
Innovation and Knowledge Sharing: A New Competitive Advantage in the Mobile Telecommunication Industry in Ghana

Daniel Ofori¹, Abraham Osei², Shadrach Ato – Mensah¹, Ernest Kwame Affum³

¹School of Economics, Wuhan University of Technology, Wuhan, P. R. China

²School of Management & Economics, University of Electronic Science & Technology of China, Chengdu, P. R. China

³School of Business Administration, Zhongnan University of Economics and Law, Wuhan, P. R. China

Email address:

ofori006@yahoo.com (D. Ofori), oseiabra@yahoo.com (A. Osei), shady05041989@yahoo.com (S. Ato – Mensah), dadakae@yahoo.com (E. K. Affum)

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Abstract: Ghana over the past three decades has witnessed the revolution of economic growth through innovations in the telecommunications sector. This study aims at identifying and examining the influence of the individual and organizational knowledge sharing enablers on knowledge sharing behaviour that leads to the development of firm innovation capability. A questionnaire was developed and administered randomly to a sample of four-hundred employees in the managerial and developmental levels of six mobile telecommunications companies. Three hundred and fifty-one were accepted for analysis. In analysing the data, a simple descriptive statistic was adopted. The results of the analysis affirmed the existence of a positive effect of the individual factor “teamwork in helping others” and the organizational innovation factor “top management support” on the employee knowledge sharing behaviour. Employee willingness to donate and collect knowledge is significantly related to firm innovation capability and has influence on it. However, there is no influence of the individual factor “knowledge self-efficacy” and the organizational factor “organizational rewards” on the employee knowledge sharing behaviour. The researchers therefore concluded that employees in the Ghanaian telecommunications sector are influenced by their managers’ support, help and encouragement to share knowledge more than the organizational rewards system. Hence, they do not expect to receive more rewards to increase their knowledge sharing attitude. The paper provides recommendations to help facilitate knowledge sharing and thereby increase the innovation capabilities of these firms.

Keywords: Innovation, Knowledge Sharing, Telecommunications, Ghana

1. Introduction

Telecommunication services have been recognized the world-over as an important tool for socio-economic development for a nation [1]. It is one of the prime support services needed for rapid growth and modernization of various sectors of the world economy. The mobile communication plays a major role in telecommunication industry. Mobile network comes under the service sector, which is experiencing a rapid development which in turn supports growth in the Ghanaian economy, serves as a means of job creation, business expansion and self-employment generation. Due to the rapid development in information and communication technology (ICT) and their effect in

economic and industrial development, organizations are nowadays using knowledge as a strategic resource to achieve their goals and objectives, and as a primary driver for sustaining an organization’s competitive advantage. Consequently, developing innovative products and services have become essential for attaining and retaining competitiveness in the local and the global market [2]. There is also increasing evidence that innovation management depends on knowledge, which is the key building block for innovation processes as asserted by Darroch and Mc Nanughnton [3].

The evolution and growth of the telecommunications

industry over the past four decades has been responsible for the tremendous changes in the technology related to human communication. Information and communication technology is currently pervading every facet of human existence; from community radios in almost all parts of the globe, to cellular phones in the hands of men and women in every community on earth, to computers in almost every medium to large organization. The telecommunication industry has brought new opportunities for knowledge transfer, knowledge sharing and knowledge gathering for different purposes. Advancement in telecommunication provides unlimited opportunities for socio-economic development and social engagement through new innovative thinking and tools. Thus, telecommunication services are utilised in various circles of human endeavour, namely, business, academia, multinational and state organizations, among others, with far reaching impacts and benefits.

The mobile telecommunication sector is one of the largest and most efficient sectors in Ghana. The sector has become highly competitive. This poses a challenge for the management of these firms and their innovative capabilities, in view of achieving their competitive strategy. Researchers have shown considerable interest in innovation and how companies can develop their employees' abilities, but there is still a shallow understanding of the enablers and factors that positively influence the innovative capability of the firm. There are many factors addressed as prerequisites that facilitate knowledge sharing behaviour. These factors vary and range from individual to organizational level factors. The development of innovation capability of an individual through the development of knowledge behaviour needs support of the right set of enablers. Therefore, organizations need to understand which knowledge sharing enablers are effective and key in creating conducive environment that facilitate knowledge sharing which will lead ultimately to innovation capability. The fundamental objectives of this research are as follows:

1. To identify knowledge sharing enablers on the organization and examine their effects in both knowledge sharing process and organization innovation capability
2. To assess the extent to which knowledge sharing influences the success and survival of an organization.

Section 2 that follow reviews the relevant literature of the study. Section 3 deals with the methodology, discussion of the findings is in section 4 and finally section 5 concludes the study with recommendations and further research.

2. Literature Review

2.1. Knowledge Sharing

Knowledge sharing is defined as the readiness of someone within an organization to publish the knowledge he has acquired with other members. Knowledge sharing is a social act that takes place through interaction and communication between individuals. To receive maximum benefit from

knowledge sharing, it is required that organizational leaders and operatives ensure an efficient knowledge management system. This emphasizes that, knowledge sharing is rooted in knowledge management. Knowledge Management (KM) involves cultivating a learning culture where organizational members systematically gather and share knowledge with others within the organization to achieve better performance. Management must therefore, facilitate easy communication and knowledge sharing among their employees to facilitate learning of new and improved approaches to undertake jobs effectively and efficiently. This is intended to facilitate improved organizational performance. However, Prusak [4] asserts that knowledge management relates to generating, sharing, and disseminating knowledge "on the fly". This entails taking advantage of modern technology to mobilize the full resources of the organization to solve specific problems within a shorter time frame than would hitherto be possible. In recent times, the subject of 'knowledge' has become one of the most discussed processes in the knowledge management field of learning [5]. It is not enough to acquire knowledge. Once knowledge has been acquired, efforts must be made to share. This helps to develop and improve one's level of knowledge. Knowledge sharing is different from communication and information distribution but all are somehow related. Knowledge sharing is defined as the readiness of someone within an organization to publish the knowledge he has with others [6, 7]. It is considered a social act which occurs through the interaction and communications between individuals.

Knowledge sharing is the (dissemination, diffusion and transferring) of organization-relevant information, ideas, suggestions, and expertise with one another [8]. The concept of knowledge sharing indicates the giving and receiving of information, framed within a context by the knowledge of the source [9]. Van Den Hooff and De Ridder [10] are of the opinion that knowledge sharing is a process where individuals commonly exchange their implicit (tacit) and explicit knowledge to create a new body of knowledge. This can be a routine for an organization with or without clear procedure on knowledge sharing [11]. Knowledge sharing is the process of exchanging data, information; know how, skills, feedback and expertise regarding products, procedures and processes [12]. Knowledge transfer, knowledge diffusion, knowledge distribution, and information sharing are other terms that similarly describe the process of knowledge sharing [13, 14, 15].

Another approach to classifying knowledge related to knowledge sharing behaviour could be divided into individual and organizational knowledge. Individual knowledge is the knowledge that exists in the body and mind of the individual [16]. This comprises explicit and implicit forms of knowledge attained through learning and experience [17]. Organizational knowledge is the knowledge that exists in the organization's knowledge repositories which appear in the form of rules, procedures and routines [16]. It is embedded in the products and services of the organization which ensures that such knowledge base is protected from

loss when an employee leaves the company [17].

In this new economy propelled by knowledge, the capacity of firms to use innovative technology and to adapt to new organizational changes or methods plays a key role in establishing industrial leadership and enhancing competitiveness. Knowledge creation and sharing has therefore been demonstrated as *catalysts* for innovation and productivity. Knowledge creation and sharing provide the basis for telecommunication industries to take advantage of modern technology to mobilize the full resources to solve specific problems within a shorter time frame than would hitherto have been possible.

2.2. Innovation

The most convenient definition of innovation from organizational perspective was given by Luecke and Katz. In their opinion, "Innovation is generally understood as the successful introduction of a new or improved thing or method. Innovation is the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services. Innovation typically involves creativity but the two are not identical. Innovation rather involves acting on creative ideas to make some specific and tangible difference in the domain in which the innovation occurs.

Several researchers and authors have provided different definitions of innovation which relates more to the circumstance. Earlier in the development of this field of learning, Barnett introduced a simple definition of innovation. Barnett [18] defined innovation as the introduction of something new. It is also considered as the generation, adoption and implementation of new ideas, processes, products or services [19]. Consequently, a more comprehensive definition was provided by West and Farr [20]. They defined innovation as an "intentional introduction and application of new products, processes, procedures, or ideas that are designed to significantly benefit the individual, the group, the organization or the wider society". From an organizational perspective also, innovation is defined as the implementation of an idea or behaviour that is new to the organization, whether through a system, policy, program, device, process, product or service [21]. Damanpour considered innovation as a means to change an organization. This change could be influenced by pre-emptive action or internal, as well as, external responses to influence the environment. Innovation is the transformation of knowledge into new products, processes and services to meet the needs of the customers as alluded to by Porter and Stern [22]. This view emphasizes that, innovation is more than just science and technology. It has been emphasized that innovation process encompasses the technical, physical, and knowledge based activities that are main to the product development procedures [23]. Baker views innovation as the process of creating a completely new product or service, from the start to the end [24]. However, Baker's definition makes room for the quick ability of the organization to adapt to new external innovations that may be essential for the organization. This

lays emphasis on the importance of coping and dealing with external innovations and their relationship with internal innovation.

Innovation has been considered to be a concrete and difficult activity, which forces the organization to use its resources to achieve a specific end. This involves the acquisition, dissemination and use of a new knowledge [25]. Some researchers have defined innovation as the introduction of a new combination of the necessary factors into the production system [26]. Innovation is also described as the implementation of discoveries and interventions in the form of products, systems or processes [27]. All the definitions above agree on the principle that innovation is a process aimed to deliver a new product or service by undertaking existing practices differently [17]. These definitions are important because they distinguish innovation from other organizational terms in as much as innovation involves the "intentional introduction and application of new and improved ways of doing things" [28].

The definition of innovation focuses on two things; (1) the innovation of new products and (2) the innovation in new processes of existing products. There is an assumption that both outcomes have different social and economic impacts on growth and employees, but innovation in the processes of existing products is considered as a development of efficiency [29]. It is important to differentiate product and process innovations, as the implementation of each requires different organizational skills and resources as asserted by Damanpour and Gopalakrishnan [30].

2.3. Innovation Capability

It is essential to consider a deeper view of innovation which relates to the tendency of the firm to innovate by measuring the innovative capability of the firm or organization. Firm innovation capability has been defined as the firm's ability to create new value propositions through a set of activities; such as offering new products or services, adopting new organizational and operational practices, technological solutions or creating new skills and competencies [31, 32]. Innovation capability is also defined as the skills and knowledge necessary to effectively realize, master and enhance existing technologies, and to create new ones [33]. In Lawson and Samson's view, innovation capability could be linked directly with knowledge as it seen in the ability to continuously convert ideas and knowledge into new products, processes and systems for the advantage of the firm and its stakeholders [34]. Unlike Ussahawanitchakit [35], a writer provides an extended definition of innovation capability. It is the ability of the firm to develop new products that satisfy market needs; develop its technological process; implement new products and technological process in the future; and respond to unpredictable activities in technological changes and opportunities exhibited by competitors.

Researchers have divergent views on the innovative capability of the firm. There are several researchers and institutions who focus on how or the ability to create the

right opportunity for innovation [36]. Others focus on measuring technique and creativity level of individual firms. Some have also developed components to examine the innovative capability of a company. Others agree that innovative capability can be measured at individual or firm level [37, 38]. This research is focused on the assessment of firm innovation capability. In this case, innovation capability will be explained as the ability that is formed as a result of knowledge sharing behaviour among individuals in a firm, organization or company.

2.4. Innovation and Knowledge Sharing

Based on the view of knowledge sharing as one of the core and most important activity of knowledge management we can mention the relationship between knowledge and innovation, knowledge management and innovation and moreover, with the relationship between knowledge sharing and innovation. It can be concluded from previous studies that innovation is an outcome of knowledge [39-42]. According to Tsai [42], any new product or innovative idea will be part of new knowledge. Lack of knowledge will slow down any innovation idea [40]. It is therefore posited that innovation sometimes will lead to utilization of benefits from the knowledge that have been obtained by getting good leads and low customer services [39].

Most institutions will find a smooth and creative solution once they depend on good knowledge as asserted by Dougherty, et al [43]. They argued that innovation depend heavily on the accumulation of new knowledge in an organization. Other researchers believe that knowledge reflects the personality of any institution that gives its employees the enabling environment to motivate them to bring innovation in ideas or new product processes. But Knowledge Management points to the fact that the presence of an effective and creative innovation will lead to good knowledge management. It creates an environment that is a necessary condition for innovation [44]. This view has been supported by other researchers [45, 46]. Knowledge management is all about supporting individuals to generate new ideas, bring innovation and exploit the thinking power of the organization [46].

Furthermore, some available literatures have shown that stored knowledge and the ease of retrieval are at the core of innovative capability. It has been asserted that creativity is very important for innovation which is derived from obviously visible and invisible accumulation of experience. Augmenting the view above, Fiol [47] believes and insists that any organization can find their way in innovation and generate innovative outcomes from the accumulated knowledge absorbed over the period. Knowledge management can develop the approach to innovation by applying major roles.

It can be established from the view expressed that, firstly, the major role of knowledge management in innovation is related to tacit knowledge. Knowledge management enables the sharing and codification of tacit knowledge. Secondly, the major role of knowledge management in innovation is the

support to convert implicit knowledge to explicit knowledge. This will automatically help to switch implied knowledge to be expressed. This support covers all needed platforms as well as the processes to ensure that tacit knowledge becomes explicit. Thirdly, the role of knowledge management in innovation is related to enabling collaboration. Collaboration can foster innovation by offering technological platforms and tools that enable knowledge creation, sharing, gathering and leverage within the collaborative forums. The role of knowledge management is to facilitate collaboration. When knowledge sharing takes place between individuals or groups within the organization, individual or group ideas appear novel to others [48]. This can result in developing new product or product processes. Also, effective knowledge transfer between groups and individuals helps in problem solving [48].

Knowledge sharing, also called knowledge dissemination and, responsiveness to knowledge, are considered the most important tools for innovation due to their ambiguous and unique nature [49, 50]. One of the most important tools of creativity is information sharing as asserted by Nonaka and Takeuchi [52]. However, the importance of information sharing is not the physical assets, but the intellectual properties that increases in value with use [53]. Innovation is dependent on the amount of information gathered from knowledge. Individual knowledge enhances when people interact and this leads to growth of new knowledge [52]. Individual stage of knowledge distribution helps organizations to switch an individual-owned knowledge to organizational knowledge among firms as asserted by Kharabsheh [11]. More so, business value and innovation can be reached through a strategy of explicit knowledge exchange in the organization [17].

3. Research Methodology

3.1. Population and Sample

The population of this study consisted of employees in the development and managerial levels of the mobile telecommunications companies in Ghana. The following network codes are assigned to mobile operators in Ghana; Airtel-026; Expresso-028; Glo – 023; MTN - 024/054; Tigo - 027 and Vodafone – 020. The Ghanaian mobile telecommunications sector consists of six companies Airtel, Expresso, Glo, MTN, Tigo and Vodafone. The total number of employees in these companies is 5200, divided into 910, 430, 190, 1850, 280, 1540, employees respectively. The target population of this study was the employees' working in the managerial and development levels in the listed companies, as this study derived to assess their behaviour. Employees in these departments are estimated to be 1200, which is 23% of the total number of the sector personnel. A total of (400) questionnaires were distributed, 378 were retrieved and out of these, 26 were answered incorrectly, thus making them unusable leaving the number of usable responses for the analysis at 351.

3.2. Research Instrument

Questionnaire was used as the research survey instrument; it comprised a series of statements reflecting the items which operationalized the constructs of the study. The responses were measured with a five-point Likert-type rating scale, where, Strongly Agree (SA) = 4; Agree (A) = 3; Strongly Disagree (SD) = 2; Disagree (D) = 1; and Neutral (N) = 0. The questionnaire was pretested and revealed no problems. To ensure the validity of the instrument (questionnaire) the face validity method were used and the instrument was assessed by a group of five academic specialists. Face validity of questionnaire items was satisfactory according to the expert view point of the academics. Revisions were made to the questionnaire based on the comments and feedback received from the experts. After considering their suggestions, a final version of the questionnaire was developed. To assess the instrument reliability, the internal consistency check was verified using Cronbach Alfa Coefficient for consistency. The closer it is to 1 the greater the internal consistency is; accordingly, the results were statistically acceptable since the value is greater than 0.60 which is acceptable to administrative and human sciences [56]. All of the values of Cronbach Coefficient are above 0.60, hence we can approve that the instrument is consistent.

4. Discussion of Findings

After analyzing the data collected; it was revealed that, the organizational factor “top management support” was effective to knowledge sharing behaviour in both ways – donation and collecting. Similarly, the other organizational factor “organizational rewards” has no influence on knowledge sharing activities. These findings suggest that, employee knowledge sharing behaviour is affected and encouraged by the influence of top management support but not dependent on the level of organizational rewards system.

Depending on this result, the researchers can conclude that employees in the Ghanaian telecommunication sector are influenced by the psychological factors and concerned about their managers support, help and encouragement more than the organizational rewards system and they are not expecting to receive more rewards to increase their knowledge sharing attitude. Also this may indicate that employees in the Ghanaian telecommunication sector companies are satisfied with their jobs financially, they believe that their knowledge sharing behaviour is psychologically rewarding.

Furtherance to this, the results also showed that employee willingness to donate and collect knowledge is significantly related to firm innovation capability and has influences on it. This finding reveals that knowledge sharing behaviour and its activities could be considered as an enabler and pre-request for developing innovative capability. It is essential for cultivating and developing knowledge sharing culture in organizations and reinforcing knowledge sharing practices by management through knowledge-transfer specific trainings. Also managers must emphasize on building and enhancing

good interpersonal relationships among colleagues to facilitate the knowledge sharing that can lead to all forms innovation.

In addition, the results showed that, there is a positive significant relationship between firm innovation capabilities influenced by applying knowledge sharing enablers. This finding shows that knowledge sharing enablers in its two types can be applied to achieve an advantage on both willingness to share knowledge and improving firm innovation capability. Also it may lead to the achievement of firm’s innovation capability. Managers can take advantage of using these enablers to enable the knowledge sharing behaviour of employees and enhancing the firm innovation capability.

The last but not the least, the result of this research is concerned with the impact and interaction between all of the study factors and all of them. The significance of this result is to ensure the importance of knowledge sharing activities, donation and collecting, as intermediate factor that is affected by the set of study enablers and affect the firm innovation capability.

5. Conclusion

In summary, results of this research indicate that in the Ghanaian telecommunication sector, the individual factor “enjoyment in helping others” has effects on knowledge sharing activities within the companies but the factor “knowledge self-efficacy” has no effect. Organizational factor, “top management support” is considered a supportive factor to conduct knowledge sharing activities in companies where “organizational rewards” factor didn’t affect both knowledge sharing activities.

Knowledge sharing behaviour, which has two forms – donation and collecting, has a positive effect on an organization’s capability to bring innovation in its market drive activities. In Ghana’s telecom market, network operators are beginning to assess their strategy as markets have started to saturate, considering the importance of customer retention. To overcome market demands and the impact it will have on telecommunication service providers, operators are advised to look deep into traffic and revenue growth, focusing on segmentation and VAS portfolios as a means to subscriber retention. Organizational and individual enablers for knowledge sharing activities have a positive effect on a firm’s innovative capability. But the effect of those enablers on knowledge sharing activities will lead to more effect on firm innovation capability.

It was recommended that the Chief Executive Officers in telecommunication companies in Ghana should build an organizational culture and teamwork, which allows employees to interact smoothly with each other. This could be done by encouraging employees to share knowledge they have with others through formal and informal activities. Managers must also create the environment that seeks to increase the level of enjoyment that employees feel when they help their colleagues and share knowledge with others. More importantly, the top management team should

encourage and allow the subordinates to develop higher self-esteem by motivating them to be more confident about the knowledge they have and the usefulness it will give to the company if this knowledge is shared. It is therefore imperative for telecom companies to support knowledge sharing activities among the workers.

Finally, organizational rewards have a positive impact on innovation. Management must therefore use both monetary and nonmonetary incentives in rewarding staffs due to the importance of both. Knowledge sharing is directly linked to innovation. Organizations must initiate and facilitate programs and activities that encourage employees to gain new knowledge, develop existing one and share their knowledge with others.

The study contributes to the literature of knowledge sharing and building innovation capabilities in telecommunication sector in Ghana, however there are some limitations. The effect of trust, which plays major role in knowledge sharing was not fully considered. Also the sample size was not large enough as compared to the target group all over the country. These make the generalisation of the findings a limited one. Therefore, there is the need for further studies involving a large sample size and also the need to consider fully the mediating or moderating effects of trust in knowledge sharing on building innovation capabilities in the study for gaining competitive advantages.

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