The Social Science

Effect of Technology Infusion on Firm Productivity: A Case Study of FedEx

Okafor Chukwuma Onwuagana
Baze University, Abuja, Nigeria

Key words: Technology, firm productivity, FedEx, ANOVA, technology infusion

Corresponding Author:
Okafor Chukwuma Onwuagana
Baze University, Abuja, Nigeria

Page No.: 330-337
Volume: 15, Issue 10, 2020
ISSN: 1818-5800
The Social Sciences

Abstract: The major objective of this study is to determine the relationship between technology infusion, and firm's performance which translates to organizational productivity. The survey method was mainly employed complimented by interview and subsequently participatory observation. This study administered 66 questionnaires to staff of FedEx in Lagos and Ogun state. The statistical method employed is the analysis of variance and regression techniques. Findings revealed that investment on technology has positive impact on FedEx employee's performance and improved productivity of the firm. The major finding observed was the link between technology and organization productivity, the employees is the link. A weak link is as a result of inadequate motivation and training while a strong link is as a result of high organizational motivation and adequate training of employees. This study recommended that the use of technology requires adequate planning, acquisition of appropriate technology and employees input assessment by management before acquiring the tools.

INTRODUCTION

Technology plays a vital role in creating added value, creating wealth and increases productivity in all aspects and levels of human endeavor and is considered important in the achievement and development of any society. Thus, in an environment that is dynamic with fast and inevitable development in technology that has been witnessed in recent years has influenced not only the quality of an individual's life but has also enabled the individual to discover complex insight on self, the human race and the world, thus increasing their creativity and innovativeness in all levels of life. The introduction of technology is transforming the approach of individuals and corporate organizations as they perform business activities[1].

The effect of information technology has captivated the attention of many academics and several studies of information technology on performance and productivity have appeared. Most of these studies assessed the effects of technology investments on productivity at the economy and industry-level, most using manufacturing industry as a case study only few researchers used service industry. However, the findings from these studies are mixed and sometimes contradictory. These findings have led to an ongoing discussion in the information systems area, labeled the "Technology productivity paradox". Most researchers looked at technology and results of its application on productivity without considering the factors that manipulates the technology to generate the end result[2].

As a result of the increasing global competition and changes in the economy, organizations are beginning to outsource services, downsize manpower which has led to the increase of unemployment and focus on upgrading technology in their quest to bring about greater innovation thereby neglecting the fact that for any organization to remain competitive, it is imperative that they show a reinvigorated commitment to their employees[3]. The neglecting of employees while considering the impact of technology investment on productivity simply portrays technology as an end to a means, rather than a means to an end. The values of humans are now being replaced with technology both in the manufacturing and service sector.

The ICT revolution has had a considerable impact on the postal sector. Postal enterprises which are managed in the traditional government mode have generally been late adopters of ICTs, partly because they are subject to fewer competitive pressures compared with those that are expected to function as profit-making businesses. However, today almost every postal enterprise, irrespective of whether it operates in a protected or open market, or whether it operates as a government corporation or as a private company, either uses or is keen to use ICTs in order to become more efficient, accessible and profitable[4].

With the collapse of national postal service provider, Nigeria now has a growing courier service industry most of which are privately owned. Nigeria has over 70 couriers Service Company involved in mail and parcel delivery, cargoes delivery, freight, logistics ware housing and supply chain management. With the use of information technology, most courier companies have risen to the challenges in the Nigerian economy by adopting the use of advanced technology, infusing it into the ways employees perform their activities and it has led to a change in the firm's performance and productivity. In Nigeria, evidences have shown there is a positive relationship between IT investment and productivity in the manufacturing and service sector if only the rate of capital investment is high[5]. Though compared with the developed countries in Europe and United States involving similar industries, there is low significant impact between the two variables[6]. Despite the huge capital investment on IT by firms both in the manufacturing and service sector, the gap between the firms in Nigeria and their counterpart in the developed countries is still wide.

Most multinational companies in Nigeria invest in Technology, yet their productivity is not as high as the productivity of their counterparts in other countries. When capital investment is high why then the slow growth in productivity? This necessitates the need to investigate the impact technology investment has on productivity via. the employees.

The infusion of information technology into employee's activities is important for enhancing organizational performance. The act of integration of these two is a new research area and therefore, scientific research and literature around are still limited.

The challenge faced by most organization is that they are being carried away by the belief that investment in technology automatically translates to productivity but most soon realize that after the huge investment in technology, the outcome is still constant or worse than it previously was this is because other key factors such as the employees willingness to accept use technology and adaptability have been neglected as a link between technology and productivity. Hence, it is essential to critically examine the correlation between technology infusion, employee performance and organization's productivity in Nigeria.

Actor-Network Theory (ANT): The Actor-Network Theory is a micro and macro approach to scientific and technical innovation by Callon[7] and Law[8] in the English speaking world. The ANT approaches "science and technology in the making" as opposed to "ready-made science and technology". The micro levels studies involve the way science and technology comes into being by critically examining network builders as the primary actors in achieving positive productivity. These network builders are the employees but were categorized into engineers and scientist[9]. ANT views science and technology by tracing the complex relationships that exist between Management, technologies, knowledge, money and employees.

This theory has a unique and distinct quality and characteristics that makes it different and one of a kind. Cressman[9] first distinctive trait is the "actor-network" which he described as an oxymoron, ANT hold that everything can be considered as both an actor and a network and this is simply a matter of perspective. The ability to consider both human and non-human elements equally as actors within a network is what differentiates it from other socio-technical approach. This encourages the same analytical and descriptive framework approach when faced with a human or a machine. ANT theorist argues that both humans and non-humans actors can be understood within a network by defining their identity through their interaction with other actors. However this was done by consciously using the term "socio-technical network" or "heterogeneous network" in order to overcome what they saw as an unnecessary duality between humans and non-humans. ANT believes that both, technologies and humans all play equally important roles in the organizations productivity[9].

Empirical framework: Organizational scientists for decades have shown interest in finding the relationship

that exists between technology and organizations productivity. Research conducted in the early 1980's showed that there was no correlation between technology investments and organization productivity growth. However, research based on recent data and new assumption has shown positive and significant effect on organizations productivity[10].

The social construct theory of technology views technology recognizing the disconnection of technology from surrounding social relations, these social relations includes humans and processes. According to Dery *et al*.[11] the use of technology in any organization involves the interactions of many 'facilities' which can be disrupted by three main challenges which includes: maintaining organizational attention, addressing the complexities associated with people management and managing user acceptance of the change associated with the system. Therefore, the organization investing in technology needs to properly manage its capabilities in its various stages starting from the pre-acquisition stage, acquisition and post-acquisition stages. An unwavering environment in the organization must be in place for the employees to adapt to changes, display an attitude to use technology. An organization is said to have a good atmosphere if it has a policy to encourage its employees because employee's behavior may have either positive or negative consequences on the organizations productivity. Some early researchers were of the view that the application of technology in the service sector was not important, recording slow productivity rate is concentrated in the service industries that invested in technology but since, then the trends have diverged significantly. The early 1970, research conducted showed that service and manufacturing firms that did invest in technology, productivity growth rates were comparable in the USA[12].

Becker and Huselid[13] stressed the importance of Human Resource systems and structure that is to say, the "systems, practices, competencies and employee behaviors that reflect the development and management of the firm's strategic human capital"-for organizational performance and also saw Information Technology (IT) as a tool to enhance organization's information processing by creating linkages between people who possessed part of the information required for a specific decision-making activity.

Brynjolfsson[14] in his research stated that a technology investment of equal scale shows a significant difference in the development of organizations productivity. The reason behind the above statement is that, the benefit gained from investing in technology is dependent on firm-specific conditions such as the behaviour of employees and management practices, organizational development and strategy.

Finally, the research work by Asa[15] concluded that there is a correlation between the level of employees and productivity gains from investment in technology.

In Nigeria, Ayo[16] concluded by saying "the adoption of technology has a positive impact of these sectors of d economy after analyzing the impact of technology on profitability, operation efficiency and effectiveness, impact on investment, capacity utilization, capacity building, benefits and constraints of technology adoption. Another study on was carried out to investigate The Impact of IT Investment on Service Delivery: A Case Study of Ladoke Akintola University Adewoye *et al*.[6] Based from evidence emanated from the research study. It can be concluded that the impact of IT investment in LAUTECH is significant to the service delivery in LAUTECH. This study to an extent is not complete due to the fact that employees who are the most important assets in the organization where neglected.

Gap in literature: In today's business environment, a growing literature stream has been focused on the impact of technology on organizations productivity. The conclusion generally is that technology investment has a measurable impact on the productivity of the organization. Be it a positive or negative impact.

The extant literature shows that this conclusion is applicable both in the manufacturing and service sectors of a country. The consideration of technology infusion on employees that leads to the outcome of the organizations productivity has not being researched to any benefit. Likewise in Nigeria, no extensive research has being done considering the employees performance on organizations productivity as a result of technology infusion in the service sector. This research is focused on the employee's performance as a result of technology infusion on organizations productivity in Nigeria.

MATERIALS AND METHODS

The researcher selected FedEx office branch at Ikeja, Lagos and Ota, Ogun state as the sample frame to represent the entirety FedEx office service sector in Nigeria. The use of random sampling technique will be adopted by the researcher in the course of this work.

A general rule of thumb is the larger the population size, the smaller the sampling ratio needed to obtain a representative sample. Based on the argument presented by Petrescu[17], the sampling size of this study was 0.025% of the entire population. Probability sampling was the most suitable approach for this study for the following reasons: First because the entire population cannot be studied, therefore, a sample had to be determined; second given the population, a sample can easily be drawn from it. To this end, the sample size is determined by:

Table 1: Reliability statistics

Cronbach's alpha	No. of items
0.779	31

SPSS Result from Fieldwork in 2019

Table 2: Age distribution according to gender

	Age				
Variables	15-20	21-30	31-40	41-50	Total
Gender					
Female	2	14	13	2	31
Male	0	8	17	8	33
Total	2	22	30	10	64

Fieldwork in 2019

Table 3: Distribution of the respondent's age according to marital status

	Age				
Variables	15-20	21-30	31-40	41-50	Total
Marital status					
Divorced	0	0	0	1	1
Married	0	5	23	7	35
Single	2	17	7	2	28
Total	2	22	30	10	64

Fieldwork in 2019

$$n = \frac{N}{\sum\left[1+N\left(e^2\right)\right]}$$

Where:

n = The desired sample size to be determined

N = Total population

e = Accepted error limit 0.05 on the basis of 95% confidence level

$$n = \frac{79}{\sum\left[1+79\left(0.05\right)^2\right]}$$

$$\frac{79}{\sum\left[1+79\left(0.0025\right)^2\right]}$$

$$= \frac{79}{\sum\left[1+\left(0.1975\right)^2\right]} = \frac{79}{1.1975}$$

$$\therefore n = \approx 66$$

A well structured questionnaire was finally drawn and used to gather information from the business owners, sales staffs of the shop owners in computer village.

Analysis and interpretation: The Cronbach's Alpha estimate indicates how highly the items in the questionnaire are interrelated in order to determine reliability of the instrument. Studies like Homayounizadpanah and Baqerkord[18] asserted that the Alpha which is >0.7 indicated high reliability. Hence, the reliability test of 0.779 indicates that the questionnaire is 77.9% reliable. Therefore, the presentation of data are as follows (Table 1).

Frequency distribution of respondents' bio-data: Table 2 shows that 48% of the respondents are female and 48% are male while 52% (16 out of 31) of the female respondents and 24% (8 out of the 33) of the male respondents are below 31 years of age. The table also reveals that 15 female and 23 male respondents are above 31 years of age.

This implies that the workforce in the courier service is fairly distributed between both genders but consist more of older males than females.

Table 4 shows that 35 employees are married (55%), 28 single and 1 divorced. While 30 out of them are between 31-40 years of age, 22 employees between 21-30 years of age, 10 employees between 41-50 years and 2 employees are <21 years of age. However, most of the employees (23 out of the 38 married) are between 31-40 years of age. This implies that the majority of the employees are married and <41 years of age.

Table 4 above reveals that the organisation consists of 7 senior managers, 16 managers, 24 supervisors, 13 secretaries and 1 dispatch rider. Examining the distribution of the employees according to their qualification revealed the presence of 1 SSCE holder, 16 HND holders, 15 BSc holders, 16 Msc holders, 10 MBA holders and 4 Phd holders. This implies that majority of the employees are graduate with at least two degrees hence, FedEx courier Service Company is staffed with skilled and highly skilled.

An examination of the employees according to their work experience presented in Table 4 above reveals that 20(31%) employees had <5 years work experience, 15(23%) employees had 6-10 years work experience, 18(28%) employees had between 11-15 years work experience and 7 (11%) employees above 15 years work experience. Analysis of the employee level in the organisation shows that 7 of them occupy the position of senior managers, 16 managers, 24 supervisors, 13 secretaries and 1 dispatch rider.

However, the most experienced staffs are in senior manager and manager position while the majority of the least experienced staffs are supervisors and secretaries. This implies that the organisation is manned by experience hands and there is opportunity for staff career and development in the organisation (Table 5).

Table 6 indicated that 56% of the respondents agree that the use of Toll-Truck makes convening of goods easier and faster, 31 simply agree while 2% were undecided. However, 9% strongly disagree that the use of Toll-trucks makes convening of goods easier and faster and 2% disagree. Hence, most of the employees confirmed that the adoption of technology (Toll-Trucks) aid their efficiency in the convening of goods.

Majority of the employee refuse the claim that reading package codes manually by them minimized

Table 4: Distribution of the respondent's qualifications according their positions in the organisation

	Qualifications							
Variables	-	BSC	HND	MBA	MSC	PHD	SSCE	Total
Positions in organisation	0	2	1	0	0	0	0	3
Dispatch rider	0	0	0	0	0	0	1	1
Manager	1	1	1	0	0	2	0	7
Secretary	0	3	10	0	0	0	0	13
SNR manager	1	0	0	8	7	2	0	16
Supervisor	0	9	4	2	9	0	0	24
Total	2	15	16	10	16	4	1	64

Fieldwork in 2019

Table 5: Distribution of the respondent's work experience according to their position in the organisation

	Position in organisation						
Variables	-	Dispatch rider	Manager	Secretary	SNR manager	Supervisor	Total
Work exp	1	0	3	0	0	0	4
1-5 Years	2	1	1	6	1	9	20
11-15 Years	0	0	8	1	1	8	18
16 Years and above	0	0	2	0	4	1	7
6-10 Years	0	0	2	6	1	6	15
Total	3	1	16	13	7	24	64

Fieldwork in 2019

Table 6: The use of Toll-Truck makes convening of goods easier and faster

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	6	9	9	9
Disagree	1	2	2	11
Undecided	1	2	2	13
Agree	20	1	31	44
Strongly Agree	36	56	56	100.0
Total	64	100.0	100.0	

Fieldwork in 2019

Table 7: Reading of goods code manually by the employee minimised error

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	14	21.9	22.2	22.2
Disagree	31	48.4	49.2	71.4
Undecided	2	3.1	3.2	74.6
Agree	8	12.5	12.7	87.3
Strongly agree	8	12.5	12.7	100.0
Total	63	98.4	100.0	
Missing system	1	1.6		
Total	64	100.0		

Fieldwork in 2019

error. From Table 7, 13% strongly agree and 13% agree that manual reading of goods code by the employee minimised error while 3% were undecided. But 22% of the respondents strongly disagree and 48% disagree that reading package codes manually minimised error.

Most of the employees reject the claim that driver tracking can help to deliver goods on time by avoiding traffic routes. Almost half of the employee strongly disagree that driver tracking can help to deliver goods on time by avoiding route traffic, 22% disagree while 3% were undecided. However, 25% agree and 25% strongly agree that drivers tracking can help to deliver goods on time by avoiding traffic routes. This implies that the use of drivers tracking will not necessary prevent drivers from being held on traffic or delay on delivery time of goods.

Examining the statement that computer makes work less interesting; 38% strongly agree that the use of computer makes working less interesting while 20% of them disagree. But 23% were undecided, 13% strongly agree and 6% of the employees agree. This implies that most of the employees consider computer operation less interesting. A staff interviewed explained that she can consign up to 70 domestic shipping in an hour but with the use of computer she can only consign about 30 domestic shipments.

Table 8: Driver tracking can help to deliver goods on time by avoiding traffic route

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	14	21.9	22.2	22.2
Disagree	31	48.4	49.2	71.4
Undecided	2	3.1	3.2	74.6
Agree	8	12.5	12.7	87.3
Strongly agree	8	12.5	12.7	100.0
Total	63	98.4	100.0	
Missing system	1	1.6		
Total	64	100.0		

Table 9: Computer makes work less interesting

Variables	Frequencies	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagreed	24	37.5	37.5	37.5
Disagree	13	20.3	20.3	57.8
Undecided	15	23.4	23.4	81.2
Agree	4	6.2	6.2	87.5
Strongly agree	8	12.5	12.5	100.0
Total	64	100.0	100.0	

Table 10: Computerized inspection of package by the employee reduces time spend to detect package damaged

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	8	12.5	12.7	12.7
Disagree	15	23.4	23.8	36.5
Undecided	6	9.4	9.5	46.0
Agree	13	20.3	20.6	66.7
Strongly agree	21	32.8	33.3	100.0
Total	63	98.4	100.0	
Missing system	1	1.6		
Total	64	100.0		

Fieldwork in 2019

Table 8 shows that 33% of the respondents (employees) strongly agree that computerized inspection of the packages reduces times spend to detect damaged package, 20% agree, 9% undecided, 13% strongly disagree and 23% disagree. This implies that when detecting damaged packages, computerized inspection is preferable.

There is no consensus opinion among the employees regarding the use of manual inspection of package in order to detect damaged packages. However, 25% of the employees strongly disagree that manual inspection of package by the employee reduces time spend to detect package damaged, 23% disagree, 13% agree, 23% strongly agree while 14% were undecided (Table 9).

From Table 10, most of the respondents asserted that the use of scanner to read bar code does not save time nor reduces mistakes. Since, 22% of them agree and 31 strongly agree that using scanner to read bar code does not either save time or reduce mistakes. However, 11 percent of them strongly disagree and 20% disagree while 14% were undecided. Since, majority of the employees claim to use scanner to read bar codes with ease. This Implies that usage does not save time and reduce mistakes.

Assessing the training practice in the organisation, eight out of every ten employee affirm that they are adequately trained on how to use technological devices that are introduced. Specifically, 43% of the employees strongly agree and 36% agree that the organisation adequately train them on how to use newly introduced devices. But 6% of them disagree and 2% strongly disagree while 13% were undecided (Table 11-13).

RESULTS AND DISCUSSION

Hypothesis testing

Testing hypothesis one

- $H_{0:}$ there is no significant relationship between technology infusion and employee's performance
- $H_{1:}$ there is a significant relationship between technology infusion and employee's performance

Interpretation: The model summary table reveal that the R^2 is 0.564 which implies the predictors explain 56.4% variations in the dependent variable. However, testing the significance of the model, the significance value of F (0.01) is <0.05. Hence, we accept the alternate hypothesis and reject the null hypothesis. Therefore, we conclude that there is significant relationship between technological infusion and employee's effectiveness in FedEx courier service at 5% significant level (ANOVA; Table 14 and 16).

Table 11: Manual inspection of package by the employee reduces time spend to detect package damaged

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	16	25.0	25.4	25.4
Disagree	15	23.4	23.8	49.2
Undecided	9	14.1	14.3	63.5
Agree	8	12.5	12.7	76.2
Strongly agree	15	23.4	23.8	100.0
Total	63	98.4	100.0	
Missing system	1	1.6		
Total	64	100.0		

Fieldwork in 2019

Table 12: Using scanner to read bar code does not save time nor reduces mistakes

Variables	Frequency	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly disagree	7	10.9	11.1	11.1
Disagree	13	20.3	20.6	31.7
Undecided	9	14.1	14.3	46.0
Agree	20	31.2	31.7	77.8
Strongly agree	14	21.9	22.2	100.0
Total	63	98.4	100.0	
Missing system	1	1.6		
Total	64	100.0		

Fieldwork in 2014

Table 13: FedEx adequately train us on how to use devices that are introduced

Variables	Frequencies	Percentage	Valid (%)	Cumulative (%)
Valid				
Strongly agree	28	43.8	43.8	43.8
Agree	23	35.9	35.9	79.7
Undecided	8	12.5	12.5	92.2
Disagree	4	6.2	6.2	98.4
Strongly disagree	1	1.6	1.6	100.0
Total	64	100.0	100.0	

Fieldwork in 2014

Table 14: Model summary

Model	R	R^2	Adjusted R^2	SE of the estimate
1	0.564[a]	0.318	0.246	0.682

[a]Predictors: (Constant), Q7, Q10, Q11, Q9, Q12, Q8

Table 15: ANOVA[b]

Models	Sum of squares	df	Mean square	F-values	Sig.
1					
Regression	12.387	6	2.065	4.432	0.001[a]
Residual	26.550	57	0.466		
Total	38.938	63			

[a]Predictors: (Constant), The use of computer helps employees to process, communicate and store data (Q7), Employees use scanner to read bar codes with ease (Q10), Electronic drivers tracking prevent goods delay and diversion (Q11), Manual sorting of goods reduces misplacement of goods (Q9), High loader saves loading time (Q12), Package scanner detects damaged packages effectively (Q8) [b]Dependent Variable: Employees work better with computer (Q13)

Table 16: Coefficient

	Unstandardized coefficients		Standardized coefficients		
Models	B	SE	Beta	t-values	Sig.
1					
(Constant)	6.554	0.724		9.055	0.000
Q8	-0.215	0.124	-0.224	-1.738	0.088
Q9	-0.071	0.089	-0.096	-.796	0.429
Q10	-0.279	0.097	-0.348	-2.882	0.006
Q11	-0.126	0.097	-0.166	-1.303	0.198
Q12	0.293	0.122	0.292	2.412	0.019
Q7	-0.148	0.083	-0.216	-1.773	0.082

[a]Dependent variable: Q13

CONCLUSION

Specifically, the significance values of the statement "Employees use scanner to read bar codes with ease (Q10)" and "High loader saves loading time (Q12)" are <0.05 (Coefficient). Hence, the logical conclusion is that technological infusion in FedEx (scanners and High loader) affects employee's efficiency in terms of time and job effectiveness.

RECOMMENDATIONS

The use of technology requires adequate planning, acquisition of appropriate technology and employees input assessment by management before acquiring the tools. Technological training for all categories of the employee should be undertaken on a regular basis. Technological infusion should be gradual procedure, so that the employees can gradually adapt while adopting the technology.

The organization should regularly allow feedback from their employees regarding the challenges that they encounter while using any technological device. A strong feedback relationship should be built between manager, supervisors and employees, as this will help reveal the willingness of the employees to use the technology and also detects resistance to the use of technology.

REFERENCES

01. Giraldo, T.R., 2010. Understanding the role of technology in service innovation: A theoretical overview. M.Sc. Thesis, KTH Industrial Engineering and Management, Sweden.
02. Sarayreh, B.H., H. Khudair and E.A. Barakat, 2013. Comparative study: The Kurt Lewin of change management. Int. J. Comput. Inf. Technol., 2: 626-629.
03. See, K.W.C., 2003. Effects of information technology and innovative human resource management techniques on productivity and wages in Europe. Master Thesis, Graduate School of Industrial Administration, Carnegie Mellon University, Pittsburgh, Pennsylvania.
04. Adeniji, A.A. and A.O. Osibanjo, 2012. Human Resource Management: Theory and Practice. Pumaric Nigeria Limited, Nigeria,.
05. Obamiro, J.K., 2011. Management Principles and Strategies. Kimeric Nigeria Limited, Lagos, Nigeria,.
06. Adewoye, J., C.K. Ayo and A.A. Oni, 2011. The impact of IT investment on service delivery: A case study of Ladoke Akintola University. J. Emerging Trends Educ. Res. Policy Stud., 2: 60-66.
07. Callon, M., 1986. The Sociology of an Actor-Network: The Case of the Electric Vehicle. Macmillan, London, UK.,.
08. Law, J., 1987. Technology and Heterogeneous Engineering: The Case of Portuguese Expansion. In: The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology, Bijker, W.E., T.P. Hughes and T.J. Pinch (Eds.). The MIT Press, London, UK., pp: 111-134.
09. Cressman, D., 2009. A brief overview of actor-network theory: Punctualization, heterogeneous engineering & translation. Simon Fraser University, Burnaby, Canada.
10. Dedrick, J., V. Gurbaxani and K.L. Kraemer, 2003. Information technology and economic performance: A critical review of the empirical evidence. ACM Comput. Surv., 35: 1-28.
11. Dery, K., R. Hall and N. Wailes, 2006. ERPs as technologies-in-practice: Social construction, materiality and the role of organisational factors. New Technol. Work Employment, 21: 229-241.
12. Nejadirani, F., R. Rasouli and M. Behravesh, 2011. The effect of applying information technology on efficiency of parks and green space organization: A case study. Middle-East J. Sci. Res., 10: 224-232.
13. Becker, B.E. and M.A. Huselid, 2006. Strategic human resources management: Where do we go from here?. J. Manage., 32: 898-925.
14. Brynjolfsson, E., 2003. The information technology productivity gap. J. Econ. Performance Perspect., 43: 179-214.
15. Petrescu, R., 2010. Organizational change process: Steps to a successful change. Ann. Univ. Craiova-Econ. Sci. Ser., Vol. 3,
16. Asa, H., 2005. Beyond IT and productivity. Ph.D. Thesis, Linkoping University, Linkoping, Sweden.
17. Ayo, C.K., 2009. Information Systems and Technologies. Bininaike Educational Publishers, Lagos, Nigeria,.
18. Homayounizadpanah and Baqerkord, 2012. Effect of implementing performance management on the productivity, efficiency and effectiveness of the Chabahar municipal employees. Applied Sci. Eng. Technol., 4: 1767-1784.