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## Integration of economic intelligence and knowledge management in the decision-making process

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**Abstract.** The fact that a company's performance and efficiency are related to the decision-making process requires a considerable amount of up-to-date, relevant and high quality data, information and knowledge. This paper is a theoretical research based on various studies about knowledge management processes, economic intelligence and the relationships between them, as well as their practices within companies and their integration into the decision-making process in order to ensure the sustainability of the company and its economic development. This paper proposes a knowledge-based approach to analyze the decision making process. More precisely, it is used to assess the importance of information and the decision making criteria.

**Keywords.** Economic intelligence, Knowledge management, Decision making.

JEL. A12, D01, D81, D91, E71.

### 1. Introduction

In fact, in most large companies, there is a large body of literature and data that has been the subject of significant research and development activity (Herschel & Jones, 2005). However, although the volume of information is changing, many of its users cannot access the information they need therefore, they tend to make bad decisions that can cause a loss for the company (Boonsiritomachai *et al.*, 2014). As a consequence, companies can access, analyze and share data, information and knowledge to track, understand, target and manage their activities to improve their performance (Panian, 2008).

Moreover, the development of the knowledge-based economy, which emphasizes the role of knowledge in the creation of economic goods, is accompanied by an increase of the importance of knowledge management. In fact, the management of the company's information makes it possible to use, collect data and then convert them into usable information. Therefore, to apply various modern business intelligence concepts and tools, information management is required in order to gain a competitive advantage and ensure the company's survival on the markets.

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Thus, in the face of changing business uncertainty and competition, on the one hand, and in order to improve business performance, on the other hand, it is necessary to find a process to better manage and exploit the data, information and knowledge. In fact, over the past thirty years, two new concepts, such as economic intelligence and knowledge management, have emerged.

Moreover, the integration of business intelligence and knowledge management into new applications makes it possible to store highly structured data, exploit it in real time, interpret the obtained results then communicate them to the decision makers. It represents not only a "new trend" in information technology but also a necessity in the emerging knowledge-based economy in order to meet the challenges facing modern businesses (Albescu *et al.*, 2008).

On the other hand, the quality and speed of a company's business intelligence can mean the difference not only between profits and losses but also between survival and bankruptcy (Ranjan, 2008). Therefore, business intelligence has proven to be a concept that enables to analyze the collected data and help business units acquire a better overall knowledge of an organization's operations and thus make better business decisions (Khan & Quadri, 2012).

Given the growing importance of the use of business intelligence and knowledge management in the decision-making process, this paper aims at presenting a theoretical analysis of several studies that focused on both business intelligence and knowledge management as well as their integration into the decision-making process and their contributions to the companies' performance.

## 2. Literature review

### 2.1. Economic intelligence

In fact, the understanding of business intelligence is often different in terms of the purpose of its content. Thus, several terms, such as economic knowledge, competitive, and strategic intelligence, etc., are used to designate it (Jaklic *et al.*, 2009). However, this designation differs from an author to another and from a region to another. Other authors, notably Anglo-Saxons, include it under the term knowledge management

In fact, economic intelligence (EI) is an Anglo-Saxon concept, which is expressed by several terms, such as competitive and business intelligence. For their part, Anguillar (1967) and Keegan (1968) were the pioneers in conducting the first studies on economic intelligence, which refers to the individual's understanding and adaptation to new and unexpected conditions and changes. Luhn (1958) defined intelligence as "the ability to apprehend the interrelationships between available facts in order to guide an action towards a desired goal". Two years later, Simon defined it "as the first phase of the decision-making process, which consists in exploring the environment in order to identify situations that require a decision".

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In this context, several definitions of business intelligence have been proposed. The oldest is that of Luhen (1958). On the other hand, Wilensky (1967) defined it as "the problem of gathering, processing, interpreting, and communicating the information (...) necessary for the decision-making process". In 1994, in France, the "Martre's Rapport "defined it as "all the coordinated research, processing and distribution activities due to its exploitation of information useful for economic actors. These various actions are legally carried out with all the necessary protection guarantees to preserve the company's assets under the best conditions of quality, deadlines and costs. Useful information is the information needed by the company or the community's various decision-making levels to consistently develop and implement the strategy and the tactics necessary to achieve the objectives defined by the company in order to improve its position in its competitive environment. Prescott (1999) summarized the birth of the notion of business intelligence in three phases. The first phase is the emergence of the monitoring concept, which was defined by Afnor (1998) as "a continuous and, to a large extent, an iterative activity aimed at actively monitoring the technological and commercial environment... to anticipate development". The second phase is the maturation phase, which is a phase of transition from the notion of intelligence to that of strategic intelligence, as introduced by Porter (1980). Then, in 1992, Harbulot (1992) proposed the expression "economic intelligence" and then introduced the third phase of the emergence of this notion, which is called the consolidation phase. He presented it as an action that involves "all the operations that control the competitive environment, the intelligence, the protection, and the information manipulation". This includes forecasting, alternative analysis and risk and performance assessment. Economic intelligence has been defined by Vine (2000), as a solution using information technology. This solution allows recovery heterogeneous and distributed resources to process (interpretation, categorization and integration) and to make usable knowledge using analytical systems. Turban *et al.*, (2002) consider it a computerized decision analysis usually conducted online by managers. In Davenport (2006) introduced EI as a term that "involves a wide range of processes and software that collect, analyze and disseminate data for better decision-making". For Foo *et al.*, (2007), EI is a systematic process by which the knowledge required by an organization's competitiveness is created, captured, shared and exploited.

On the other hand, EI is a set of business information and analysis in the context of business processes leading to decisions and actions. In particular, it consists in drawing part of the information assets within a process to improve the company's performance (Williams & Williams, 2007). In short, it is a means and method that help improve the company's performance. It also provides a powerful support to decision-makers by enabling them to have usable information at their disposal. Moreover, EI tools are considered a technology that improves the efficiency of business operations. Moreover, EI provides a high value to the company's information based on how it is used (Cui *et al.*, 2007). For their part, Wixom

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& Watson (2010) defined EI as "a large category of technologies, applications and processes that help collect, store, access and analyze the data to help its users make better decisions". As for Sharma & Djiaw (2011), they confirmed that the key to EI is to capture and share knowledge. However, EI is often confused with computer systems and processes. Unlike information, knowledge lies in the experiences of people in different contexts. The objective of EI is therefore to work through a process that creates and transfers knowledge within the organization. This process must include an understanding of how people learn and transfer their knowledge which is created and transferred through human experiences.

### 2.2. Knowledge management

Knowledge is processed information that leads to action (Paquet, 2006). As noted above, it can be tacit or explicit (Nonaka & Takeuchi, 1997). Tacit knowledge is the knowledge created, collected and stored in the company's knowledge base, while explicit knowledge is the knowledge collected and disseminated either inside or outside the company.

According to Davenport *et al.*, (2006), knowledge management refers to a specific systematic and organizational framework. It captures, acquires, organizes and communicates employees' tacit and explicit knowledge so that others can use it to be more effective and productive and then maximize the organization's knowledge.

In Beijerse (2000) stated that knowledge management achieves its organizational objectives through a strategic motivation that facilitates workers' knowledge to develop, improve and use their ability to interpret data and information in order to make sense of it. As a result, knowledge management is a process of knowledge creation, validation, presentation, distribution and application (Bhatt, 2001). For this reason, it requires a specific management process to meet the company's strategic needs (Ermine, 2003).

As with economic intelligence, Tuomi (2002) summarizes the emergence of the of knowledge management concept in three phases. The first began with the work of Polanyi, (1958). Then, Drucker (1968) announced the publication of his book on knowledge workers, followed by those of Beer (1972) who dealt with the term "knowledge management". In fact, it was only in 1974 that the "knowledge management" concept first appeared with Henry (1974). The second phase concerns the transition from the term of information to that of knowledge. Moreover, Knowledge management is reflected in the work of Sveiby (1986). On the other hand, it was during this phase that the term "knowledge management" was accepted by the English-speaking community. As for the last phase, it is the evolution of this concept during which appeared two fields of reflection of knowledge management, such as the field system (Pickering & King, 1995) and that of the territory (Prax, 2000; Cappelin, 2003).

Bhojaraju (2005), classified the components of knowledge management into three categories: the staff, processes and technologies. First of all, the,

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who creates individual and collective knowledge through learning, knowledge sharing, problem solving, and integrating knowledge into the company's culture in order to launch better products and services. Then, the processes, which must be regularly updated with the information and the available and knowledge improved in an appropriate way. Finally, technologies, and in particular information technologies, which should be developed according to the market demands in response to competitors' activities based on the company's resources (Olszak & Ziemba, 2010). Consequently, knowledge management (KM) is not only about technology but also about understanding how the stuff work, think, communicate, share experiences and information and formulate actionable knowledge (Muhammad *et al.*, 2014).

### 2.3. The relationship between business intelligence and knowledge management

Knowledge management and business intelligence processes have been around for a long time. Gorla (2006) has shown that business intelligence (BI) and knowledge management (KM) have evolved independently. In addition, the objectives and content of the two processes are similar. In fact, there is talk of a convergence between EI and KM technology (Cook & Cook, 2000). In this context, Cody *et al.*, (2002) confirmed this idea by pointing out that investing in technologies to manage the abundance of information and knowledge can be exploited by businesses to gain a competitive advantage. In the same vein, Okkonen *et al.*, (2002) distinguished between EI technology and the KM one. In fact, the former is devoted to the collection and analysis of information while the second concerns the management of information and skills.

The main differences between EI and KM are described in the table below (table1):

**Table 1.** Differences between IE and KM

	BI	KM
Sources	Internal and external structured data sources. Data concerning suppliers, employees and customers, etc.	Expert employees, communities of interest / practice, organization, structured / unstructured market and competition data sources.
Technology	Source systems, ETL, DW, OLAP, metadata, data mining, statistical analysis reports and user interface.	Document management, web content management, enterprise's knowledge portal, workflow, collaboration and e-learning.
Operating processes	Convert data into information, then into knowledge, which finally meet the user's needs.	Expert employees, communities of interest/practice, organization, structured/unstructured market and competition data sources.
Tasks	Processing clear knowledge, extracting operational data. KPI, Process optimization, concluding from internal and external data.	Dealing with explicit, tacit, informal, formal, synergistic and operational knowledge.
Objectives	Identify the trends and patterns in structured data to develop new business strategies. Use large amounts of data to discover the knowledge needed for competitive purposes.	Capture, store, organize and distribute organizational knowledge and resources. Address employees' unstructured and tacit knowledge.
Dependences	Depends on KM to receive users' feedback and experiences in order to modify the solution, if necessary.	Depends on EI techniques to implement the most effective ways and the explicit knowledge generated by IE.

Source: Rao & Kumar (2011); Difference between IE and KM.

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### 3. Knowledge management practice and business intelligence within a company

The knowledge management and business intelligence practice has been defined as "observable organizational activities that are related to knowledge management". In fact, four key dimensions of KMIE practice, which seem to have a relationship with business performance, have been identified as the ability to locate and share existing knowledge. These dimensions are:

- The opportunity to experiment and create new knowledge. A culture that encourages the creation of knowledge.
- Sharing and accounting for the strategic value of knowledge and learning.

Thus, literature has led us to summarize several research studies in the table below:

**Table 2.** *Comparative studies analyzing the practice of knowledge and intelligence management within companies*

Articles	Study nature	Study method	Main conclusions
Braganza <i>et al.</i> (1999)	Non-empirical	Non-empirical	The KMIE affects competitiveness through innovation.
Beckett <i>et al.</i> (2000)	Non-Empirical	Non-empirical	Develop a framework with three KMIE strategies, such as knowledge acquisition, conservation, and exploitation, to gain a competitive advantage.
CIVI (2000)	Non-empirical	Non-empirical	Organizations must build a strategy around their KMIE to reflect their competitive strategies.
Gupta & Govindrajana (2000)	Empirical	Non-empirical	Organizations need to mobilize new, faster and more effective knowledge to acquire benefits.
Lee & Yang (2000)	Non-empirical	Non-empirical	They develop an idea of the knowledge value chain (KVC) and suggest that competitive advantage comes from the organization of each activity that enables.
McAdam (2000)	Empirical	Survey	A theoretical model, which was developed and tested, showed that the KMIE enables organizations to innovate.
Bhatt (2001)	Non-empirical	Non-empirical	In order to gain a competitive advantage from the KMIE, the organization must address the KMIE within the technological and social system.
DeTienne & Jackson (2001)	Non-empirical	Non-empirical	The KMIE provides benefits only if the organizations develop strategies to filter the strengthening of corporate philosophy, and facilitate effective communication.
Gold <i>et al.</i> (2001)	Empirical	Survey	A KMIE capacity model, which was built, showed that expertise and knowledge infrastructure capacities address organizational performance.
Schulz & Jobe (2001)	Empirical	Survey	The paper develops four strategies for KMIE – codification, tacitness, focused and unfocused. The results suggest that focused strategy results in superior firm performance.
Allard & Holsapple (2002)	Non-empirical	Non-empirical	For KM and IE( KMIE), a knowledge chain model is suggested to gain a competitive advantage in e-commerce.
Francisco & Guadamillas (2002)	Empirical	Case study	The KMIE enabled Irizar (a company in Spain) to constantly innovate besides, within the company, its culture plays a major role.
Massey <i>et al.</i> (2002)	Empirical	Case study	The KMIE must be applied in a well-defined context. However, for Nortel, it is applied as a new product development process that leads to significant improvements in product innovation.
Turner & Bettis (2002)	Experience	Experience	The knowledge integration strategy classifies the knowledge redundancy strategy.
Chakravarthy <i>et al.</i> (2003)	Non-empirical	Non-empirical	Identifies that there are three KM activities – knowledge protection, knowledge leverage and knowledge

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			accumulation. No knowledge base can lead to sustainable advantage unless organizations continuously create new knowledge. There is also a paradox associated with the three KM activities. For instance, aggressive attempts at leveraging knowledge can inhibit knowledge accumulation because the later may typically not offer financial returns in the short run whereas the former often does.
Choi & Lee (2003)	Empirical	Survey	There are four style of KM – human oriented, passive, system oriented and dynamic. The dynamic style of KM leads to better corporate performance.
Darroch & McNaughton (2003)	Empirical	Inquiry	Secondary KMIE-oriented organizations are well trained market-oriented ones.
Kalling (2003)	Empirical	Case study	The effect of KMIE on organizational performance is subordinated to different levels of firms. The KMIE is divided into knowledge development, knowledge use and knowledge capitalization processes where each process has its own contingency factors and performance results.
Lee & Choi (2003)	Empirical	Survey	This study shows the effect of the KMIE. In fact, this process has the effect of turning organizational performance into intermediate impacts.
Sabeherwal & Becerra-Fernandez (2003)	Empirical	Survey	Using the Nonaka and Takeuchi's SECI model, the study showed that socialization and combination have a high effect on the organization. On the other hand, individual efficiency affects that of the group which, in turn; affects organizational efficiency.
Salazar <i>et al.</i> (2003)	Empirical	Case study	KM has enabled smaller pharmaceutical and biotechnology firms to compete and gain competitive advantage.
Chuang (2004)	Empirical	Survey	The KMIE capacity study is based on four KMIE resources; technical, human, cultural and structural. Besides, the KMIE capacity is linked to competitive advantage.
Clarke & Turner (2004)	Empirical	Case study	They showed that the KMIE is limited because it emphasizes knowledge that should be both nique and protected. However, some organizations, mainly in Australia, have a competitive advantage by creating alliances and relationships. As a result, the KMIE process requires a larger perspective.
Berawi (2004)	Non-empirical	Non-empirical	The KMIE affects a competitive advantage due to its impact on the quality management.
Gloet & Terziovski (2004)	Empirical	Survey	The KMIE implements some human resource management and computer practices that can lead to innovation within companies.
Holsapple & Jones (2004)	Non-empirical	Non-empirical	They develop an idea about the KMIE value chain. In fact, the objective of this paper is to show the main activities of the KMIE value chain
Liu <i>et al.</i> (2004)	Empirical	Survey	The KMIE is positively correlated with performance
Sher & Lee (2004)	Empirical	Survey	The KMIE affects the dynamic capacities, which provides companies with a competitive advantage.
Tsai & Shih (2004)	Empirical	Survey	The relationship between the KMIE marketing and company's performance is mediated through marketing capacities.
Holsapple & Jones (2005)	Non-empirical	Non-empirical	The concept of the KMIE value chain is extended by emphasizing the chain secondary activities.

**Source:** Authors conception showing the articles analyzing the practice of management of knowledge and intelligence within companies.

## 4. Decision making versus information

The main factor of the use of the knowledge process is the individual, who must be able to generate and effectively use new knowledge. The answer to such a requirement is the creation of a new discipline, such as knowledge management, which can develop a method to identify, obtain,

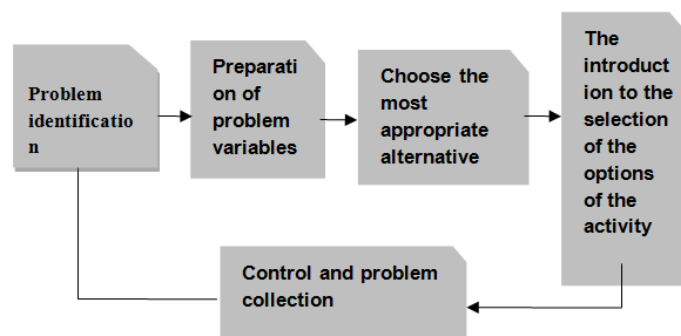
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preserve and use this capital (Carnicky *et al*, 2006; Náprstková *et al*, 2014; Sadilek, 2014).

In fact, knowledge is widespread within companies, the management and use of which can ensure the growth of these companies' production rate and help them remain competitive. As a result, this discipline, which represents a challenge for modern management, is applied mainly in large companies. The main task of knowledge management is to create favorable conditions for the identification, acquisition, preservation and use of the company's intellectual capital. For this reason, it deserves more attention in the small and medium-sized enterprises, which are the backbone of any national economy and, therefore, their importance is crucial and indisputable. On the other hand, large companies are more flexible in establishing knowledge management systems than small and medium-sized companies. They have sufficient resources of all kinds (informational, human, financial, and material) to cover a particular field of management.

Moreover, decision-making is a very important complex process composed of steps, activities, and gradually leading to the formulation of a solution to a specific problem and the setting of an objective to choose an optimal solution to the problem. The decision-making process is one of the most important activities of companies' managers because it is considered as the core of management. In fact, the officer in charge of the decision-making activity, who is called a decision-maker, is daily confronted to a large number of diverse problems.

As a consequence, any decision maker reacts according to the result he gets after studying the information he has, such as the choice of a service or good. He is therefore under pressure from the environment, which is caused by constantly changing external factors that affect all the companies. It can therefore be said that globalization, rapid development and expansion of technologies are the main trends today as they are the constant changes in the market, such as increased competition and innovation in products and technologies in business management. As a result, the decision-maker must make decisions in such a complex and challenging environment. Hence, it is possible to say that in such an environment, it is natural that the decision-maker is increasingly obliged to make the right decisions.



**Figure 1.** *The decision making process activities*

Source: Riplova *et al.*, (2008) showing the decision making process activities.

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In most companies, the field of knowledge and knowledge management covers only a few basic areas, including how, what and why. An effective knowledge model also attempts to cover the level of "know why" knowledge. The main question is therefore why particular knowledge is important but not only how to use it. In fact, the highest level of knowledge use in the company is "CARE WHY" (taking care of people's minds). The question to be answered is then why and how to use specific knowledge in ways that support people's passion and minds (Riplova *et al.*, 2008; Litvaj *et al.*, 2013; Mrazova *et al.*, 2011; Sapietova *et al.*, 2012; Sadilek *et al.*, 2014; Czan *et al.*, 2014).

On the other hand, EI and KM have been integrated in order to meet the challenges facing the modern enterprise, which represents not only a "new trend" in IT, but also a necessity (Albescu *et al.*, 2008). The EI and KM integration has the following advantages:

- End-user preferences and experience;
- Enable end-users to better understand the business context, interpretation results and training (Rao & Kumar, 2011);
- Offer strategic management an effective technological support (Albescu *et al.*, 2008);
- Facilitate not only knowledge capture and coding, but also improve knowledge retrieval and sharing within the organization to gain a strategic advantage and maintain it in a competitive market (Khan & Quadri, 2012);

Moreover, look for the integration rubric for an improved organizational learning (Shehzad & Khan, 2013).

In fact, the KMIE is the new term that represents integration and can therefore be considered as one of the key factors for the success of modern companies. Moreover, the integration of EI and KM is a harmonious tool that enables companies to use valuable information and knowledge and gain a sustainable competitive advantage (Adirekpullap, 2008).

## 5. Research methodology

Our research uses a knowledge-based decision-making method, which was developed by Bolukbas & Guneria (2017) in an article entitled "Knowledge-based decision making for the technology competency analysis of manufacturing enterprise" published in 2017.

The knowledge-based decision-making activity depends on three main elements:

- A list of information models
- A list of decision criteria involved in the decision-making process
- A matrix linking the decision criteria to the required information.

On the basis of these components, the decision-making method calculates the applicability measure of the decision criteria, which compares the knowledge and information available for the application of the chosen decision criteria with the ideal situation represented in the matrix. In fact, a 100% rating indicates that a high level of knowledge leads

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to better decisions, while a 0% measure indicates a lack of knowledge, which hinders the decisions process.

Consequently, the decision-making process can be studied in terms of alignment between the criteria and the information known to the decision-makers. Our used method involves four activities.

### 5.1. Evaluation of the knowledge and information level

The insurance system, quality, innovative workforce and expertise, development of new products and services, business strategy, e-commerce activity and marketing, a knowledge-based system, investments in technology, strategic and technological cooperation, open innovation, communication tools and social media, research and development activities, organizational skills, intellectual and industrial property rights. In fact, all these criteria are aimed at creating new individual, collective and organizational knowledge. Moreover, the interaction between the new types of knowledge improves the decision-making process by seeking an optimal decision. Decision-making based on new knowledge becomes a core competency of an organization. Then, the factors that induce the creation of knowledge are intention, autonomy and fluctuation.

The list of the information used in the analysis was prepared on the basis of a review of the documentation and the experts' assessment. A matrix "A" presents the level of knowledge and information  $j$  for a type of company  $i$  according to the following equation  $A = (a_{ij})$ .

The evaluation of the information follows 5 levels, from the lowest (1) to the highest (5).

### 5.2. Evaluation of the importance of the decision criteria

The list of decision criteria includes process management, product competitiveness, information and communication technologies (ICT), marketing strategies, innovation, entrepreneurship, and research development activities.

The list of decision criteria used in the analysis was established on the basis of a review of the documentation and the experts' assessment. Besides, these criteria were chosen according to the type of companies and then stored on matrix  $C$ , which presents the final valuation values for the type of company  $i$  and decision criterion  $j$  according to the equation.  $C = (c_{ij})$ .

### 5.3. The calculation of the implementation of the decision criteria:

The calculation of the implementation measure uses an ideal and real level of knowledge. For this reason, many experts in the field of technology management should be consulted. In this study, a matrix  $B$ , which expresses the relationships between the decision criteria and knowledge of information according to this equation  $B = (b_{ij})$ , is proposed.

Matrix  $B$  presents the result of the evaluation of the relationship between information  $i$  and decision criterion  $j$ . The term  $b_{ij}$  is the state (1 or 0) of the

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link between criterion  $j$  and information  $i$ . This term represents the existence of a relationship between dimensions and information (survey data).

On the other hand, the actual level of knowledge is stored in matrix  $M$  which establishes the quantity of knowledge for the criterion and type of company. In fact, Matrix  $M$  is calculated by multiplying matrix  $A$  by matrix  $B$  according to the following equation;  $M = A \times B = (m_{ij})$ , whereas the ideal level of knowledge is stored in vector  $D$ , which presents the maximum level of knowledge related to a given criterion according to matrix  $B$ .  $D = [d_1, d_2, d_3...d_j] = k \sum b_{ij}$  with  $k$  the highest score of the knowledge level.

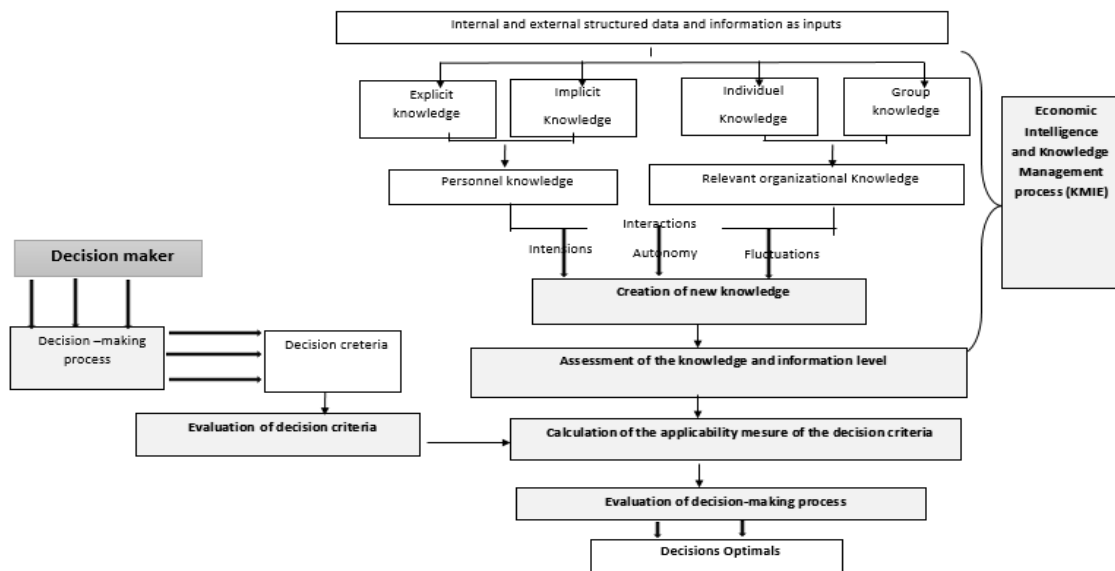
Finally, the calculation of the application measurement is performed and stored in a matrix  $E$  which follows the following equation:  $E = (e_{ij}) = (m_{ij} / d_j)$  where  $d_j$  is the ideal level of knowledge and  $m_{ij}$  its actual level.

### 5.4. Evaluation of the decision-making process.

Two cases may arise:

- A positive deviation, which occurs when the value of the applicability measure is equal to or greater than the importance score indicating the presence of appropriate knowledge.
- A negative deviation, which occurs when the value of the applicability measure is lower than the importance score, implying a lack of knowledge.

Finally, starting from the Hribuzna's diagram (2015) on the relationship between knowledge management, decision-making and the knowledge-based decision-making method, a diagram expressing these relationships can be presented (Figure 2):



**Figure 2.** The relationship between knowledge management, business intelligence and decision-making

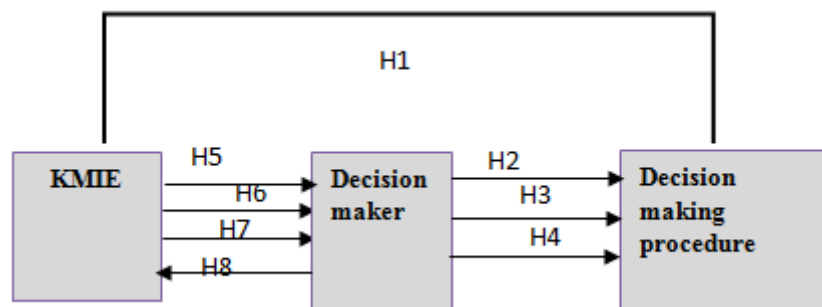
**Source:** Authors conception showing the relationship between knowledge management, business intelligence and decision-making

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A decision is based on the information and knowledge available to one or more decision-makers according to the objectives pursued by the company. The decision-making process, as stated by Simon (1950) mentioned in, consists of three main phases; the intelligence phase, the modeling phase and the selection phase, each of which highlights the criteria of the decision maker's personality. Consequently, the decision-making process is affected, on the one hand, by the criteria of the decision-makers and, on the other hand, by the nature of both the company and the decisions. Moreover, this process emphasizes two other processes, such as business intelligence and knowledge management. Based on these interactions, our research hypotheses can be formulated as follows.

- H1: The KMIE is positively linked to decision-making.
- From this assumption follows several other hypotheses:
- H2: The company's structure is positively linked to decision-making.
- H3: The level of rationality is positively related to decision-making.
- H4: The nature of the decision is positively related to the decision making.
- H5: The characteristics of the information are positively linked to decision-making.
- H6: The types of information are positively related to decision-making.
- H7: The knowledge processing is positively linked to decision-making.
- H8: The personality of the decision-maker is positively linked to the creation of knowledge.

Based on these assumptions, three concepts are called in our study model, such as the decision-maker, the KMIE and finally the decision-making process (Figure 3).



**Figure 3.** Decision maker and conception model using hypothesis

Source: Authors conception using hypothesis.

The research data were obtained using a questionnaire from employees of several Tunisian organizations of different sizes, activities and structures. On the other hand, the links between the concepts in our study were examined using a correlation analysis. Then, the measurement model was tested by assessing internal consistency and discriminant validity and

then with a structural equation modeling the partial least squares analysis of the survey dataset of our observations collected from members of the organizations in question.

### 6. Conclusion

The rapid development of techniques and technologies led to the need to apply new knowledge within a company. In modern companies, increasing standards, automation and technologies have made it possible to make large amounts of data available. This explosive growth has generated an even more urgent need for techniques and tools to convert these data into useful information and knowledge that can meet the customer's needs. In today's complex and dynamic world, knowledge-based companies need both knowledge management (KM) and business intelligence (BI).

A good integration of IE and KM can help organization achieve several benefits, such as optimizing organizational efficiency and improving organizational learning and performance.

KM and EI are deeply influenced by the organization's culture, in particular by leaders, groups and opinion leaders, as well as by organizations. Thanks to the integration of KM and IE, each company can ensure its viability and stay ahead of its competitors. If an organization wishes to develop a competitive advantage from the collected information, it is preferable to implement a strategy that integrates both EI and KM. However, the success of each company depends largely on its human factor. Since culture is an essential success factor for KM, it is largely expressed through tacit behavior.

Although the integration of EI and KM has many advantages for organizations, several studies showed that the EI system, without due attention to the necessary conditions, is inefficient. If the factors affecting the integration of companies' IE and KM are well identified, better integration strategies can be designed.

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