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## Integration of Business Intelligence and Enterprise Resource Planning within Organizations

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### Abstract

Organizations have invested a considerable amount of resources in the implementation of Enterprise Resource Planning (ERP) and Business Intelligence (BI) systems. In today's competitive environment within the context of complex BI and ERP, these systems have become key strategic tools, which directly impact on the success of any project implementation. But little attention has been given for the integration of Business Intelligence and Enterprise Resource Planning (BIERP). A hand full of studies were carried out in the developed countries while developing countries received much less attention. Despite the effort has been devoted to explain the integration of these systems, the literature is still classified as fragmented and diversified. This paper attempts to review and evaluate articles published between 2000 and 2012 regarding the integration of BI and ERP.

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*Keywords:* Enterprise resource planning, business intelligence, integration ;

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### 1. Introduction

In today's competitive economy within the context of complex Business Intelligence (BI) and enterprise resource planning (ERP) became a key strategic tool, which has a direct impact on the success of any project. Recently, ERP applications have transformed organizations by improving financial visibility, supply chain operations, and minimized human resource processes and overhead [1]. In today's challenging business environment, BI is a technique and solution that helps managers to understand business situation.

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The most current information technology is to gather together all needed data from the ERP system and then load them into a data warehouse, and then link to BI tools (such as OLAP, data mining, query and reporting).

ERP with the collaboration of BI is expected to be more competitive and flexible in order to share information and data for decision making and control [2]. Therefore, for success in the ERP, the organization must have and shared knowledge on many different manifestations around the process of BI since the importance of BI ERP partners has been commonly recognized [3]. This paper reviews the integrating ERP and BI systems and how they work together to enhance organizational performance. This paper first explores the obstacles facing ERP systems and their needs for integration with BI. The next section provides previous research on BIERP integration. The final conclusion is provided in the last section.

ERP is a software-driven business management system that integrates all facets of the business, including planning, manufacturing, sales, and marketing [1]. [4] mentioned that business Intelligence is a concept of using information technology as a tool for achieving the competitiveness of businesses, the perception of risk that occurs in the environment within the firm, and the possibility of action.

Unfortunately, many executives underestimate the commitment they and their organizations need to make to ensure successful implementation and usage of BIERP [5]. The fact is that most of the project's success or failure is depending on how these businesses do implement the software, not the software vendor or the tool itself.

[6] mentioned that BI is a term introduced by Howard Dresner of Gartner Group in 1989 as a tool that represents a set of concepts and methods originated to enhance decision-making in business through knowledge utilization and systems usages. Business intelligence is a process of leveraging customer information to enhance corporate behaviours and improve relationship with current and target customers for enhanced profitability and competitive advantage. As companies expand their web of customers, they use BI to further mine the customer relationships. BI helps in consolidating, analysing and providing vast amounts of data for business decision-making [7].

Businesses recognize the wealth of information within ERP systems. The challenge lies in the ways of mining these systems. Since ERP systems were not originally designed to provide real-time reports to massive users, the entire system could not facilitate the decision support function [1]. Within the context of ERP, BI is the process of leveraging detailed customer behaviour information to best manage relationships for maximum customer satisfaction, loyalty, retention and profitability [8]. Thus, a key component of this BI strategy is a data management infrastructure that enables companies to recognize in real-time the changes in a customer's behaviour that signal when there is a high probability that the customer will respond positively to an offer [9].

Most businesses have a solid market research capability that helps them understand their customers' needs and expectations. However, knowing customers is not enough. Companies must also know their competitive environment [10]. The market place makes use of application packages which are growing rapidly across all business areas, especially in BI and ERP systems. This growth is occurring not only for application packages that handle business transaction processing, but also for packaged solutions that support business BI and data warehousing [11].

## **2. Key terms definitions**

### *2.1. Business Intelligence*

BI defined as systems which collect, transform, and present structured data from multiple sources [12]. BI systems are accounted for the potential to shorten the time to obtain relevant information and enable efficient utilization [13].

### *2.2. Enterprise Resource Planning*

ERP system defined as an enterprise-wide set of management tools that balances demand and supply, containing the ability to link customers and suppliers into a complete supply chain, employing proven business processes for decision making and providing high degrees of cross-functional integration among sales, marketing, manufacturing, operations, logistics, purchasing, finance, new product development and human resources, thereby enabling people

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