

The Relationship between Business Intelligence and Knowledge Management Dimensions



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ABSTRACT

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It has been observed that the society we live in is gradually turning into a knowledge-based society. While converting it to useful insightful acumen so that an organization can get maximum benefits from it. In addition, KM is a fast and efficient way to manage intellectual property. There is a lot of business knowledge that needs to be extracted from unstructured information most of which is in the textual form. Many in industry confuse knowledge management with business intelligence. Therefore, it poses serious challenges for managers to integrate tacit knowledge into business processes. This analytical - descriptive study aimed to investigate the relationship between business intelligence and knowledge management dimensions was conducted. Based on Finds, it propose a model where KM and BI can benefit from each other. As, the companies can utilizes the knowledge management components to promote business intelligence of its staff, and in fact, by relying on the updated information and knowledge achieve a correct, timely, and proper analysis of its situation and the situation of the market and other competitors and becomes equipped with the most powerful tool to deal with competitive challenges.

KEYWORDS: *knowledge management, business intelligence, knowledge socialization and externalization, combination and internalization of knowledge.*

1. Introduction

Most leading corporations expect personnel in every role to seek fresh and intelligent ways to improve performance, increase employees' effectiveness, and grow profit and stronger customer relationship. In order to achieve these

expectations, Business Intelligence (BI) is the answer. Supporting decision-making at every level, modifying managers, executives and knowledge actors to take the most efficient action in given situations are the reasons why most

leading organizations require Business Intelligence (BI) as an essential element (Muhammad et al, 2014, 26).

In today's business environment, organizations and companies are always trying to achieve success by outreaching their competitors. The paradigm of competition in the business environment dominates the minds of many of today's executives and managers. Many managers consider in staying ahead of the competition and obtaining their share of demand in the existing market as the only way to succeed. Business intelligence widely enables the managers to gain a new vision and make decision for their business by the process of collecting and analyzing data, and concentrating its nature based on business practices (Zanjirchi&Keshavarzi, 2015).

The environment in which firms operate is growing in complexity. Since the 1900's nearly three billion people have become players in the global stage, overcoming cultural, religious, ethnic, and political barriers to market entry. In addition to globalization, other environmental factors that are pressuring businesses to perform at high levels include: customer demand, government regulations, market conditions, and competition. To meet the performance challenge, companies require considerable volumes of timely, relevant, high quality data, information, and knowledge (Kimpel and Morris, 2013).

Statement of the problem

It has been observed that the society we live in is gradually turning into a knowledge-based society (Bell,1973. Drucker, 1968.Toffler, 1990).while converting it to useful insightful acumen so that an organization can get maximum benefits from it. In addition, KM is a fast and efficient way to manage intellectual property (Manujal and Kalra. 2009). There is a lot of business knowledge that needs to be extracted from unstructured information most of which is in the textual form(Cody et al, 2002). Many in industry confuse knowledge management with business intelligence (Herschel and Jones,2005). Therefore,

it poses serious challenges for managers to integrate tacit knowledge into business processes(Shehzad et al, 2013).

1.2. Significance of the study

Equipping with knowledge and knowledge management, has become to strengthen position to survival of dynamic & innovative organizations, even power of competition in markets and trade depending on the acquisition, development and implementation of individual and organizational knowledge (Chen & Huang, 2012).

In today's world which is called the knowledge-based economy era, it is essential that organizations focus on knowledge and subjects beyond competition issues (Fatimid Moghaddam, 2015).

Understanding how to obtain business intelligence in various production processes in enterprises is a valuable and important matter in today's complex competitive market which guarantees preserving and increasing market share in the future. Therefore, it is essential that companies pay more attention to the importance of business intelligence and applying it.

1.3 Purpose of the study

Aimed to investigate the relationship between business intelligence and knowledge management dimensions was conducted

1.4. Research Innovation

An emphasis on knowledge management dimensions separately and their relationship with business intelligence is as innovation of research in this field.

1.5. Research methodology

This study is an analytical - descriptive research. Through reviewing the two main issues discussed in the study seeks to provide a model for this subject, to be able demonstrate importance of combining these two issues as well. The obtained model can be applied to companies, if they have a

comprehensive perspective to all its dimensions and using in their decision making process.

2. Theoretical framework and literature

Business Intelligence (BI) is defined as an organization's ability to gather all its capabilities and skills; and transform them into knowledge. The acquired knowledge may pertain to large amounts of information which may lead in the opening of new windows of opportunities to the concerned organization. When a new opportunity is identified and a strategy is effectively implemented, it endows organization with a competitive advantage in the market as well as stability in the long run. BI technologies provide historical, current and predictive views of business operations. Common functions of BI technologies are reporting, online analytical processing (OLAP), data mining, business performance management, benchmarking, predictive and prescriptive analytics. The basic components include data warehousing, data Mining, OLAP, reporting, spreadsheet, etc (Shehzad et al, 2013).

Malhotra suggests that knowledge management is a process by which organizations acquire skills regarding learning (internalization of knowledge), coding knowledge (externalization of knowledge), the distribution, and transfer of knowledge (Abtahi&Salavati, 2006).

KM is described as a systematic process of finding, selecting, organizing, distilling and presenting information in a way that improves an employee's comprehension in a specific area of interest. KM helps an organization to gain insight and understanding from its own experience. Specific KM activities help focus the organization on acquiring, storing and utilizing knowledge for such things as problem solving, dynamic learning, strategic planning and decision making (Hameed, 2004).

2.1. Dimensions of Knowledge Management:

Nonaka and Takeuchi (1995) categorized patterns of knowledge transformation within an organization by its employees which led to the

creation of organizational knowledge in four categories which are presented in Fig 1.1:

- 1) **Socialization of knowledge:** in the social dimension, people share experiences and their mental models to improve knowledge, including the achievement of mutual understanding through social face to face interaction, sharing views, thinking together and more (Ghorbanzadeh, 2009).
- 2) **Externalization knowledge:** in this dimension, implicit knowledge becomes explicit knowledge through externalization process. This process allows individuals to develop individual concepts and implicit knowledge and then share it with others to create new knowledge. In this strategy, the principles of content management for archiving, updating, and retrieval of the externalized knowledge are needed.
- 3) **Combination of knowledge:** In the combination dimension, the existing parsed knowledge is shared, combined, and interpreted. In other words, at this stage, the ideas are combined with a system of knowledge (such as databases). Combination is a method of creating knowledge that is included in the field of education. Examples of combination strategies are knowledge and information systems, preparation of review reports, analysis of process and the summary of management (Ghorbanzadeh, 2009).
- 4) **Internalization of Knowledge:** the internalization dimension is a method that transforms the explicit knowledge into implicit knowledge by interpreting the knowledge. This can happen through learning by doing. As soon as the knowledge is internalized, new knowledge is used by the employees, which they have developed and reorganized in their existing implicit database (Ghorbanzadeh, 2009).

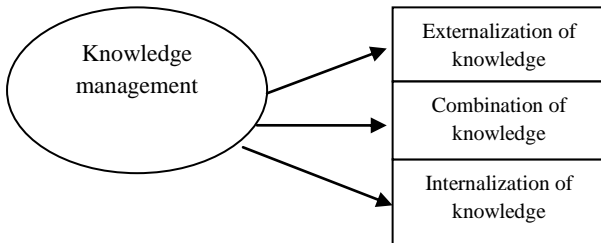


Fig 1.1. Knowledge management model (Nonaka& Takeuchi, 1995)

2.2. Business Intelligence:

A set of abilities, technologies, tools, and strategies that helps managers to better understand business situations. By implementing business intelligence strategies, the gap between the middle managers and senior managers will be eliminated regarding the perspective of the information relationship, and the necessary information will be provided for managers at any level, at the moment, and with high quality.

2.3. Dimensions of business intelligence model

The research model (fig. 2) which is a three-dimensional model is adopted from the study of information systems by Elbashir et al. (2008), which discusses business intelligence in three components (Elbashir et al., 2008).

- 1) **Customer intelligence:** customer intelligence has the most benefits in business intelligence. The benefits of customer intelligence is due to better understanding of buying habits of customers, anticipation future needs, and introducing new products/services. Such benefits include the reduction of development and deliver time of new products/services, attracting customers who know what they want, and reduction in the costs of customer dissatisfaction.
- 2) **Inter-organization relationships:** the benefits of communicating between suppliers and trading partners includes benefits that organizations gain from improved relations with trading partners,

such as reducing transaction costs, increasing collaboration with suppliers and partners, and improving inventory management.

- 3) **Internal Efficiency:** the advantages of efficiency of internal processes is related to the benefits resulting from improved internal processes, such as increased employee productivity and reduced operating costs (Elbashir et al., 2008).

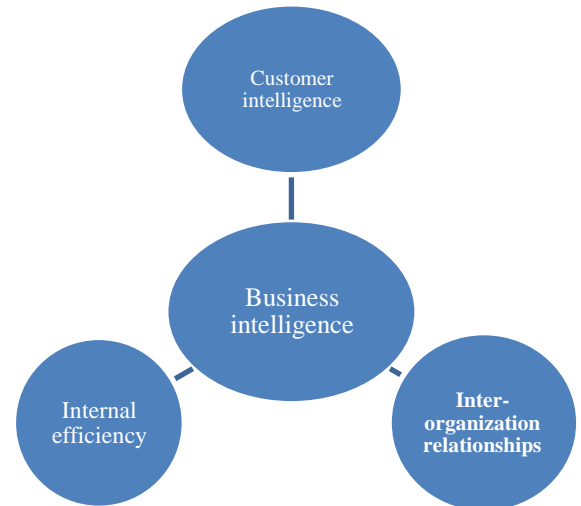


Fig. 1.2. Business Intelligence Model (Elbashir et al., 2008)

2.4 The advantages of business intelligence

The main advantage of business intelligence is that the company can access correct information (when required) and show the performance of the entire company and each part separately. This type of information is important for the decisions, strategic planning, and competition.

Thompson (2004) in a study about major benefits of business intelligence stated the advantages as follows: fast and accurate reporting, improved decision making, improved customer service, and increased income.

2.5. The most important use of business intelligence in organizations

- 1) Determining the organization's business trends that leads the organization to focus on other paths to pursue their goals without wasting time, money, and energy.

- 2) Facilitating decision-making which is one of the main objectives of business intelligence.
- 3) Early identification of hazards before they lead to serious risks and identifying business opportunities before their competitors possess it (Saaty, T. L, 2005).

2.6. Strategic importance of business intelligence in decision-making

Use of business intelligence at the strategic level can be considered as a way to help increase both the overall efficiency and optimization process. These systems are focused on some important financial features and other important parameters of increasing efficiency. Different characteristics of applications at different levels of the organization causes differences in the tools, techniques and infrastructure required for each of them. Business Intelligence is the operational part of the task of collecting data and storing them in private databases.

Haghighat Monfared (2010) in a study entitled *The Effect of Business Intelligence on Business Processes and Organizational Performance in Iran Khodro Engine R&D and manufacturing Co.*, categorized the business process into 3 main components of the relationship with suppliers, efficiency, and the relationship with customers. He studied all the managers and experts of the company as the population of the research. The results of the analysis indicated that there was a significant positive relationship between the business intelligence and organizational performance as well as business intelligence and business process (Haghighat Monfared, 2010).

3. Research Findings

Tacit knowledge and BI

When Karl-Erik Sveiby (1997) created the first framework defining intellectual capital, he defined three elements:

1. Employee competence (the capabilities of people in an organization – its human capital);

2. Internal structure (structured or organizational capital, including patents, documented processes, computer-based data, and the vision, strategy, and policies created by leadership); and
3. External structure (customer or relationship) capital- the value of a firm's relationships with the people with whom it does business). It is clear that BI can help firms analyze transactions within each element, but it only partially explains its relationship to KM. To really understand and learn from a firm's value network, one must also examine tacit behaviors, that is, the nature of behavioral exchanges occurring and the content of information and its value relative to firm performance. Here the role and contribution of BI becomes constrained (Herschel and Jones, 2005).

Relationship between BI and KM

Business intelligence plays a central role in knowledge management (White, 2005). Business intelligence is a form of knowledge. The techniques used in knowledge management for generating and transferring knowledge (AL-Shubiri, 2012).

Some researchers see the relationship differently. They argue that KM and its processes are helping hand of BI and make it more pervasive in organizations (Zarghamifard and Behboudi, 2012). Haimila (2001) also sees KM as the "helping hand of BI". He cites the use of BI by law enforcement agencies as being a way to maximize their use of collected data, enabling them to make faster and better-informed decisions because they can drill down into data to see trends, statistics and match characteristics of related crimes (Herschel and Jones, 2005).

Harold M. Campbell created a business intelligence model through knowledge management in his paper "The role of organizational knowledge management strategies in the quest for business intelligence." There are

three strategic value propositions which are included in the above model which the organization may use. These are:

- 1) The need to manage their staff member as assets, who add meaning to information;
- 2) The need to set up structures that allow staff members to gather and distribute information, but most importantly to convert that information into bottom-line income;
- 3) The need to be in touch with, and responsive to, the needs of the customers of the organizations; they are the best, and final, arbiters of an organizations' actions. These value propositions are encapsulated in a model for creating BI through KM (Shrivastava and Lanjewar, 2012).

Implementation of BI as KM Tools

To implement Business Intelligence as Knowledge Management tool to provide financial consultancy, many BI tools are available. Following are some of the example.

1. Enterprise BI tools,
2. Databases or packaged BI tools,

3. Visual Data Discovery tools,

4. Pure reporting tools.

Many organizations, both private and public, are currently evaluating or deploying Open Source BI tools (OS BI) like JasperSoft, Pentaho or SpagoBI. These three leading open source Business Intelligence suites offer a full range of Business Intelligence capabilities, ranging from ETL to ad-hoc analysis and reporting (Muhammad et al, 2014, 28).

3.1. The proposed model of the research

The operating model of the present study by use of Nonaka and Takeuchi's knowledge management models and Elbashir's et al. model of business intelligence is presented in Figure 1.3.

The combination shows that our model that includes both BI and KM technologies is more useful for companies to correct decisions by comprehensive vision (Socialization of knowledge, Externalization of knowledge, Combination of knowledge, Internalization of knowledge) to Business Intelligence set (Customer intelligence, Inter-organizational relationships, Internal efficiency).

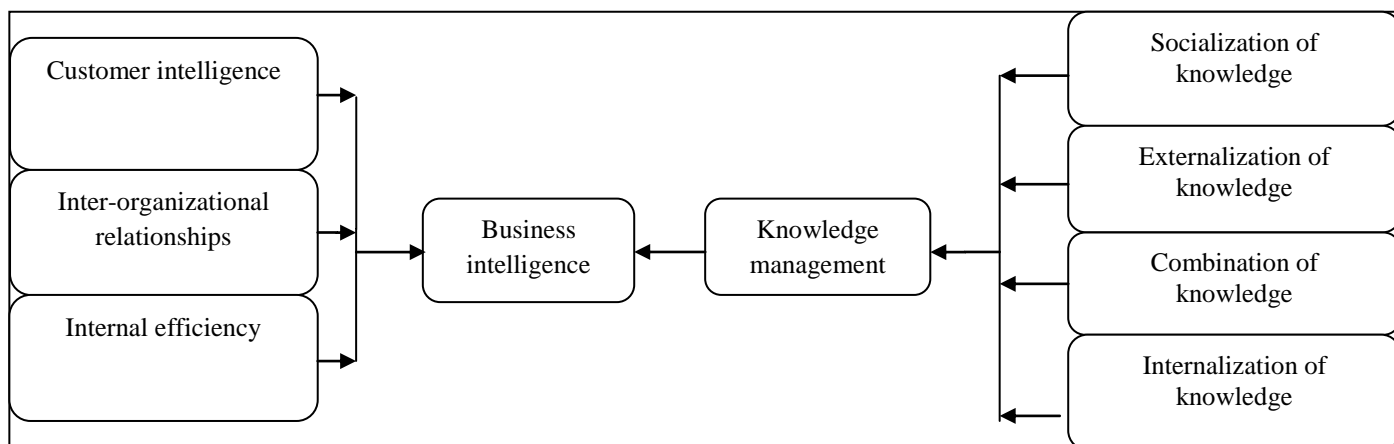


Fig.1.3. The conceptual model of the study (Nonaka& Takeuchi, 1995; Elbashir et al., 2008)

4. Discussion and Conclusion

Today, using business intelligence to deal with the competitive challenges in companies and organizations is essential. The preparation of

organizational atmosphere for sharing knowledge and experience among employees and supporting them to update their knowledge and professional skills and empowering them in decision-making and knowledge management, and learning problem-solving techniques leads to promotion of

intelligence in the employees of industries, from the dimension of combination of knowledge. Also, an increase in the presence of high-level managers in different units and increase in the level of communication and exchange of information between operational-level employees with high-level managers and support of senior management to apply the knowledge production and promoting continuous production program can also improve the business intelligence from the perspective of socializing of knowledge. With the approval of the effect of externalizing of knowledge on business intelligence, the managers of industries can try to establish trust in support of orienting and acceptance of knowledge at the company. On the one hand, with the approval of the effect of internalizing knowledge on business intelligence of the workers, the use of information and communication technologies and electronic devices with high security and speed to transfer the information can also be suggested to industries. As a result, The companies an utilizes the knowledge management components to promote business intelligence of its staff, and in fact, by relying on the updated information and knowledge achieve a correct, timely, and proper analysis of its situation and the situation of the market and other competitors and becomes equipped with the most powerful tool to deal with competitive challenges.

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