International Journal of Managerial Studies and Research (IJMSR)
Volume 3, Issue 11, November 2015, PP 102-111
ISSN 2349-0330 (Print) & ISSN 2349-0349 (Online)
www.arcjournals.org

Process Innovation and Organizational Resilience in Public Universities in South-South Nigeria

Ahiauzu, Levi Uche

Federal College of Education, Technical, Omoku, Rivers State

Prof. Jaja, Seth Accra

Rivers state University of Science and Technology, Port Harcourt

Abstract: *This study examined the association between process innovation and organizational resilience. Using a survey study design in generating data from the target Public Universities situated in south-south Nigeria, the associations were analysed in three stages; the demographic analysis in which charts and frequency distributions were used to illustrate the sample characteristics of the study, the univariate in which mean scores and standard deviations were used in descriptively assessing the nature of each variable and the bivariate in which the spearman's rank order correlation statistical tool was used in the test for all hypothesized associations. The results showed a significant association between process innovation and the measures of organizational resilience which are: situation awareness, keystone vulnerability and adaptive capacity. Based on the foregoing findings, it was therefore recommended that for organizations to remain resilient in the face of ever changing socio-economic dynamics, it is important for them to recognize, adopt and effectively utilize available process innovative methods and strategies.*

Keywords: *Process innovation, organizational resilience, keystone vulnerability, situation awareness, adaptive capacity.*

1. INTRODUCTION

Global turbulence is a constant phenomenon because change, environment volatility, uncertainty and instability are the only constants in an ever changing economic world. Organizations are constantly faced with an unprecedented and growing number of possible disruptions to their status quo and the plans. In the course of history, notable organizations usually fail, unless current risk management and governance models adopt scalable resilience metrics (Wieland & Wallenburg, 2013). In order to survive and succeed in this current turbulent environment of heightened uncertainty and change, organizations must move past traditional risk and governance models and focus instead on resilience. Resilience affects various levels such as the national, regional, organizational and corporate. For example at the organizational and corporate level, individual companies and operating units should emphasize on the continuity of their primary business activities by ensuring business operations and service delivery capacities remain functional (Sutcliffe & Vogus, 2003); however, according to Marcos and Macaulay (2008), the business environment is fast becoming more interconnected, unpredictable and volatile and the consequences of external events are more substantial. Sheffi (2005, argued that a company's survival and prosperity depend more on what it does before such a disruption occurs than on the actions it takes as the event unfolds. Marcos & Macaulay (2008) study on "organizational Resilience: the Key to Anticipation, Adaptation and Recovery" focuses onhow the organization can better foresee its future, how it can become adaptive and how it should address crises and adversity.

Cressey (2010) studied "The Concept of Resilience: Its Components and Relevance, a Theoretical and Empirical Analysis"in which he evaluated the concept of resilience and how it plays out in organizations undergoing restructuring. He sees organization's ability to recognize resilience as a core issue that requires a programmatic response across the organization. Thus, he addressed many of the same problems but do not frame their response in terms of resilience building. Therefore, the purpose is to supply the language and the categories through which we can speak of, and recognize, resilience in its organizational context. This means differentiating it from the more prosaic usages and bio-medical models by offering some analytical underpinnings. In this context, innovation is

considered as a capacity to respond to changes in both the internal and external environment of the university, which in turn influence and shape its culture (Burgleman 1991; Child, 1997). Conventional research (Anyamele, 2004; Ololube, 2006) on public Universities innovativeness has explored the determinants of an organization's propensity to innovate, although researchers (Kimberley & Evanisko 1981; Aldridge & Burnham, 1975) analyzed the influence of individual, organizational and environmental variables. However, Wolfe (1994) study focused on organizational structure and its influence of productivity. According to Teece (1998), the links between organizational strategy, structure and the nature of innovation underlies properties of technological innovation and growth related set of organizational requirements of the innovation process. Conversely, Mezias and Glynn (1993) argued that innovation is non routine, insignificant, and discontinuous in organizational change. Empirical research (e.g., von Hippel, 1988; Lundvall, 1992) has suggested that sources of innovation in the university often lie outside the university

Despite all these empirical expositions, knowledge appears to be lacking on how innovation impacts resilience. Hence, innovation appears to be the most desired thing in organization (McManus, Seville, Brunsdon, & Vargo, 2008). In this study, we are looking at innovation and resilience from the point of internal competences rather than external constrains point of view of Nigerian public Universities. The importance and role of university management in innovation has recently come up more frequently in the western world not only in management literature but in policy and organizational studies in general and university education in particular (Ololube, Uriah, & Dudafa, 2014). Organizational innovation is fundamental to the organizational resilience (Naylor, 1999). Innovation constitutes part of the system that produces it. The ability of an organization to innovate is a pre-condition for the successful utilization of inventive resources and novel technologies (Lam, 2011, 2002). Same is true of public Universities. The evolution of new technologies' in the university system is a determinant and a pre-condition for progress (Clinton, 2002). For the findings of this study to be relevant for Nigerian organizations, they must be based on studies using Nigerian organizations. Secondly, there has been no known study that examined the association between innovation and organizational resilience from the internal point of view of the university within the Nigerian work environment. To fill this gap in literature, this ground breaking research focused on organization innovation and resilience in using innovating capabilities from the internal point of views of the public Universities.It is on this note that the researcher intends to do a study on this theme to determine whether organization innovation will led to resilience in public Universities.

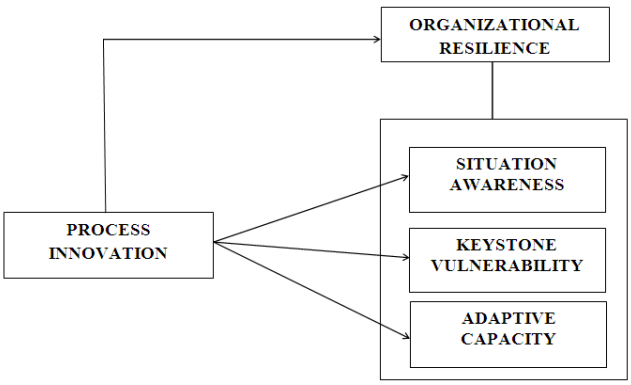

Fig1. *Framework showing the association between Process Innovation and Resilience*

Source: *Conceptualized by the researcher.*

2. REVIEW OF RELATED LITERATURE

Organizational research and development (R&D) spans the whole process from seeking improvements or innovations experimentally to bringing an idea to the stage of production in the university system. Most public Universities development work predominates within R&D. Almost any idea for a new or improved product will have to go through a process of development in order to make it into something which can be produced and sold. It seems obvious that the amount of effort and resources put into R&D will strongly influence product innovation, but just how important is this? And in what way are resources and effort organized and brought to bear? (Naylor, 1999).

The process structure complexity in organizations is characterized by the level of mechanization, systemization and interconnection of the production process. It includes the stage where series of

actions or tasks are performed in order to make or achieve something in the organization. An attempt at standardization in production processes reduces the probability of further fundamental innovations in both the product and the process system.Finally, studies have proved that joint research and development (R&D) in public Universities is armed to achieve their set objectives and that is innovations.Obviously, collaboration in R&D with public Universities offer possibilities of efficient knowledge transfer, resource exchange and organizational learning (Becker, 2003)This study evaluates organization's resilience in three dimensions: its situation awareness of both its own operations and the environment within which it operates, how well it understands and manages its keystone vulnerabilities, and the organization's adaptive capacity, its attitude and ability to cope with change. Situation Awareness is the capability of identifying, the process, and understand the dangerous rudiments of facts around whatever that is trendy to the group regarding the operation.In order to understand resilience, it is necessary to identify its constituent parts (Paton & Johnson, 2006).

Situation awareness describes an organizations understanding of its business landscape, its awareness of what is happening around it, and what that information means for the organization now and in the future (Endsley etal, 2003). When we lose the bubble (i.e., Situation Awareness) raises the likelihood for social mistakes. Coast Guard analysis of navigational accidents for cutters and boats revealed that 40% were due to a loss of situation awareness. The loss of Situation Awareness usually occurs over a period of time and will leave a trail of clues. Be alert for the following clues that will warn of lost or diminished situation awareness such as confusion or gut feeling; no one watching or looking for hazards; use of improper procedures; departure from regulations; failure to meet planned targets; unresolved discrepancies; ambiguity and fixation or preoccupation. Situation awareness is dynamic, hard to maintain, and easy to lose. Staying in touch all the time is very difficult for any one person, especially during complex high stress operations. Therefore it is important that we know what behaviour is effective in keeping us aware of situations.

Keystone Vulnerability defines those aspects of an organization, operational and managerial, that have the potential to have significant negative impacts in a crisis situation. The impacts of keystone vulnerability may be either instantaneous (occur suddenly and take the failure of only one component to have a significant negative impact) or insidious (small failures of key components lead to a large scale cascading-type failure over time). It is important for organizations to also have a clear understanding of the links between components and the vulnerability that may arise from these. These may include specific tangible organization components such as buildings, structures and critical supplies; computers, services and specialized equipment; individual managers, decision makers and subject matter experts. These factors may also include less tangible components, for example, relationships between key groups internally and externally; communications structures, and perception of the organizational strategic vision. Thus, keystone vulnerability describes the identification, proactive management, and treatment of vulnerability that if realized would threaten the organizations ability to survive, this includes emergency and disaster management, and business continuity, and covers many of the traditional crises planning activity.

Adaptive Capacity: describes an organizations ability to constantly and continuously evolve to match or exceed the needs of its operating environment before those needs become critical (Hamal Valikangas, 2003). According to McManus et al (2007), adaptive capacity is context-specific and varies from country to country, from community to community, among social groups and individuals, and over time. It varies not only in terms of its value but also according to its nature. Adaptive capacity has been analyzed in various ways, including via thresholds and ''coping ranges'', defined by the conditions that a system can deal with, accommodate, adapt to, and recover from (Smit & Pilifosova, 2001, 2003). Most organizations and sectors can cope with (or adapt to) normal climatic conditions and moderate deviations from the norm, but exposures involving extreme events that may lie outside the coping range, within the community. Some authors apply ''coping ability'' to shorter term capacity or the ability to just survive, and employ ''adaptive capacity'' for longer term or more sustainable adjustments use ''adaptability'' for the shorter term coping and ''potentiality'' for the longer term capacity. Organizations adaptive capacity and coping range are not static. Coping ranges are flexible and respond to changes in economic, social, political and institutional conditions over time (Smit & Wandel, 2006).

Keystone vulnerability are components (or links between components) that are likely to have a significant negative impact on the organization in terms of product, process and administrative

Innovations. To determine organization keystone vulnerability: First is the speed at which component failures has negative impact (rapid or insidious) and second, the number of component failures required to have a significant negative impact on organization capabilities to innovate (discrete or cascading). Therefore, it is important that an organization views and treats keystone vulnerability as interconnected parts of a system and not in isolation (McManus, 2008).

For public Universities, the development of new leadership and management style, including services rendered are the engine of its growth. The university's competitive position is determined by the ability to innovate its portfolio and the time required to turn out new graduates to the Labour market. Thus, innovation is the focal point in the university business strategy. The management of successful adoption of innovations in the university system is a complex and difficult venture which has to take into account a large number of internal and external factors. Therefore, it is vital that public Universities have tools available to clearly identify their keystone vulnerability in order to assign appropriate resources to the areas of most concern. It is therefore consequent on this thinking that we are poised to hypothesize that:

Ho_4: There is no significant association between process innovation and situation awareness.

Ho_5: There is no significant association between process innovation and keystone vulnerability.

Ho_6: There is no significant association between process innovation and adaptive capacity.

3. METHODOLOGY

3.1. Population and Sampling Procedure

The population of this study comprised management staff of ten public Universities in the south-south geo-political zone of Nigeria. The unit of analysis is at the organizational level, which consists of Administrative/management staff of the ten public Universities located in the South-south Region of Nigeria. The respondents comprise of Vice Chancellors, Deans of Faculties, Directors, Registrars, and Deputy Registrars. Because of the heterogeneous nature of the population under study, the Taro Yemen's formula suggested by Baridam, (2001) was used to determine a sample size of 313 participants.

3.2. Instrumentation

The researcher designed a comprehensive questionnaire. The questionnaires were guided by the characteristics of a good questionnaire as developed by Dillman, Smyth and Christian (2008), Fink (2008) and Fowler (2008). In order to decipher the relevant information, the questionnaire were designed along 5 Likert type scale (1) strongly Disagree, SD, (2) Disagree, D; (3) Undecided, U; (4) Agree, A; (5) Strongly Agree, SA. The questionnaires were divided into two sections: section 'A' deals with issues of respondents' personal data (Rank, department, gender, age, qualification, and faculty). Section 'B' were designed to elicit information on variables that may or may not be responsible for perceived association between process innovation and resilience in public Universities.

3.3. Reliability

The respondents (n = 313) for this study responded to a 54 item five-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). The research instrument was quantitatively analysed based on group elements. (See table 1).

Table1. *Cronbach alpha coefficient and number of items in group component reliability*

	Group components	**Cronbach's Alpha**	**No. of items**
PROCESS INNOVATION	The different stages where series of actions or tasks are performed to standardize quality education	.922	8
ORGANIZATIONAL RESILIENCE	Situation Awareness-an understanding of the multiple parties that make up the University and how they relate to each other	.893	6
	Keystone Vulnerability management- able to control components in which by their loss or impairment have the potential to cause exceptional effects in the system	.916	4
	Adaptive Capacity-ability to alter strategy, operations, management systems, governance structure and decision support –capabilities	.859	4

Source: *Research data, 2015*

4. RESULTS

4.1. Demographic Data

The first analysis conducted was a descriptive illustration of the characteristics of the demographic features of the sample (see and figure 2.).

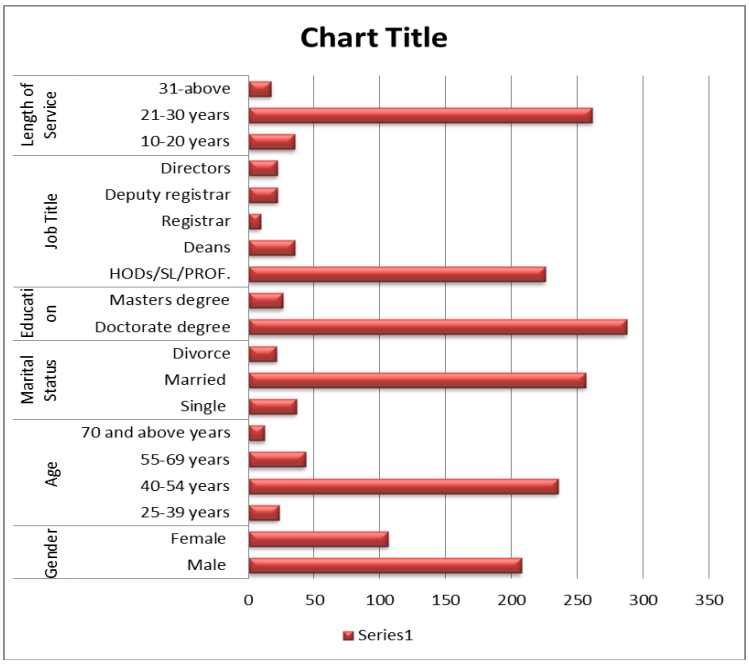

Fig2. *Demographic Information of Respondents*

4.1.1. Gender

From figure 2; demographic data reveals that the majority of respondents, 207 (66.1%), were male while 106 (33.9%) were female. Implying most of the organizations had a predominantly male occupied workplace as compared to their female counterparts.

4.1.2. Age

Figure 2; reveals that twenty-three (7.3%) of the respondents were 25-39 years old, 235 (75.1%) were 40-54 years, 55-69 (13.7%) and 12 (3.8%) were 70 years and over. This implies a higher percentage of the workers fall within 40 to 60 years, possibly as a result of the targeted cadre of respondents with emphasis on senior level staff of the target institutions.

4.1.3. Marital Status

For marital status, figure 2, shows that thirty-sixty (11.5%) of respondents were single, 256 (81.8%) were married, while 21 (6.7%) were divorced; implying a higher percentage of married workers which could also be as a result of the targeted cadre of audience which constituted mostly senior staff of the institutions studied.

4.1.4. Educational Status

Based on their educational levels, figure 2, reveals that, 287 (91.76%) of the respondents hold Doctorate Degree, while 26 (8.3%) hold Master's Degree.

4.1.5. Job Status

Based on the analysis on figure 2, the analysis on respondents job title showed that 225 (71.9%) were HODs, Senior lecturers and Professors, 35 (11.2%) were Deans, 9 (2.9%) were Registrars and 22 (7.0%) were Deputy Registrars, while 22 (7.0%) were Directors.

4.1.6. Length of Service

The calculation on Length of Service as shown on figure 2, depicts that respondents who have served for 10-20 years were 35 (11.2%), 21-30 years 261 (83.4%), while those who have served 31-years above were 17 (5.4%).

4.2. Univariate Analysis

In this section, the Univariate analysis for each variable is presented. Data analysis in this section entailed the use of various descriptive analytical tools illustrated using contingency tables. Data is herein described through the examination of central tendency (mean) and dispersion (standard deviation) while distribution is evaluated through data kurtosis and skewness coefficients portrayed on contingency tables.

Based on the nature of the scale adopted (5 –point Likert) and the structure of indicators which were stated in the positive; a base mean of $x>3.0$ with a relative standard deviation of $s<2.0$ served as benchmark for observations of affirmative tendencies while $x<3.0$ with a relative standard deviation of $s<2.0$ served as benchmark for observations of negation tendencies.

Table2. *Descriptive statistics for process innovation*

	Mean	Std. Deviati on	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Process	4.0312	.77852	-1.904	.138	3.587	.275

Source: *Research data, 2015*

Table 2.Above illustrates the summary of the descriptive analysis for the predictor variable; Process innovation which measured the organizations innovative tendencies as relates to adopted systems, technology and production, it carries an overall mean score of $x = 4.0312$ and a standard deviation of $s = 0.77852$. The criterion variable for the study; organizational resilience; is operationally defined using three variables namely – situation awareness, keystone vulnerability and adaptive capacity.

Table3. *Descriptive summary on measures of organizational resilience*

	Mean	Std.Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Awareness	4.1001	.79142	-1.867	.138	3.206	.275
Keystone	4.1230	.81333	-2.112	.138	4.500	.275
Adaptive	4.1246	.75509	-2.204	.138	5.293	.275

Source: *Research data, 2015*

Table .3 above illustrates the summary of the descriptive analysis for measures of the criterion variable; organizational resilience (situation awareness, keystone vulnerability and adaptive capacity). Situation awareness; which assesses the organizations knowledge accessibility and dissemination as regards market changes and competition has a mean score of $x = 4.1001$ and a standard deviation of $s = 0.79142$. Keystone vulnerability which assesses the organizations competitive stance and advantages relative to external pressures and risk has a mean score of $x = 4.1230$ and a standard deviation of $s = 0.81333$ while adaptive capacity which assesses the organizations capacity for structural, cultural and technological flexibility in order to stay ahead of competition and to survive change carries a mean score of $x = 4.1246$ and a standard deviation of 0.75509. The findings show a tendency for affirmation based on the adopted $x>3.0$ benchmark and a relative standard deviation of $s<2.0$ coefficient.

All three empirical referents indicate negatively (left) skewed data with $G_1<-1.0$ coefficients showing a high level of data skewness in all three instances. Also for kurtosis (G_2) two instances (keystone vulnerability and adaptive capacity) reveal leptokurtic tendencies with $G_2>3.0$ coefficients while situation awareness is symmetrical at a $G_2 = 3$.coefficient.

Table 4. *Process innovation and organizational resilience*

		Spearman's rho		
		Correlation Coefficient	Sig. (2-tailed)	N
Process	Process	1.000	.	313
	Awareness	.478**	.000	313
	Keystone	.473**	.000	313
	Adaptive	.655**	.000	313

Source: *Research data, 2015*

Table 4. illustrates the association between process innovation and the measures of organizational resilience namely - situation awareness, keystone vulnerability and adaptive capacity.

Hypotheses one: There is no significant association between process innovation and situation awareness

Table 4. shows a significant association between process innovation and situation awareness with a rho value of 0.478 and a high significance of 0.000. Indicating significance at a 0.01 (**) level and at a 99% confidence interval. The null hypothesis of no significant association is therefore rejected on the basis of a $p<0.05$ criterion as the findings reveal a strong (**) and significant association between process innovation and situation awareness.

Therefore we restate that: There is a significant association between process innovation and situation awareness

Hypotheses two: There is no significant association between process innovation and keystone vulnerability

Table 4.shows a significant association between process innovation and keystone vulnerability with a rho value of 0.473 and a high significance of 0.000. Indicating significance at a 0.01 (**) level and at a 99% confidence interval. The null hypothesis of no significant association is therefore rejected on the basis of a $p<0.05$ criterion as the findings reveal a strong (**) and significant association between process innovation and keystone vulnerability.

Therefore we restate that:There is a significant association between process innovation and keystone vulnerability

Hypotheses three: There is no significant association between process innovation and adaptive capacity

Table 4.6 shows a significant association between process innovation and adaptive capacity with a rho value of 0.655 and a high significance of 0.000. Indicating significance at a 0.01 (**) level and at a 99% confidence interval. The null hypothesis of no significant association is therefore rejected on the basis of a $p<0.05$ criterion as the findings reveal a strong (**) and significant association between process innovation and adaptive capacity.

Therefore we restate that: There is a significant association between process innovation and adaptive capacity.

5. DISCUSSION OF FINDINGS

From the analysis and the interpretation of our results on process innovation and organizational resilience, we found that public Universities process innovation associate largely with organizational resilience. The high extent of existence of process innovation in the management of organizational resilience (public Universities) tend to agree with the study of Philips (2011) who contend that process innovation allows the organizations to define upstream and downstream activities to direct and simplify workflow, assign tasks and responsibilities to people who have been trained in their roles. And also a process also ensures that work is done the same way without reason. In line with this Becker, (2003) argue that the process structure complexity in organizations is characterized by the level of mechanization, systematization and interconnection of the production process, which include the stages where series of actions or tasks are performed in the organization. Therefore, our finding that there is a high association between process innovation and resilience is in line with the studies above.

Hence, in our evaluation of the extent of process innovation and organizational resilience in the organizations (public Universities) studied, we equally sought to establish the extent to which process innovation associate on situation awareness, keystone vulnerability, and adaptive capacity in the management of the organization. A trend that emerged from our findings reveals a strong and positive association between process and the variables mentioned above So considering this obvious trend and the extent to which innovation and organizational resilience is practiced in the organization, (public Universities) we categorically state as our finding that there is the existence of process innovation on organizational resilience practiced in the public Universities. Considering this, it is logical to conclude that: although, there is the existence of appreciable process innovation and organizational practice in the public Universities, there is still room for improvement.

6. CONCLUSIONS

This research has outlined the complex role and explicitly stated the significance of process innovation and its role in the resilience of university management. The ecstasy and keenness observed in this study led the researcher to think that innovation in research, teaching and learning process in the university may be a very good course of action, not only because it will propel positive resilience in turbulent situations but create needed changes in the way public Universities are run.

Innovation adoptions are valuable factors that enhance the intellectual growth of both the teaching and non-teaching staff in public Universities. From the study, it was gathered that significant association exists between process innovation and situation awareness, keystone vulnerabilities and adaptive capacity. In addition; staff are bent on improving their competence and are likely to contribute, directly or indirectly, to the growth of the public Universities. Nigerianpublic Universities like other developing counties need effective innovation programmes. Urgent action is required and public Universities need tempos to sustain the existing gains. Continuing innovations for professional development and training (see Day & Sachs, 2004, pp. 3-32; Bolam & McMahon, 2004, pp. 33-63) is a major resilience in university management.

REFERENCES

Anyamele, S. C. (2004*). Institutional management in higher education: a study of leadership approaches to quality improvement in university management: Nigerian and Finnish cases*. Doctoral Dissertation, University of Helsinki: thesis, http://www.ethesis.helsinki.fi/julkaisut/kay/kasva/vk/anyamele/institut.pdf.

Argyris, C., &Schon, D. (1978).*Organizational learning: A theory of actionPerspective*.

Baridam, D. M. (2001). *Research methods in administrative sciences* (2nded.). Port Harcourt, Nigeria: Paragraphics.

Baum, J. A. C., & Dutton, J. E. (Eds.). (1996). *The embeddedness of strategy*. Greenwich, CT: JAI Press.

Beare, H. Caldwell, B., & Millikan, R. (1997).Dimensions of leadership.In Megan Crawford, Lesley Kydd and Collin Riches (Eds*). Leadership and teams in educational management*. Buckingham and Philadelphia: Open University Press.

Becker, M. C. (2005). A Framework for applying organizational routines in empirical research: linking antecedents, characteristics and performance outcomes of recurrent interaction patterns. *Industrial and Corporate Change, 14*(5), 817-846.

Becker, M. C., Lazaric, N., Nelson, R. R., & winter, S. (2005).*Applying organizational routines in understanding organizational change*.*Industrial and Corporate Change, 14*(5), 775-791.

Becker, M.C. (2004). Organizational routines: a review of the literature. *Industrial and Corporate Change, 13*(4), 643-678.

Blomqvist, M. (1997). *Towards world-class university department.*Academic Dissertation. Espoo: Department of Industrial Management, Helsinki University of Technology.

Burns, T., & Stalker, G. M. (1961). *The Management of Innovation.* London: Tavistock.

Burrell, G., &Morgan, G. (1979).*Sociological Paradigms and Organizational Analysis:* Elements of the Sociology of Corporate Life. London: Heinemann.

Caeldries, F. (1996).*The institutional embeddedness of strategy*: Predation through legislation (or see you in court). *Advances in Strategic Management 13*, 215-246.

Cooper, D. R., & Schindler, P. M. (2001). *Business Research Methods*. New York, NY: The McGraw Hill.

Cressey, P. (2010).The Concept of Resilience: Its Components and Relevance, a Theoretical and Empirical Analysis. Retrieved November 27, 2014 from. http://www.ukwon.net/files/kdb/24236d9952941e2ae5fd8f1e3a9682e8.pdf.

Crossan, M. M., &Apaydin, M. (2010). A Multi-Dimensional Framework of Organizational Innovation: A Systematic Review of the Literature. *Journal ofManagementStudies*47, 1154-1191. doi:10.1111/j.1467-6486.2009.00880.x.

Dacin, M. T., Ventresca M. J., & Beal, B. D. (1999). The embeddedness of organizations: Dialogue & directions. *Journal of Management, 25*, 317–356.

Daft, R. L. & Lewin, A. (1993). Where Are the Theories for New Organizational Forms? An Editorial Essay. *Organization Science*, *4*(4), i-vi.

Daft, R. L. (1978). A Dual-Core Model of Organizational Innovation. *Academy of Management Review*, *21*, 193-210.

Dougherty, D., & Heller, T. (1994).The illegitimacy of successful new products in large firms. *Organization Science*, *5*, 200-218.

Dougherty.D. (1992). Interpretive Barriers to Successful Product Innovation in Large Firms. *Organization Science*, *3*, 179-202.

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2008). Management Research (3rd Ed.). London: SAGE Publications.

EFQM.(2012). The EFQM Excellence Model. Retrieved July 12, 2013, from http://www.efqm.org/Default.aspx?tabid=35

Fullan, M. G., & Watson, N. (1997).Building infrastructures for professional development: An assessment of early progress. New York, NY: Rockefeller Foundations.

Gall, J. G., Gall, M. D., & Borg, W. R. (1999).*Applying educational research: A practical guide.* New York: Longman.

Glynn, M. A. (1996). Innovative Genius: A Framework for Relating Individual and Organizational Intelligence to Innovation. *Academy of Management Review*, *21*(4), 1081-1111.

Islam, G., &Zyphur, M. J. (2009).Concepts and directions in critical industrial/organizational psychology. In D. Fox, I. Prilleltensky, & S. Austin (Eds.), *Critical Psychology: An Introduction* (2nd ed.), (pp. 110-135). London: Sage Publications.

Kimberly, J. R., & Evanisko, M. J. (1981). Organizational Innovation: The Influence of Individual, Organizational, and Contextual Factors on Hospital Adoption of Technological and Administrative Innovations'. *The Academy of Management Journal*, *24*(4), 689-713.

Klein, K. J., & Knight, A. P. (2005).Innovation implementation – overcoming the challenge.*Current Directions in Psychological Science*

Marcos, J., & Macaulay, S. (2008). Organizational Resilience: the Key to Anticipation, Adaptation and Recovery. Retrieved November 27, 2014 from http://www.som.cranfield.ac.uk/som/dinamiccontent/cced/documents/org.pdf.

Maridam, V. (2005).*Systems approach and organizational resilience: A Comparative View*. Lagos, Nigeria: Two Publishers.

Mavondo, F., Nasution, H., & Wong, E. (2009). The Organizational Embeddedness and Capabilities Linkages: Implications for Organizational Performance. Retrieved February14, 2014 from http://www.duplication.net.au/ANZMAC09/papers/ANZMAC2009-243.pdf.

McManus S., Seville, E., Brundon, D., &Vargo, J. (2008) *Resilience* Meyer, J. P., & Allen, N. J. (1991).A three-component conceptualization of organizational commitment.*Human Resource Management Review*, *1*(1), 61-89.

Mullins, L. (2007). *Management and organizational behaviour*. New York: Pearson Education.

Naylor, J. (1999). *Management*. Harlow, England: Prentice Hall.

Nelson, R. R., & winter, S. (1982).*An Evolutionary Theory of Economic Change.* Belknap Press of Harvard University Press: Cambridge, MA.

Nonaka, I., & Takeuchi, H. (1995).*The Knowledge Creating Company*. New York: Oxford University Press.

Nooteboom, B. (2000). *Learning and Innovation in Organizations and Economics*, Oxford University Press, Oxford.

Nooteboom, B. (2004). *Logic of multi-level change of routines*.Paper for the EAEPE conference, Crete, 28-30 October 2004.

OECD (2001). Oslo Manual: Proposed Guidelines for Collecting and Interpreting Technological Innovation Data. Paris.

Ololube, N. P. (2009). Computer communication and ICT attitude and anxiety among higher education students. In Cartelli, A. and Palma, M. (Eds.): *Encyclopedia of Information and Communication Technology*, (pp.100–105). Information Science Reference, Hershey, PA. doi:10.4018/978-1-59904-845-1.ch014.

Ololube, N. P., Ubogu, A. E., Egbezor, D. E. & Nwachukwu, U. (2010).Evaluating faculty teaching of research methodology to undergraduate geography students in a Nigerian university', *International Journal of Information and Communication Technology Education*, *6*(1), 30–44, doi:10.4018/jicte.2010091103.

Ololube, N. P., Uriah. A., & Dudafa, U. J., (2014). The Role of University Management in Sustainable National Development through Innovation and Entrepreneurial Nosiness. *International Journal of Educational Foundations and Management, 2(*1), 13-24.

Phillips, J. (2011). The relationship between innovation and process. Retrieved July 23, 2013 from http://innovateonpurpose.blogspot.com/2011/03/relationship-between-innovation-and.html.

UNESCO (1998b). World Conference on Higher Education Higher Education in the Twenty-First Century: Vision and Action, 9 October 1998.

Utterback, J. M., & Abernathy, W. J. (1975). A dynamic model of process and product innovation. *Omega*, *3*, 639–656.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly 42*(35-67).

AUTHORS' BIOGRAPHY

Ahiauzu, Levi Uche is a lecturer at the Federal College of Technology, Technical, Omoku, Rivers State; his research interest covers organizational strategy and policy, corporate innovation and Adaptability, business growth and organizational learning.

Jaja, Seth Accra is a Professor of management at the Rivers State University of Science and Technology; his research interest covers organizational behaviour, corporate leadership, organizational identification, workplace group dynamics, superior-subordinate relationships, organizational research and corporate culture.