



BioTechnology

An Indian Journal

FULL PAPER

BTALJ, 10(6), 2014 [1666-1671]

Research on BPM-BI framework

Tian Xin^{1*}, Dai Wei²

School of Economics and Management, Hubei Polytechnic University, Huangshi, 435003, Hubei, (P.R.CHINA)

E-mail : 425079304@qq.com

ABSTRACT

More and more BPM frameworks are bringing in the balanced scorecard, digital dashboards and other management tools in IT era, to evaluate enterprise performance, monitor of enterprise business operational status real-time, and ensure successful strategic implement. The purpose of this article is to present the composition and potential value of the BPM-BI framework for enterprises. First, this article introduces the background of the BPM, the relationship between BPM and BI. Secondly, describes the framework of BPM system based on business intelligence platform, discusses the BI technological tools and BPM method in the business performance management system, revealing the strategy implementation of BPM system function from the perspective of information resources integration. © 2014 Trade Science Inc. - INDIA

KEYWORDS

Business performance management (BPM);
BPM-BI framework.

INTRODUCTION

With the globalization of economy development, customer demand diversity and individuation, information changed more frequently, competition scale and intensity will grow increasingly. The analysis based on the historical data to help enterprise undertakes decision support cannot meet the needs of users. The successful execution of business strategy is a well-recognized requirement for an organization's survival in the hyper-competitive marketplace. Early in 2004, Matteo Golfarelli argued in his "Beyond data warehousing: what's next in business intelligence?" that BPM will become a new generation of BI technology application (Matteo Golfarelli, Stefano Rizzi, Iuris Cella, 2004)^[1]. Business Performance Management (BPM) enables an organization to effectively monitor, control, and man-

age the implementation of strategic initiatives. (Mark n Frolick 2006)^[2]. The purpose of this paper is to make businesses learn new generation of BPM-BI framework, its composition and potential value, revealing the function of the strategy implementation in business performance management system, mainly from the perspective of information resources integration.

BPM background

The traditional performance management looked upon financial index as the theme, paying attention to the goal of enterprises' assessment systems and the staff the performance evaluation after the event. Only limited information is provided in the old performance evaluation system, such as financial statements reflecting incomprehensive. On the one hand, the information only reflected the past achievements, which cannot make right evaluation on the prospects and the profitability of

the enterprises. On the other hand, the information reflected only the result and not able to mine the driving factors that cause results timely. It is more important that there is no real-time monitoring and analysis about KPI, and the organization's strategic goals is not integrated with the operation management system.

Hyperion (Oracle), the first to launch early enterprise performance management software in the world, developed financial management system mainly. By 1990, business intelligence improved with the computer technologies. Customer relationship management also developed. Advanced management techniques combined with IT gave rise to an integrated methodology known as business performance management (BPM), which is a holistic approach in strategic planning. The concept of BPM was introduced in 2001 by Gartner^[3]. Business performance management (BPM) is also known as Corporate Performance Management (CPM), or Enterprise performance management (EPM).

According to Gartner, Business performance management (BPM) includes processes such as strategy formulation, budgeting and forecasting, performance methodologies, and metrics to measure the performance goals^[4]. From numerous practice experiences, it contains automation, business analysis methodology, process system framework, which is designed to help managers accurately mastering internal operation of real condition and promoting enterprise performance.

BI and BPM

The worldwide market for business intelligence (BI) software is forecast to grow 9.7 percent to reach US\$10.8 billion in 2011, according to Gartner's latest enterprise software forecast^[4]. Business intelligence BI involves enterprise customers, competition environment, competitors, partners and enterprise internal business knowledge, the main function is to improve the timeliness and quality decision-making process. BI system includes some IT application systems and tools, support enterprise internal and external business intelligence. Business intelligence system strategy and competitive opportunities include enterprise performance management, optimizing customer relationship, monitoring business activities and traditional decision support functions, guarantee at the right time and the right place, by the appropriate forms of management decision makers of-

fer action information and knowledge^[5]. At present, business intelligence has become a strategic measure. It is recognized as innovative tools by Chief information officer (CIO) and enterprise leaders.

Business performance management is a specific application mode of BI technology in the information age^[6]. Business performance management is the specific application domain of BI business. BI technology is the base of BPM technology. Business performance management is the senior BI application, let users deeply foresee the future management of the enterprise, formulate correct direction of the strategy. Enterprise management strategy implementation will integrate the total performance management, that is to say, each worker in the enterprise will have the right to use suitable BI for their responsibility and performance management. Business objectives are unfolded top-down, while Enterprise performance being guaranteed bottom-up, layer upon layer, ensures enterprise strategic target realization.

BPM-BI FRAMEWORK DESIGN

BPM-BI Framework based on BI platform is a new-generation frame that enables holistic and pervasive operational performance management. At the core of any Business Intelligence solution, a flexible and scalable platform is required in order to discover and share insight for optimal decision-making. Figure 1 shows the BPM-BI framework. The frame is based on agile Information solutions WebFOCUS BI form Information Builders^[7]. The frame provides an overall performance management that can be divided into three levels: Information integration layer, analyses the application layer and performance management layer. The BI platform provides an enterprise-wide information infrastructure that allows your organization to make every person, process, and decision more intelligent, and it closes the loop between information and action.

Information integration layer

Information integration

The bottom layer in the framework links four parts: data resource, platform framework and technical support, dynamic data warehouse and rule library, the model base, knowledge base. Multiple sources of data are

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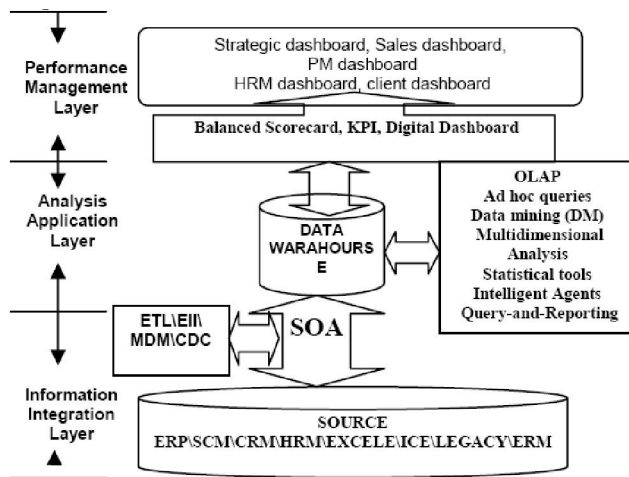


Figure 1 : BPM-BI Framework based on BI Platform

mainly involved in real-time business database: operational database, Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Supply Chain Management (SCM), Internet and other databases.

In addition, comprehensive performance management based on BI need integrate extensive information sources, such as the data of Integrated Collaboration Environment (ICE), the data of Enterprise Risk Management (ERM) as well as traditional data resources (WORD, EXCEL, FDP, BPM, and Database). BI platform integration technology tools include Service Oriented Architecture (SOA), extraction, transformation, and loading (ETL), Metadata Management (MDM), change data capture (CDC) technologies, etc.

SOA architecture

The BPM-BI platform integrate many different operating systems, different data sources from distinct development platforms, see Figure 4. The SOA focus on using basic resources, enhances the system stability and maintainability; optimizes business process, accelerate system operation and response speed; Simplified interface and difficulty of system integration. Different development platform for packaging module can be unified standard in the service, can be repeated loads and reduce development costs. Thus meet the seamless sharing and exchange data demand among E-Commerce, ERP, CRM, SCM, OA, database, data warehouse, and other important system.

Integration technology

“Everything should work together”. In order to re-

alize the agile and real-time information service, BPM-BI platform integrate all core technologies of BI. The traditional BI technology includes data warehouse and data marts, metadata and metadata management (MDM), etc. when we face various themes application and heterogeneous databases. we also need to make data extraction (E), data transformation (T), data cleaning (C) and data load (L). Because business decisions require more real-time information, especially from the business system of information, generating enterprise integrated information technology EII. But, in the face of huge amounts of information EII and when the two technologies have ETL might affect the speed of data extraction, real-time ETL+ change data capture (CDC) technology adoption, and can make up the existing data integration solutions speed delay.

Analysis application layer

This layer adopts the base analytical tools in BI system application. They are online analytical processing (OLAP), Data mining (DM) and Ad hoc queries. Data mining tool includes Multidimensional Analysis tools, Statistical tools, Intelligent Agents, Query-and-Reporting tools^[8].

Powerful analysis application layer is an important guarantee for the achievement of intelligence in BPM-BI platform architecture, it can not only find knowledge form all kinds of information resources in internal and external, also monitoring control performance management information index, and at the same time, provide exception tracing business process and warning report information of the strategic implementation retroactively. For example, the BPM should have exception analysis function. We use user-defined to set up some critical threshold of Key Performance Indicators. Once any performance problems emerged, up to alert threshold, the system will automatically analysis and compare, mine the possible causes, and timely warning, inform the related responsible take measures to adjust.

Performance management layer

Enterprise performance management layer adopts the advanced BI technology to implement BPM method system. In this layer, one of the main BI technologies is a digital dashboard. The important performance management method includes the balanced scorecard, key performance index, the Six Sigma, etc.

Since the founding of the balanced scorecard, it was soon attracted strong interest from the theorists and business circles, particularly in the United States and Europe. The balanced scorecard was voted one of the most influential management tools by the Harvard Business Review within 75 years. In 1993, Kaplan and his partner David Norton published “the balanced scorecard: drive performance evaluation indicators” that marked the birth of the balanced scorecard^[9]. The main idea of this method is: the balance of enterprise development is a systematic process, not just the pursuit of profit, but the subject providing the values to customers, shareholders, employees, communities and social, the pursuit the four dimensional balance of financial, customer, internal processes, and organizational learning and growth is the fundamental of enterprise existence and development^[10].

Balanced scorecard + KPI

KPI' collection and measure is an important step in constructing balanced scorecard. KPI system is basics of the performance management, organizational design and the strategy management^[11].

Problems

The road is not smooth when BSC running in enterprises. In practice, it is a very useful tool, but not an “easy-to-use” one. During the compilation and implementation, large amounts of KPI' acquisition and analysis is involved in. it is a complicated process, usually assisted by the management software to implement; When organizational strategy or structure change, the Balanced Scorecard shall readjust. At the same time, it takes a lot of time and resources to maintain the balanced scorecard real-time updating and effective.

Solution

The performance management based on BPM-BI platform supported by BI technology solves difficulty problems of BSC+KPI implementation. It is convenient to capture KPI data in department of sales, purchase, manufacture, and financial. Here, scorecard is an application or user interface, real-time understand performance of the organization, manage, optimize and adjust business process. At the same time, provide standard of internal in the industry, make workers know their contributions on strategy management goal.

Digital dashboards

Digital dashboard is important component of Business Performance Management (BPM). Dashboard is a graphic display tool, use instrument, the traffic lights and illustrations etc form display data information. Like car dashboard, have scale, pointer. It makes information more intuitive performance, be suitable for information exchange and share. Dashboard also has some basic control knob, allowing users to customize. Many software vendors have developed strategic dashboard, sales dashboard, project management dashboard, human resource management dashboard, custom management dashboard that are widely used in the enterprises.

KPIs performance adjustment, dashboard provides feedback, coordination and monitoring and other functions, help enterprise using information analysis to achieve goals.(see Figure 2)

The so-called “performance management dashboards” usually refers to the dashboards contained the balanced scorecard's KPI, put BPM as the center. Through integration the enterprise application, it solves the barriers among departments; A wider “performance management dashboards” will unite the supply chain enterprise, provide outside dashboards, share data and KPI, make enterprises execute their joint strategies more effectively. According to extranet dashboards, Gartner has pointed out that between enterprises, successful collaborations “must involve the joint definition of metrics, which reinforces win-win relationships”^[12].



Figure 2 : Information builders dashboard

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THE ANALYSIS AND CONCLUSION

The analysis

BPM eliminates the gap problem between the enterprise strategy and strategic execution, its purpose is that everyone works in the same direction of the company. In fact, BPM is not a slogan, or a technology, it is a kind of enterprise management practices, monitors accurate information for the enterprise management practice.

Business intelligence technology is the technical foundation of BPM, which analyzes the enterprise data coming from various applications, helps managers to know the current situation of the enterprise, thus supporting user decisions. BPM is advanced application of business intelligence, lets managers into foresee the direction of the future, make correct strategies.

The implementation of the enterprise strategy will integrate the whole employee performance management, that is, each worker in the enterprise management at all levels will have the right to use performance management based on BI for their job. Although the BPM is information system with the basis of variety of methods, but a BPM solution will be truly effective only into the BI system. The role of BI is the vital key. BPM represents BI strategic plan for the enterprise. BI application as a part of the enterprise strategy can provide enterprises effectively embedding BPM environment.

In the BPM-BI framework, the organization can make use of existing infrastructure and technologies fully, realize direct connection between the basic operation data sources and data warehouse (or market). This means that IT needs to have access to multiple data sources, multiple application and integration ability. You also need to a common data model, role in the enterprise data sources, which has the defined functions for the complex metadata, provides the metadata consistency feature and KPI defined functions.

The conclusion

The digital dashboard in BPM-BI framework with adjustment, visualization and collaboration, that provide a comprehensive, single data view, compatible with different systems, across different departments, enterprises, cross-regional operation management and co-

operation. By providing key performance indicators (KPI), or provide joint decision making, we can share knowledge;

BPM is the core of management activities of enterprises, and plays an important role for strategic objectives. As a management thought or a methods system, its fundamental purpose is constantly promote the staff development and organizational performance improvement, realizes the enterprise strategic targets and annual plan. The BPM-BI framework apply BI technology tools, integrate internal and external resources, combine with a balanced scorecard, and reveal the implementation tactics of BPM system functions and its potential value.

ACKNOWLEDGMENT

This study has been financially supported by Humanities and Social Science Youth Fund Project of Ministry of Education (No.13YJJCZH028); the Ministry of Education humanities and social science research base major projects (NO.08JJD870225); Humanities and social science research project of Hubei province (NO.2011jyte079)

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