

TECHNOLOGICAL CHANGE AND EMPLOYEE PERFORMANCE IN SELECTED MANUFACTURING INDUSTRY IN LAGOS STATE OF NIGERIA.

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ABSTRACT

The state of technology in any organization has a significant influence on the quality and quantity of production of its goods or services. But despite this, technology is prone to constant change which organizations have to monitor, manage and cope with. Manufacturing industry that will like to be competitive and profitable should ensure that employees are trained and involved in the management of technological change for organizational survival. But most organization tends to undermine the contribution of employee in managing technological change, the outcome of which are low profitability and performance. This paper examines how employee relation could be employed for technological change management. It also seeks to determine effective method of using technological innovation for improved performance in the Nigerian manufacturing industry. Two hypotheses were formulated to determine the relationship between technological change and employee skill; and between technological change and employee performance. Question based on the hypotheses were formulated and 1256 questionnaires were distributed to selected 30 manufacturing industry in beverages, textile, steel, cement and chemical industry in Nigeria. Findings reveal that employee relations do not have significant relationship with technological change. The paper recommends that employee relation should be considered in the management technological change for profitability, competitiveness and survival of the Nigerian Manufacturing industry.

Keywords: *Technological Change, Employee Performance, Manufacturing Industry.*

INTRODUCTION

Productions of goods and services in the world today have been greatly influenced by the systematic application of physical forces through different types of technology. Technology in most organization provided the required forces through various forms by which goods and services were produced. This to Dauda (2009) may be in forms of machine equipment information and communication made up of knowledge, tools, method and system directed to work in specific manner. Technology is made up of the hardware, the software and the brain ware. The hardware is the physical structure and logical of equipment, the software is knowledge and method used for production or output from the hardware and the brain ware is the reason for using the technology in a particular way. All these depend on a particular way. Khalil (2000) sees technology to be the result of man's learned and acquired knowledge or his technical skills regarding how to do things well.

The state of technology determines the quality and quantity of goods and services produced. Organizational and national conditional performance and development are determined by the state and types of technologies. Technology also influences living conditions of individual and groups in organizations and nations and the relationship between them. Technology is prone to change, and the state of technology have direct link to the relationship between the employer and employee. Technology, labour and capital are interconnected. Some technology use a lot of labour and some use more of other equipment or capital. Investors and manage based their selection or the quantity of both to their price and prefer or choose the one with lesser price to maximize their profit.

The choice is explicit but rapid and radical change and regulatory control may create problem that make it sometimes difficult to make a rational choice. The choice and the preference place on capital at the expense of labour may reduce labour co-operation, lowered their morale, productivity, create conflict that may reduce

organizational profit. On the other hand choice of labour may reduce the quality and quantity of goods produced and lowered organizational profit, competitiveness and profitability. Investors constantly face the dilemma of making rational choice and to balance the needs for each of them so as to make sustainable profit. Information and communication technologies (ICT) have changed all aspects of organization direction and operation. Work systems and employment relations have been affected by ICT in nearly and its major aspects. Microchips revolution and optic fibre cable have altered technology and work as never before. Employee and managers are interconnected through network of computers and other information gadgets. Many aspects of organization, industrial, national and international relations are organized and directed through ICT networking. These networking also connect production within and outside the industry and it extends to customers, suppliers, vendors, research and development maintain its systems.

Workers of different categories, even the less educated factory workers have benefited. Internet and multimedia telephone and other communication systems have provided opportunities to all categories of employees to receive and send information from and to anywhere in the world. This has provided access to technical and non technical solution to their individual and organizational problems and increase their efficiency and effectiveness. Engineers, technologist, technicians, craftsmen and artisan now use internet to search for solution, tools and materials that may help to improve performance and solve problems which have increased individual and team performance in many organization.

This paper examines the effects of technological change on employee performance in the Nigerian Manufacturing industry. It uses both the descriptive and empirical method to examine the relationship between technological change and human resource performance in selected Nigerian manufacturing industry. Two (2) null hypotheses were postulated: They are to test whether: There is no significant relationship between technological change and employee's skills; and between technological change and employee performance. The paper also examines man's innovative ability to cope with changing conditions, and the extent of technological change.

LITERATURE REVIEW

TECHNOLOGY INNOVATION AND HUMAN RESOURCE PERFORMANCE

Man in seeking for his survival and recognition tends to achieve them by providing for his needs and interest and that of others. Brown and Peddler (1996) succinctly combined the two positions. Man to them is a social animal that has natural tendency to seek out for others. In doing so, he finds and fulfills himself through his interaction with others. Social network provide the settings in which individuals struggle to find significance for themselves by relating with others.

Man's sense of self and of his own value therefore depends on the presence of others and of his interaction with others throughout his life (Grant, 1991). Biological, social and psychological necessities, which are mainly due to his interaction with others and with his environments, provide inspiration or motivate individuals to innovate. (Greenberg and Mitchell, 1983). However, Ito (1995) placed emphasis on individual distinctness in their relationship to organisation. An individual sees himself as distinct and acts as if he is distinct. Tajfel, (1982) sees individual groups in similar way. He argued that group identity is maintained primarily by inter group comparison, and groups seek positive interest between themselves and other reference groups to enhance their self-esteem.

Organisation in this regard subsumes a multiplicity of identities in individual group, each of which is appropriate for a given context. Albert and Whetten (1985) see individuals and groups as separate from organisation, and interact with other organisations by a process of inter organisations comparison. Dutton, et al. (1994) is of the view that individual members' sense of identification is created by organisational identity which depends on the attractiveness of their perceived organisational identity, the consistency between individual self context and distinctiveness of organisational identity. In these contexts, individual, groups and teams are symbiotically connected and they interact and depend on each other to achieve their interests. These explain why organisations should lay emphasize on the promotion and protection of individuals and group interests for managing technology innovation. It is human effort or its cumulative knowledge that further promotes technology innovation to enable organization and nation cope with change.

The explosion of knowledge that is taking place today is the innovation of the human resource in the past. Since the present condition is not static, it is dangerous for an organisation and nation to rely on the present achievement, hence, the need to innovate whether they are succeeding or failing. Organisations and nations should not wait for technology limit before innovation; hence, human resources require constant nurturing and

training to enable them to recognise or capture the limit and attack, rather than to allow change to overwhelm them. The “attacker” constantly analyses the present, and peeps into the future, to understand and determine environmental threat and limitation and launch attack. Defending the present condition may provide false security that cannot stand the test of time. Defender may be deceived by security of economic performance that may make it difficult for it to reposition itself or to move along with the changing conditions. Managers in this situation may find it “too late” to respond and doomed by doing “too little” (Foster, 1986).

Human resource performance is intimately linked to technological change and technological innovation. Technological change could be effectively managed through human resource joint approach. Individuals can innovate and achieve great technological breakthrough but the complexities of modern technology require effective combination of different innovations based on different aspects of technology. Hence human resources need to work as an individual and as a team and combine their innovation for production of new technology, goods and services. Individual innovation is meaningful and workable when combined with that of others. The collective innovation is also impossible without individual innovation, hence the two are separate, but could only work in the production process when they are combined and effectively managed to produce result, (Burns and Stalker, 1961); (Cimoli and Dosi 1988). Managers need to provide enabling work environment that enhances collaboration and team-networking to encourage employee initiative to innovate for organisational survival and competitiveness.

Many erroneously attribute all increase in productivity to technology. The contributions of the human element to organisation and national development is often not recognised or ignored. Technologies could only increase productivity or improve performance when combined effectively with other resources by human resource or when technology is effectively, productively and ethically used. Computer is the greatest invention that has influenced organizations, nations and human interactions in nearly all facets of life, nevertheless its performance and usefulness depend upon the knowledge, discrimination, intelligence and value of those who create them and make use of them. Man still has to define the problems, set objectives and lay down rules. He decides, analyse and judge.

Only the human element can check the abuse of technology, which poses portent dangers to the survival of organisations, nations and humanity in general. Technology can be used to make and to destroy. “Peoples forgetfulness, confusion, anger, despair can make them to use technology in ways that it could endanger their very existence and even destroy them” (Gaster, 1989). Buchwald (1969) had earlier succinctly put it that man had used technology ‘to create his own monster’. Weapons of mass destruction are produced with energy, time and money that are enough to solve the problems of poverty in all parts of the world.

TECHNOLOGY INNOVATION AND ORGANISATIONAL PERFORMANCE

The starting point of technological development, changes and innovations is always people. It is the people who create, initiate, use and manage ideas that are the bases and directions of technology. Identity theory provides a way of assessing individual relations to organizational objectives and national goals and enables us to understand human resource inspiration and readiness for technology innovation. The motivation the individual receives determines the extent of its identity and his readiness to innovate for organisational and national development. This theory to Bennis (1969) provides strategies intended to change beliefs, attitudes, values and structure of an organisation so that they can better adapt to new technologies, market challenges and changes. It can also be used to plan intervention in organisation process to increase organisation effectiveness and health. Both (Bechard, 1969) and Bolle De Bal (1992) demonstrated the relationship between organisational development and managerial effectiveness. Organisational efficiency requires that somebody in the strategic position should feel the need for innovation and change. These include the need to:

- Change managerial strategy;
- Make organisations more consistent with both individual needs and the changing needs of the environment;
- Change structure and roles;
- Change the motivation of the workforce;
- Make better planning;
- Improve inter-groups collaborations; and
- Adaptation to new environment.

Organisations in the competitive global economy require managers that can combine neatly organization and individual interests for the common good. Today’s workers want to participate in drawing up of management plans, in decision making and want to be recognized and appreciated for their contributions. Continuous organizational improvement require managers and team leaders that are capable of bringing out new ideas and

techniques from their subordinates and can create environment in which new thinking is encouraged and welcomed. Drucker (1985) argues that innovation comprises of both hard work and inspiration. Managers should not be rigid in managing their employees but allow them to use their initiatives. Severe and inflexible rules can be easily circumvented. High labour turnover in the Nigerian Telecommunications industry in vital positions and sections, most especially the engineers by the time this research was conducted was not because of poor salary but to the mismanagement of their skills and lack of recognition for their innovation. (Dauda, 1997). Top management should establish the right roles and processes, set clear goals and relevant measures and review progress at every stage. Innovation experience and opportunities may occur through unexpected occurrence, ingenuities, process needs, industry and market changes, demographic changes, changes in perception and new knowledge. All these when properly understood and managed promote technology innovation.

In spite of the changing conditions that characterised the work place of the 21st century, man's domination in the society and organisational settings remain the same. Many aspects of management may have changed, but the changes have not altered or removed the dominating position of human resources. Technology, most especially information technology have only expanded man's minds and intellect but have not replaced him. Human resource capability to manage other resources and to adapt to the changing conditions makes his position dominant. Human resource management theories and practices could therefore be useful to provide effective methods of managing all other aspects of the organisation for the achievements of its objectives.

Managers, supervisors and employees have to practice and operationalise management theories to promote technology innovation for organisational competitiveness. It is the realizations of these that have made many organisations to consistently promote the relevance of human resource management to technological innovation. In spite of the dynamic technological changes, human resource still needs to apply his skills and intellect in practical ways for improved technological innovations. Whenever management styles of top managers deviate from human resource management theories, concepts, models and practices, they are often off-target in their efforts to improve employee performance for technology innovation and for the overall organization improved performance. Human resource management provides managers with adequate tools for improving technology innovation (Boyd, 1984).

It is imperative for managers to employ human resource management theories, concepts and practices for the progress and development of their organizations and nations. They should plan, staff, organize, control and lead their human resources in the most appropriate manner. They should also acquire, train, appraise, reward and compensate them to get the best from them. These to Dessler (2008) will enable organization to hire the right employee, placed them on the right job, experience low turnover and motivate their employee to work efficiently and effectively and to motivate their employees to innovate.

Many industries embark on improving customer satisfaction by getting the latest machines to improve their organisations performance. They believe that acquisition of latest technology will improve operating practices and the quality and quantity of their goods and services. This is often complemented by other opportunistic customer responsive practices such as aggressive marketing strategies, sales promotion, public relations and others. But in spite of these, many organisations still fail to reap the benefits of their strategic innovations because these innovations are not supported by effective human resource strategies for their implementation. All emphasis were often placed on what can be easily measured and calculated, and innovation processes were often dominated by finance, marketing and operational staff inputs, and human resource managers were often considered as an appendage rather than active participant in the management effort to improve technology innovation. Barrow (1997) argued that business and industrial growth could only be enhanced if effective human resource management strategies are properly implemented in all units of the organization such as marketing, production, finance and others.

Most developing nations of Africa, Asia and Latin America could not harness their natural, material and human resources for socio-economic development as a result of their inability to utilise science and technology. This is not unconnected with the failure of their governments to encourage technology innovation and/or lack of commitment of their people to innovate. But the advanced countries of Europe, America, Russia and few emerging countries such as China have succeeded through the efficient application of science and technology in transforming their material and human resources into goods and services and dominate the world market. In the developed countries, government and organizations provided enabling environments and rewards to motivate their scientists, engineers, technologists, technicians and artisans/craftsmen to innovate. In most developing countries, apart from lack of these indices, human resource management factor was not considered. Human resource were not encouraged and rewarded to inspire and promote technology innovation. Nigeria was

considered appropriate for this study because it is the most populous and one of the most endowed in natural and material resources and one of the most poverty-stricken nations of the world.

In most of her technology-driven organisations most especially the Nigerian telecommunications industry, technology innovation is only considered in terms of purchase of latest equipment designed and manufactured in the advanced countries of Europe, America, Japan and China and some Asian countries. Most of these companies invested heavily on equipment, but not really on the human resource. Engineers, scientists, technologists and technicians were employed in different departments and in Research and Development (R&D) departments/units and organisations, but were not well managed to improve technology innovation.

Government and managers in nations and organisations should manage the people and their employees not only to make them comply with their directives and company policies and national law, but also to learn, accommodate and benefit from them. They have to study their personality, motivate and provide conducive environment for them to perform effectively. Commensurate reward should be given to employees for the performance of their roles and other extra rewards for their individual and team creativity and innovation. Group norms that promote individual interaction and improved performance should be encouraged.

TECHNOLOGICAL CHANGE AND EMPLOYEE RELATIONS

Many industries and nations in the developed and developing countries have established research and development units, departments and organizations to enable them to cope with technological change. The degrees of aggregation of technological innovation by organization and nation determine its performance and development. This is related to management and control of internal and systems and its response to external system. Significant improvement in output, productivity and growth are achieved when they use new technology. Increased productivity and general economic growth in most developed nations have been attributed to increasing technology and technological innovation. In these countries a significant proportion of R & D expenditure are devoted to the introduction of new product. Productions of large quantity and quality of goods and services have been traced to improved technology through R & D.

Organizations have also tend to lay emphasise on capital in terms of machinery and equipment and less on labour to increase their profitability. But these have not positively increased labour productivity. The substitutions of capital for labour have not really improved labour productivity or performance. The substitution of one by the other depends on the organization assessment of its environment and needs rest. Companies where large number of labour are displaced or removed to be replaced by capital without proper assessment may not record significant price and profit. Improved performances of many organizations were often traced to the improved performance of all the factors of production and the number of customer not only on technology (Dauda, 2000).

Investors and manager may consider improvement in either technology or labour to respond to customer desire for lower prices and to increase profit improved performance. Employees demand for increase wages may be traced to increase performance and productivity that are often due to management and control of technology system. There may be no scope for increased wages profit margin and price of unit of service if the cost of technology is high and the demand is not high enough to increase profit margin. (Dauda, 2000). In advanced countries the cost of technology is low, but that of labour is high and quantity of goods and services are large and the number of customer, are many. These may offset labour cost, reduce price margin and increased profits. In most developing nations low technological progress reduces the ratio of marginal product of labour to that of capital but in the developed nations where rapid technological change reduces price of capital and increase that of labour.

Unemployment and labour reduction due to technological advances may be prevented by proper management of the level of aggregate demand. Structural unemployment occurs because the unemployed do not possess the skills required by the expanding industries despite the expansion of aggregate demand. This situation leads to structural unemployment different from deficient unemployment caused by lack of job. Structural unemployment can be reduced by improving employee skills in forms of training and development and of education. Since the works in industry have been divided into smaller and simpler parts it will be easy for the unemployed to acquire necessary training and reduce the level of unemployment and be re – integrated into the system.

In most conventional high tech industries individual employee received two or three weeks training as against four years engineering apprenticeship training required for factory worker. Technological advances in industry may in three major ways affect employment effect

employment. Technological change is labour saving biased or capital saving biased, the latter could led to reduction in total cost of production and the latter and the former enhance labour productivity. In the second instance, same output can be produced with fewer men; the third is the reaction of demand to any consequent change in relative price which increases production and efficient. This expands output and promote employment prospect.

Despite these, the rate of the transition from older technologies is accelerating and is creating what Joseph Schumpeter regarded as “creative destruction” whereby innovation would destroy existing technologies and method of production. Technological change has created newer and more efficient machines which workers will replace them. Technologies have destroyed organization in the following major traditional areas which are: Industry structure, Regulatory approaches, Competitive positioning strategies and Technological assumption.

Trade unions in developed countries have also through television videotape, radio and other media sensitize and inform their member of the danger which unilateral employers decision on purchase of new technology posed to their members’ employment. Labour union mobilization of their member through media is low in Nigeria. In developed countries, trade union have consistently requested for law that will make technology subservient to the needs of the people rather than the other way round. Trade unions in Nigeria have not sufficiently make use of the media to educate and mobilize their members. Management unilateral decisions on technology have not been criticized by the trade unions in the manufacturing industry and it is not part of the bargaining issue between trade union and management or collective bargaining and negotiation (Dauda, 2010). Employers restructure, reengineer and reposition their organization to maintain a system that will enable them to cope with rapid and radical technological change, but with little or no regard for workers inputs and interest.

METHODOLOGY

Dillman, (1983) method of using past condition to understand the future is employed because of its suitability in predicting future events using “regularities” discovered about the past. Selected variables, which measure the relationship between technological innovation and organisational competitiveness and between employee innovation and motivation, were used to fund the degree of the relationship in the hypotheses. (Dauda, 2000) Respondents were randomly selected from selected manufacturing industry in Lagos State, Nigeria in order to apply the findings to their general performance (Matanmi, 1995)

Series of individual interviews at all levels were conducted to monitor activities that were transpiring as a result of human resource management strategies, such as motivation, wages, allowances or fringe benefits, industrial relations, work environment, top management performance and others.

Stakeholders qualitative group technique based on the assessment of the inputs and responses of all those who “hold stake” in the organisation was also used for the study. Stakeholders are those that will use or are affected by technology innovation process, result and progress. Questionnaire were collected, presented analysed and reviewed with socio-economic and political forecasting based on nuances and complex interplay of forces that characterized them. The information’s used for the study are limited to that which is relevant and useful in making decisions and judgments.

In this direction, the soft and hard models of human resource management based on Legge’s (1995) distinction were employed. The former is based on treating employees as valued asset and a source of competitive advantage through the use of their commitment, adaptability and high quality of skills and the latter lay emphasis on integration of human resource policies system and activities with business strategy for achievement of competitiveness. The two models though complementary in today’s human resource management practice are pursued by organisations for different reasons. Organisations that employed the soft approach treat employees as resourceful humans to be maintained treat with respect, rewarded and developed for their performance. The hard approach sees employees as variable inputs and a cost to be minimised in order to produce quality goods and services and to generate profits. Both approaches are subjective, and their implications on organisations depend on the method adopted to enhance different values.

The problems encountered in implementing the two models are constantly intensified by the changes in the environmental conditions, which are not easy to predict. Managers adopt policies that are suitable for different situations and are modified in the light of the changing circumstances to drive business values for organisational survival and competitiveness. Different industrial environments have particular economic and technical characteristics, each of which call for unique competitive strategies. Since strategies that work in a company

may not work in another, or those that work at a particular time may not work at another, the choice of hard or soft models is contingent to the situation in the environment and within the company. Environmental differences do affect what managers do, just as the situation influence the way they operate. Organisation must develop a set of key strategic strength areas that are suitable to the environment in which they operate.

The best way of doing things by organisation is to take the contingencies or situation into account before action. Managers in the course of their day-to-day activities rely on situational-derived information and on system supplied information. The latter takes prominence in the new global economy as organisations have to relate and interact with the dynamic world environment. A clear understanding of the environment is therefore, required for managers to cope with the challenges of the present and the future. In essence, effective monitoring and management of the environment were considered desirable and required for managers to promote and manage technological innovation. Slevin and Pinto (1989) implementation method for successful project management is combined with other human resource management theories to create human resource successful technology innovation environment. This approach rest on the implementation of clearly defined goals, that could be achieved through top management support, training and motivation of competent project team members, and adequate communication channels with feedback capabilities and responsiveness to employees and customer's needs. These are also necessary for improved human resource technological innovation.

All these are complimented with the use of insight and intuition, which make most of the findings meaningful. Management borrows ideas and theories from many branches of knowledge and organises itself on their cumulative applications and combinations. Deetz (1982) sees insight as “knowing and seeing” of what is important and necessary in understanding the interface between technological change and human resource responses and performance. As an enquiry whose aim is to discover the basis in which application of knowledge and theory in a changing and dynamic environment, assessment of political, economic, social, technological and cultural forces are considered and integrated. These are used to provide tools to describe explain and criticise management systems employed or the actions of stakeholders in the Nigerian manufacturing industry.

RESULTS

Responses to the questions in the questionnaire were analyzed using inferential statistical methods of regression and ANOVA.

The use of a five-point scale questionnaire (i.e. from “strongly agree” (5) to “strongly disagree” (1) in the present research was adopted. In order to identify the underlying dimensions of the variables in the questionnaire, the variables in the questionnaire were correlated. In the present research, construct validity was determined via factor analysis where the extracted factors could be viewed as an array of common underlying dimensions of the technological change and employee relations construct.

HYPOTHESIS 1

Ho: There is no significant relationship between technological change and employee’s skills.

Hi: There is significant relationship between technological change and employee’s skills

The R squared is the proportion of variation in the dependent variable explained by the regression model. The model fit the data gotten from the sampled manufacturing industries because of the large value of 0.884 thus optimistically estimate how well the models fits the population (1258 respondents). This is also justified by the adjusted R squared with value 0.883 which have attempted to correct R squared to more closely reflect the goodness of fit of the model in the population.

The independent variables do a good job explaining the variation in the dependent variable because of the small significance value of the F statistic 0.000 which is smaller than 0.05, which means that A relationship does really existed between technological change and employee’s skills.

Table 1
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.940(a)	.884	.883	.171

a Predictors : (Constant). B24, B10, B2, B23, B20, B6, B5, B14, B3

Field Survey, 2010.

Table one displays R, R squared, adjusted R squared, and the standard error. The R, is the multiple correlation coefficient (the correlation between the observed and predicted values of the dependent variable, B4). These is a larger value of R = 0.940 which indicate a stronger relationships.

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Thus; accepting the hypothesis Hi that a significant relationship existed between technological change and employee’s skills.

Table 2
ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	276.091	9	30.677	1054.928	.000(a)
	Residual	36.233	1246	.029		
	Total	312.324	1255			

a Predictors: (Constant), B24, B10, B2, B23, B20, B6, B5, B14, B3(Technological change; Independent variables)

b Dependent Variable: B4 (Employee's Skills)

Field Survey, 2010.

Table two summarizes the results of an analysis of variance (ANOVA). The sum of squares, degree of freedom, variation, regression and residual.

The output for the regression displayed information about the variation accounted for by the model. While the output for residual displayed information about the variation that is not accounted for by the model. And the output for total is the sum of the information for regression and residual. The model accounted for most of the variation in the dependent variable because of the large value (276.091) of the regression sum of squares in comparison to the residual sum of squares value of 26.233. And the model did justice to this because of the low residual sum of squares; 26.233

Table 3
Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	14.251	.168		84.892	.000		
	B2	.057	.017	.050	3.360	.001	.415	2.408
	B3	.492	.022	.702	22.080	.000	.092	10.842
	B5	-1.151	.021	-1.154	-55.531	.000	.216	4.638
	B6	-.368	.012	-.516	-31.901	.000	.356	2.806
	B10	-.670	.020	-.657	-33.852	.000	.248	4.040
	B14	-.350	.027	-.344	-13.204	.000	.138	7.272
	B20	-.214	.020	-.213	-10.659	.000	.232	4.306
	B23	-.096	.018	-.097	-5.310	.000	.277	3.611
	B24	.186	.017	.261	11.195	.000	.171	5.836

a Dependent Variable: B4

Field Survey, 2010

The t statistics in table 3 helped us to determine the relative importance of each variable in the model. The relative importance is determined with the t values well below -2 or above +2.

B₂, B₃, B₂₄ are above +2 with respective values of 3.360, 22.080 and 11.195. while B₅, B₆, B₁₀, B₁₄, B₂₀ and B₂₃ are below -2 with respective values of -55.531, -31.901, -33.825, -13.204, -10.69, and -5.310.

The foregoing statement showed that all the independent variables are of relative importance to achieving technological change in the manufacturing industries through employee’s skills.

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The independent variables do a good job explaining the variation in the dependent variable because of the small significance value of the F statistic 0.000 which is smaller than 0.05, which means that a relationship does really existed between technological change and employee’s skills. Thus; accepting the hypothesis H_i that a significant relationship existed between technological change and employee’s skills.

HYPOTHESIS 2

Ho: There is no significant relationship between technological change and employee performance.

Hi: There is significant relationship between technological change and employee Performance.

Table 4
Model Summary (b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932(a)	.869	.868	.159

a Predictors: (Constant), B₂₉, B₁₇, B₂₅, B₁₈, B₁₃, B₁₁, B₂₂, B₈, B₂₈

b Dependent Variable: B₇

Field Survey, 2010.

Table 4 shows R, R square, adjusted R squared, and the standard error. R has a value of 0.932 represent the multiple correlation coefficient (the correlation between the observed and predict values of the dependent variable). This is a strong positive correlation as it tends to +1. This means that a positive relationship exists between technological change and employee performance therefore accepting the hypothesis that there is significant relationship between technological change and employee performance. This can also be attested to as the R squared have a value of 0.869 showing a proportion of variation in the dependent variable explained by the regression model meaning that the model fits the data well (the population). Adjusted R squared also affirmed to it by closely reflecting the goodness of fit of the model in the population also with a larger value of 0.868

Table 5
ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	208.527	9	23.170	917.282	.000(a)
	Residual	31.473	1246	.025		
	Total	239.999	1255			

a Predictors :(Constant). B₂₉, B₁₇, B₂₅, B₁₈, B₁₃, B₁₁, B₂₂, B₈, B₂₈ (Technological Change-Independent Variables).

b. Dependent Variable : B₇ (Employee Performance)

Field Survey, 2010

Table 5 summarized the results of an analysis of variation in the dependent variable with large value of regression sum of squares (208.527) in comparison to the residual sum of squares with smaller value of 31.473 (this small value indicated that the model does not fail to explain a lot of the variation in the dependent variables. In conclusion, the independent variables also did a good job explaining the variation in the dependent variable in the smaller significance value of the F statistics of 0.000 which is smaller than the maximum criterion value of 0.05.

Thus, also indicating a relationship between technological change and employee performance.

Table 6

Coefficients (a)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta	Tolerance	VIF	B	Std. Error
1 (Constant)	2.533	.254		9.971	.000		
B8	-.176	.018	-.183	-9.774	.000	.302	3.315
B11	.052	.014	.060	3.677	.000	.397	2.516
B17	-.066	.014	-.074	-4.714	.000	.431	2.321
B18	.160	.014	.182	11.170	.000	.397	2.519
B22	-.133	.013	-.212	-10.103	.000	.240	4.166
B25	-.171	.013	-.194	-12.705	.000	.451	2.219
B13	.305	.014	.343	22.033	.000	.434	2.302
B28	.484	.023	.490	20.866	.000	.191	5.244
B29	.011	.018	.018	.611	.542	.119	8.392

a Dependent Variable: B7

Field Survey, 2010.

Table 6 T statistics helped to determine the relative importance of each variable in the model with T values well below -2 or above +2.

B11, B18, B13 and B28 are above +2 with respective value of 3.677, 11.170, -4.714, -10.103 and -12.705. B8, B17, B22, and B25 are below -2 with respective values of -9.774, -4.714, -10.103 and -12.705.

Only B29 is below +2 and above -2 which means the predictor is not of more importance to the respondents and not a major factor influencing technological change (this means there are poor ICT applications and this does not encourage the use of multi-skilled workforce and as a result concluded as factor predictor of no importance to employees when there is poor ICT applications strategies and programmes). From the foregoing, technological change has a relationship with employee performance.

DISCUSSIONS

From the findings technological change have a significant relationship on employee skills and employee performance. Employees are required to upgrade their skills to cope with technological change for them to be relevant. Significant improvements were noted in the selected manufacturing industry performance, which are related to employee performance and satisfaction, but were not sufficient to cope with global competitiveness. Hence many industries were forced to close down due to their inability to exploit technological innovation in the production of their product. In Nigeria, many factors have hindered the performance of manufacturing industry. For example, most of the selected manufacturing industries are using fairly used machine instead of new one which resulted in to outdated technology and this has drastically affect their productivity. This may be due to the fact that they lack enough capital to purchase new machine. Machines and equipment are arranged and installed without considering the safety of workers.

Also, skilled labours that are necessary for managing technological change and human resource are lacking in most of these industries. In addition, newly invented sophisticated technologies from developed countries are not available for purchase by the Nigerian manufacturing industry as a result of the patent rights being enjoyed by the inventors, many of which are research and development section of manufacturing industry (Dauda, 2007). Irregular power supply also affects the manufacturing industry's ability to cope with technological change. Most manufacturing industry spend huge amount of money in the procurement of generating set and

petroleum motor spirit (PMS) to supply power to their industry. In addition, most industries lack of access to other infrastructural facilities such as good roads and potable water. Foreign Direct Investment (FDI) in to the country is very low. This affects the purchase of new machines and equipment and growth of the manufacturing industry. There is also the problem of shortage of funds and grants for research and development in Nigeria Universities, Research Centres and industries. These have hindered or lowered the human resource response to technological change and innovation in Nigerian Manufacturing Industries.

The interrelationship between technological change, organizational performance and employee performance in the Nigerian manufacturing industry is highlighted. Investors, workers management purchase new machines and equipment to increase their efficiency and competitiveness and to make more profit. Findings from the study reveal that the adoptions of new technologies in the recent years have improved the performance and profitability of Nigerian Manufacturing Industry. Workers performances have also increased due to the use of new technology, but workers skills have not improved sufficiently to cope with new technology. Technological change has also not significantly improved the performance and working condition of some workers. Management have also not substantially benefited from investment in technology. Antagonistic relations between management and workers union for better condition of employment have undermined the benefits of the new equipment and machines or technological change. It has also led to low morale and productivity, corruption among all categories of the workers and poor industrial relations climate in the Nigerian manufacturing industry.

CONCLUSION

In order to benefit from their investment strategic human resource management which considers improvement of workers skill through training, apprenticeship and development should be given to the employee before new technology is introduced. Workers, working conditions to be improved and their salary and allowance be made to move along with increasing productivity and profitability in the industry. Workers union should ensure that the effects of technological change on their member's jobs are considered. Technology in the manufacturing industry should be monitored and they should anticipate rather than to react to technological change. They should organize training and retraining for their members that are affected or likely to be affected by technological change. The present management methods have created apathy, lowered productivity and create lack co-operation and crisis between workers and management. Government should take interest in the workers living and protect them from complete substitution by machines and equipment. This could reduce unemployment and improve socio-economic development of the nation. Technology change should be complemented with good employment relations practice to enable employers and employees to benefit from technological change and to protect the interest of all the stakeholders.

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