

The Impact of Knowledge Acquisition on Technical and Administrative Innovation: Case of Tunisian Companies

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ABSTRACT: *In our complex and rapidly changing environment, personal knowledge is enriched and has become more effective in the collective bargaining process, thereby creating social capital. The combination of individual knowledge in collective wisdom is the key to innovation, which is considered a major social and human phenomenon. By deepening our reasoning, this social and human dimension gives sustainability to any company. This organizational capacity proves to be crucial because possessing knowledge confers a substantial advantage. It is the ability to mobilize and deploy them that will produce value. This research makes it possible to analyze the relationship between the acquisitions of knowledge with innovation within Tunisian organizations. In order to determine this relationship, a quantitative method was adopted. The results reveal the existence of a significant influence between the acquisition of knowledge and administrative innovation.*

KEYWORDS: acquisition of knowledge, administrative innovation, technical innovation.

INTRODUCTION

In developing countries, the use of knowledge management initiatives is a new issue for many organizations (Chawla and Joshi, 2010). The need for such research increases with the reduction of available budgets and the search for sustainable resources by companies (Liao et al, 2008; Yang, 2008). According to Plessis (2007) and Huang (2009), there is another important factor having influence such as performance, survivability and organizational competitiveness. It's about innovation. Therefore, Chaston (2012) recently studied the role of knowledge management within organizations regarding innovation and found that both practices have a major impact on performance. At the same time, many organizations began to change after the difficulties that forced them to think about new approaches that could help them become

competitive (Chua and Goh, 2008). This situation has highlighted the need to achieve results from employing different initiatives involving knowledge management in different organizational programs. However, there are very few studies in the literature that examine the effects of knowledge acquisition on the technical and administrative innovation of organizations, and there is no clear model to test the magnitude of this influence (Kör & Maden,2013). It is in this context that the challenge is to provide an answer to the following central question: What is the impact of the acquisition of knowledge on organizational innovation in Tunisian companies?

This research aims to explain the appropriate use of organizational initiatives, and more particularly knowledge management. For this reason, it is useful to study and define the links that exist between the most important catalysts of knowledge acquisition and the main types of innovations (technical and administrative).

In order to achieve this objective, this allows us to understand to what extent the acquisition of knowledge can provide added value for any innovative company.

CONTEXT AND LITERATURE REVIEW

The acquisition process

Acquisition is a knowledge management process that allows it to be produced. Many terms are used to describe these processes: acquire, search, produce, create, capture and collaborate. All of these terms have a common theme for knowledge accumulation. Another aspect of acquisition is innovation which consists of creating new knowledge through the application of existing knowledge. It requires significant effort and a high degree of experience to capture new knowledge. According to Mills (2013), improving the knowledge used and effectively acquiring new knowledge are also the key aspects of acquisition. Two examples of these processes are benchmarking and collaboration. For benchmarking, an organization identifies noteworthy practices of organizations and then evaluates the current state of a particular process to identify gaps and problems. Once these practices are identified, the organization can capture the knowledge for any internal use.

According to Gold (2001), the creation of organizational knowledge requires the sharing and dissemination of personal experiences (i.e., collaboration). Collaboration occurs at two levels in the organization: between individuals and between the network associated with the organization. Collaboration between individuals brings together individual differences for knowledge creation (e.g., cognitive style, preferred tools, training, and experiences). This assumes that interaction between individuals will promote learning. Collaboration between individuals is also the basis for the socialization of knowledge. Collaboration between several organizations is also a potential source of knowledge to facilitate its acquisition. According to Hung (2013), sharing technology, personnel movement, and connections between the organization and alliance partners help in knowledge accumulation.

Gold (2001) asserts that knowledge acquisition capacity is based on the absorptive capacity of an organization because the skills needed for innovation are not found in a single organization.

We can say that the process of acquiring information is carried out with two different points of view. These are first of all the achievements of knowledge management including exploitation through available knowledge. Essential information is taken from the factors in its environment, including its customers, competitors, suppliers, and others that influence and are influenced by the company's performance. These are then the achievements of knowledge management, including the recycling of exploration through sharing and synthesis of knowledge. Ideas and information, which will change what is done and how it is done, are used by the company (Allameh and Abbas, 2010). Firms have the opportunity to recombine knowledge and generate new knowledge through the acquisition of knowledge from the external market and their employees (Yli-Renko et al. 2001).

Adoption of innovation

This research focuses on innovation at the organizational level. In this context, innovation is defined as the development and/or use of new ideas or behaviors (Walker, 2006). A new idea concerns a new product, services, market, operational and administrative structures, processes and systems. An innovation is considered new to an individual adapter, to an organizational subunit, to an organization as a whole, or to the entire sector, industry or organizational population. Walker (2006) defined innovation as new to the adopting organization. Innovative organizations are subject to pressure from the external environment such as competition, resource shortages and customer demands, or from internal organizational choice, such as obtaining distinctive skills, and increasing the scope and quality of services. In one way or another, the adoption of innovation aims to ensure adaptive behavior to maintain or improve performance.

This view of innovation adoption is primarily influenced by the perception of the organization as an open system. Thus, organizations are examined as adaptive systems that drive change in order to function effectively. Many organizational theories are based on the open system perspective. For example, resource dependence theory (Pfeffer and Salancik , 2003) emphasizes “managerial choice” to manage environmental dependencies and to gain essential resources for managers to be motivated to change internal processes and to offer new products or services to maintain links with customers or the government that provides these resources.

According to Barney (1991), organization emphasizes the heterogeneity of rare, valuable, non-substitutable and inimitable resources and capabilities in the development of distinctive skills for organizational effectiveness (Bryson et al, 2007). It suggests that complementary resources and capabilities would help the organization capitalize on innovation (Di Vaio , 2021). The implication of these theories for this study is that the combinatorial adoption of different types of innovations in different parts of the organization would increase the capabilities for adaptive change. We therefore assume that organizations adapt to competitive and/or institutional pressures from the external environment by adopting new service compositions and internal practices to maintain a distinction of skills that help them increase their performance.

Innovation research has distinguished into different types of innovations because they have different characteristics and their adoptions are not equally affected by environmental measures and organizational factors (Jansen et al, 2006). Previous research also suggests that the process of generating different types of innovations within the industry, and their adoption at the organizational level, is not similar (Daft , 1978). Innovation researchers have introduced numerous conceptual typologies of innovation. For example, Zaltman et al. (1973) identified approximately 20 types of innovation grouped according to the state of the organization. In this variety of types of innovations, the best known and most studied of the typologies of innovation is the distinction between product and process innovations.

Another widely recognized but less researched typology is the distinction between technological innovation (also called “technical”) and administrative innovation (also called “organization” and “management”) (Birkinshaw et al, 2008) . Edquist and colleagues (Edquist et al., 2001; Meeus and Edquist , 2006) suggested that these two typologies offered a taxonomy that distinguishes between two types of product innovations (“into goods” and “into services”) and two types of procedural innovations (“technological” and “organizational”). Gary Hamel (2006) distinguished between two types of process innovations that resemble Meeus and Edquist 's distinction : innovation in operational processes (such as customer services, logistics, and procurement) and innovations in management processes (such as strategic planning, management project and employee evaluation). According to Edquist et al (2006), there are four types of innovations that apply to organizations: service innovations, technological process innovations and administrative process innovations.

❖ *Service innovation*

Barras (1986) defined a product as a good or service offered to the customer. Innovation research has not distinguished products from service innovation i.e. services offered by organizations in the service sector are conceptualized to be similar to products introduced by organizations in the manufacturing sector. This view was adopted because product and service innovations have an external orientation and their introduction results in differentiation of the organization's production to satisfy their customer. Therefore, like product innovations, the drivers of service innovations are primarily customer demand for the new services and managers' desire to create new services, commercialize, or find new market niches for the release of the services . services. Given the emphasis on customer needs in the service sector, the nature of service innovation is to better understand their requirements through the relationship with the service user. Thus, we define service innovations as introducing new services to existing or new customers and offering existing services to new customers.

❖ *Process innovation*

Unlike product or service innovations, process innovations have an internal focus and aim to increase the effectiveness and efficiency of an internal organizational process to facilitate the production and delivery of goods or services to customers (Miković , R, 2020). New processes can be associated with the technological core or technical system of the organization (technological process innovations) or with the administrative core or social system of the organization (administrative process innovations). Technological process innovation is the

introduction of new elements into a production system organization or service operation to produce or offer services to customers. The drivers of these innovations are mainly the reduction of delivery time, the increase in operational flexibility and the reduction of production costs. Therefore, technological process innovations change the operation of a process and the systems of organizations (Meeus and Edquist , 2006). In service organizations, these innovations are mainly associated with information technology (Miles, 2001). For parsimony, we now refer to this innovation as “technological innovation.” Administrative process innovations are new approaches and practices to motivate and reward organizational members, also to design the strategy and structure of tasks within the organization. Technological innovations are directly linked to the core work of the organization's business and lead to changes in operating systems. Moreover, administrative innovations are indirectly related to the basic work activity of the organization and mainly affect its management systems. Administrative process innovations concern changes in the structure and processes of the organization, administrative systems, knowledge used in the execution of management work, and managerial skills that enable the smooth functioning of the business using resources efficiently. Furthermore, we refer to this type of innovation as "administrative innovation."

In general, organizational innovation is defined as the creation of a new idea and behavior in an organization (Damanpour & Gopalakrishnan , 2001). The dimensions of organizational innovation are extremely complex and multiple; they are examined from two aspects: the breadth of innovation which includes policies, administrative systems, processes, products, services; and the depth of innovation, which includes the degree of influence and effect on long-term profitability (Chuang , 2005). Basically, there are two distinct types of organizational innovation that are classified in most studies, namely technological innovation and administrative innovation. Chuang (2005) also divided technological innovation into secondary dimensions: product innovation and process innovation; while administrative innovation remains distinct from two others. According to Mavondo , Chimhanzi and Stewart (2003), organizational innovation is classified into three dimensions, namely: product innovation, process innovation and administrative innovation. These three dimensions are important precursors for manufacturing companies that have the ability to improve performance or efficiency, solve problems, create added value, and drive competitive advantage. . Product innovation, process innovation and administrative innovation are very important in improving business performance.

The relationship between the acquisition of knowledge and organizational innovation:

As cited in their article 'The Relationship between Knowledge Management and Innovation in Turkish Service and High-Tech Firms ', Burcu Kor and Ceyda Maden (2013) asserted that the process of knowledge acquisition which is linked to the use of existing knowledge or the capture of new knowledge, strengthens a learning organization. Through the acquisition of knowledge both inside and outside the organization, each member of the organization can increase their ability to transform current knowledge into new knowledge. New knowledge increases the stock of knowledge available to organizations.

Additionally, accessing and creating new knowledge reduces uncertainty, and opens up new opportunities to apply and exploit knowledge. They also promote the creation of innovative results. As innovation requires experiments and concerted efforts in recognizing existing knowledge and capturing new knowledge, this increases primarily through knowledge acquisition. Furthermore, the acquisition of knowledge is positively linked to administrative and technical innovation.

In accordance with the previous discussions, the following hypotheses are formulated:

- **H1: The knowledge acquisition process is positively related to administrative innovation.**
- **H2: The knowledge acquisition process is positively related to technical innovation.**

THE RESEARCH METHODOLOGY

The questionnaire

The development of quantitative research in the social sciences tends to operationalize concepts, instruments, perceptions and opinions (Bryman , 1984). The questionnaire is developed either by adapting a pre-existing tool or by creating a new questionnaire. However, as a first step in developing a personalized instrument in this research, several other questionnaires are considered as possible research instruments (Bomarafi and Jabnoun , 2008, Al- Alawi et al, 2007, Zaim et al, 2007, SyedIkhsan et Rowland, 2004). The survey questionnaire is designed based on an extensive literature review and a series of questionnaires designed based on well-established documents. It is developed to first understand the status of the organization, thereby confirming the similarity and uniqueness of the organization's culture.

To assess the validity of our research model, item measures are generally adopted for the improvement of confidence that the constructs of interest have accurately assessed and thus the measurement of the variable will be more consistent. Multiple item measures are used for most variables to improve the reliability and validity of the measures. Additionally, variables are measured with Likert scales which provides the benefit of standardization and determination of relative effect amounts.

The knowledge acquisition factor consists of seven items (Acq1, Acq2, Acq3, Acq4, Acq5, Acq6 and Acq7), respondents indicate to what extent knowledge is acquired by their customers, partners and employees

After distinguishing previous research (Damanpour , 1991; Ibarra, 1993), the present study adopts two dimensions of innovation, including technical innovation and administrative innovation. A five-point Likert scale (Strongly Disagree, Slightly Disagree, Neutral, Slightly Agree, Strongly Agree), based on the work of Ibarra (1993), reflects the extent to which companies are satisfied with the development of innovation activities.

This study examines the dimensionality of our measures by performing a principal components factor analysis with varimax rotation (Hair et al., 1998). The administrative innovation factor includes four items (adm1, adm2, adm3, adm4) to measure the extent of responsiveness to environmental changes and the degree of administrative innovation in terms of planning

procedures and process control systems .The technical innovation factor consists of four items (tech1, tech2, tech3, tech4) to the extent that the company develops new technologies, incorporates technologies into new products and facilitates the development of new processes to improve the quality and reduce costs.

Sampling

The preliminary investigation is adopted in order to purify the measuring instruments and check their dimensionality. It ensures the implementation of stages 3 and 4 of Churchill's paradigm (1979). Therefore, we chose a sample consisting of 252 individuals. This number is largely sufficient because it favors the establishment of appropriate exploratory analyzes (PCA and Cronbach 's Alpha).

Data collection

We distributed approximately 450 questionnaires in total and received 260 completed ones, representing a response rate of 58%. After the verification, we retained 252 usable questionnaires. This analysis presents a description of the structure of the sample according to certain characteristics, on the one hand, the profile of the respondents, their age and the number of years of experience and, on the other hand, the companies selected, namely: the sector, the date of creation, the location, the number of employees, the level of education and, finally, the training expenses.

Descriptive analysis

After using the questionnaires, we found that most of our interlocutors are managers (48%), human resources managers (30%), marketing managers (12%), quality managers (5%) and financial managers (5%). This high rate of responses from managers is explained by the interest they place in the purpose of the research which directly affects senior managers. Most of the companies included in this study are moderately old (71.42%) created between 1980 and 2010. The oldest company has been established for 54 years, while the youngest was created in 2010. Thus, 33.33 % of the companies surveyed are located in Monastir, 57% in Tunis and Sousse, and, finally, 10% of the companies are located in Mahdia. We note that the majority of respondents work in medium-sized companies to the extent that 47.61% of companies have a workforce of between 50 and 200 employees. In fact, 33.33% of companies have a workforce of more than 50 employees. In addition, 19.04% of companies have a workforce of fewer than 50 employees. In addition, 60% of respondents obtained their bachelor's degree (or master's degree) and 31% of respondents obtained their master's degrees (bac+5) in which 9% of the workforce had a doctoral degree. We also note that most respondents are aged between 30 and 40 years old and 30% of respondents are over 40 years old. Also, 65% of respondents have more than five years of experience.

The distribution according to sector of activity indicates that the sample is represented by a set of companies operating in the industrial and agri-food sector (48%), the commercial sector (17%). In addition, we observe that the service sector represents (32%) as well as that of buildings only occupies small proportions in the entire sample (8.31%).

DISCUSSION OF THE RESULTS

In order to assess the dimensionality and evaluate the reliability of the items making up our measurement scales, it is essential to carry out a PCA to examine the factorial structure of the different items in our questionnaire. This first analysis must be completed by calculating Cronbach 's alpha to check the reliability of internal consistency between the items of the measurement scale. These two tests will be applied to all the scales which constitute our questionnaire.

In our questionnaire, we proposed several questions that relate to knowledge management. These questions represent variables (items) that reflect knowledge acquisition. With a KMO = 0.783, our sample is acceptable. The sampling precision measure is equal to $0.783 \geq 0.5$ so we can say that the KMO index is average (KMO is between 0.60 and 0.80). The Bartlett test error significance is zero, so the sampling is representative. The KMO index of 0.783 is qualified as average with a Bartlett's test of sphericity which is statistically significant ($P= 0.000$) and a good quality of representation.

The factors retained for this PCA make it possible to extract more than 70% of the initial information from each item. We also note that the minimum information extracted in the first item is 70.4% and is considered acceptable. Examination of the total explained variance shows the existence of two components with an eigenvalue greater than 1. The eigenvalue of the first component is 2.933. It explains 41.9% of the total variance. As for the second component, its eigenvalue is 1.926. It explains 28.25% of the total variance. The total explained variance of the two components shows a score of 70.12%.

Knowledge acquisition is the first dimension of knowledge management. It is measured by 7 items. Each of the items reflects the knowledge that can be acquired from partners: suppliers, customers, and competitors. Remember that the internal consistency of this sub-construct is around 0.70. The factorial contributions are satisfactory, which allows us to say that the convergent validity is acceptable.

Cronbach 's alpha : “Nunally and Bernstein (1994) recommend a minimum threshold of 0.70. In our case, the Cronbach 's alpha of the knowledge acquisition scale gives us $0.76 > 0.7$. This alpha value indicates good internal consistency between the items.

The KMO value of the technical innovation variable is equal to 0.758, as well as the KMO value of the administrative variable which is equal to 0.707. This therefore shows the possibility of factoring these eight items. It tells us that the correlations between the items are of good quality. The quality of representation of the items is also satisfactory with communities greater than (0.5). It follows from these values that the conditions for applying the PCA are verified. The unidimensionality test shows the number of factors needed to recover up to 74% of the information from these eight factors. The Cronbach alpha coefficient of the technical innovation variable is equal to 0.764 and the Cronbach alpha coefficient of the administrative variable is

equal to 0.713 which attests to their good internal consistency. That is, the organizational innovation scale has satisfactory reliability. This is an acceptable rate validating the two factors of organizational innovation.

The first hypothesis from the literature corresponds more precisely to the analysis of the link between the variable “Acquisition of knowledge” and the variable “Technical innovation”. It has been the subject of several research carried out by (Zhou et al, 2006). Thus, our results lead us to reject this hypothesis relating to the impact of Knowledge Acquisition on technical innovation. In fact, this relationship is not **significant** because ($CR=1.616<1.96$; $p=0.001<0.05$), the structural link between the two variables is equal to 0.532.

These results imply the rejection of hypothesis (H1), and show that knowledge acquisition has no significant effect on technical innovation. We can therefore say that our results do not corroborate with the results of Saida Habhab -Rave (2012), who suggested that the acquisition of new knowledge in fact constitutes the fundamental issues in the progress of innovation. This is how Callon & al. (1995) highlighted the importance of knowledge acquisition for the development of technical innovation.

As a result, the acquisition of knowledge has a negative influence and is not significant on technical innovation. The second hypothesis suggests that the variable “Acquisition of knowledge” has a positive effect on “administrative innovation”. This hypothesis has been the subject of research by Huang & Lai (2014) and Karami et al (2015) who suggest that the acquisition of knowledge improves the ability of companies to innovate.

Our results indicate that ($CR=2.093>1.96$ and $p=0.033<0.05$), the structural link between the two variables is equal to 0.464. This hypothesis is validated, therefore “knowledge acquisition” has a direct and positive influence on “administrative innovation”. This research is all the more important because it shows managers that it is absolutely necessary to take short or long term elements into account because they can represent direct or indirect levers. Taking these new elements into account will allow them to achieve their objectives. According to Bochémier (2006), an organization has a competitive advantage when it has unique and difficult to imitate resources and skills, which allow it to provide added value. Yuen (2007) sees that this competitive advantage is possible through continuous innovation in an organization.

Additionally, knowledge management processes must be continually improved. The company must ensure that the acquisition of knowledge also takes place continuously because the risk would be to let knowledge be lost by not putting in place sufficient methods to enable learning. Innovation is an unstable outcome, a company cannot afford to stop finding new innovations, otherwise it will lose its position in the market.

This research is of great support for a small organization dreaming bigger, for a medium-sized organization and for a large organization. This is support because it is in these cases that knowledge management is essential for the company to achieve innovation.

CONCLUSION

In our complex and rapidly changing environment, personal knowledge is enriched and more effective in the collective bargaining process, thereby creating social capital. Combining individual knowledge into collective wisdom is the key to innovation, which is considered a major social and human phenomenon. By delving deeper into our reasoning, this social and human dimension gives sustainability to any business. This organizational capacity is crucial because having knowledge confers a substantial advantage. It is the ability to mobilize and deploy them that will produce value.

This research makes it possible to analyze the relationship between knowledge management processes and innovation within Tunisian organizations. We focused on the concept of “knowledge management”, which is considered among the best practices by which organizations generate value from their intellectual capital. The importance of this initiative helps organizations to consistently maintain specific characteristics that are better than competitors and difficult to imitate.

The results of the research also made it possible to fill the gaps identified in the literature on the lack of scientific research that relates knowledge management to organizational innovation in different sectors. This finding echoes what knowledge management specialists (Davenport and Prusak , 2000) have recommended, namely that knowledge management practices must be implemented within the organization to have better innovation.

Furthermore, it is important to properly exploit this knowledge to help organizations develop and strengthen their competitiveness in the knowledge economy. This finding confirms the work of Lundvall and Nielsen (2007), who understood the importance of the influence of knowledge management, particularly when tacit knowledge becomes scarce.

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