed for their production of goods and services.

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***Wpływ zmian technologicznych na małe i średnie przedsiębiorstwa w stanie Lagos***

***Streszczenie***

Organizacje starają się restrukturyzować, reinżynierować oraz ponownie obmyślać sposób prowadzenia biznesu w ramach wysiłku ukierunkowanego na dotrzymanie tempa zmianom technologicznym oraz innym uwarunkowaniom ekonomicznym na świecie. Celem artykułu jest określenie zdolności małych i średnich przedsiębiorstw do zaakceptowania nowych, innowacyjnych metod prowadzących do lepszej wydajności ludzi i maszyn dla zwiększonej produktywności. Dla osiągnięcia celu artykułu wykorzystano opisowe badania ankietowe, opierające się na próbie 153 respondentów, składających się z kierowników i właścicieli małych i średnich przedsiębiorstw w metropolii Lagos. Główną metodą statystyczną była regresja liniowa. Na podstawie testowanej hipotezy stwierdzono, że zmiany technologiczne mają wpływ na małe i średnie przedsiębiorstwa w stanie Lagos. Współczynnik determinacji ( $R^2 = 0,566$ ) wykazał, że 56,6% przypadków sukcesu odnotowanych przez małe i średnie przedsiębiorstwa wiąże się ze zmianami technologicznymi. Jest to wynik istotny statystycznie, ponieważ p-wartość wyniku (0,000) wynosi mniej niż poziom istotności 0,05 założony w badaniu. Na tej podstawie można stwierdzić, że zmiany technologiczne mają pozytywny i istotny wpływ na kondycję małych i średnich przedsiębiorstw w stanie Lagos. Dla osiągnięcia sukcesu w zarządzaniu zmianą poprzez technologię, należy rozpoznać i uszanować jakie czynniki, jak zasoby ludzkie, kultura i innowacje. Wzmocni to kondycję małych i średnich przedsiębiorstw w krótkim i długim okresie. Zapobiegnie to także niepotrzebnemu sprzeciwowi pracowników wobec zmian poprzez odstępstwa od zachowań w miejscu pracy.

***Słowa kluczowe:*** zmiany technologiczne, zarządzanie zmianą, małe i średnie przedsiębiorstwa, innowacje, kondycja

***Kody JEL:*** L10, L2, Q32, Q33

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