

The role of business intelligence in knowledge sharing: a Case Study at Al-Hikma Pharmaceutical Manufacturing Company

Samer Barakat^{1*} Hasan Ali Al-Zu'bi² Hanadi Al-Zegaier³

1. Management Information Systems Department, Applied Science University, Amman, Jordan
2. Business Administration Department, Applied Science University, Amman, Jordan
3. Management Information Systems Department, Applied Science University, Amman, Jordan

* E-mail of the corresponding author: sbarakat@asu.edu.jo

Abstract

This case study attempted to find the role of Business Intelligence (BI) in Knowledge Sharing at Al-Hikma Pharmaceutical Manufacturing Company in Jordan. A questionnaire was designed and distributed to the number of (75) employees. A number of (68) questionnaires were returned, (7) were rejected for incomplete responses and (61) responses (81 percent response rate) were applied in data analyses. The results indicates that the impact of Online Analytical Processing on the Knowledge Sharing is significant. It also indicated that there is some sort of impact of Data Mining on Knowledge Sharing. Additionally the results shows that there was a significant impact of Data Warehousing on Knowledge Sharing. The findings of the study indicates that the Business Intelligence tools that had a greatest impact on Knowledge Sharing are, respectively: Online Analytical Processing, Data Warehousing, and Data Mining.

Keywords: Business Intelligence, Knowledge Sharing, Pharmaceutical Industry.

1. Introduction

The world has transitioned during the past century from agricultural, industrial, and informational to knowledge economy. We are now living in a business intelligence (BI) economy where organization striving for survival as well as for achieving competitive advantage relies heavily on the use of business intelligence tools and techniques.

Business intelligence is the conversion of organizations resources to knowledge. It is the data mining and integration of information from corporate data warehouses to produce large amounts of information needed for effective decision making process and for planning strategically to achieve competitive advantage in its industry (Loshin, 2003).

Business intelligence tools and applications use databases, data warehouse, data marts external and internal to the organization in order to gather, analyze and generate meaningful knowledge used by the organizations management to perform short and long term strategic planning (Cook and Cook, 2000; Williams and Williams, 2006).

Organizations are becoming more and more familiar with the need to use business intelligence tools that shall enable them to stay alive in today's volatile business environment due to increased pressures generated for globalization and rapid advancements in communication and technology. Companies on time and preemptive response to environmental changes are the key to their success and future survival.

Knowledge management (KM) uses a number of tools and techniques to identify, create, present, disseminate, and enable the use of insights and experiences. Organizational knowledge is either embodied in its workers or embedded in the organization's processes and practices. (Buckman, 2004; Feng and Chen, 2007; Paiva and Goncalo, 2008)

Many researchers, economists, politicians and businessmen are referring to today's economy as "knowledge economy" reflecting a shift in trends for organizations from relying on information to make decisions to relying on knowledge as vital component for organizational survival and success. Knowledge economy as a term also implies that today's organizations has a continuing quest for knowledge that is needed in their daily operations. (Al-Zegaier and Barakat 2012)

Although it is information that is at the center stage of everyday activities at organizations, knowledge remains the ultimate goal for employees, top management and decision makers. This accumulation of information over time

becomes explicit and implicit knowledge stored in the learning organization. (Al-Zegaier and Barakat 2012)

The main objectives of this paper are to investigate business intelligence role in knowledge sharing activities at insurance companies in Jordan. There is a growing need for the use of business intelligence in capturing and sharing knowledge in organizations. Systems, applications and tools that gather and analyze information are already there to be used and utilized to achieve organizational success.

2. Literature Review

2.1 Business Intelligence

Business Intelligence covers several processes and technologies (data mining, data warehouse, and OLAP). Business Intelligence (BI) represents the tools and systems that play a vital role in knowledge sharing and dissemination at organizations. These systems allow a company to gather, store, access and analyze corporate data to aid in decision-making. (http://www.webopedia.com/TERM/B/Business_Intelligence.html)

Business intelligence tools are software tools that allow the retrieval, analysis and reporting of data. This widely set definition includes a wide variety of software tools ranging from spreadsheets, OLAP, visual analytics, querying tools, data mining, data warehousing, and decision making tools that help organizations management generate meaningful knowledge to perform short and long term strategic planning (Cook and Cook, 2000; Williams and Williams, 2006).

2.2 Knowledge Sharing

Knowledge sharing is the actual process of sharing knowledge (information, skills, and expertise) explicit or tacit and exchanging it among people, friends, members of a family of organization (Wikipedia). An organization has realized that knowledge is considered an extremely valuable resource which shall led them to achieving and sustaining competitive advantages.

Knowledge sharing activities are generally supported by knowledge management systems. However, technology constitutes only one of the many factors that affect the sharing of knowledge in organizations, such as organizational culture, trust, and incentives. Sharing of knowledge constitutes a major challenge in the field of knowledge management because some employees tend to resist sharing their knowledge with the rest of the organization. This requires employing the skills and techniques of knowledge engineers who help employees realize the importance of knowledge sharing within their organizations.

3. The Objectives of the Research

1. Investigate business intelligence tools used at Al-Hikma Pharmaceutical Manufacturing Company in Jordan.
2. Detect the positive impact of business intelligence tools in achieving knowledge sharing among employees.
3. Detect business intelligence tools influence on knowledge sharing between employees

4. Theoretical model

The model of this paper consists of two types of variables, the independent variable Business Intelligence Tools (Online Analytical Processing, Data Mining and Data Warehousing) and the dependent variable Knowledge Sharing as this is depicted in figure.

5. Research hypotheses

According to the findings of prior studies, and based on the theoretical framework, the following major and minor hypotheses might be formulated:

HO1: Business intelligence tools are not useful in the knowledge sharing process at Jordanian pharmaceutical companies

HO (1-a): there is no significant impact between online analytical processing and knowledge sharing

HO (1-b) there is no significant impact between data mining and knowledge sharing

HO (1-c) there is no significant impact between data warehousing and knowledge sharing

6. Research methodology

6.1 Data and Sample

To gather data for this study, a random sample of (75) employees were selected from the employees of Al Hikma Pharmaceuticals to answer the questionnaire, (68) questionnaires were returned, (7) were rejected for lack of full responses and (61) responses (81 percent response rate) were used in data analyses.

The questionnaire was personally handed to employees and full explanations were given all employee participating in the survey. After data analysis demographics showed that, (57.4%) of respondents were males, and the remaining (42.6%) were females of which (4.9%) were less than (25) years of age, (31.1%) were between the (25-30) age group, (32.8%) between the (31-35) age group, (18%) between the (36-40) age group, between the (11.5%) between the (41-45) age group and the remaining (1.6%) were above (45). Employees educational levels were respectively (26.3%) holders of Diploma's Degree, (52.5%) holders of Bachelor's Degree, (16.9%) holders of Master's Degree, and (4.9%) were holders of Doctorate Degree. Respondents experience in years (65.6%) possesses (1-5) years experience, (27.9%) possesses (6 - 10) experience, (6.6%) possesses (11 - 15) experience. See table (1). Employees sample were composed of administrators, technical staff and senior managers.

6.2 Measures

Business intelligence was measured using the knowledge sharing scale, The items include in this scale were based on Business Intelligence tools of Cody, W.F. et al. (2002) Hall, H. (2000) McKnight, W. (2003) Smith, M. (2002) Cook, C., Cook, M. (2000) Williams, S., Williams, N. (2006) namely, Online Analytical Processing, Data Mining, Data Warehousing. Knowledge Sharing was measured using the recently developed scale by Harryson (2002) Harrison (2002) Darroch (2003) Davenport & Prusak (2000) Skyrme (2002). Cronbach's alpha sample reliability scale shown in Table 2 shows a reasonable ($\alpha > 0.70$) level of reliability.

7. Results and Discussions

The strength of the impact of Business Intelligence was assessed using the respective statistical analysis summarized in Tables 3.

Results shows that the impact of Online Analytical Processing on Knowledge Sharing is significant. The results of the multiple regression shows that Online Analytical Processing has a beta of 0.276, t-value of 4.189 and a p-value of 0.000. These results proves that, the research's null hypothesis "there is no significant impact between online analytical processing and knowledge sharing" should be rejected.

The results shows that Al-Hikma employees perceives Online Analytical Processing as an important factor in knowledge sharing.

Data Mining encourages staff to share knowledge with each other in the Company. Regression result (beta= 0.256, t-value= 2.960, p-value= 0.006) indicates that the effect of Data Mining on Knowledge Sharing is significant at (0.05) level (p= 0.006). Result indicates that there is a positive relation between the two constructs. As a result hypothesis 1 - b is rejected.

Statistical results shows that the impact of Data Warehousing on Knowledge Sharing is significant at (0.05) level. Multiple regression result shows that Data Warehousing has a (beta= 0.264, p-value= 3.481, p= 0.001). The results prove that the null hypothesis "there is no significant effect of Data Warehousing on Knowledge Sharing" can be rejected.

This result indicates that employees of Al-Hikma Pharmaceutical Manufacturing Company perceived Data Warehousing as an important factor for Knowledge Sharing.

In general we can clearly propose that the research objectives has been achieved. Results indicates that Business intelligence tools at the Al-Hikma Company in Jordan are useful in Knowledge Sharing. It also became obvious that Business Intelligence tools has a positive impact on achieving Knowledge Sharing among employees. Additionally, the impact of Business Intelligence tools to achieve Knowledge Sharing is highly perceived among the employees of Al-Hikma Pharmaceutical Manufacturing Company in Jordan.

5. Conclusion

Based on previous studies related to business intelligence and knowledge sharing this research was envisioned. Multiple regression analysis shows that Online Analytical Processing, Data Mining, and Data Warehousing are significant tools that have influence on Knowledge Sharing among employees at Al-Hikma Pharmaceutical Company in Jordan.

The most important findings of this research shows that Business Intelligence tools has an impact on Knowledge Sharing, listed respectively by highest effect: Online Analytical Processing, Data Warehousing, and Data Mining.

The results of this research are invaluable for Jordanian organizations striving to achieve knowledge sharing among its employees. Knowledge sharing is playing a major role in today's organizations to achieve competitive advantage.

This research had its own limitations. We can overcome these limitations and improve our findings by increasing the sample size and including participants from other pharmaceutical companies. With an increased sample size, a more detailed empirical analysis among the independent variables and the variables that have multiple categories can be performed. Potential correlations between some of the independent variables (e.g. gender, Age, working experiences, educational level) need to be reported in a future study.

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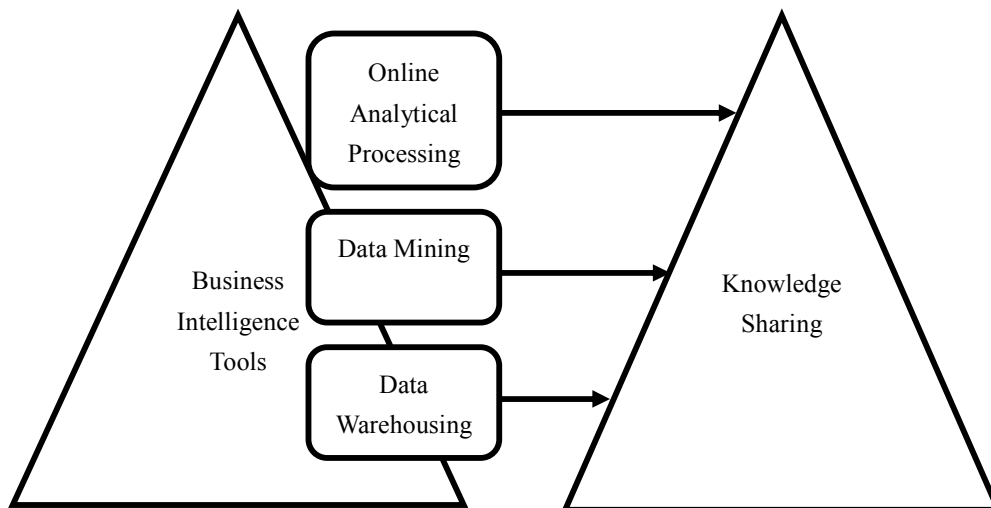


Fig. (1-1) The role of Business Intelligence in Knowledge Sharing

Table 1. Characteristics of the Sample (N=61)

Items	frequency	Percent
Gender:		
Male	35	57.4
Female	26	42.6
Age:		
Less than 25 year	3	4.9
25 – 30 Years	19	31.1
31 – 35 Years	30	32.8
36 – 40 Years	11	18.0
41 – 45 Years	7	11.5
46 Years and more	1	1.6
Educational Level:		
Diploma's Degree	16	26.2
Bachelor's Degree	32	52.5
Master's Degree	10	16.4
Doctorate Degree	3	4.9
Experience Years:		
1 -5 years	40	65.6
6 – 10 Years	17	27.9
11 – 15 Years	4	6.6
16 Years and more	0	0

Table 2. Reliability Analysis

Variables	Coefficient Alpha
Knowledge sharing	0.82
Online Analytical Processing	0.76
Data Mining	0.81

Table 3. Regression Analysis Results

Variables	Beta	t-value	p-value
Online Analytical Processing	0.276	4.189	0.000
Data Mining	0.256	2.960	0.006
Data Warehousing	0.264	3.481	0.001

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