Synthesis of Top Management Team attributes and disaster – related Predictors of Innovation adoption in Nigeria’s SMEs.

Abdullahi Umar & Eta Wahab
School of Technology Management and Business
Universiti Tun Hussein Onn Malaysia

ABSTRACT

The purpose of this paper is to examine the imperative of synthesizing disaster related constructs with the traditional variables often studied in innovation adoption. To achieve this, the paper drew on upper echelon theory McEntire’s model. A conceptual model was proposed and relationships were established based on literature review. The literature supported the following claims made in the paper: there exist a relationship between external influences and the strategic stance of the firm on innovation adoption, internal features of Top Management Teams (TMT) are good determinants of TMT’s adoption behavior and there is significant relationship between external and internal environment of TMTs. The obvious contribution of the paper is the proposed framework that integrates disaster variables and TMTs adoption behavior. However, the paper is not without some shortcomings that will better be addressed through future empirical study.

Key Words: disasters, hazards, environmental factors, adoption, innovation

Introduction

Globalization has no doubt resulted in an unprecedented change in the way businesses operate and in the society in which we live. This has become a serious challenge to all the business organizations. As the environment becomes more complex and customers’ expectations become higher by the day, firms seeking to thrive continuously strategize to have an edge over others in the industry by way of being innovative and proactive (Bolo et al., 2011) in their approach to disaster. Effective innovation adoption that results in increased competitiveness in the banking sector requires systematic planning and execution of some interventions, rather than expecting the organization to progress naturally (Amabile et al., 2002; Mc Adam, 2005). This obviously requires businesses to change what they offer to customers, how they offer it; or they are flushed out of the market by co-competitors (Bessant and Tidd, 2011). This conceptual paper basically uses the upper echelon theory (Hambrick & Mason, 1984), DTOE (Thong, 1999) and McEntire’s Abilities and liabilities model (2000) as its point of departure, though other theories and models came to play sporadically.

There is currently a proliferation of researches that explore more critically the unique set of factors that correlate (Byron & shooter, 2005) significantly with the rate of innovation adoption, depending on the theories used and the dimension or the context of the study. In a particular study, triability, household innovativeness & perceived Ease of Use were the determinants of user (Motohashi et al, 2012) satisfaction with perceived ease of use as the mediating factor. A research conducted on Nigerian banks (Aliyu and Tasmin, 2012) reveals that infrastructure, power, connectivity Problem and poor legal framework are the inhibiting factors militating against ICT adoption in the banking sector. A distinct perspective by a research (Elie-Dit-Cossaque et al., 2012) conducted recently indicates that external forces such as broad work environmental factors, managerial support and personal innovativeness with IT affect Perceived Behavioral Control (PBC).

Predicating their research on the Upper Echelon Theory, (Hart et al., 2011; Sunday et al., 2011) were unanimous that age, experience and gender sensitivity of Top Management Team (TMT) have strong power of predicting the extent of adoption; in the same study. A stream of researches with empirical evidences and theories has no doubt turned around the fortunes of a number of organizations facing challenges posed by rapid advancement in technology. Nonetheless, researchers are consistently
shifting the contemporary innovation-adoption research frontiers to incorporate other issues that enjoy very limited attention. A flip into the extant literature clearly reveals that less than enough interest has been given to disaster-related variables as constructs that, directly or indirectly, have the capacity to determine innovation adoption success in Nigeria.

Considering the universality of disaster phenomena, the World Bank put together a scheme to advance the collaboration for creative, forward-looking and sustainable solutions for developing countries; by presenting recent innovations on disaster risk financing and insurance (World Bank, 2011). The World Bank indicates that partnerships between private and public sectors have been testing creative Micro-insurance solution for the victims. This however, is significantly directed to individual victims at the moment. It is very logical as well, to think of the institutional victims as bearing the most consequential losses in major catastrophes, especially when the basic disaster management ethics are undermined by the affected organizations. This can directly affect the organization’s ability to innovate due to colossal loss following catastrophic natural disasters (McEntire et al., 2003).

Consistently, the impacts of natural disasters have posed a serious global challenge to the humanitarian and business organizations especially in developing countries with limited resources to curb. It is more often than not considered to be the “acts of God” (Cannon, 1994), which can only be managed reactively, through post-impact and rehabilitation efforts (UN, 2001a). Recent studies indicate that damage and losses associated with disaster impacts pose serious threats to sustainable innovation adoption that translate into development in most countries in sub-Saharan Africa (Nwokoro, 2004; UNDP, 2004). Therefore, the need to shift paradigm from “reactive” to “proactive” approach measures to prevent the occurrence or mitigate the impacts of hazards in the built environment should gain more attention (Nakajima, 1991; Yodmani, 2001).

The ECOWAS (2006) observed that considerable efforts in disaster risk management in the West African sub-region largely focus on the traditional approach, which emphasizes response, reconstruction and rehabilitation. With this little achievement in reducing vulnerability to disaster and hazards that drastically inhibit technological advancements was recorded. In a rapidly urbanizing country like Nigeria about 50 percent of its 140 million people have moved to cities (OMP, 2004; Nwaka, 2005). In most of these urban towns, were infrastructural facilities are already stretched due to lack of corresponding physical development; disaster vulnerability increases and innovation adoption is definitely likely to fail because of infrastructural inadequacy. These may not be unconnected also with the inability of the respective institutions to mainstream systematic disaster preparedness, prevention and mitigation strategies into their core development plans and programs (UNDAC, 2002; ).

Depending on the magnitude and the context, natural disasters are accompanied by humanitarian, economic and environmental impacts. Humanitarian effects include loss of life, social support and infliction of psychological trauma. Environmental effects pertain to loss of farmland, grazing land, forests and damage to ecosystems, while Economic effects could be direct, indirect, or macroeconomic (Mechler, 2003). These effects fall into stock and flow categories. Direct losses describe the physical impacts on infrastructure (transport, energy and water), buildings, machinery and agricultural assets. This concurs in part, with a study done in Nigeria on IT adoption which shows that inadequate finance, infrastructure, corruption and skills inhibit innovation adoption (Idisemi, 2011). Indirect losses occur as a consequence of these direct stock losses and include production and revenue losses resulting from system disruption.

The macroeconomic impacts comprise the aggregate impacts on the national economic indices, like gross domestic product (GDP), consumption level, inflation and deflation etc., as a result of the catastrophe. They equally include the reallocation of government resources for relief and reconstruction (McEntire, 2004) effort which affects the entire budgetary allocation to new infrastructural facilities that can support innovation adoption. This will better be appreciated in some contexts, like that of Nigeria and perhaps some African countries, where the provision of basic infrastructure is almost entirely done and sustained by the government.

In some parts of the globe, economic losses from disaster have increased alarmingly in recent years, for example, floods in Bangladesh, Ethiopia, Guinea, India, Mozambique, Nigeria, Sudan,
A case fresh in the mind is that of Plateau state, Nigeria, where flooding caused by heavy rains in the city of Jos killed at least 28 people, with many others still missing, while also destroying homes, bridges and farmland. “I have counted 28 bodies and many people are still missing after the flood,” said Kemi Nshe, local government chairman for the Shendam LGA, in central Nigeria’s Plateau state. He said some 1,500 people were displaced from their houses (INTEL Nigeria, 2012). The story remains the same in Haiti, where flooding and landslide are permanent threats to many communities. A typical case is that of 2004, in the Sud-East and Artibbonite departments. An estimated 5,000 people lost their lives and many homes were destroyed (Goyet, 2008).

If these catastrophes remain a perennially events, it behoves managers to factor them into their scheme of things or they will certainly slow down the pace at which technological advancement suppose to move in those countries. This idea is in tandem with the finding of a recent study which establishes a stronger relationship between innovativeness and firm’s value for small firms, as well as strong effect innovativeness has on market and Financial position of large and high-tech industries (Rubera, 2012). Firms that are constantly affected by disasters may always struggle to recover rather than focusing on innovations that may uplift their market and financial position.

The bane of this paper is to synthesize contemporaneous adoption determinants with disaster constructs, by way of synchronizing the Top Management Team (TMT) model formulated by (Thong, 1999) with Environmental Attributes model of McEntire (2000), with a view to triggering another stream of researches that will address disaster phenomena as a set of predictors of managers innovation adoption behavior in the Nigerian SMEs. This paper discusses a number of constructs from Upper Echelon and System Theories; it seeks to espouse in part, the work of (Thong, 1999) and extend its frontier by adding other constructs sprouting in developing countries due to the frequent natural disasters experienced in the region (UNISDR, 2002). The paper specifically focuses on flood because of its frequency of occurrence in Nigeria. A model has been proposed to facilitated better understanding of relationships between the constructs being discussed and innovation adoption behavior of TMTs. The basic premise is that in addition to demographic variables and other determinants that dominate the innovation adoption literature today, McEntire’s (2000) “capabilities” and “liabilities “equally influence TMTs behavior in the Nigerian SMEs.

Theoretical Foundation

Researches in innovation adoption have over the years produced a number of theories and models that today form the basis and basics of so many studies in that field. These comprise of Innovation-diffusion theory (Rogers, 1995); Upper Echelon Theory (Hambrick & Mason, 1984), Theory of Reasoned Action (Ajzen & Fishbein, 1980), Stakeholders Theory (Freeman, 1984; Technology Acceptance Model (Devis, 1993), DTOE contextual model of Thong (1999), System Theory (1968), Theory of Acceptance and Use of Technology (Anderson & Scwager, 2004), the Top Management Team model of Thong (1999), endogenous growth models (smolny, 2001), Disaster Deficit Index (DDI) model (carreno,Cardona & Barbat, 2008), McEntire environmental attributes (2000) among others.

Studies coined out of these theories and models abound; few of them are “Innovative converged service and its adoption, use and diffusion” (Motohashi et al., 2012), Drivers & carriers of public innovation (Aagard, 2012), Adoption of internet Banking in UAE (Mansumitchai & chiu 2012), Critical Factors Affecting Performance of the Nigerian Banking System (Okpara, 2009), Consumer acceptance and use of information technology (Thong and Xu, 2012), Efficiency or innovation (Xue and Ray), Firm’s innovativeness and its performance outcomes (Rubera & Kirca 2012), Information and Communication Technology in Nigerian Banks (Aliyu & Tasman, 2012), Influence of Individual, contextual and social factors (Elie-Dit-Cossaque et al., 2012), Upper Echelon Theory (UET): Major Determinants of IT adoption by SMEs in Nigeria (Hart et al., 2011).
Using attributes of managers to understand IT Adoption in Nigeria (Sunday et al., 2011); Development outcomes of Internet and mobile phones used in Kenya (Magret et al., 2011); Demographic determinants of Adoption of innovation (Quazi and Talukda, 2011); Factors Affecting Utilization and Adoption of ICT. Solution in Nigeria (Idisemi et al., 2011); Data for natural Disasters (Amin & Goldstein, 2008), beyond September, 11th (McEntire et al., 2003) and use of logistic support system Goyet, 2004), to say just a few.

The Constructs of the Proposed Conceptual Model

The proposed model recognizes the idea of the dominant coalition (Cyert and March, 1963) to propose that SMEs managers influence organizational performance through the decisions they make, and the decisions are determined by internal and external factors (Hambrick and Mason (1984). It was long established that managers influence innovation adoption through the decisions they make (Knight et al, 1999) and the decisions are subject to their internal and external environments that are consistent with their cognitive state. The proposed model comprises of disaster hazards, stakeholders, customer demand, competition and government as external variables (also independent variables) while, vulnerability, resilience, preparedness age combination, gender mix and education are the internal variables (also moderating variables) and finally, adoption behavior is the dependent variable of the model.

External factors influencing TMT:

A number of empirical studies have demonstrated the significant influence external environmental factors have on the overall performance of SMEs in Nigeria. These factors are very critical because of the managers’ inability to predict them with high degree of certainty. It is no longer a loose statement that disaster hazards, stakeholders, customer demand, competition and government policies have a strong influence on the TMT’s adoption behavior (Hart et al., 2011; Idisemi et al., 2011; Aliyu & Tasman, 2012). This is consistent with the finding of the study conducted to determine the influence of individual, contextual and social factors on behavior, which came to conclusion that external forces/ environmental factors are significant determinates (Elie-Dit-Cossaque et al., 2012). The only observation here is to understand the peculiarities of the particular area under investigation. For example, a recent research conducted in Nigeria highlights infrastructure, power, connectivity Problem and poor legal framework as the stumbling blocks to ICT Adoption in SMEs, and directly influence adoption decision (Aliyu and Tasmin, 2012). Within the same context, Idisemi et al. (2011) argue that inadequate finance, infrastructure, corruption and inadequate skills as inhibitors of adoption in Nigeria’s banking sector. Co-competitors are always seen as threats to organizational development in the business world, it is very logical to note that as part of the external environment, they pose serious challenge to IT adoption when not taken seriously (Okpara, 2009).

It is not debatable that the existence of opponents, who could be the source of competitive pressure (Premkumar and Roberts, 1999), would reduce the adoption rate of technology, delay the adoption process and alter the shape of the curve significantly (Cavusoglu et al., 2010); Social and environmental influences were found to form part of the adoption determinants (Frambach, 1999); Political crises form a significant predictor of IT adoption in Nigeria (Okpara, 2009); Stakeholders influence (Choudrie, Papazafeiropoulou & Lee, 2003; Hills & Jones, 1992); the role of government (Freeman, 1998). Government has been acknowledged by researchers to have influence on technology since nineteenth century, and since then, successive governments around the globe have been involved one way or the other, in the industrial innovation decision of their respective countries (Rothwell & Zegveld, 1981). King et al. (1994) telescopes the influential and regulatory interventions and categorizes them as knowledge building, knowledge deployment, subsidy, mobilization, innovation directive and standard setting.

Away from the traditional factors that flooded the research world, disaster related factors have been given a glimpse by a research conducted on disaster induced effects. It concludes that technology, human and physical capital accumulation were found to be affected by the disaster (Popp, 2006). According to Jeyaraj et al. (2006), Organizational predictors include the top management support and
external pressure which may take the form of disaster risk. In the same vein, an empirical research reveals that natural disasters have significant negative effects on GDP, which may subsequently affect the entire economy, hence adoption decision as well (Hochrainer, 2001). Aryal, Edogan and Manyena (2008) see institutionalization of risk reduction through risk and resilience committees as part of the solutions for the disasters that prove devastating to businesses in general and slow down technology adoption decision in particular.

The impact does not only stop at developing nations with little resources to cope, South China was seriously hit by snowstorm in 2008, pulling down the critical infrastructure almost completely (Wang, 2008). On this basis, the entire components of the system that supports innovation are likely to be affected hence, the need to put in place strong emergency management measures that can protect critical infrastructures from all kinds of hazards in the extreme weather events if technological adoption is to be sustained; since cities serve as the national center of politics, economy, and science and technology (Xie, Zhu & Wang, 2008)

On the whole, the combination of the world’s growing population with expanding urbanization and generalized globalization has greatly aggravated the risk potential to all communities and nations. While people worldwide are well conversant with hazards, the number of disasters and associated risks are multiplying, striking all parts of society in all regions of the world and making disaster risks a universal phenomenon (Ammann, 2008).

**Internal factors influencing TMT**

Within the rapidly changing global picture organizations are compelled to keep track of six major factors: demographic, economic, social-cultural, natural, technological and political-legal. It is important for businesses to understand how these factors interact with one another (Kotler & Keller, 2006) considering the fact that interactions among these variables are opportunities and threats to the businesses. Brassington and Pettitt (2006) group their environmental variables using an acronym (STEP) that depicts socio-cultural, technological, economic and competitive, and political and regulatory environments. The combination of these environments determines to a very extent, how successful businesses are in adopting innovations. They can directly influence the adoption behavior of the top management team members; the socio-cultural environment, for example, includes age distribution, ethnic mix, educational level (Kotler & Keller, 2006) is capable of changing attitudes and behavior in relation to innovation adoption.

Age, experience and gender sensitivity of TMT of SMEs have strong power of predicting the extent of adoption. Group homogeneity has negative impact and education has a weak one (Hart et al., 2011). Sunday et al., (2011) conducted a research to determine adoption determinants in Nigerian; conclusion was drawn that age and education influence IT adoption while Gender and working Experience of TMT have no impact according to their research. This is very much contrary to the popular results of a number of empirical finding, (Quazi & Talukder, 2011; Joseph and Rhoda 2010; Tanawat & Paswan, 2006)

Jeyaraj et al., (2006) corroborate the findings of a number of researchers by reiterating that the best predictors of individual IT adoption include perceived usefulness, Top management support, computer education and behavioral intention; a correlation was also established between top management support, professionalism of IS units and organizational IT adoption. Attitudinal factors played a significant role in internet banking adoption, based on a research put together to determine the relationship between Consumer attitudes, system characteristics & internet banking adoption (sohail, 2003); awareness, attitudes towards change to computer and internet service is the conclusion of; aside from gender all other socio-economic variables are found to be significant predictors (Dwevidi & Lan, 2007).

Equally important in to businesses is the realization of the fact that vulnerability to, resilience and preparedness against disaster risks have disproportionate impacts on the adoption behavior of the TMT. The proposed model “imports” these three constructs into the model realizing the crucial role they play in determining the cognitive status of the disaster victims. Disaster management activities are basically focused on by those countries, like Nigeria, that are highly prone to disasters (TEARFUND, 2011).
with a view to reducing vulnerability, increasing the resilience and capacity of local communities and organizations to prevent, prepare for and respond to the negative impacts of catastrophes. Access to the macroeconomic impacts of natural disasters, natural catastrophes were discovered to have significant negative effects on GDP (Hochrainer, 2001). If care is not taken it may subsequently affect the entire economy, and increases business vulnerability if they persist. Freeman (2005) reaches a conclusion that incorporating the analysis of chronic economic impact of catastrophes into planning process reduces the cost of natural disaster events, adding that high vulnerability and hazard amplify the impacts of disasters on small and large corporations thereby, influencing the behavior of TMs to innovate for fear of possible loss.

The idea of disaster preparedness is very crucial when struggling for technological development. (UN-ISD, 2002). Losses from natural disasters will continue to increase if there is no shift toward proactive solution. Disaster impacts, level of preparedness and assessment (Toya & Skidmore, 2005) can determine the adoption behavior of managers. High vulnerability means more risks (Altez, 2008), more risk means high trauma and trauma can truncate positive behavior towards innovation. In the aftermath of disaster, for example, people experience disruption that can psychologically affect their self-esteem (Ando & Saito, 2008) which is a good source of motivation (Maslow, 1954) for TMT members to have a particular frame of mind about innovation adoption (McEntire, 2000; McEntire et al., 2003). Below is the proposed model showing the different variables and their relationships.

![External Influence Internal Influence Strategic Stance Action](image)

(Figure 1) Synchronised Model of determinants of TMT’s adoption behavior

**Discussion of Relationships**

This aspect of the paper is instrumental because it attempts to bring to the fore the essence of the entire study. It has been clear from the outset that the bane of the study is the formulation of a model. Models generally are charts that depict theoretical linkages (McEntire, 2004) existing in or among groups of the respective constructs that form it. With this clear understanding of what models do, it is imperative for this study to attempt to give a very good picture of how internal and external TMT’s characteristics collectively or individually determine the rate of adoption by impacting on TMT adoption perception. The proposed model assumes that the dependent variable (TMTs adoption behavior) is influenced by several independent external (stakeholders, competitive pressure, government influence, customer demand, disaster phenomenon) and internal (age, gender, education, vulnerability, resilience, preparedness) factors (McEntire, 2003). To understand the relationships between the dependent and independent constructs, three (3) propositions are made:

**Proposition 1: there is significant relationship between external and internal determinants**
TMTs of different organizations vary significantly in their behavior with regards to adopting innovation (Holt, 1983). Rogers (1983) distinguishes between innovators, early adopters, early majority, late majority and laggards adoption behaviors. How the TMT will behave remains a function of the interplay of the aforementioned variables. Recent finding establishes a relationship between environmental factors and Perceived Behavioral Control (Elie-Dit-Cossaque et al., 2012). Focusing on some of the external factors that affect TMT, Government’s interventions on innovation date back to the nineteenth Century (Choudrie et al., 2003), they came in very many different ways, depending on the country in question. Government provides infrastructure, formulates policies and overall legal framework that guide and influence the TMT’s internal features (like the age, educational qualification, gender mix) generally, (Okpara, 2009) and the adoption stance in particular. Policies made by government officials may be implicative to all people and businesses in a given country. For example, government neglect of environmental problems may make organizations more vulnerable (McEntire, 2007a; 2011) to natural disasters, and this can in negative adoption behavior. Previous disasters such as Sumatran Earthquake and Tsunami, 2004 and Hurricane Katrina, 2005, are a good pointer to the fact that extreme events may result in a high risk to industries (Kleindorfer and Germaine, 2005; Zsidsisin et al., 2003; Heite and Merz, 2009). In some instances, extreme events may affect the psychology of the TMTs who are responsible for making adoption decision. All these are supporting claims from scholars of repute to consolidate our proposition that relationships exist between internal and external determinants and that disaster related constructs form part of the internal external innovation adoption determinants.

Proposition 2: Internal features of TMTs are good determinants of TMT’s adoption behavior

TMT’s responsibility to the organization comprises of formulating and implementing informed strategies that can turn around the firm even when there is environmental “mis-alignment” or stiff environmental dynamism that necessitate innovation (Lohrke, Bedeian and Palmer, 2004). Age and education in most cases determine the level of experience and thus, the adoption behavior demonstrated by TMTs with wealth of experience differs significantly from the one taken by bunch of in-experienced TMTs. Adopters could be categorized into innovators, early adopters, late adopters or laggards (Rogers, 1983 in Holt, 1983), depending on their adoption behavior, as alluded to earlier. An empirical research conducted by Hart et al. (2011) came to conclusion that Age, experience and gender sensitivity of TMT have strong power of predicting the adoption behavior. Regarding other constructs, conceiving vulnerability as internal to TMTs is a conception that enjoys the endorsement of renowned scholars; Cardona (2007); Birkmann (2006); and McEntire (2011) see it as “an intrinsic predisposition to be affected by or to be susceptible to damage”. It is equally considered to be a susceptibility to contingencies and stress, and difficulty in coping with them. (Chambers, 1989; McEntire 2011) and we know what stress means to managers’ psychology.

These definitions presuppose that TMTs as people that operate within the context of the global environment could be subjected to vulnerable situations that can sharply change the way they think about the life itself, depending on their resilience and level of preparedness. You may wonder how the TMTs (survivors) in World Trade Center felt after the September, 11th incident; definitely not the way they used to, before it. Their perception about the whole concept of their businesses would probably change following the range of impacts (physical, social, psychological, economic) that hit them.

Vulnerability reduction, resilience and preparedness activities are vital for the building of response and recovery capabilities (McEntire, 2011). Therefore, they can collectively spell out how capable TMTs are to recover from disaster shock and take a viable stance on innovation adoption. It is our view from the foregoing citations, that relationships exist between TMTs internal characteristics and the behavior they exhibit on innovation adoption.

Proposition 3: There exist a relationship between external influences and the strategic stance taken by businesses

This statement attempts to establish a direct link between the external factors and the business position regarding innovation adoption. In this case the influence of demographic variables on TMTs
has been by-passed. Suffice it to say that “Strategic stance” in this context conotes organizational level decision, not departamental or unit level, that takes into consideration external environmental factors (Porter, 2008). They include customers, competitors, herzards, suppliers, innovation that many atimes culminates into business higher profitability and better competitive posture. The stance could be to adopt the innovation or maintain the statusquo. Extant literature has been explicit regarding the influence of external environment on the strategic decision of firms. Choudrie et al. (2003) emphasizes the influence of government; infrastructure (Aliyu & Tasmin, 2012); new market & increased market share (Gambatese & Hollowell, 2011); political issues (Ibem, 2011); Natural disasters (popp, 2006); external pressure (Jeyara et al., 2006); and disaster reduction (Toya & Skidmore, 2005).

SMEs that aspire for success always take cognizance of the environmental factors because they influence their strategic decisions to make capital intensive transformations that sometimes bring a total turn around to the business. According to scheltz (2011), these environmental factors include the general economic variables, climate and customer demand; businesses evaluate these factors and often find ways to succeed through innovative technologies, marketing tactics and distinct product and service offerings.

Conclusion and Recommendations

The discussion in this conceptual paper is basically predicated on UET and two models that strongly suggest a significant correlation between internal and external enviromental constructs on one hand and the strategic decision to adopt or not, on the other. What seems a novel idea in this paper is the synchronization of disaser model with top management team model. Extant literature in innovation adoption is replete with the discussions of demographic and repeatedly few external factors, as predictors of adoption in the SME sub-sector. We therefore recommend a shift in thinking towards the concept of disaster risk, vulnerability, resilience, preparedness hazards. This is imperative especially in developing countries like Nigeria; where some disasters have become permanent lanscape. SMEs should also appreciate the imperativeness of using the integrated model formulated in this study so as to improve their resilience and preparedness, reduce their vulnerability, susceptibility, risk and have a better understanding of hazards. It’s important to make it explicit here that the external and internal factors were treated as two sets of constructs, that is, the respective variables were not treated individually. In addition, only three relationships were discussed though, others exist in our conceptual model. We consider this as a gap; thus we recommend that studied be undertaken in those areas of the models that have not been critically discussed. Finally we acknowledge that this study is just a literature review, an empirical research is underway considering the fact that the study is part of the author’s Ph.D. thesis in progress. It is hoped that this paper has helped the field in some small way to move the frontier of knowledge.

REFERENCES


Goyet, V. Cloude (1993) post disaster: the supply management challenge; *Disaster, vol.17 iss2 pp 169-176*


Quazi, A.; Talukder, M. (2011) Demographic determinants of Adoption of innovation Journal of computer & Information systems


