



# THE IMPACT OF KNOWLEDGE MANAGEMENT ON INNOVATION PERFORMANCE: A CASE STUDY OF ALGERIAN ORGANISATIONS

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## ABSTRACT

**Purpose:** This study aims to analyse the relationship between knowledge management processes and innovation performance.

**Design/methodology/approach:** The unit of analysis is Algerian organisations. A Questionnaire was used to collect the data. The response sample included 66 responses. The relationships among variables were tested using a regression analysis method.

**Findings:** The results of this study indicate that knowledge management processes have a positive effect on innovation performance.

**Originality/value:** Previous studies on knowledge management processes and

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innovation performance have been fragmented in that they have explained some aspects of this relationship but have not provided a direct relationship between knowledge management processes and innovation performance.

**Keywords:** Knowledge; knowledge management; innovation performance; Algerian organisations.

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## INTRODUCTION

Today, knowledge becomes the most crucial resource of any organisation in an economy with permanent and complex competitiveness. Therefore, in this knowledge economy, the performance of any organisation, and especially the innovation performance, is strongly related to the optimal use of the intangible resources. This is particularly true for knowledge assets, because several studies have shown that knowledge has a primordial role in the acquisition of competitive advantage (Hsiao and Wen, 2011, p. 411; Chen and Chen, 2005, p. 381).

Many scholars have considered knowledge as an economic capital, a productivity and stability factor, and a competitive asset (Lee and Choi, 2003, p. 179; Boumarafi, 2009, p. 17; Chen and Fong, 2012, p. 13523; Wiklund and Shepherd, 2003, p. 1307; Alegre et al., 2011, p. 454; Chuang et al., 2013, p. 218; Kim et al., 2012, p. 1047; Huang et al., 2007, p. 417). It is also considered as a crucial and strategic resource (Djeflat, 2005; Aboelmaged, 2012, p. 45; Chen et al., 2011, p. 19; Wang et al., 2009, p. 100; Bangoli and Vedovato, 2014; Hung, 2013; Bollinger and Smith, 2001, p. 10; Bhatti et al., 2011, p. 2847; Zack et al., 2009, p. 393), and moreover as a source of innovation (Wong and Ho, 2007) as well as the heart of an organisation (Sippings, 2007, p. 169).

In this study, we try to examine the impact of knowledge management processes on innovation performance in Algerian organisations.

## KNOWLEDGE

Knowledge is strongly related to human actions (Tsoukas and Vladimirou, 2001, p. 973; Chawla and Joshi, 2012, p. 15); it resides in people as information, experiments, perspicacity and qualifications, products/services, and as activities and processes (Chuang et al., 2013, p. 218).

According to Sveiby (1997), knowledge is the capacity to act (Almashari et al., 2002, p. 74): It is also defined as "The application and the productive use of information or the ability to transform information into actions and decisions" (Wang et al., 2007, p. 2421)

## CHARACTERISTICS OF KNOWLEDGE

Knowledge is characterised by its intangibility and measurability because it is difficult to measure the value of knowledge and its impact. Finally it is also characterised by its extraordinary power because knowledge is created dynamically (by changes with cognitive structures). It is intrinsically related to human actions; when it is used, it is not consumed (does not destroy itself with use). Its users can increase its value (Gupta et al., 2004, p. 491–492; Wiig et al., p. 12; Sammer et al., 2003, p. 03).

## KNOWLEDGE MANAGEMENT

There are many definitions of knowledge management because there are many approaches and visions. For Druker (2002), knowledge management is “the coordination and exploitation of the cognitive resources of an organisation in order to create the benefit and competitive advantage” (Wild and Griggs, 2008, p. 492). In addition, Dalkir et al. (2007) define knowledge management as “Processes and activities which support and facilitate the development and the use of knowledge” (Kuah and Wong, 2013, p. 200).

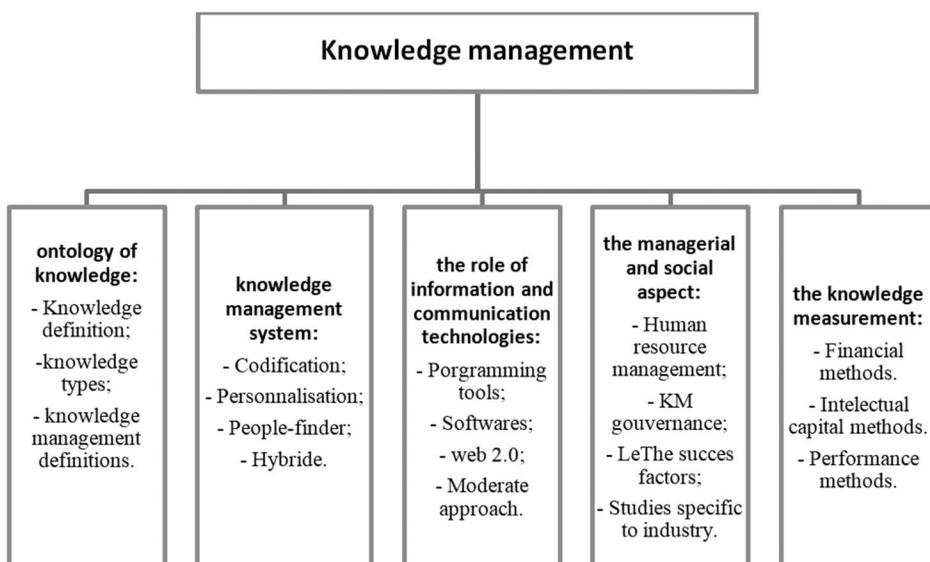
## KNOWLEDGE MANAGEMENT LITERATURE CLASSIFICATION

A literature review helps us to classify studies of knowledge management in five principal categories: the ontology of knowledge, the knowledge management system, the role of information and communication technologies, the managerial and social aspect, and the knowledge measurement (Ragab and Arisha, 2013, p. 875) (see Figure 1 below).

## KNOWLEDGE MANAGEMENT APPROACHES

Two fundamental approaches exist in the knowledge management literature: the managerial and the technological approach.

The managerial approach considers knowledge as a strategic resource of an organisation. It is strongly related to human actions, especially people’s tacit knowledge. The managerial approach focusses its analysis on the decision-making processes, the processes of training and competence management, and the animation of the communities of practice. For that reason, it is called the personalisation strategy “people to people”, which means the interaction between people in an organisation (Nicolas, 2004, p. 23; Chen et al., 2011, p. 20).



Source: Ragab and Arisha, 2013, p. 892.

Figure 1 Knowledge management literature classification

In contrario, the technological approach focusses its analysis on the codification of knowledge, which is based on technologies of information and communication. It is based on the installation of software tools, databases and the specific techniques of knowledge representation (Bayad and Simen, 2003, p. 15). For that reason, it is called the codification strategy “people to document”, which means the codification of knowledge in databases for future use by others (Hansen et al., 2003, p. 121; Foray, 2004, p. 95–96).

## KNOWLEDGE MANAGEMENT PROCESSES

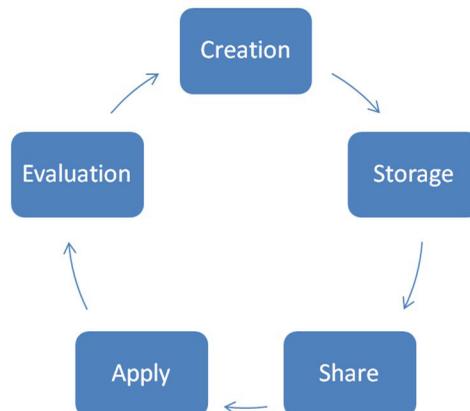
Knowledge management processes are regarded as a primordial function; certain authors considered them as the heart of knowledge management (Choi, 2002, p. 18). Therefore, in literature, there are many models of knowledge management processes that describe the relationship between different processes. These models start from three processes (produce, codify and transfer) to seven processes (create, acquire, identify, adapt, organise, distribute and apply) (King, 2009, p. 06). So, we conclude that there is no consensus between scholars for the ideal model. For that reason, Lachachi et al. (2013), proposed a model with five basic processes that present those that are most used: these are creation, storage, share, use and evaluation of knowledge (see Figure 2 below).

### *Innovation performance*

The improvement of performance became a necessity for contemporary organisations (Martory and Crozet, 2005, p. 163). Gruning defined performance as the capacity of an organisation to achieve their objectives (Gruning, 2002).

### *The relationship between knowledge management processes and innovation performance*

Admittedly, knowledge is regarded as the primary source of innovation and competitiveness. Therefore, it has a primordial role in innovation processes (Alegre et al., 2011, p. 458). The prac-



Source: Lachachi et al., 2013, p. 197.

**Figure 2** Knowledge management processes

tices of the management of knowledge play a central role in the processes of innovation (Alegre et al., 2011, p. 458).

Several studies argue that knowledge management processes have a positive effect on innovation performance (Wiklund and Shepherd, 2003, p. 1307; Ives et al., 1998, p. 272; Aboelmaged, 2012, p. 47). In fact, an effective knowledge management facilitates the communication and the sharing of knowledge, which has an impact on the processes of innovation and consequently improves the innovation performance (Chen and Huang, 2009, p. 108; Aboelmaged, 2012, p. 44). In addition, the new knowledge that has been created in an organisation increases the capacity of innovation of new products, or improves the existing products (Aboelmaged, 2012, p. 47).

Therefore, the role of knowledge management is to help organisations to create new products/ services, in order to improve the productivity and creativity of employees, and to stimulate teamwork. Knowledge management also helps organisations to be more competitive, consequently to have higher profits than in the past, and to improve customer satisfaction (Almashari et al., 2002, p. 81).

Furthermore, knowledge management creates a sustainable competitive advantage (Alegre et al., 2011, p. 455).

Several scholars have argued that big organisations have more resources and they are able to innovate (Alegre et al., 2011, p. 455). On the other hand, small and medium sized organisations have certain advantages, such as flexibility and best communication, which help them to be more innovative (Alegre et al., 2011, p. 455).

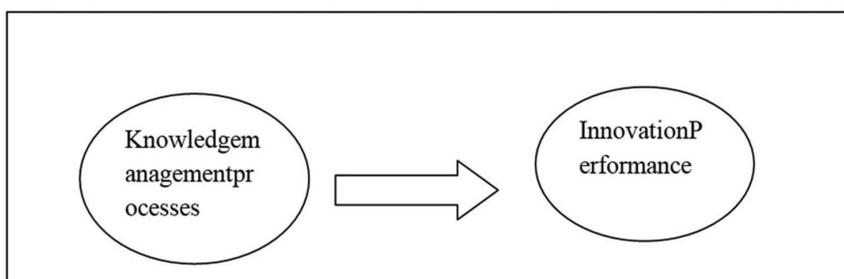
## RESEARCH MODEL

This study develops and examines a conceptual framework for investigating the relationship between knowledge management processes and innovation performance.

## METHODOLOGY

### *Measurement and questionnaire collection, and data analysis*

We used and developed a questionnaire based on the results of the literature review to collect the data, using a 7-point Likert scale, from 1 = absolutely disagree up to 7 = Completely agree. This started from a sample of managers and human resources directors, production directors working



Source: LACHACHI&HOUHOU MODEL.

Figure 3 Research model

in various sectors, both public and private. The list of the companies was used from the direction of SMEs in the Tlemcen region, Algeria. A total of 100 questionnaires were distributed and 66 questionnaires were validated.

The Alpha Cronbach index (Cronbach et al., 1951, p. 297) was used to estimate the reliability and internal coherence of the items for each factor of the questionnaire. This allows the determination of the elements of the questionnaire, including which points are related to others, and to provide a general index of the consistency or the internal coherence of the scale as a whole.

Moreover, the total Alpha Cronbach is 0.897: this confirms that our questionnaire is reliable

**Table 1 Reliability Statistics**

| <i>Coefficient of Cronbach Alpha</i> | <i>Cronbach Alpha standardised</i> | <i>Numbers of the items</i> |
|--------------------------------------|------------------------------------|-----------------------------|
| 0.897                                | 0.905                              | 19                          |

Source: Cronbach Alpha Index, Cronbach et al., 1951.

(i.e., if the sample is changed, it gives us the same results), and it has a very satisfactory internal coherence.

**Table 2 Description of Latent and Observed Variables**

| <i>Latent variables</i>              | <i>Observed variables</i>                                                                      |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| Knowledge management process (KPROC) | KMP1, KMP2, KMP3, KMP4, KMP5, KMP6, KMP7, KMP8, KMP9, KMP10, KMP11, KMP12, KMP13, KMP14, KMP15 |
| Innovation performance (PERF)        | OP13, OP14, OP15, OP16                                                                         |

Demographic characteristics of the responding firms (n=66)

|                         | <i>Frequency</i> | <i>Percentage</i> |
|-------------------------|------------------|-------------------|
| Valid Manufacturing     | 18               | 27.3              |
| Agroalimentary          | 12               | 18.2              |
| Pharmaceutical industry | 1                | 1.5               |
| Energy                  | 2                | 3.0               |
| Textile industry        | 11               | 16.7              |
| Informatics-telecom     | 1                | 1.5               |
| Commerce                | 4                | 6.1               |
| Transport               | 1                | 1.5               |
| Tourism/hotels          | 2                | 3.0               |
| BTPH                    | 9                | 13.6              |
| Marketing-publicity     | 1                | 1.5               |
| Wood/paper              | 4                | 6.1               |
| Total                   | 66               | 100.0             |

|               | <i>Frequency</i> | <i>Percentage</i> |
|---------------|------------------|-------------------|
| Valid 1–9     | 2                | 3.0               |
| 10–49         | 22               | 33.3              |
| 50–250        | 29               | 43.9              |
| More Than 250 | 13               | 19.7              |
| Total         | 66               | 100.0             |

|                         | <i>Frequency</i> | <i>Percentage</i> |
|-------------------------|------------------|-------------------|
| Valid Less Than 5 Years | 5                | 7.6               |
| 6–10                    | 6                | 9.1               |
| 11–15                   | 16               | 24.2              |
| 16–20                   | 11               | 16.7              |
| 21–25                   | 4                | 6.1               |
| 26–30                   | 4                | 6.1               |
| More Than 30 Years      | 20               | 30.3              |
| Total                   | 66               | 100.0             |

### *Verification of results*

We analysed these data through the regression analysis method by using software SPSS V. 22 (Statistical Package for Social Sciences).

### *The regression analysis*

#### *Formulation of the hypotheses and conceptual model:*

We suggest the following hypothesis:

Hypothesis: knowledge management processes have a positive effect on innovation performance.

#### *Validation of the analytical model and hypotheses testing*

We used the regression analysis method to examine the relationship between knowledge management processes and innovation performance. The principal results obtained from SPSS V. 22 are presented in Table 3.

**Table 3** Summary of the principal results of the regression

| <i>LIndependent variable</i>   | <i>Dependant variable (Innovation Performance)</i> |                     |
|--------------------------------|----------------------------------------------------|---------------------|
|                                | <i>Coefficients Beta</i>                           | <i>Significance</i> |
| Constant                       | 2.478                                              | 0.000               |
| Knowledge Management processes | 0.504                                              | 0.000               |
| R                              | 0.573                                              |                     |
| Fisher F                       | 31.265                                             |                     |
| Significance of Fisher         | 0.000*                                             |                     |
| Durbin-Watson                  | 1.504                                              |                     |

\* 1 % degree of Significance

Source: Data SPSS V. 22.

We can write this equation as follow:

$$\text{INNOV} = B_0 + B_1 \text{ KPROCESS} + E_i$$

According to the results given by SPSS, the coefficient attached to the variable “knowledge management processes” has a value of 0.504 with a significance of  $0.000 < 0.01$ . This coefficient is positive and significant. This means that this variable has indeed a positive effect on innovation performance. Therefore, the hypothesis of this study is accepted.

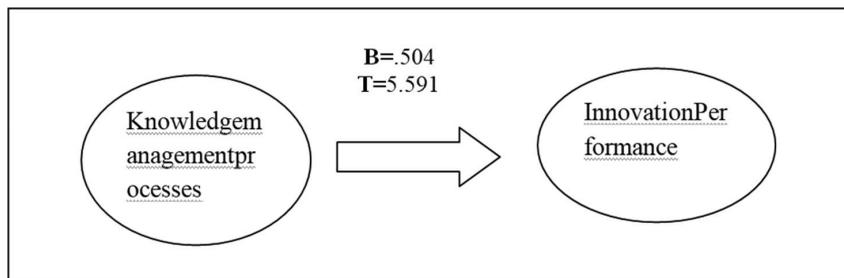
**Table 4 Test of the Hypothesis**

| <i>Hypothesis</i>               | <i>Positive effect on the innovation performance</i> |
|---------------------------------|------------------------------------------------------|
| Kknowledge management processes | Accepted                                             |

Source: Data SPSS V. 22.

Therefore, the final equation of our analysis is represented as follows:

$$\text{INNOV} = 2,478 + 0,504 \text{ KPROCESS}$$



Source: Data SPSS V. 22.

**Figure 4** Final results

## CONCLUSIONS

In a knowledge economy with permanent change, knowledge becomes the most important resource in an organisation; this is because it participates in the serenity, prosperity and growth of the organisation. Consequently, the organisation becomes more innovative, competitive and more performant.

In this study, we treated the question of the impact of knowledge management processes on innovation performance in Algerian organisations.

In the econometric analysis, we tried to test the relationship between knowledge management processes and innovation performance by using a regression analysis method.

The results present a positive and significant relationship between knowledge management processes and innovation performance. We believe that there exist some practices, such as sharing and creating knowledge, that help organisations to be more innovative and create a new products/services or develop some existing products. Consequently, the organisations will be more performant, especially in innovation performance.

Finally, from these results, we confirm our principal hypothesis that states: “*Knowledge management processes have a positive impact on innovation performance*”.

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## BIOGRAPHY

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