# The Integral Role of Knowledge Management and Business Intelligence with Competitive Intelligence

**الدور التكاملي لإدارة المعرفة وذكاء الأعمال مع الذكاء التنافسي**

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**Abstract:**

This research paper aims to clarify the integration of knowledge management, and business intelligence with competitive intelligence. As each process of these approaches has different characteristics, goals, and benefits. Each of them is a source of wealth at all levels of an economy. We concluded that combining them in the enterprise leads to a greater effect. As they complement each other, enhance strategic capabilities, build and maintain a competitive advantage. Through converting knowledge into intelligence, that affects formulation and implementation of corporate strategy.

**Keywords**: knowledge management; business intelligence; competitive intelligence.

**JEL classification code: C89, D83**

**ملخص:**

تهدف هذه الورقة البحثية إلى توضيح تكامل إدارة المعرفة وذكاء الأعمال مع الذكاء التنافسي. حيث تتميز كل عملية لهذه المقاربات بخصائص، أهداف، وفوائد مختلفة، ولكن يعتبر كل منهم مصدرا للثروة على جميع مستويات الاقتصاد. واستنتجنا أن الجمع بينهم في المؤسسه يؤدي إلى أفضل تأثير. حيث أن كل منهم يكمل الآخر، ويعزز القدرات الاستراتيجية، ويمكن من بناء ميزة تنافسية والحفاظ عليها. وذلك من خلال تحويل المعرفة إلى معلومات ذكاء تؤثر على صياغة وتنفيذ إستراتيجية المؤسسة.

**الكلمات المفتاحية:** إدارة المعرفة؛ ذكاء الأعمال؛ الذكاء التنافسي.

**تصنيف JEL: D83، C89**

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## 1. Introduction :

The economic success of any country, region or place increasingly depends on its capacity to specialize in activities that allow it to establish effective and dynamic competitive advantages (Canongia, 2007). (Davis, 2004) argues that competitive intelligence is rapidly becoming a major technique for achieving competitive advantage. While, (Deeds & Hill, 1996) argue that enterprises that continuously acquire knowledge will be able to create and sustain a competitive advantage in the knowledge-based economy whereas, those that do not, will collapse and cease to operate.

Knowledge management (KM), competitive intelligence (CI) and Business intelligence (BI) are all fields that grew up together over the past forty years. Over recent years, a synergy of business intelligence (BI), competitive intelligence (CI), and knowledge management (KM) has emerged as integrated approaches for improved decision-making (Liebowitz, 2006). Where today's environment has a rapidly changing landscape where new competitors, suppliers, or customers are entering the marketplace, and where current competitors are offering new products (Burstein & Holsapple, 2008). Organizations need to use accurate information and knowledge of their internal and external environments in making strategic, operational and tactical decisions. (Shujahat, et al., 2017)

Knowledge has always been important throughout history for achieving a competitive advantage, the changes we face are not mere tendencies, but fruits of powerful and uncontrollable forces: globalization, hyper-competition, hyper information, corollaries resulting from the dissemination of the new communication and information (Chaves, et al., 2000).

The firm that knows about its customers, products, technologies, markets, and their linkages, the better it will perform. Therefore, since knowledge is included in most of firms' activities, it has become the main process in their success. In addition, firms need to exploit their knowledge resources more efficiently to ameliorate performance and to achieve a competitive advantage (Hajir, Obeidat, Al-dalahmeh, & Masa'deh, 2015). KM is too often seen as a library function, doing a precious role gathering and storing knowledge but failing to seek it out. KM tends to sit back and wait for knowledge.

Where CI identifies knowledge gaps and then goes out and fills them (Rothberg & Erickson, 2005). Competitive intelligence (CI) outputs knowledge about the external environment that a firm works in. It is a subset of business intelligence. Thus CI is the process of monitoring the environment to help decision-makers identify either problems to address or opportunities to exploit to improve their position (Burstein & Holsapple, 2008).

Business intelligence is the comprehensive universe of analyzed, insightful information used for business advantage, spanning a broad spectrum from environmental, regulatory, and industry trends, to political, societal, and economic issues that can affect the business success (Brenner, 1996).

(Rothberg & Erickson, 2005) believe that the integration of KM and CI is central to managing this environment. However, competitive intelligence and business intelligence are used synonymously. However, sometimes, there is confusion between knowledge management, competitive intelligence, and business intelligence. The main question thereby is: what is the relationship between knowledge management, competitive intelligence, and business intelligence? In this paper, we aim to emphasize the integration of knowledge management and business intelligence with competitive intelligence.

## 2. Business intelligence :

(Porter, 1980) argued that business intelligence aims to ''give the right information to the right guy, at the right time, to make the right decision.'' Business intelligence is defined as systems that combine: Data gathering, Data storage, and Knowledge management with analysis to appraise complex corporate and competitive information for presentation to planners and decision-makers, aiming to ameliorate the timeliness and the quality of the input to the decision process. Also, refers to the activities for researching, processing and diffusing all sorts of information of strategic, tactical and operational importance to companies (Martelli, 2014).

Business intelligence combines activities of collection, analysis, and implementation of information describing relevant facts and trends (opportunities and threats) from the organization's entire environment used to support the business decision-making process (Savioz, 2004). Business intelligence is defined as a voluntary process whereby a

company can begin to scan and absorb information from its socioeconomic environment in order to minimize the risks associated with the uncertainty and locate available opportunities. In this sense, Business intelligence is also a process whereby companies collect information from their competitive environment. (Hadj, Ghodbane, & Aouadi, 2016)

Business Intelligence is the first intelligence area "BI is concerned with the discovery of information, and its use to reduce the cost and increase the value of operational activities" (Johri & Aggarwal, 2016).

## 3. Knowledge Management :

KM, as the name indicates, is about being able to manage the knowledge individuals have. KM in the organisational panorama means that the company supports their people so they can effectively use their knowledge. Its primary focus is capture, sharing and distribution of unstructured information (textual and graphic) as opposed to the structured, organized and goals oriented data CI provides (Anjo, 2014).

For Nonaka and Takeuchi, knowledge is the basic unit of analysis for explaining organizational behaviour. More specifically, they start with the belief that the business organization not merely 'processes' knowledge but also 'creates' it (Bahra, 2001).

Nonaka and Takeuchi also make clear the differences between *tacit* and *explicit knowledge*. Explicit knowledge can be articulated into formal language including grammatical statements, mathematical expressions, specifications, and manuals. Tacit knowledge is arguably more important, hard to articulate with formal language and is personal. Its roots lie within an individual's value, belief and perspective system (Bahra, 2001). In addition, KM deals with creating a process for generating value from an organization's intangible assets (Liebowitz, 2006).

**1.3. Knowledge Hierarchy:** It is important to examine the definitions of the components 'data', 'information' and 'knowledge' because they serve different purposes: (Sain & Wilde, 2014)

- **Data:** Business processes are based on information that is available in many different formats, e.g. oral discussions.
- **Information:** Nonaka defined information as a "flow of messages". In many companies, the transfer of facts and figures constitutes a message. People use their knowledge to interpret

the meaning of the given message in a certain environment. Information comes from different sources, is used

**Fig.1: Knowledge Hierarchy**
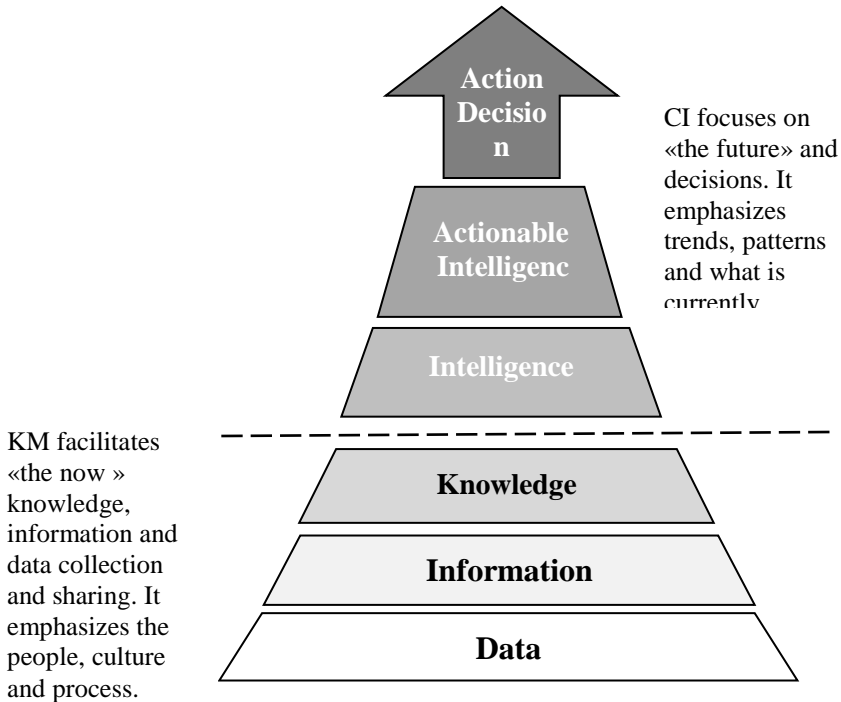


**Source:** (Sain & Wilde, 2014)

for different activities in business processes and has a different context in which it was generated.

- **Knowledge:** Davenport and Prusak describe knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices, and norms".

- **Intelligence (Wisdom):** is the level of understanding. The same as with knowledge, intelligence operates within individuals When sharing their experience with others, building blocks of

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intelligence will be created that need to be communicated with even more understanding of contexts. So, when the value of (contextualized) knowledge is extended through insights into the upstream and downstream consequences of applying that knowledge, knowledge will become intelligence.

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### Table 1: Knowledge management processes
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| Knowledge management processes | |
|---|---|
| **Knowledge identification** | Searching for new ideas, information, and knowledge that are relevant for the company. Facilitating knowledge identification processes through guidance or for example by visual ontologies |
| **Knowledge acquisition** | Acquiring identified relevant knowledge and absorbing this knowledge in specific organizational contexts. Using the company's resources for increasing the knowledge inventory of the organization to fill knowledge gaps |
| **Knowledge codification** | Codifying tacit knowledge and categorizing acquired knowledge. Facilitate embedding new knowledge by investing in a company's capabilities (routines) |
| **Knowledge storage** | Recording, retaining and maintaining knowledge and clearly labeling the knowledge directory to enhance productivity and quality. Stabilize the organizational culture to enhance the knowledge storage capabilities |
| **Knowledge dissemination** | Retrieving of stored knowledge and making it available for knowledge users. Pay special attention to interaction conditions so that dissemination enhance the company's performance |
| **Knowledge refinement** | Improving, transferring and adapting existing knowledge in changed situations or using in a new way (means in a new context) |
| **Knowledge application** | Putting knowledge into action and utilizing knowledge to realize organizational outcomes. Application is vital for the development of corporate knowledge assets |
| **Knowledge creation** | Development and raising new ideas to generate new knowledge that leads to Innovation. Strengthening the knowledge sharing/distribution process |

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**Source:** (Sain & Wilde, 2014)
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## 4. Competitive Intelligence :

Competitive Intelligence (CI) is the component of Business

Intelligence aimed at gaining a strategic advantage (Porter, 1980). Competitive Intelligence is the second intelligence area. CI is the organisational means and analytical and intellectual process that transforms the disaggregated market, customer, technological, competitive and other data, information and knowledge into relevant and usable intelligence for users who can act on it. CI aims to be future-oriented and actionable (Johri & Aggarwal, 2016).    Competitive intelligence is the part of business intelligence that deals, in particular, with the activities of competitors and the evolution of the industries, companies are interested in (Martelli, 2014).

CI is the practice of collecting data and information about a competitor and/or its activities, processing and analyzing it for competitive insights, and acting on the results (Gilad & Herring, 1996).

## 5. The competitive intelligence process:

The key stages of the competitive intelligence process that emerge from the literature are:

**5.1. Planning and focus:** During this phase is required to determine the necessary resources for the CI project in the light of its purpose. (Saayman, et al., 2008)

**5.2. Data Collection:**  This phase involves gathering and studying the data legally and ethically from all available resources. And, resource selection depends on the type of data necessary information and factors such as cost, availability, ease of resource processing, and quality and quantity of information. (Nasri, 2012)

**5.3. Data Analysis:**  This is the most important and challenging stage of the process as it demands great skills on the side of the competitive intelligence team. (Bose, 2008) Many practitioners believe that this is where "true" intelligence is created, which is converting information into usable intelligence on which strategic and tactical decisions may be made. (Saayman, et al., 2008)

**5.4. Communication:** The results of the CI process need to be communicated to those with the authority and responsibility to act on the findings. Intelligence communication can take place via ad hoc

reports, alerts, e-mails, presentations, news briefs, competitor files and special memos (Saayman, et al., 2008).

**5.5. Process/structure:** CI requires appropriate policies, procedures, and a formal or informal infrastructure so that employees may contribute effectively to the CI system as well as gain from the benefits of the CI process. (Saayman, et al., 2008).

**5.6. Organisational awareness/culture:** For a firm to utilize its CI efforts successfully there needs to be an appropriate organizational awareness of CI and a culture of competitiveness (Saayman, et al., 2008).

### Table 2: Knowledge/Intelligence Terms

| | |
|---|---|
| **Knowledge Management** | The process of codifying, collecting, and disseminating the firm's knowledge assets |
| **Knowledge Assets** | Intellectual capital of the firm:<br>*Human capital*—knowledge resident in employees regarding their jobs<br>*Structural capital*—knowledge regarding organizational systems, structures, and processes<br>*Relational capital*—knowledge regarding managing firm-specific relationships with external stakeholders such as customers, collaborators, and regulators<br>*Competitive capital*—competitive knowledge resulting from market-driven analysis of information internal and external to the firm |
| **Competitive Intelligence** | *Field of practice*—supports strategic decision-making and assists executives in identifying whether the firm is competitive (Gilad 1994)<br>*Process*—purposeful and systematic gathering of internal and external information from multiple sources, its synthesis, integration, and analysis producing actionable results<br>Knowledge in action:<br>Strategic use of knowledge assets, including widespread, purposeful gathering, analysis, and use in making strategy. It also includes the protection of knowledge assets. |
| **Intelligence** | Actionable outcomes:<br>*Tactical intelligence*—CI processes are applied to one or multiple knowledge assets, which results in actions with immediate implications for the firm's operations<br>*Strategic intelligence*—CI processes are applied to one or multiple knowledge assets, which results in actions with implications for the firm's future strategy |
| **Shadow Team** | Cross-functional composite of individuals who engage knowledge assets in competitive intelligence practices around explicit competitive issues and generate tactical and strategic intelligence in support of executive decision-makers. A small cross-functional boundary-spanning entity that learns everything about a competitive unit. |

**Source:** (Rothberg & Erickson, 2005)

Shadow teams produce competitive capital by merging what is known and what others may do into what we should do. Then, organizations can make better use of their other knowledge assets and

generate tactical and strategic intelligence for decision-makers.

The core of the intelligence process is taking existing intellectual capital throughout the firm, identifying other knowledge needs, conducting analyses that point to specific actions, and feeding the results of the analyses to appropriate decision-makers. Shadow teams can simulate the doing through war gaming and scenario planning. Activating knowledge assets and engaging competitive intelligence help the firm make and save money, and manage risk in maping its future (Rothberg & Erickson, 2005).

## 6. The difference between Business Intelligence and Competitive Intelligence :

The terms "business intelligence" (BI) and "competitive intelligence" (CI) are often used interchangeably. Both BI and CI refer to "actionable information about the external business environment that could affect a company's competitive position" (Savioz, 2004).

Competitive intelligence, and its twin business intelligence, are more focused on the future, on possibilities, helping to shape decision making, and emphasizing trends, patterns, and what is currently uncertain, or unknown. (Bahra, 2001)

(Hadj, Ghodbane, & Aouadi, 2016) considered Competitive intelligence as an extension of business intelligence. In contrast to (Ben Sassi, Frini, Ben Abdessalem Karaa, & Kraiem, 2015), they considered (CI) is a sub-domain or a sub-branch of business intelligence that deals with the competitive environment of the company. Also (Bouthillier & Shearer, 2003) see Business intelligence (BI) is a broader and more inclusive concept than competitive intelligence, as it includes activities such as data mining, market analysis, sales analysis, and analysis of customer and supplier records and behavioral patterns.

(Liebowitz, 2006) Sees CI having both internal and external components; thus, that is why BI (with its internal focus) is subsumed within CI. He sees that CI is closely linked with BI, CI has a gathering,

analysis, and management component. CI has an internal and external focus, and relies heavily on external information for the CI analyst to base his or her opinions.

While (Bose, 2008) has a point of view that BI is internal intelligence about and within one's own company, whereas CI is external intelligence about the firm's competitors.

## 7.  The difference between CI & KM

(Liebowitz, 2006) Sees CI is used to solve both short-term and long-term problems, whereas KM is more likely to be used for a long-term perspective on derived benefits.   Competitive intelligence and knowledge management have some important distinctions as the following: (Rothberg & Erickson, 2005)

### 7.1. Data Collection:

CI collects what is known across the firm about competitive issues, it also steps outside the firm, CI practices mine internally and externally, with a purpose, and using all available knowledge sources like scientific and business articles, patents, specialized Internet sites, events and trade fairs Source base (concerned with gathering information from outside business environment). While KM practices mine internally (focusses on organizations, internal information, and resources based on technology (such as groupware application, knowledge portal, database, and related hardware and software, reference data from directories, specialized internet sites, panels and/or interviews with specialist) (Shelfer, 2004; Rothberg & Erickson, 2005; Canongia, 2007).

### 7.2. Organization:

Information and knowledge are gathered from internal and external sources. Then a CI director or shadow team analyzes what is discovered, turning pieces of recorded competitive capital, and published information into meaningful scenarios, portfolios, and early warnings about changes in the competitive arena. Whereas KM systems are established to make knowledge identifiable and accessible, they do not necessarily prioritize the knowledge or try to identify patterns or predict future directions(Rothberg & Erickson, 2005).

**7.3. Use:** CI systems provide components of or stimulus for competitive actions. Knowledge becomes intelligence through action. Actions take form in influencing strategy-making or the execution of strategic or tactical moves. Shadow teams, whether building scenarios, performing strategic group analyses, or conducting war games, turn what is known into what needs to be done (reactive moves) or what can be done (proactive moves). They convert competitive information into intelligence products that are more likely to make their way into the path of executive decisions.

**7.4. Objectives:** CI foresee opportunities and threats in order to maintain or create competitive advantages. KM promote appreciation of the value of the internal potential of the organization, of the identification of competencies, and of the generation and circulation of knowledge.

**7.5. Principal methods:** CI based on the generation of intelligence. But KM based on valuing knowledge capital (Canongia, 2007).

**7.6. Techniques:** The techniques of CI are scenarios; monitoring; modeling and morphological analysis; SWOT matrix; interviews with stakeholders. The techniques of KM are specialist panels; focus groups; brainstorming; communities of practice; monitoring (Canongia, 2007).

**7.7. Principal results perceived as an instrument of innovation Management:** For CI wealth generation with development of new businesses, markets, products/services, technologies; and value given to network relationships, and increased competitiveness and innovation. While for KM organizational development and learning, and value given to network relationships, and increased, competitiveness and innovation (Canongia, 2007).

**7.8. Focus the main view:** CI Predominance of activities aimed at knowledge and analysis of external movements: whether on the level of policies, laws, the environment, the economy, or on the level of competencies: competitors, partners, clients, suppliers; and of the entry of new products/services and/or substitutes, as well as potential competitors. Macro and middle levels.

KM Predominance of activities aimed at knowledge and utilization of internal organizational potential, of sectors, of the nation and/or economic blocs. Strategies focused on core competencies, for

development and/or maintenance. Middle and micro levels (Canongia, 2007).

**7.9. Reactions:** KM is Reactive, CI is Proactive (actively monitors the movements of competitors and changes in the market) (Shelfer, 2004).

**7.10. Dependence:** KM is Dependent on employee willingness to contribute their knowledge, expertise, or experience regardless of the technological facilities provided by the organization.CI is driven by environment (political, economic, sociological, and technological) (Shelfer, 2004).

## 8. Complementary points and synergies between Competitive Intelligence and Knowledge Management:

(Rothberg & Erickson, 2005), in their book From Knowledge to Intelligence: Creating Competitive Advantage in the Next Economy, discuss the credo that "knowledge has value, intelligence has power." where they indicate that "CI is finding what you need by using what you know". Intelligence turns intellectual capital into actionable knowledge for strategic decision-makers in the organization. An intelligence approach also recognizes that the strategic use of knowledge requires an understanding of the circumstances of its use— not all firms will want to manage their intellectual capital in the same manner, since they may face different competitive environments. Finally, an intelligence approach requires that top management receive and use key pieces of knowledge. Intelligence merges knowledge management systems with competitive intelligence practices, leveraging the impact of knowledge on a firm's performance.

**8.1. Similarities between Competitive Intelligence and Knowledge Management:** KM and CI have a number of similarities in terms of the following points:

- **Vision:** Both CI and KM support the decision-making process

in the medium (up to 2 years) and long (from 2 to 5 years) terms (Canongia, 2007).

- **Objectives:** Both of CI and KM integrate into strategic planning in the medium and long terms (Canongia, 2007).
- **Principal methods:** Both of CI and KM are based on the gathering, processing, and analysis of external and/or internal, formal and/or informal information (Canongia, 2007).
- **Starting point and goals:** Both of CI and KM attend to critical success factors for organizations (sectoral) in order to better meet market and/or customer demands with new products/services and/or by improving products/services (Canongia, 2007).
- Both focus on intangible values
- Both require dedication and professionalism
- Both rely on larger communities and on sponsorship from the top to really make an impact on business (Bahra, 2001).

## 8.2.     The Added Value of Competitive Intelligence and Knowledge Management:

Knowledge has power when converted into intelligence. Intelligence is actionable, with knowledge being applied to strategic decisions and execution. The core value-added by CI processes and systems is improving the quality of timely knowledge by stewarding its shift to active intelligence.

Unlike KM processes that emphasize on orchestrating existing sorts of the firm's intellectual capital, CI engages various sorts of knowledge internal and external to the firm. CI doesn't just rely on what is known inside; it relies on all that can be known from all sides. It actively seeks out information and knowledge to fill gaps, discover patterns, or expect outcomes. KM relies on capturing, codifying, categorizing, and distributing data. CI mines such information, driven by edict or question, combines it with multiple points of external data, analyzes it, and delivers it to an appropriate decisionmaker. CI doesn't just collect information for the sake of having it. Instead, it seeks what needs to be known at the moment it is needed for use (Rothberg &

Erickson, 2005).

(Prescott & Miller, 2001) see that the duality and synergy between CI and KM help to determine the knowledge flows and gaps to better assess where you are, what you need to know, and how best to find out.

(Calof & Skinner, 1998) suggests that CI processes create knowledge from openly available information by use of a systematic process involving planning, collection, analysis, communication, and management, which results in decision-maker action.

According to (Vargas, Perez, & Gimenez, 2017), CI is a type of Knowledge Asset (KA) "knowledge regarding markets, products, technology, and organizations that a business owns or needs to own and which enable its business process to generate profits, add value, etc."

Moreover, (Nenzhelele, 2012) says that CI plays an important role in knowledge management and the process of enterprise decision-making.

Intelligence brings a new perspective, initially, by including all knowledge relevant to strategic and tactical actions, including competitive knowledge and operational processes such as enterprise resource planning, supply chain management, or customer relationship management systems. In addition to that, Competitive intelligence is designed to gather pertinent knowledge from all possible sources, also it grows the knowledge of the firm through analysis, in order to make knowledge actionable in the hands of decision-makers (Rothberg & Erickson, 2005)

Specifically, (Chebbi Ghannay & Ben Ammar Mamlouk, 2012) when KM and CI information is combined, it results into competitive advantage; when KM attempts to leverage internal information and expertise, CI works to filter information and develop an understanding of the multidimensional nature of the competitive arena, spot trends,

and articulate changes in advance of the market

Figure 2 shows the relationship between KM and CI. According to (Chebbi Ghannay & Ben Ammar Mamlouk, 2012) where it is clear that KM and CI complement each other. As noted already, KM focuses on internal processes and information, while CI deals with information from the environment which the business works in. responsible for making strategic decisions that shape the main target and direction of an enterprise.

**Figure 2. The relationship between KM and CI**
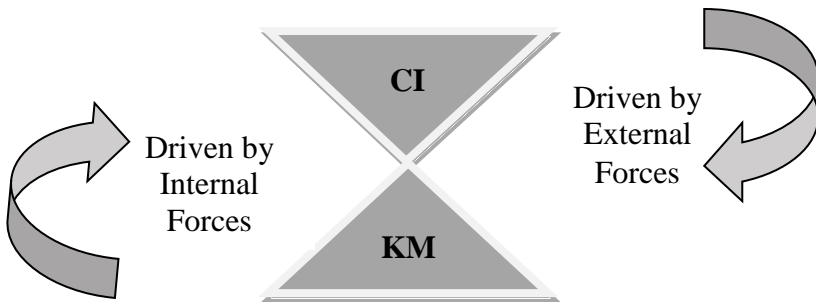


**Source :  (Chebbi Ghannay & Ben Ammar Mamlouk, 2012)**

(Chebbi Ghannay & Ben Ammar Mamlouk, 2012) declare that KM and CI are distinct by being both complementary and synergistic and have similar goals and are natural extensions of one another.

## 9. Conclusion :

In this paper, it was argued that Knowledge management and competitive intelligence are effective tools to assess the current and potential internal and external environments of an organization in the strategic management process. In addition, synergic and separate use of both can result in a competitive advantage (Shujahat, et al., 2017).

Knowledge management has become a leading managerial challenge when competitive advantage is seen in association with the creation, transfer, use, and protection of knowledge, CI seeks to produce, sustain and transmit knowledge as an intermediate platform between the outside and inside of a company. Thus, knowledge management using a CI approach takes an important dimension in a competitive context (Chevallier, Laaraf, Lacam, Miloudi, & Salvetat, 2016).

In addition to that, we concluded that, Knowledge management will be a powerful enabler of success; There is a powerful marriage between Knowledge Management and Competitive Intelligence (Bahra, 2001). Intelligence can make the right use of knowledge which has a significant impact on a company's success and is more than just maximizing and sharing knowledge. (Sain & Wilde, 2014)

On the other hand of Business intelligence,  business knowledge implies that it is an apparatus used to change the information got from the outer condition into significant and helpful data that could be turned to a business thought that will give an association an upper hand over its adversaries (Adebisi & Adejare, 2016).

KM can facilitate CI processes by capturing tacit knowledge and making it explicit. On the other hand, CI extends KM practices by moving the collection process outside of the firm. In addition, CI influences competitive advantage by transforming knowledge into active intelligence that impacts strategy making and execution at the

executive levels of the firm (Rothberg & Erickson, 2005).

Therefore, by merging knowledge management systems and practices with competitive intelligence systems and practices, firms can build and sustain competitive advantage. They should embrace the credo that "knowledge has value and intelligence has power". Where intelligence gets its power from unfiltered, timely scrutiny of the competitive environment and the firm itself (Rothberg & Erickson, 2005), we can therefore, argue that combining KM and CI in an enterprise can lead to greater effect. As such, CI and KM practices feed each other, better enabling both to enhance the organization's strategic capabilities (Breeding 2000).

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