Chapter 18

A Framework for Improving Knowledge Management Using Cloud-Based Business Intelligence: Bahrain Case Study

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ABSTRACT

Business environment is becoming more complex which creates a big pressure on organizations to increase the performance and decrease the budget and time. Typical management information system failed to reach decision makers’ expectations. In order to adapt to the global changes and support decision makers, organizations may implement different solutions and strategies. One of the solutions is to implement business intelligence (BI) in large organizations. The aim of this chapter is to assess the effectiveness of BI solutions and propose a solution for improving knowledge management using BI and cloud computing. A quantitative research method is used which includes survey and interviews. The results will be analyzed to evaluate the current BI solutions in order to identify the problems of knowledge management and decision-making process. Accordingly, a solution will be proposed to overcome the identified problem using cloud BI.

INTRODUCTION

Business Intelligence (BI) can be defined as a set of technologies and methodologies to gather, store, analyze, and provide access to data to help users make better business decisions. In other word, BI delivers valuable information at the right time to assist decision makers.

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BI environment has become very rich, it combines data warehousing, advanced analytic tools, advanced data cleansing tools, data mining tools and high hardware and software capabilities. BI provides real time view of data which includes customer database, sales and marketing data, personnel data, supply chain data and manufacturing data. It integrates all these types of data into a single framework which can be used for real time reporting, detailed analysis and forecasting.

According to many researchers, organizations are facing many challenges when using BI solutions. The following points are some of these challenges:

1. Skills shortage in creating and maintaining BI solution that enhance business value.
2. The need to reduce capital expenditure and operational cost.
3. The need for powerful hardware and machines to deal with generation of the large volume of data.
4. There are large volumes of data generated from different data resources like Enterprise Resource Planning (ERP) systems and Customer Relationship Management (CRM).
5. Implementation and maintenance cost of BI solution is high.

In the other hand, Cloud Computing is an emerging technology that has the concept of distributed resource management and utilization. NIST (National Institute of Standards and Technology) (Mell, and Grance, 2011) defined it as “Cloud Computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction”. Cloud Computing provides different computing services that range from organizations outsourcing entire information technology infrastructure to external service providers and data centers to user hosting personal files on the Internet. It composed of several characteristics that include (Mell, and Grance, 2011): On-demand self-service, broad network access, rapid elasticity, and measured service.

The organization under study (M) is responsible for enforcing law and order, and ensuring public safety in the Kingdom of Bahrain. M carries out this responsibility throughout main formations and general directorates including public security, civil defense, immigration, customs, coastguard, cyber-crime etc. To provide its various services to the citizens and residents of the country and the visiting foreigners, and to ensure prompt action on public requirements, M relies heavily on Information and Communication Technology (ICT). The heavy reliance on ICT for almost every service provided by M and the magnitude/volume and the critical nature of various services provided requires the Ministry to have a huge, dynamic and fast growing Information Technology (IT) environment. Furthermore, given the nature of the data stored and generated (highly confidential, being governmental, law and order information, personally identifiable information of all citizens etc.), the responsibility becomes tougher to ensure confidentiality is never lost and hence a whole new set of resources to be spent on creating and maintaining the information security technology and practice. Thus far M was able to manage the situation by ensuring sufficient investment in ICT and Information security.

At the same time, the organization M is concerned about the substantial time, energy, skill, effort, budget and other resources are spent on creating and maintaining and efficiently running IT environment to achieve its primary objectives.

At the present, there is no data center or data warehouse that combines all the data in order to perform the analytics and data mining tasks. Currently, Human Resources (HR) is the main source for information regarding employees and payroll. In addition, the entire project and their related data are handled by a