BUSINESS INTELLIGENCE SOFTWARE AS INSTRUMENT TO INCREASE LEVEL OF ERP SUCCESS

Mohammad Okki Hardian  
"Lecturer in Industrial Engineering Department, Gunadarma University, Jakarta
Universitas Gunadarma
Jl. Margonda Raya 100, Depok
Email: okki_hardian@lycos.com

ABSTRACT

Surveys have shown that many companies adopting Enterprise Resource Planning (ERP) resulted in little success. In order to raise the level of ERP success, one of the proposed solutions is to adopt Business Intelligence Software (BI). In order to achieve more success from ERP system, BI has to be functioned as executive information system to assist top-level management in making strategic decision. There is trivial trouble in integrating BI into ERP system, and having a single integrated database is the key toward the successful adoption of BI.

Keywords: Business Intelligence, ERP

INTRODUCTION

There are six categories of information system success [1]:
1. System quality
2. Information quality
3. Use
4. User satisfaction
5. Individual impact
6. Organizational impact

Arguably there is no information system that is more widely criticized for its lack of success than Enterprise Resource Planning (ERP). The promise of high benefit had persuaded most of Indonesia’s biggest manufacturing company to implement ERP. But the size and complexity of implementing ERP often becomes obstacle in achieving any kind of success [3].

A survey conducted by Meta Group toward 63 companies implementing Enterprise Resource Planning (ERP) provides result [5]:
- 30% (19 companies) do not use the ERP system;
- 45% (28 companies) use system used partially;
- 25% (16 companies) fully use the ERP system.

A separate survey conducted by leading ERP consultant Dr. Scott Hamilton comes up with approximate numbers [2]:
- Only 10% of companies adopting ERP are formally using the system effectively to run the entire company, called Class A User.
- 40% of the companies using ERP system to run the entire company but only partially effective, called Class B User.
- 40% of the companies using formal ERP system in part of the company, called Class C User.
- The rest 10% -called Class D User- the formal ERP system is not used at all.

Whilst at recent time no similar study can be found in Indonesia, it is sensible to assume that the fact is unaltered than in other countries. It is evident that with the investment ranging from US$700,000 to over US$3 million each implementation [5], something had to be done in order to raise the level of ERP success in Indonesia.

One of the proposed solutions to the problem is for the company to adopt another form of information system, Business Intelligence Software (BI). BI independently is a form of Executive Decision Making Tool. It is widely popular in advanced countries, and companies in Indonesia immediate response to the trend. The recent report could provide some insight. According to Gartner Research, BI market in Indonesia is projected to reach US$1.7 million, up 60.4% from US$400,000 figure in 2004 [7].

The problem involving the relationship between BI and the level of success of ERP implementation can be summarizes with questions such as:

a. What is the logic between implementing
BI and gaining more I/S success out of ERP system?
b. What capabilities of BI that can be used to improve ERP system?
c. Is it possible to integrate BI into ERP system without any trouble?
d. What are the prerequisites of having a successful integration of BI into existing I/S system?

OBJECTIVES AND METHOD

This paper has the objectives of giving explanation about:
1. The advantages of using Business Intelligence Software as add-ons to ERP system.
2. Platform architecture of Business Intelligence Software, completed with its integration process to ERP system.

The method in use is empirical study followed by a case study as supporting matter.
- ERP applications used as object of study are SAP R/3 (core modules only) and VISUAL Enterprise
- BI used as object of study is Pentaho Open BI Suite
- While the case study took place in one of Indonesia retail bank.

3. DISCUSSION

Overall, ERP packages have already installed most of the features that are included in Business Intelligence Software. There are more features available that are comparable to BI’s in SAP R/3 compared to Visual Enterprise. But the major differences between ERP and BI are:
- BI features are easier to access
- BI display and serve the information in an easier form to understand.

The two keywords, access and easy-to-understand mark up for the usability of BI, in the eye of company’s decision maker. Decision makers don’t necessarily want to tangle with operational and detailed data. They tend to focus their attention to summary and general data, preferably in tables or charts form.

While ERP still be able to provide a summary, its power lies in the detailing and sophistication of operational data, product routing for example. Bringing up summary still requires additional clicking and typing. This is where BI is most useful to the clients.

Other note that should be taken to account is that several ERP vendors, including SAP and Oracle, bundle a BI-like module to their product. If company implements SAP R/3 comprehensively (not just core modules), they will receive module called SAP SEM (Strategic Enterprise Management) which function as BI [4]. The undermining factor of using SAP SEM is that implementing an R/3 module cost more than adopting other BI.

The capabilities of BI vis a vis ERP application is detailed in section 3.1 below.

Business Intelligence Software Capabilities

In general, BI is a computer application designed to access and analyzes organization data, especially in assistance to decision making process. BI is often used by executives or Board of Director as a tool in decision making. Therefore, the logic is reasonable as described below:
- By integrating BI with ERP, executives and Board of Director will be linked to ERP system. Consequently a top-down approach to the information system environment is created.
- If executives can’t get the information required out of BI, executives will force employees to improve system quality, information quality and the use of ERP.
- More use of ERP means better user satisfaction. User satisfaction makes possible for individual impact.
- Better information quality leads to better information supplied by BI. Better information leads to better decision by executives.
- Better business decision leads to better organizational impact.

Executives and BOD utilizes BI in many ways. Among BI regular utilizations are to [6]:
- Map customer profile
- Conducting market research
- Performing market segmentation
Implementing Activity Based Costing and Management (ABC&M)

Conducting statistical analysis on company performance.

Theoretically, the advantages that BI has compared to ERP are:

1. Reporting
   Mainly this is the features in BI that get regular use. Although every modules and functions in ERP provide revisable report form of some kind, there are certain limitations.
   BI offers rich, comprehensive and user friendly reporting features.

2. Multidimensional Analysis
   Beside its ability to perform statistical data analysis with various techniques, BI also equipped with forecasting ability. BI is also valuable in performing pivotal analysis, i.e. by product, by market segment, by area, etc. Strategic decision can be made based on the result of such analysis. ERP — especially SAP R/3 — also equipped with similar capabilities, but BI excelled in term of easy access.

3. Dashboard
   If a particular client has knowledge of his/her Key Performance Indicator(s) (KPIs), then the client can make analysis of KPI using BI. The client would be able to monitor KPI through the computer. In performing this feature, BI functions like a dashboard in a car. The feature can also be treated as a scorecard, if client monitors KPI regularly.
   SAP R/3 also offers the scoreboard menu, but fall short in performing dashboard function.

4. Data Mining
   Another big advantage of BI is in data mining. Data mining means to dig more information out of already available data. BI provides features to find cause of an effect, such as sales decline, related to certain data or statistic. Once again, although provide similar menu, SAP R/3 and VISUAL lack in accessibility and presentation.

5. Personalization
   The most important factor that determines the advantage in installing BI is its ability to be customized by user. Each user or client may design their interface to only contain the information that he/she wants, therefore the information become personalize and more valuable.

Platform Architecture of BI Software

Business Intelligence (BI) Software has client/server configuration. Likewise, ERP also has client/server configuration. Typically platform architecture of BI can be described as follows:

- As with ERP, BI is using single database system.
- Clients or users interact with interface program (API or UI), which functions as command collector.
- The design of the interface program is adjusted to the requirements of each particular user. API (Application Programming Interface) and UI (User Interface) can be fully customized so that the information displayed on output layer is really corresponding to the needs of each user.
- The command collected by interface program then transferred to the server to be processed in Application Engine (Solution and/or Runtime).
- To complete a task, Application Engine calls the data required from the database. Before being processed, the data are pooled in the repository.
- BI also has features to extract information from system outside BI or third party data; hence it is possible to build a link or integration with ERP system.

The platform architecture of BI can be described in the form of diagram shown in Figure 1 below.
Upon studying Figure 1, ERP will take position as external engine. Logically, the connection between ERP and BI is mutually symbiotic.

- At one end: ERP supplies data for BI increase the reliability of BI analysis and scalabilities of other features as well.
- At the other end: BI interprets data produced by ERP into meaningful and valuable information in the eye of the decision maker, therefore increasing the use of ERP system itself.

**Data and Application Integration**

Basically, there are three ways to integrate BI with ERP system or other form of legacy information system. They are:

1. **Extract Transfer Loading (ETL)**
   Several BI vendors provide ETL facility to extract data from third party applications. ETL than standardized the data format and sequence according to BI requirement. The weakness of this method is the data have to be historical, not real time.

2. **Executive Information Integration (EII)**
   Several BI also equipped with built-in EII. In case built-in EII is absent, company can also create an API connector in the form of separate software to bridge and link BI component to ERP module or function.

3. **Common Metadata**
   Widely popular recently, integrating BI and ERP can be done by taking advantage of same data format and sequence for many interests. The data is designed and configured in such a way to create a condition where the data is readable by all application in the system. The method is also called Service-Oriented Architecture (SOA).

The data and application integration process of BI to ERP or other information system is described in Figure 2 below.
The difficulty in integrating BI and ERP is practically minimal. The advancement of integration tools, especially the inception of SOA, provides much help in dealing with the problem.

Case Study: ABC Bank

ABC Bank is one of Indonesia’s fastest growing retail bank in the past five years. One of the key factors in contributing to ABC Bank’s recent success is the acquisition of majority of share to Singapore leading bank, in early 2006. ABC Bank Head Office moved from Bandung to Jakarta in order to achieve target to become a national bank by 2010.

In November 2006, ABC Bank successfully launched their new information system, Misys Opics Plus and Misys Trade Innovation. The application vendor is Misys Banking System, a specialist in banking industry application. The capabilities of the new information system are to execute:

- Transaction management from front to back office
- Asset and treasury management
- Workflow management
- Business planning
- International banking activity

Misys system is integrated with ABC Bank core banking system, ensuring real-time and integrated operational data throughout branches.

After about six months of going live with Misys system, in April 2007 ABC Bank decided to launch another IS project. They decided to acquire Business Intelligence Software from SAS, called Business Intelligence/Enterprise Intelligence Platform (EIP). System from SAS will be integrated in the same platform with Misys and core banking system. These multiple integration will result in multidimensional database, but still preserving real-time and integrated operational data throughout branches.

The multidimensional database can be shown by a star schema, as depicted in Figure 3 below.

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The desired improvement from implementing SAS EIP is in providing ABC Bank with:
- Risk Management System
- Enterprise Financial Management
- Customer intelligence
- Forecasting analysis and business simulation

All functions are useful as a tool in strategic decision making process.

The users or clients of SAS EIP will be ABC Bank executives and top-level management, so in reality SAP EIP will act as Enterprise Executive Information System.

The reasons behind the selection of SAS EIP according to one of ABC Bank executive are [8]:
- Brand image of SAS as one of BI leading vendor
- Scalability
- Comprehensiveness
- Reasonable price

The adoption of SAS EIP also offer evidence that existing information system in ABC Bank is insufficient in providing information needed for top-level management in strategic decision making process.

CONCLUSIONS

The conclusions that can be underline from this discussion are:

a. There are a lot of companies implementing ERP that have not enjoyed success. Action need to be taken to improve the situation and save bulk investment installed.

b. BI best act as executive information system to create a top down approach to ERP system environment. Top-down approach means executives can force ERP clients to make better use of the formal system.

c. Better use of ERP formal system will resulting in better information quality supplied by BI to assist executives in making strategic decision.

d. The main capabilities of BI that can be utilizes as an advantage to ERP are its accessibility and user-friendly presentation.

e. There is trivial trouble in integrating BI into ERP system, especially with the progress of Service-Oriented Architecture (SOA) recently.

f. Having a consistent direction toward single integrated database is the key toward the successful adoption of BI into ERP system.

g. Further study should be conducted to support companies in order to get optimal return out of ERP investment. Otherwise there is an immense risk of having ERP as nothing more than data system, rather than information system.

REFERENCES


