

Review of Absorptive Capacity in Small and Medium Sized Construction Firms in Nigeria

Ade Abdulquadri Bilau¹, Musibau Akintunde Ajagbe^{2*}, Ahmadu Shehu Bustani³
Anthony Babatunde Sholanke⁴

1. Department of Building, Federal University of Technology, Minna, Nigeria.
2. Center for Entrepreneurship Development Studies, Department of Business Management, Covenant University, Ota, Nigeria.
3. Spinal Engineering Services limited, Suite A305 Abuja Investment Neighborhood Centre, Abuja-Nigeria
4. Department of Architecture, Covenant University, Ota, Nigeria.

Abstract

The concept of Absorptive Capacity has been identified as an important tool for firms to sustain, grow and compete in their markets. A few authors have adopted the concept in their study in various dimensions. However, many of the researches emphasized on big firms with complex operating structures and strong research and development background. Not much research has addressed the theory in the perspective of Small and Medium Sized Construction Firms. Construction has been referred to as transaction-oriented business changing from the normal design-bid and builds process, to performance and innovative capacity based business. Due to the urge for Small and Medium Sized Construction Firms to acquire competencies and capabilities required for their sustenance in the face of increased competition by absorbing new skills, knowledge and technology through the recognition of valuable external information, acquiring and translating them through innovation to be able to successfully attain competitive advantage over others. The purpose of this study is to carry out a detailed literature review aimed at understanding the Absorptive Capacity of Small and Medium Sized Construction Firms as presented by earlier previous authors in this area of research. This study adds to existing body of knowledge on Absorptive Capacity by pointing out some important dimensions that are connected to the concept and adoption of new techniques in the perspective of Small and Medium Sized Construction Firms.

Keywords: Small and Medium Sized Firms, Absorptive Capacity, Knowledge Management, Construction Firms, Nigeria

1. Introduction

Firms in the construction industry have been grouped such that Small and Medium Firms (SMFs) were found to be the majority (Ofori, 2009; Abdullah et al., 2012; Thwala et al., 2012). Some of these construction firms were reported to exhibit low commitment to production resulting from their poor performance in both physical and service delivery output. However, majority have the potential of developing into a technically better business, since they have dedicated leadership with great commitment towards better service delivery of product and services, as they have concern for continuous performance improvement in order for them to gain competitive advantage (Bilau, 2011; Ofori, 2009; Ajagbe & Ismail, 2014). As a basis for competitive advantage, small and medium construction firms (SMCFs) require to successfully create a process to drive the development of a continuous flow of innovation through Absorptive Capacity (AC), a means to innovation which is an essential factor for a firm's development (Wu & Guo, 2008; Kamal & Flanagan, 2014). However, the concept of AC is the ability to be able to recognize valuable external information, acquire and translate it to be able to gain competitive advantage. Wibowo (2009) opine that the construction industry being a significant contributor to the development of both developed and developing nations provides necessary public utilities and private physical structures. Ofori (2009) go further and argued that SMCFs play a vital role in the industry accounting for about 80% of the total number of construction firms, its high percentage of employment production and its being a major beneficiary of government contract in the industry. With construction being a transaction-oriented business changing from the normal design-bid and build process to performance and innovative capacity based business (Rodney, 2010). The drive for SMCFs is threatened by changing clients demand and expectations, market conditions (Robbinson et al., 2003), the rapid changes in the development of advanced technology, democratization of information, globalization, government pressure (Khairuddin, 2010), and among other factors. Due to the aforementioned, SMCFs need acquire competencies and capabilities required for their sustenance in the face of increased competition (Faniran, 1999). Such competencies could be acquired by absorbing new skills, knowledge and technology (Khairuddin, 2010) through the recognition of valuable external information, acquiring and translating them through innovation, as being implemented in pharmaceuticals and other manufacturing industries (Sharmistha, 2001; Othman, 2009; Ismail et al., 2012). This will enable them to successfully develop and attain competitive edge over others (Cohen & Levinthal, 1990). This particular review

work is aimed at understanding the development of SMCFs using Absorptive Capacity concept. Although many authors have investigated AC in different context, however, this study shall focus on AC in SMCFs with particular emphasis on Nigeria. This research will be arranged in the following manner. The literature review section will focus on critical review of small and medium enterprises in Nigeria, classification of small and medium sized construction firms in Nigeria, contributions of SMCFs in Nigeria, challenges of SMCFs in Nigeria, the concept of absorptive capacity, dimensions of absorptive capacity, and determinants of absorptive capacity. The study concludes with a section which presents the findings from this study, implication for research and recommendations for future research work.

Review of Extant Literature

Small and Medium Sized Enterprises in Nigeria

In the study of Anna (2008), she opine that small and medium sized firms (SMFs) have been a source of economic development through its vast creation of employment, wealth creation and innovation by introducing competitive strategies which set them apart from other firms. These include their ability to re-engineer products and service delivery to meet clients' demand by putting in place innovative techniques or development of new strategies (Ajagbe et al., 2012; Ismail et al., 2012; Ajagbe & Ismail, 2014). According to Aris (2007), the drive of most economies towards industrial development is dependent on the development of SMFs considering its large numbers and structure which under adequate conditions gives them the flexibility and ability to stand adverse economic situations. As a result, SMFs development and competitiveness affect any economy's position since it improves the efficiency of local markets (Aris, 2007; Anna, 2008; Ofori, 2009). It also makes adequate and productive use of an economy's scarce resources thereby facilitating a long-term growth for the economy. Ismail et al. (2012) mentioned that majority have the potential of developing into technically better businesses. Abdullah et al. (2011) argued that they also have dedicated leadership with great commitment towards better service delivery of their products and services. In addition to this, they have concern for continuous performance improvement in order for them to gain competitive advantage. In the views of Ofori (2009), SMCFs as a basis for competitive advantage require to successfully create a process to drive the development of a continuous flow of innovation through Absorptive Capacity. This is considered as a means to innovation which is an essential factor for a firm's development (Kelly, 2006; Wu & Guo, 2008; Kamal & Flanagan, 2014).

The construction industry being a significant contributor to the development of both developed and developing nations provides necessary public utilities and private physical structures (Wibowo, 2009; Ofori, 2009). In addition, SMCFs play a vital role in the industry accounting for about 80% of the total number of construction enterprise, its high percentage of employment production and its being a major beneficiary of government contract (Ofori, 2009; Bilau, 2011). Small and medium sized firms have been of increasing interest for academics and policy makers in recent years since their role in both developed and developing economies has been established as being major (Ajagbe et al., 2012; Ajagbe & Ismail, 2014). They account for 60-70 % of employment in the manufacturing sector and the large majority of employment in the service sectors. They are seen as having the potential to quickly respond to the customers need in a more flexible though less bureaucratic manner than large firms. As a result of their small scale and their particularly ownership-managerial structure. It is important to emphasize the word "potential" to avoid assuming homogeneity among small firms. Christian (2010) concluded that they are mainly family-owned companies where senior managers have personal or family relationships to the firm.

Classification of Small and Medium Sized Construction Firms in Nigeria

Small and medium sized firm's definition differs from country to country. Ajagbe & Ismail (2014) mentioned that various yardstick have been used to define SMFs such as the value of assets employed and the use of energy. Abdullah et al. (2012) highlighted that over time in Nigeria, the government has used various definitions and criteria in identifying what is referred to as SMFs. At certain point in time, it used investment in machinery and equipment and working capital at another time, the capital cost and turnover were also used (Umar, 2008).

The National Association of Small and Medium Scale Enterprise (NASME) defines a small sized firm as an organisation with less than 50 people employed with annual turnover of ₦100 Million. Further definition is that with less than 100 employees and an annual turnover of ₦500 Million. The Central Bank of Nigeria defines SMFs as an enterprise with an asset base of ₦200 Million excluding land and working capital with staff employed by the firm not less than 10 and not more than 300 (Kelly, 2006). Table 1 indicates the SMEDAN classification of firms in Nigeria.

Table 1: Classification of firms in Nigeria

Company size	Number of employees	Annual turnover (₦)
Small	1 - 49	100,000,000
Medium	50 – 99	500,000,000
Large	>100	500,000.000

Source: Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Abuja, 2007

Contributions of Small and Medium Sized Construction Firms

Ofori (2009) reported that the importance of SMFs is more than the longer-term economic stability it creates due to their size and structure and other factors which grants them the flexibility and ability to weather adverse economic conditions. The author argued that they are more labor-intensive than larger firms as a result of which they have lower capital costs associated with employment creation. Abdullah et al. (2012) opine that SMCFs play an important role in the construction industry by fostering income stability, growth in the industry and also the provision of infrastructure for the economy. Christian (2010) posit that they have been a source of economic development through their vast employment and wealth creation and innovation by introducing competitive strategies which set them apart from other firms. These include their ability to re-engineer products and service delivery to meet clients’ demand by putting in place innovative techniques or development of new strategies. Ajagbe et al. (2012) mentioned some of the characteristics that have distinguished small firms from larger firms. They added that large firms often times have direct access to international and local capital markets. Whereas SMFs do not oftentimes have such global connections due to the high cost intermediation for smaller projects. Additionally, the fixed costs of complying with regulations, a limited capacity to market products abroad, and limited access to policy makers weigh against the SMFs more than the larger firm. Ismail et al. (2012) added that small enterprises largely operate at a threshold which falls below the regulatory and institutional constraints that inhibit other SMFs. Furthermore, in some cases, would expand if the barriers to their operations were removed. Because high transaction cost is among the most important barriers, their reduction will promote the creation and expansion of SMFs and, in particular, encourage micro enterprises to expand.

Challenges of SMCFs in Nigeria

Gushibet (2011) mentioned that an important feature of SMCFs in Nigeria have to do with the organizational structure, owing to its ownership status revolving around a family and as a result of which it is either run as sole enterprise or partnership. Due to this, most of the firm’s organizational structure is pyramidal and as such affects decision making and information dissemination in the firm. This has been a big challenge as decision that affect the growth of the firms are in most cases unilaterally taken by the owners of the firm. Ajagbe et al. (2012) suggested that for rapid growth and development, firms must adopt a functional structure that would encourage the involvement of personnel in decision making for rapid organizational growth. Ismail et al. (2012) added that other challenges facing SMCFs in includes limited access to funds from finance institutions and high interest rate, poor cooperation and/ or linkages between SMCFs. In addition, Abdullah et al. (2011) maintained that larger firms doing better and cooperation with research institutions to gather knowledge for innovation, inadequate managerial skill due to inadequate employment of skilled labor. In addition to this, the absence of research and development (R&D), inadequate training and continuous professional development for firm’s personnel, low level educational and technical knowledge, inadequate management of infrastructures among other factors, all constitute to the challenges of SMCFs in Nigeria.

Concept of Absorptive Capacity

Adler (1965) opines that the absorptive capacity concept originated from macroeconomics, where it refers to the ability of an economy to utilize and absorb external information and resources. The author added that this macroeconomic concept was adapted to organizations by Cohen & Levinthal (1990) when they described AC as the ability of an organisation to recognize the value of new, external information, assimilate it, and apply it to commercial ends. Absorptive Capacity was argued as largely a function of the organization's level of prior related knowledge and critical to the organization's innovative capabilities. The definition of AC by Cohen & Levinthal (1990) was expanded by Zahra & George (2002) when they defined absorptive capacity as: a set of organizational routines and processes by which organizations acquire, assimilate, transform, and exploit knowledge to produce a dynamic organizational capability. This pertains to knowledge creation and utilization that enhances an organization's ability to gain and sustain a competitive advantage. The AC has since been put to use by other industries including manufacturing, information technology, pharmaceuticals industries to mention a few (Sharmistha, 2001; Chinho et al., 2002; Othman, 2009). The “absorptive capacity” concept focus attention on the fact that knowledge outside the boundaries of the firm is not absorbed freely and effortlessly. Because even if the knowledge is in the public domain, rather, effort, expertise, and purposeful action on the part of firms, researchers are required to identify, assimilate, and exploit potentially valuable external knowledge (Cohen & Levinthal, 1990; Kamal & Flanagan, 2014). In order to explore the role of firm’s strategies in provision of

benefits of AC, firms must focus on the exploitation of research results as generated by in-house researchers, university scientists, and large firm's inventions.

Dimensions of Absorptive Capacity

Tsai (2001) highlighted that the concept of absorptive capacity emanates from a long process of investment and knowledge accumulation as a result of which the firm obtains their innovativeness in process and product development. The firms' innovativeness can take the form of quality of the employees of the firm, its knowledge base, the quality of its knowledge management system, or the firm's organizational culture among other factors (Kumar & Nti, 1998; Kamal & Flanagan, 2014). In another view, Carmen (2007) suggested that there are four dimensions of absorptive capacity concept. These include: acquisition, assimilation, transformation and exploitation:

- a) **Acquisition:** This refers to the firm's capacity to identify and acquire knowledge that is externally generated. The quality of firm's capacity to acquire is determined by the intensity and speed of the firm's efforts to identify and accumulate knowledge (Zahra & George, 2002; Carmen, 2007).
- b) **Assimilation:** Knowledge assimilation is defined as the firm's routines and processes for analyzing, processing, interpreting and understanding obtained information from external sources, for the acquired knowledge to be internalized within the firm (Szulanski, 1996; Carmen, 2007).
- c) **Transformation:** This is the capacity of firms to improve on its routines to facilitate the combination of existing knowledge and the acquired and assimilated knowledge (Zahra & George, 2002; Carmen, 2007).
- d) **Exploitation:** Cohen & Levinthal (1990) defined exploitation as the capacity of a firm based on its routines. This aids firm's to improving, expanding and utilization of the firm's existing competences and innovativeness to create new process and products through the incorporation of acquired knowledge and transformation of its operations in order to increase the firm's productivity (Carmen, 2007). Figure 1 shows the contribution of AC and innovation to achieve a competitive advantage.

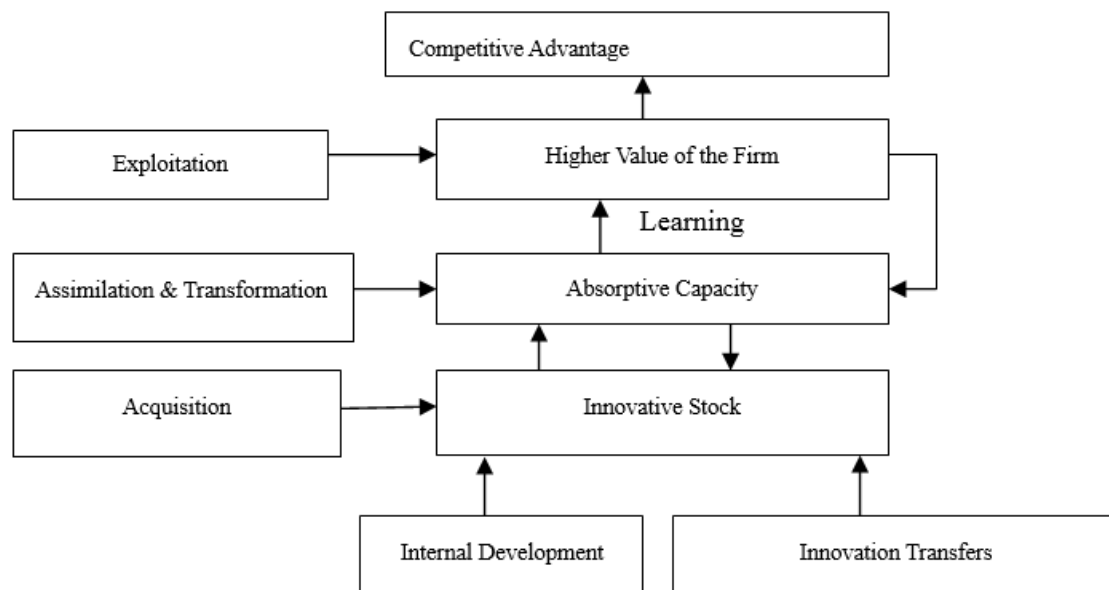


Figure 1: Contribution of absorptive capacity and innovation to achieve a competitive advantage (Carmen, 2007).

Determinants of Absorptive Capacity

Internal R&D and Absorptive Capacity

Cohen & Levinthal (1990) stated that organizations must develop absorptive capacity for them to benefit from the flows of external knowledge. It has been pointed out that a firm is far better equipped to absorb the output of external R&D if it is also performing some amount of R&D internally and that a firm's investment in R&D contributes to organizational AC (Mowery, 1984; Cohen & Levinthal, 1990; Kamal & Flanagan, 2014). In order for a firm to survive in a fast growing economy, it must take cognizance of developing new process to getting things done by designing new products and services. In an industry that is changing fast, firms must continually revise their design process and produce output that could sustain competition. Johansson & Loof (2008) opine that this is critical considering the continuous change in technology and development as well as other competitors and the customer's continuous changing preference. Without the firm having an internal R&D

program, they therefore must rely on alliances that are strategic, acquisitions of research outputs, and collaboration with networks to tap into the innovations of other larger firms or research institutions.

Human Capital Development and Absorptive Capacity

Many authors have reported that education and training has long been identified as a means to increase the stock of knowledge of both individuals and organizations alike because it aids the improvement of firms innovative system as well (Mangematin & Nesta, 1999; Lundvall et al., 2002; Long et al., 2012a; Kamal & Flanagan, 2014). They researchers who studied this domain of investigation believe that for effective AC of firms, it is paramount that firms engage the services of highly educated employees and at the same time invest continuously in their training. That is training which would be of more focus and benefit to their organizations specific needs. Long et al. (2012b) argued that provision of adequate training and continuous professional development aimed at achieving high standards provides the basic required tools to facing competition in the industry and to deal with complexity of the present global economy. They added that higher levels of education will ensure managers of firms to draw adequate resources from qualified personnel and may increase the likelihood of transforming process and product innovations, which is a bench of success in the growing international market. Ajagbe & Ismail (2014) found that SMFs have the capacity to take advantage of their firm-specific resources and capabilities, such as distinctive knowledge and contract networks of their founders to grow beyond the challenges facing them. Long et al. (2012a) concluded that the development of human resources is an important medium which drives the process between training and learning.

Co-operation, Collaboration and Absorptive Capacity

Becker and Dietz (2004) opine that the collaboration of R&D increases organizations' innovation because ample evidence exists to prove that research collaborations are common when organizations develop higher level innovations (Tether, 2002; Belderbos et al., 2004; Becker & Dietz, 2004). Furthermore, an organizations development of close external relationships increases the organizations potential effect of transferring information as well as tacit knowledge. Vinding (2006) posit that organizations that develop closer relationships to related actors and other knowledge institutions do significantly better on innovative performance. This is in comparison to those that have only developed a closer relationship to one of the actors, and they do much better as compared to those that have not developed closer relationships at all. Lim (2006) argue that an organization's collaboration with university scientists is associated with more exploitation of published scientific research, as a result, higher absorptive capacity and shorter lag times between existing knowledge and new organization's inventions to exploit the knowledge. Fabrizio (2006) conclude that it should be known that absorptive capacity is primarily a function of connectedness with research institutions.

Attitude towards Change and Absorptive Capacity

Cohen & Levinthal (1990) found that organizational variables such as organizational structure, culture and communication also influence AC. They highlighted that these factors are interrelated and as a result influence each other. Kanter (1985) mentioned that organizational culture has an important influence on an organization's innovativeness as a result it is of specific importance whether tradition or continuous change is a value in the organization. The author argued further that people try to adjust to a certain culture and if changes are desired, the individuals will be much more motivated to search information about possible changes and improvements. However, strong cultures tend to hinder the process of change and foster inbreeding (Kotter, 1996; Kelly, 2001; Kelly, 2006). Cultures of this nature are not favorable to organizational innovation, especially if the ideas for innovation come from outside the organization. Oden (1997) opine that since organizational culture also influences the employees' perception of the external environment, they become reluctant to assimilate and use external information because they cannot recognize their value, though they might be aware of them. Therefore, these kinds of cultures leave little room for the absorption of the external sources of knowledge, especially if they contradict the existing beliefs (Bosch et al., 1999; Bilau, 2011).

Firms Capabilities and Absorptive Capacity

Recently, the absorptive capacity of firms has been a source of continuous investigation. This entails that it enables firms to identify, assimilate, and utilize external knowledge required for the development of the organization (Cohen & Levinthal, 1990; Kelly, 2006). Developing this ability requires the firm's investment of time and resources and this may take time. Existing literatures categorically show the importance of the firm's research activities, its cooperative and collaborative research activities with outside researchers. This is geared towards providing the ability to identify, capture and utilize valuable external knowledge for the competitive advantage of the organisation. Kira (2004) established the positive link between absorptive capacity and the innovative performance of firms. Ample studies revealed that universities are an important source of research results (Ismail et al., 2012; Ajagbe et al., 2012; Ajagbe & Ismail, 2014) for firms utilization cutting across many

industries, this importance until today keeps growing (Narin et al., 1997; Kira, 2004). Research and development as performed in universities and government established research institutes are of particular importance considering their input to innovation of processes and products development in the biotechnology, pharmaceutical and the manufacturing industries. Firms in the biotechnology and pharmaceutical industries rely on basic developments of science in biology, chemistry, biochemistry. In addition to new drugs and delivery systems found to have their origins in discoveries in universities, government research institutes and laboratories (Ismail et al., 2012; Kamal & Flanagan, 2014). The authors suggest that if these feet can be achieved for the said industries, then it could also aid development of SMCFs in order to improve on their processes with the aim to satisfy clients increasing demands for product improvements.

Management of Knowledge and Firms Development

Huggins & Izushi (2007) refer knowledge to be the primary means to wealth creation for a rapidly growing number of individuals, firms and economies. However, due to increasing global competition among employers of labor, managers must realize the importance of competitive advantage, and how to sustain the benefit derived. Conventionally sustaining competitive advantage has been achieved through focusing on financial, strategic and technological capabilities. However, Ulrich & Lake (1991) suggested “organizational capability” as the forth important aspect of knowledge management. Hence, sustainable competitive advantage is achieved by focusing on how to manage people. Furthermore, Inkpen (1998) argues that firms have to reconsider how new knowledge should be acquired into the organisation to react to the increased global competition. Wong & Aspinwall (2004) argued that the management and creation of new knowledge are just as important for small firms as it is for large corporations. However, most research on knowledge management focus on large organizations. Hence, there is relatively little information available on knowledge management within small and medium sized construction firms particularly in the context of Nigeria.

Many recent investigation on this domain of study has exposed that knowledge management can be seen as the primary tool for sustaining competitive advantage and a means to distinguish the organisation from their competitors (Omerzel & Antoncic, 2008). According to Inkpen (1998), the value of knowledge is dependent on the organization. The author argued further that for knowledge to be useful for the organisation it has to be acquired, transferred and integrated into everyday work. Smaller firms are well known to provide less formal training compared to the larger firms. De Kok (2002) argued that there has been an increase in training provided by smaller firms over the last decade. The choice of method to acquire knowledge and what type of knowledge to acquire is dependent on the company. Pate et al. (2000) concluded that it is important to understand how knowledge can be used in a practical sense in the daily business prior to when it is acquired. Hence, the rate with which the new knowledge is incorporated into the company depends on the AC of the firm (Inkpen, 1998). Figure 2 shows the processes of knowledge conversion in an organisation.

<p>Socialization Share experiences: Training on the job, brainstorming informal gathering. Result: Sympathized knowledge</p>	<p>Externalisation Communicate intuitive, subjective experiences : Metaphors, analogies, physical models Result : Conceptual knowledge</p>
<p>Internalization Avoid re-inventing wheel: Handbooks, diagrams, learning by doing, stories, studies Results: Operational knowledge</p>	<p>Combination Share, integrate knowledge: text/ image/ audio/ video-document, discussion, formal training and education Result: System knowledge</p>

Figure 2: Processes of knowledge conversion (Nonaka/Takeuchi, 1995 in Bilau, 2011)

Organizational Knowledge Management

Knowledge Management (KM) is a formal and direct process used in determining the knowledge a company has and how it can benefit the personnel of the company. It also involves finding out important ways by which such knowledge could be made available for others within the organisation (Liss, 1999 cited in Smith, 2007). Knowledge management according to Wong and Aspinwall (2004) is an essential tool to develop sustainable competitive advantage of a firm. Winkler & Mandl (2007) highlighted that KM encompasses both planned and systematic handling of knowledge and also determines the use of knowledge in an organisation. Although KM must simultaneously address factors like: individual, organization, and technology in order to be recognized as a firm’s long-term strategy. Knowledge management is a firm’s strategic effort put in place to be attained in order to gain competitive advantage. This is achieved through the identification and utilization of both employees’ and customers’ intellectual asset. Netzley & Kirkwood (2006) believe that acquiring, storing, and distribution of

knowledge is an approach towards helping employees work smarter and reduce work duplication. As a result it produces more innovative processes, products and services to satisfy customers' needs, hence, create good value for the organisation.

Managing the Knowledge Absorbed

The wealth of knowledge absorbed by an organisation is embedded in people's head, work practices and systems. The challenge for every organisation is the processes and procedures to be put in place in order to capture that knowledge and how such is leveraged by the organization. Spender (2002) argued that knowledge being intangible in nature makes it harder to identify and manage, and as a result, cannot be treated in a manner as other organizational assets. Abdullah et al. (2012) reported that SMFs in developing countries are faced with the many challenges of the adoption of KM because many owner and managers of SMCFs lack the fundamental concepts of managing knowledge. Furthermore, they not aware of the underlying benefits of knowledge management.

Long et al. (2012a) found that effective sharing of knowledge has been affected by cultural barrier factors such as distrust, retrenchment concerns, lack of recognition and effective communication. Spender (2002) added that such mindsets that knowledge is power, and so on are the barriers to effective sharing and utilization of knowledge. In addition, in order to successfully integrate identified and absorbed knowledge into a firms system, an effective organizational culture must be established in order to play a critical role in adoption and successful implementation of KM in SMCFs. Kamal & Flanagan (2014) reported that SMCFs must develop a high organizational care culture which is a key element to the development of KM so as to help the firm's personnel to share ideas, information and absorbed knowledge. Von Krogh (1998) concluded that developing knowledge management competencies and visionary leadership is also challenging for small and medium sized firms in the construction industry.

Conclusion for the Study:

The main objective of this study is to understand through a detailed literature review the level of awareness of the absorptive capacity concept by small and medium sized construction firms in Nigeria. In order to achieve this objective, intensive literature review was conducted to identify the level of awareness of SMCFs in Nigeria, by identifying the absorptive capacity measurement indices for SMCFs. The study found that firm's capacity to identify and acquire knowledge that is externally generated depends on the level of absorptive capacity of the implementation of the management team of the organisation. The quality of firm's capacity to acquire is determined by the intensity and speed of the firm's efforts to identify and accumulate knowledge. In addition to this, the capacity of a firm based on its routines helps them to improve, expand and utilize existing competences and innovativeness to create new process and products through the incorporation of acquired knowledge and transformation of its operations in order to increase its productivity.

In addition to the above findings, this study also found other challenges facing SMCFs in Nigeria to include limited access to funds from finance institutions and high interest rate, poor cooperation and/ or linkages between SMCFs. Additionally, larger firms doing better and cooperation with research institutions to gather knowledge for innovation, inadequate managerial skill due to inadequate employment of skilled professionals. Furthermore, absence of R&D, inadequate training and continuous professional development for firms personnel, low level educational and technical knowledge, and insufficient management of infrastructures among other factors.

Contribution of the Study:

This particular review work is aimed at understanding the development of SMCFs in using absorptive capacity. Although many authors have investigated AC in different context, however, this study focused on AC in SMCFs with particular emphasis on Nigeria. Having carried out an in-depth review of past empirical literature in this domain of investigation as reported by earlier researchers, the findings of this research contributes to the existing body of knowledge of absorptive capacity by highlighting on issues related to absorptive capacity and moves further by considering the relevance of the concept to the small and medium sized construction firms in Nigeria. This research has contributed to the many archive of literature in the field of absorptive capacity in small and medium sized construction firms as most of the previous research focuses on absorptive capacity in the context of large organizations.

Recommendation for Future Researchers:

The authors recommend that future researchers should conduct a qualitative study to elicit directly from the participants the factors affecting the implementation of absorptive capacity concept by small and medium sized construction firms in Nigeria. The suggested research approach should be adopted because research has shown that qualitative research approach is the best method to extract firsthand information from the participants in the

context of research areas that is yet to be fully explored. Hence, in the context of Nigeria where the study of absorptive capacity in small and medium sized construction firms has not been fully investigated, this research approach is most suitable.

ACKNOWLEDGEMENTS

The researchers wish to thank the Federal University of Technology Minna, Nigeria and the Covenant University Ota, Nigeria for making available some of the facilities that enhanced the compilation of this study.

*Corresponding Author: Dr. Musibau Akinunde Ajagbe Center for Entrepreneurship Development Studies (CEDSD), Covenant University, Canaan Land, Ota, Nigeria.

References

- Aris, N. (2006), SMEs: Building Blocks for Economic Growth. National Statistics Conference, Malaysia, 4-6, September.
- Abdullah, A., Bilau, A. A., Enegbuma, W. I., Ajagbe, A. M., Ali, K. N. & Bustani, S. A. (2012), Small and Medium Sized Construction Firms Job Satisfaction and Evaluation in Nigeria. *International Journal of Social Science and Humanity*, 2(1): 35-40.
- Abdullah, A., Bilau, A. A., Enegbuma, W. I., Ajagbe, A. M. & Ali, K. N. (2011), Evaluation of Job Satisfaction and Performance of Employees in Small and Medium Sized Construction Firms in Nigeria. Proceedings of the 2nd *International Conference on Construction and Project Management*, Singapore, 15: 225-229.
- Ajagbe, A. M., Ismail, K., Aslan, A. S. & Choi, S. L. (2012), Investment in Technology Based Small and Medium Sized Firms in Malaysia: Roles for Commercial Banks. *International Journal of Research in Management and Technology*, 2(2): 147-153.
- Ajagbe, A. M. & Ismail, K. (2014), Factors Influencing Venture Capital Assessment of High Growth Companies in Malaysia. *International Journal of Entrepreneurship and Small Business*, 21(4): 457-494.
- Adler, J. H. (1965), *Absorptive Capacity: The Concept and Its Determinants*. Brookings Institution, Washington.
- Anna, L. S. L. (2008), *Securing Financial Resources for Small and medium Contracting Firms in Malaysia*, MSc Thesis. Universiti Sains Malaysia (USM).
- Bilau, A. A. (2011), *The Development of Small and Medium Sized Construction Firms in Nigeria Using Absorptive Capacity*. Being an MSc. Thesis Submitted to the Graduate School of Faculty of Civil Engineering, Universiti Teknologi Malaysia.
- Becker, W. & Dietz, J. (2004), R&D Cooperation and Innovation Activities of Firms: Evidence for the German Manufacturing Industry, *Research Policy*, 33: 209–223.
- Belderbos, R., Carree, M. & Lokshin, B. (2004), Cooperative R&D and Firm Performance. *Research Policy*, 33: 1477–1492.
- Carmen, M. D. (2007), The Impact of Absorptive Capacity on Technological Acquisitions Engineering Consulting Companies. *Technovation*, 27(8): 417-425.
- Chinho, L., Bertram, L. & Shofang C. (2002), The Critical Factors for Technology Absorptive Capacity. *Industrial Management and Data Systems*, 102(6): 300-308.
- Christian, K. H. (2010), *The Internationalization of Small- and Medium-sized Enterprises from Argentina*. A PhD thesis, McGill University, Montreal, Canada.
- Cohen, W. M. & Levinthal, D. A. (1990), Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35: 128–152.
- de Kok, J. (2002), The Impact of Firm-Provided Training on Production. *International Small Business Journal*, 20(3): 271-295.
- Fabrizio, K. (2006). Absorptive Capacity and Innovation: Evidence from Pharmaceutical and Biotechnology Firms [Working paper].
- Faniran, O. (1999), *The Role of Construction Project Planning in Improving Project Delivery in Developing Countries: Case Study of the Nigerian Construction Industry*. Deakin University, Australia.
- Ofori, G. (2009), Small and Medium Sized Construction Enterprise Development. *Construction for Development*. (ISIZA). 1st Quarter.
- Gushibert, S. (2011), Building Small and Medium Scale Enterprise: A Strategy for Economic Development in Nigeria. *Jos Journal of Economics*, 4(1): 130-152.
- Huggins, R. and Izushi, H. (2007), *Competing for Knowledge: Creating, Connecting and Growing*. New York: Routledge.
- Ismail, K., Tengku-Azhar, N. T., Yong, Y. C., Aslan A. S., Omar, W., Majid, I. W. & Ajagbe, A. M. (2012), Problems on Commercialization of Genetically Modified Crops in Malaysia. *Elsevier Procedia-Social and Behavioral Sciences*, 40: 353 – 357.
- Inkpen, A. C. (1998), Learning and Knowledge Acquisition through International Strategic Alliances. *Academy*

- of Management Executive*, 12(4): 69-80.
- Johansson, B. and Loof, H. (2008), Impact of Firms Productivity on R&D Strategy on Profit and Productivity. CESIS Electronic Working Paper Series. The Royal Institute of Technology, Centre of Excellence for Science and Innovation Studies (CESIS).
- Kanter, R. M. (1985), *The Change Masters: Corporate Entrepreneurs at Work*, Unwin Paperbacks, London.
- Kelly, D. (2001), Dual Perceptions of HRD: Issues for Policy: SME's, Other Constituencies, and the Contested Definitions of Human Resource Development, <http://ro.uow.edu.au/artspapers/26>.
- Kelly, D. (2006), Human Resource Development: For Enterprise and Human Development, <http://ro.uow.edu.au/artspapers/114>.
- Kira, R. M. (2004), Firm Capabilities and Absorptive Capacity: Implications for Exploitation of Public Science and the Pace of Knowledge Exploitation.
- Kamal, E. M. & Flanagan, R. (2014), 'Model of Absorptive Capacity and Implementation of New Technology for Rural Construction SMEs', *Australasian Journal of Construction Economics and Building Conference Series*, 2(2): 19-26.
- Kotter, J. P. (1996), *Leading Change*, Harvard Business School Press, Boston, MA.
- Kumar, R. & Nti, K. O. (1998), Differential Learning and Interaction in Alliance Dynamics: a Process and Outcome Discrepancy Model. *Organisation Science*, 9(3): 356-367.
- Khairuddin, H. (2010), Revisiting the Role of Small and Medium-Sized Enterprises in the Malaysian Economy. Universiti Utara Malaysia. www.resources.mim.edu.my.
- Long, C. S., P. Perumal, & Ajagbe, A. M. (2012a), The Impact of Human Resource Management Practices on Employees' Turnover Intention: A Conceptual Model. *Interdisciplinary Journal of Contemporary Research in Business*, 4(2): 629-641.
- Long, C. S., Ajagbe, M. A., N. M., Khalil, and Suleiman, S. E. (2012b), The Approaches to Increase Employees' Loyalty: A Review on Employees' Turnover Models. *Australian Journal of Basic and Applied Sciences*, 6(10): 282-291.
- Lim, K. (2006), The Many Faces of Absorptive Capacity: Spillovers of Copper Interconnect Technology for Semiconductor Chips [Working paper].
- Lundvall, B. A., Johnson, B., S. E. Andersen, & Dalum, B. (2002), National Systems of Production, Innovation and Competence Building, *Research Policy*, 31: 213-231.
- Mangematin, V. and Nesta, L. (1999), What Kind of Knowledge can a Firm Absorb? *International Journal of Technology Management*, 18: 149-172.
- Mowery, D. C. (1984), Firm Structure, Government Policy, and the Organisation of Industrial Research: Great Britain, *Business History Review*, 58: 504-531.
- Nadler, L. E. D. (1984), *The Handbook of Human Resources Development*, John Wiley and Sons, New York.
- Narin, F., Hamilton, K. S. & Olivestro, D. (1997), The Increasing Linkage between U.S. Technology and Public Science. *Research Policy*, 26: 317-330.
- Netzley, M. A. and Kirkwood, P. H. (2006), Knowledge Management. *Encyclopedia of Business* 2ed. Reference for Business. Högskolebiblioteket Jönköping, 2 Feb 2010.
- Nika, M. and Igor, P. (2009), Absorptive Capacity, its Determinants, and Influence on Innovation Output: Cross-cultural Validation of the Structural Model. *Technovation*, 29: 859-872.
- Oden, H. W. (1997), *Managing Corporate Culture, Innovation, and Intrapreneurship*, Quorum Books, Westport.
- Omerzel, D. G. and Antonic, B. (2008), Critical Entrepreneur Knowledge Dimensions for the SME Performance. *Industrial Management and Data Systems*, 108(9): 1181-1199.
- Othman, S. N. (2009), Firms Absorptive Capacity and Product Development Design among Automotive Components Manufacturers in Malaysia.
- Pate, J., Martin, G., Beaumont, P. & McGoldrick, J. (2000), Company-based Lifelong Learning: What's the Pay-off For Employers? *Journal of European Industrial Training*, 24(2, 3, 4): 149-157.
- Robinson, H. S., Carillo, P. M., Anumba, C. J. & Ghassani, A. M. (2003), Business Improvement through Innovation in Construction Firms: The "Excellence" Approach. 10th Symposium of Construction Innovation and Global Competitiveness.
- Rodney, M., Kristel, M., Nora, M. & John, D. (2010), The Development of Absorptive Capacity-Based Innovation in a Construction SME. *Entrepreneurship and Innovation*, 11(3): 231-244.
- Shamistha, B. (2001), Product Innovation and Competitive Advantage in an Area of Industrial Decline: the Niagara Region of Canada. *Technovation*, 21: 45-54.
- SMEDAN (2007). "National Policy on Micro, Small and Medium Enterprises". Federal Republic of Nigeria, Small and Medium Enterprises Development Agency of Nigeria, January, 2007
- Smith, E. A. (2007), The Role of Tacit and Explicit Knowledge in the Workplace. *Journal of Knowledge Management*, 5(4): 311-321.

- Spender, J. C. (2002), Knowledge Management, Uncertainty, and an Emergent Theory of the Firm, the Strategic Management of Intellectual Capital and Organizational Knowledge, Editors: Choo, C.W. and Bontis, N. Oxford University Press, Oxford, 149-162.
- Szulanski, G. (1996), Exploring Internal Stickiness: Impediments to the Transfer of Best Practice within the Firm, *Strategic Management Journal*, 17: 27-43.
- Thwala, D. W., Ajagbe, A. M., Enegbuma, W. I., Bilau, A. A. & Long, C. L. (2012), Sudanese Small and Medium Sized Construction Firms: An Empirical Survey of Job Turnover. *Journal of Basic, Applied Scientific Research*, 2(8): 7414-7420.
- Tether, B. S. (2002). Who Co-operates for Innovation, and Why: An Empirical Analysis, *Research Policy*, 31: 947-967.
- Tsai, W. (2001). Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance, *Academy of Management Journal*, 44(5): 996-1004.
- Ulrich, D. & Lake, D. (1991), Organizational Capability: Creating Competitive Advantage. *Academy of Management Executive*, 5(1): 77-92.
- Umar, I. (2008), Definition of SMI by Nigerian Government Agencies and Nigeria's National Council on Industry. St. Clements University, PhD Thesis.
- Bosch, F. A. J., Volberda, H. W. & De Boer, M. (1999), Co-evolution of Firm Absorptive Capacity and Knowledge Environment: Organizational Forms and Combinative Capabilities, *Organisation Science*, 10: 551-568.
- Vinding, A. L. (2006), Absorptive Capacity and Innovative Performance: a Human Capital Approach, *Economics of Innovation and New Technology*, 15: 507-517.
- Von Krogh, G. (1998), Care in Knowledge Creation, *California Management Review*, 40(3): 133-154.
- Wibowo, A. (2009), The Contribution of the Construction Industry to the Economy of Indonesia: A Systematic Approach. Paper Presentation at the National Skills Academy, Indonesia.
- Winkler, K. & Mandl, H. (2007), Implementation of Knowledge Management in Organizations. Springer New York, 1(1): 71-81.
- Wong, K. Y. & Aspinwall, E. (2004), Characterizing Knowledge Management in Small Business Environment. *Journal of Knowledge Management*, 8(3): 44.
- Wu, J. & Guo, J. (2008), Specialization of Small to Medium-Sized Construction Enterprises. School of Economics and Management, Beijing Jiaotong University, P. R. China, 100044.
- Zahra, S. A. & George, G. (2002), Absorptive Capacity: a Review, Reconceptualization, and Extension, *Academy of Management Review*, 27: 185-203.

A. A. Bilau obtained his Bachelor's degree in Building from Ahmadu Bello University, Zaria, Nigeria and Master's degree in Construction Management from Universiti Teknologi Malaysia. He is a Member of the Chartered Institute of Building, U.K. and currently pursuing his doctoral degree on Disaster Management.

Dr M. A. Ajagbe was born in 18th October, 1972 in Ibadan, Nigeria. He obtained his first degree in Business Administration & Management (Business Finance) in 1997, second degree in Business Administration (Marketing Management) in 2007 from Ambrose Ali University, Ekpoma, Nigeria and third degree in Management (Technology Entrepreneurship) in 2014 from Universiti Teknologi Malaysia. This author became an Associate Member of the Nigeria Institute of Management (Chartered), Associate Member of the National Institute of Marketing of Nigeria, and currently a Fellow of the Chartered Institute of Entrepreneurship and Corporate Governance in 2014.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:

<http://www.iiste.org>

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: <http://www.iiste.org/journals/> All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Academic conference: <http://www.iiste.org/conference/upcoming-conferences-call-for-paper/>

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

