

# Integrating Business Intelligence and Knowledge Management to Influence Organizational Innovation Process

Radwan Choughri

(Business Administration School/ Jinan University, Tropolli, Lebanon)

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**Abstract:** Business innovations yields better results for a business if “Business Intelligence” is successfully integrated with “Knowledge Management”. The purpose of this study is to identify the best way of integrating “Business Intelligence” and “Knowledge Management” in influencing Organizational Innovation Process. Literature review of the study reveals that, both “Knowledge Management” and business integration are significant elements that greatly contribute to the business culture of an organization. Previous studies on the subject also reveal that business integration and “Knowledge Management” work hand in hand in bringing innovation to the business thus making the business unique in its operations. Qualitative research methods are used in the study, this involves use of questionnaires and structured interview questions to a number of organizations in the Middle East especially amongst senior management. From the findings of the study, senior managers encourage innovation in its employees. Integration of “Knowledge Management” in organization in UAE affect the business culture, the technical infrastructure, level of support offered by the management, reward and compensation policies, the decision-making process, management and financial, human and technical resources, and customer satisfaction levels. Middle East companies are increasingly becoming competitive because of data mining in intelligence and “Knowledge Management” that help in the adoption of rightful strategies. This study recommends that the future research finds a means to educate employees on innovation and the contribution of the integration of KM and BI. With sufficient training, the researcher will be in a position to acquire more information from the employees.

**Keywords:** Business Intelligence, Knowledge Management, Innovation Process

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## I. Introduction

“Business Intelligence” and “Knowledge Management” are human resources functions that when integrated play a crucial role in upgrading the innovative processes. Despite the considerable level of advancement in technology, it would still be impossible to consider separating the role played by “Business Intelligence” and “Knowledge Management” in advancing the innovation processes. Though equally important to the progress of the organization, integration of the two would mean a better place in terms of development. However, the role of integrating the two can only be sufficiently met after an understanding of each of these aspects of information management (Moscoso-Zea, Luján-Mora, Cáceres, et al. 2016).

“Business Intelligence” is the ability of the organization to integrate the past, the present and the future of the operations. “Knowledge Management”, on the other hand, can be defined as the process of by which the information and expertise within an enterprise are used to make decisions. The two process is essential and of much importance in business innovation. To yields the best results in business innovation, it is essential that “Business Intelligence” is integrated fully with “Knowledge Management” (Moscoso-Zea, Luján-Mora, Cáceres, et al. 2016).

## II. Literature review

“Knowledge Management” within an organization is more dependent on the form of leadership that guides the operation of the company. The relationship between “Knowledge Management” and leadership determines the organizational performance levels (Birasnav, 2014). “Business Intelligence” is the process through which information is derived from raw data and used in decision making. The “Business Intelligence” and the maturity level can be used as a reflection of the organizational performance ability (Bach, Štemberger, & Vugec, 2017). The process of organizational innovation is very difficult to manage in the absence of “Knowledge Management” skills and the “Business Intelligence” skills (Moscoso-Zea, Luján-Mora, Cáceres, et al. 2016). The decisions on business management are made in line with the analysis of the “Knowledge Management” and the “Business Intelligence” reflected within the organization. Both are a reflection of the organizational culture and also the consumer behavior in regard to the products provided or the services provided (Bach, Štemberger, & Vugec, 2017).

### **Research question**

1. What is the role of “Business Intelligence” and “Knowledge Management” integration in organizational innovation in the Middle East?
2. At what level do employees understand “Knowledge Management” and “Business Intelligence” integration to influence business innovation in the Middle East?
3. What are the factors that drive the effectiveness of “Knowledge Management” and “Business Intelligence” effectiveness in organizational innovativeness?

### **III. Previous studies**

According to Kasemsap 2015, the role of “Business Intelligence” is to mine the data that is used in the process of “Knowledge Management” (Kasemsap. 2015). The process of “Business Intelligence” involves having past, present, and the future information on the possible trends that are likely to occur from the business operations (Kasemsap. 2015). There are growing volumes of data required in the running of a business. At the same time, the digitalization of data has led to the essence of data to be generated in large volumes. However, it is essential that the generated data is filtered so that the very necessary can be used and relied on in the decision-making process regarding the development of the business. The business environment is now growing to be complex with the emergence of new technologies (Kasemsap. 2015). Competition levels are also on the rise such that today for every product or service offered there is the corresponding substitute (Kasemsap. 2015). These factors make the decision-making process also to grow increasingly complex in responding to the changes and for the business to survive the competitive ground (Kasemsap. 2015). For this reason, there is a need to integrate “Business Intelligence” with “Knowledge Management” so that the enterprises can keep up with the competitive pace (Kasemsap. 2015). To keep with the competition only means that the data and knowledge managed does not have to be held within the organization but used in bringing up innovative processes for the business to remain competitive and offer unique products and services different from those of their competitors (Kasemsap. 2015).

The framework of knowledge managed is derived from the architecture of “Business Intelligence”. This is according to Moscoso-Zea, Luján-Mora, Cáceres 2016 who argue that the experience that an enterprise uses is dependent on the level of “Business Intelligence” (Moscoso-Zea, Luján-Mora, Cáceres 2016). It is for this reason that they feel that “Business Intelligence” must be fully integrated with “Knowledge Management”. They also recognize the fact that “Knowledge Management” determines the level of enterprise innovation which forms the basis for grading such enterprise among the competitors. They argue that the consumers are more interested in the innovative standards applied that they want service and product to be efficient and effective especially on use. To achieve this then the enterprise must be innovative enough to meet the set line of consumer satisfaction which can only be attained through a proper architecture of “Business Intelligence” to form an effective framework for “Knowledge Management”.

“Business Intelligence” and “Knowledge Management” are related to risk management in an innovative platform (Wu, Chen, & Olson, 2014). According to Wu, Chen, & Olson, 2014, in the past decades, organization are fully relying on both “Business Intelligence” through data mining and “Knowledge Management” to manage the risks involved in the industry (Wu, Chen, & Olson, 2014). The level of risks are recurring, and no risk can be grade as a past risk while classifying another as a current risk that is likely to occur. Today “Business Intelligence” requires one to have a data warehouse that allows the user to have sufficient time in the management of information. This helps in ensuring that only the most implicit data is used in the decision-making process. Enterprises have to maximize on finding the best available opportunities to help in the integration with other platforms of “Knowledge Management” (Wu, Chen, & Olson, 2014).

### **IV. Research methodology**

This research paper will focus on the qualitative method of research. It will thus employ the use of questionnaires and structured and unstructured interview questions to get information from the expertise on the effectiveness of integrating “Business Intelligence” and “Knowledge Management” in improving the innovation levels of the organization. There is a high rate of enterprise in the Middle East region, and therefore innovation is key to help in building a brand especially or the new enterprise. The research will focus on these new enterprises in comparison to the old ones by approving the managers to access the effectiveness of integrating “Business Intelligence” and “Knowledge Management”.

### **V. Sampling and Data Collection Methods**

It will consider approaching the staffs at all levels from senior managers, human resource managers, supervisors and the junior staffs. The sample size will be at least an audience 500 people for the closed questionnaire, 50 personnel for the structured interview, and at least 20 for the human resources managers and

the managers for the unstructured interview. To have a scope of the results of integrating “Business Intelligence” and knowledge managed structured interview will be relied upon.

The advantages of structured interviews are that it helps in the generation of more formal strategy to getting the answers to the desired questions and the interviewee and the interviewer are not likely to forget. Unstructured interviews will also be used in the case of the senior management to allow the interviewer to have a broader scope of generating information from them. Information from approved and credible sources will also be considered in this proposal in comparing the findings to the conclusions made in the articles.

Finally, a personal analysis will be done on the enterprise performance to access the role that “Business Intelligence” and “Knowledge Management” play in coming out with a practical, innovative strategy (McTate, & Leffler, 2017).

## **VI. Test of validity**

When relying on the qualitative method of research, human understanding is essential. For the results to be valid, then every decision made must be sufficiently researched to access the truth on such statement. A connection between body movement and the verbal language is important to access the level of truth on the statements made. All refunded questionnaires will also be considered for the accuracy of the findings. Before carrying out the interview especially the unstructured one, the researcher will first do research or a background check on the skills and knowledge required to handle every task. In case there is a suggestion that the interviewee did not understand the question even for the structured case, a more clear explanation will have to be provided.

A triangulation strategy will be adopted when selecting the sample size so that the information attained is not biased (Carter, Bryant-Lukosius, DiCenso, et al. 2014). This will involve selection of employees to answer questionnaires by distance relationship to avoid receiving the same answers to questions based on their opinions.

## **VII. Data analysis and findings**

The senior managers and the human resource managers claim that all employees are the key players in the integration process, according to the majority of the employees; they do not understand the difference between “Business Intelligence” and “Knowledge Management”. After an explanation on both, they tend to claim that they are all the same and cannot be separated in action. According to many managers in the Middle East, the best way to understand “Business Intelligence” is through an explanation of the “Business Intelligence” systems. The knowledge on the integration of BI and KM is among the many challenges that hinder its proper integration. Roles of “Business Intelligence” and “Knowledge Management” are mostly played by different departments in most of the organizations; this means that there must be full cooperation of these departments at all levels. The role of “Business Intelligence” in most cases is given to the business analysts while “Knowledge Management” is the role of the human resources manager and other senior departmental heads. This separation of role hinders the full implementation of the integration process. Its values are soon starting to be realized and thus have been introduced in the school curriculum. Tough the systems had been widely employed in the industries; very few people had the skill to handle the system as institutions had not realized their value. This could be one of the reasons employees did not fully understand how they are integrated with “Knowledge Management” for an innovative reason. However, despite this, the response of the senior managers and human resource specialists was that the impact of integrating “Knowledge Management” and “Business Intelligence” could not be overlooked at any one point. It is for this reason that companies in the UAE are more concerned with “Knowledge Management” to fit into the competitive world position especially for the airline and oil industries. The positive impact of integrating “Business Intelligence” with “Knowledge Management” is also reflected in other subfactors that affect the levels of innovation in an industry. They claim that its integration affects the organization culture, the technical infrastructure, level of support offered by the management, reward and compensation policies, the decision-making process, management and financial, human and technical resources, and customer satisfaction levels.

## **VIII. Discussion of findings**

The conclusion by the employees involved in the interview is that the process of integrating “Business Intelligence” and “Knowledge Management” is to ensure that the business organization or the enterprise at hand is empowered. The management arguments that it is key to success are based on the fact that the intangible assets are now crucial in the management of the business. To date, most of the organization in the Middle East recognize that knowledge is the most crucial asset and classified as an intellectual capital (Ordenez, 2002). However, the knowledge is acquired form “Business Intelligence” which later raises the necessity of having “Knowledge Management” as a tool for innovation strategies. Dubai a city based in Saudi Arabia is the leading city in “Business Intelligence” in the Middle East and industries have created the position for business analysts.

To show the seriousness of this position, the job holder is even required to have a master's degree ("Help Us Keep Glassdoor Safe", 2018). Technology has had a significant impact on the "Business Intelligence" platform leading it to "Business Intelligence" being considered as an integral part of "Knowledge Management". In Kuwait and Lebanon the majority of the businesses are family owned making most of the senior managers family members, in such cases the family members lack the expertise needed for the integration of "Knowledge Management" and "Business Intelligence", the employed managers are also limited in terms of decision making (Welsh, & Raven, 2006). These family-owned businesses are mostly listed last in terms of "Knowledge Management". The high number of information needed to meet the needs of the vast level of information that requires analysis before a decision is made. Knowledge in itself is an essential tool in decision making, "Business Intelligence", on the other hand, is the process of processing large amounts of data and coming out with information from the set data. This is essential so that the companies can fit into the competitive world. UAE is becoming increasingly a competitive ground and firms especially in the hospitality industry have to put up with the high rate of competition through the adoption of innovative strategy. It is for this reason that such firms are fully dependent on the "Business Intelligence" and "Knowledge Management" to have the right innovative strategies adopted. To such firms, customer satisfaction is a necessity. To meet the customers' expectations is not an easy task because the clients at times feel that they pay for the luxury offered. This is expensive to the shareholders, and if they have to meet their needs through increased costs on luxury, then the shareholders will have lesser value on their invested amounts which is against the shareholder's goal. It is for this reason that "Business Intelligence" together with "Knowledge Management" has to be integrated into the management of finances, and also in helping to meet the customers need. In the hospitality industry again and any other service industry, the value of service offered is dependent on the organizational culture and way of management (Mohamad, Ab Yazid, Khatibi, et al. 2017). To attain the best and a continually improved organizational structure, the "Business Intelligence", and "Knowledge Management" come in. The productivity in the national economy of the countries based in the Middle East is also rising (Fawcett. 2016). This includes countries such as Egypt and the UAE. This has been attributed to by the oil sector in which countries in the Middle East have heavily invested in. The reason why innovation took the lead among the many ratings was that it was believed that all other ratings were attributed to this reason and their focus is to improve the operations of the business.

It is recommendable that all employees are educated on the importance of "Knowledge Management" and "Business Intelligence" integration. Other than that the senior managers should be ready to cooperate with the business analysts in order to ensure that they can share ideas and allow the best implementation of the integration of "Business Intelligence" and business innovation (Tan, Damron-Rodriguez, Cadogan, et al.2017).

## **IX. Conclusion**

Based on the findings, it is clear that innovation is fully dependent on "Business Intelligence" and "Knowledge Management" (Elbashir, Collier, & Sutton. 2011) some of the junior employees cannot fully understand the difference between "Business Intelligence" and "Knowledge Management", and thus it is hard to rate the impact of each in contributing to intelligence. However, this makes it hard for them to participate fully to some of the questions on how they believe the integration process works. It is through the integration of "Business Intelligence" and "Knowledge Management" that organizations can evaluate the level of innovation required for the progress of the company. An understanding of the best innovation strategy can only be acquired from knowledge on the integration of BI and KM. It is also important to note that the role of data mining in "Business Intelligence" is "Knowledge Management". This makes the two inseparables in attaining any goal and so is in innovation which is among the top priorities of enterprises to help ensure that they meet the needs of the organization (Kasemsap, 2015).

Businesses should consider equipping the employees with the necessary knowledge in the integration of KM and BM. If the employees are fully equipped with the knowledge they will be in the capacity to develop the skills necessary for the integration and understand the role of "Business Intelligence" and "Knowledge Management" in innovation (Birasnav, 2014).

Finances need to be set apart to facilitate the process of integration of "Knowledge Management" and "Business Intelligence". Other than that a strong teamwork network must be created since the roles of "Business Intelligence" and "Knowledge Management" are mostly conducted by people at different levels (Birasnav, 2014).

## **X. Managerial Implications**

The management has to play the part of a leader in the management of knowledge and In the process of promoting "Business Intelligence".

This is essential for the firms that are willing to attain innovation through the integration of knowledge and "Business Intelligence". The engagement of the management helps to encourage the existence of the

integration and manage it to be productive to the organization for more extended periods (Donate, & de Pablo, 2015).

### **XI. Limitations of the Research**

The research was only dependent on the qualitative methods of study. There was a limitation because of the use of structured questionnaires since the senior management could only give responses on what the questionnaires required of them. The respondents did not have an opportunity of giving information on a broader scope. Also the research only focused on companies within the same region in UAE. This means that the researchers did not diversify on a wider range of companies since only 50 participants were on board. Only a few companies that the research was conducted reported a positive impact of “Knowledge Management” integration that affect the culture of the companies. The research is based on assumptions that the majority of the companies within Middle East positively perceive that integration of “Knowledge Management” and “Business Intelligence” help the companies in their innovation. However, the research was no specific on the companies that have fully tried and tested the “Knowledge Management” with evident results. Most of the participants proved to be confidential thus they were unwilling to give information on the results and benefits that “Knowledge Management” has on their companies. This brought about complexities in the research and limitations.

the limitations of this research points towards the benefits of integration of “Knowledge Management” and “Business Intelligence” in most of the companies in the Middle East.

### **XII. Future Research**

Research will continue to be carried out in most of the companies especially on the subject of innovation and data mining due to technological advancements.

- The future research should focus on how small businesses and organizations are approaching this issue since the research focused on big companies.
- Also, the future research should focus on how the staff in the companies’ approach innovation.
- Available resources supported by the national government and measures of ensuring technological growth for the purposes of innovation especially in IT departments of most of the organizations.

### **References**

- [1]. Bach, M. P., Štemberger, M. I., & Vugec, D. S. (2017, January). The impact of “Business Intelligence” maturity and organizational culture on organizational performance: preliminary research. In CENTERIS 2017-Conference on Enterprise Information Systems.
- [2]. Birasnav, M. (2014). “Knowledge Management” and organizational performance in the service industry: The role of transformational leadership beyond the effects of transactional leadership. *Journal of Business Research*, 67(8), 1622-1629.
- [3]. Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014, September). The use of triangulation in qualitative research. In *Oncology nursing forum* (Vol. 41, No. 5).
- [4]. Csikszentmihalyi, M., & Larson, R. (2014). Validity and reliability of the experience-sampling method. In *Flow and the foundations of positive psychology* (pp. 35-54). Springer Netherlands.
- [5]. Donate, M. J., & de Pablo, J. D. S. (2015). The role of knowledge-oriented leadership in “Knowledge Management” practices and innovation. *Journal of Business Research*, 68(2), 360-370.
- [6]. Elbashir, M. Z., Collier, P. A., & Sutton, S. G. (2011). The role of organizational absorptive capacity in the strategic use of “Business Intelligence” to support integrated management control systems. *The Accounting Review*, 86(1), 155-184.
- [7]. Fawcett, L. (2016). *International relations of the Middle East*. Oxford University Press.
- [8]. Frost, A. (2014). A synthesis of “Knowledge Management” failure factors. *Recuperado el*, 22.
- [9]. Help Us Keep Glassdoor Safe. (2018). Glassdoor.com. Retrieved 30 April 2018, from
- [10]. [https://www.glassdoor.com/Job/dubai-business-intelligence-analyst-jobs-SRCH\\_IL.0.5\\_IC2204498\\_KO6.35.html](https://www.glassdoor.com/Job/dubai-business-intelligence-analyst-jobs-SRCH_IL.0.5_IC2204498_KO6.35.html)
- [11]. Kasemsap, K. (2015). The role of data mining for “Business Intelligence” in “Knowledge Management”. *Integration of data mining in “Business Intelligence” systems*, 12-33.
- [12]. McTate, E. A., & Leffler, J. M. (2017). Diagnosing disruptive mood dysregulation disorder: Integrating semi-structured and unstructured interviews. *Clinical child psychology and psychiatry*, 22(2), 187-203.
- [13]. Mohamad, H. A. D., Ab Yazid, M. S., Khatibi, A., & Azam, S. F. (2017). Measuring the mediating role of customer satisfaction between service quality and customer loyalty in UAE hotel industry. *European Journal of Management and Marketing Studies*.
- [14]. Moscoso-Zea, O., Luján-Mora, S., Cáceres, C. E., & Schweimanns, N. (2016, April). “Knowledge Management” Framework using Enterprise Architecture and “Business Intelligence”. In *ICEIS* (1) (pp. 244-249).
- [15]. Ordóñez de Pablos, P. (2002). Evidence of intellectual capital measurement from Asia, Europe, and the Middle East. *Journal of Intellectual capital*, 3(3), 287-302.
- [16]. Welsh, D. H., & Raven, P. (2006). The family business in the Middle East: An exploratory study of retail management in Kuwait and Lebanon. *Family Business Review*, 19(1), 29-48.
- [17]. Wu, D. D., Chen, S. H., & Olson, D. L. (2014). “Business Intelligence” in risk management: Some recent progresses. *Information Sciences*, 256, 1-7.
- [18]. Yeoh, W., & Popovič, A. (2016). Extending the understanding of critical success factors for implementing “Business Intelligence” systems. *Journal of the Association for Information Science and Technology*, 67(1), 134-147.
- [19]. Tan, Z. S., Damron-Rodriguez, J., Cadogan, M., Gans, D., Price, R. M., Merkin, S. S., & Chodosh, J. (2017). Team-Based Interprofessional Competency Training for Dementia Screening and Management. *Journal of the American Geriatrics Society*, 65(1), 207-211.