

Power of Business Intelligence for SVBC



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Abstract

In this report, we look into the problems of SVBC¹ which is a leading shipping transportation enterprise. SVBC provides container transportation and logistics services in more than 80 countries around the globe.

Despite of its success, there exist two major problems. One is the complex business environment within the company which causes inefficient performance. The other problem is that there is no standard form of data in the company which in turn cripples managers' capability to analyse it. The enormous amount of data within SVBC makes this problem even worse. We explore the above problems and give our suggestions in the rest of the report.

The system recommended is Business Intelligence (BI) which is realized by Business Objects. BI allows users to access, integrate, transform, and deliver enterprise data from any resource for reporting, query and analysis, analytic application and performance management (Biere, 2003). In our opinion, SVBC can get much more value from existing information and run the business more efficiently by applying Business Intelligence system.

However, through the research, we have found that there are still limitations toward the implementation of the Business Intelligence (BI) system. A stable "electronic-enabled business environment" is required for optimal BI's performance. Technology immaturity also limits BI compatibility in implementation. These limitations should be handled with care otherwise they would cause collateral negative impacts on business performance.

¹ SVBC is a fictitious company based on existing APL and Wallenius Wilhelmsen (W&W) enterprises which are leading shipping transportation enterprises in the world. All SVBC business situations are derived from them (APL, 2004) (W&W, 2004).

I. Introduction

Business Situation

SVBC has a history of more than 150 years and has hired approximately 12,000 employees worldwide. SVBC's primary business task is to deal with shipping instructions, book the shipping instructions, arrange the space on board and deploy containers for both importers and exporters.

SVBC has built up loyal relationships with a great number of companies, including Wal-Mart, IKEA, SONY, FORD, NIKE etc., and the account base is still expanding. SVBC's service is available to and from North, South and West Asia, the Americas, Europe, the Middle East, East and Sub-Saharan Africa and Australia.

With the increasing volume of business, its worldwide transportation network and leading position in the ocean transportation industry have helped to build an enormous profit, which guarantees steady revenues. However, those steady increasing business opportunities bring problems to the company's operation process.

Business Problems

Generally, there is mainly two problems confronted by SVBC management for the last decade:

- 1. Complex business environment:** due to the tremendous size of the SVBC and the complicated business environment, SVBC performance has become inefficient.

2. Enormous and unstandardized data: with the expansion of SVBC's business, the amount of data and information gathered daily become enormous. Especially, SVBC is a global enterprise; which makes it even worse. Managers have to spend more time to extract particular information. Hence, it cripples managers' capability in producing right and timely decisions. Furthermore, since there is no standard data representation, the information that finally obtained by decision makers might have been garbled during the transition.

Complex business environment

SVBC's large operation scale turns out to be a double-edge sword. While it able to gain more profit from the economies of scale, it also forced SVBC to confront to a complicated business environment. For instance, it is arduous for the people working in different departments to communicate with each other and acquire the relevant information.

SVBC has six frames of basic transactions in its business system: booking (shipping instruction) input, routing/service inquiry, freight rate inquiry, Bill of Lading issue, operation deployment and finance system for account payable and receivable.

The six frames are segregated, people work in different departments have different authorities to access different transaction. Such as, customer service representatives should not have authority to access the transaction of freight rate filing because it is the core strategy of a company, which can only be accessed by salespeople or managers, likewise this kind of information cannot be exposed to the competitors either.

This situation turns to be a major barrier to the efficient coordination among the different departments. From the business side, it may affect the service to SVBC customers. For example, a new customer calls in directly to customer service representatives to inquire the service, equipment availability and the freight rate, which are the most critical questions. In the mean time, customer service representatives have no authority to access the freight rate checking transaction; what they can do is only to transfer the call to sales representatives. Unfortunately, Sales representatives often are not available to stay in office all the time because they are supposed to do their sales calls during the work hour, so our customers often need to call them on their mobile phone! This circumstance obviously consumes a lot of cost and, in the end, will harm the company's performance.

Therefore, SVBC needs an integrated tool within the company that can analyze overall business situation, and in turn delivers clear pictures to managers on how the business is going on. Managers then can overview and, in the end, can deliver better improvement to SVBC's business.

Enormous and unstandardized data

According to shipping transportation industry, the fundamental data that managers need to collect periodically would be: the shipping volume, the monthly shipping schedule, the top 10 and bottom 10 importers and exporters, the new service/withdraw service and our competitors' improvement. The problem is, managers often unable to obtain these data immediately.

Usually, this can happen because the data needed is scattered all around the place. Much time is needed just to collect and sort the data and this situation seldom slows

down managers' performance. To make matter even worse, the volume of SVBC daily data processing also increase dramatically due to the global business expansion. Without an integrated system in all of the function departments, managers can hardly retrieve the overall information.

Another problem with information analysis is globalization. Globalization makes the collected data is often not standardized. Different currencies, different languages and different traditions disable managers' ability to analyze the data.

All these problems affect managers' capability to produce right decision efficiently. Imagine how many barriers are brought to the company if this incapability affects other business processes.

Therefore, SVBC needs support from a global standardized system, which includes a standard data acquisition for their service, equipment, freight rate and customers' profile in any location of SVBC office in the world.

Solution for the problems

For the problems we addressed above, the research leads us to the technology of Business Intelligence (BI). We consider BI as a solution for SVBC because of its capability of providing tools to help decision-makers analyze and standardize their business environment. As our research went further, we conclude that Business Objects Solution (BOS) is the best BI system as it is not only fixing the existing problem, but also may create more potential benefits for SVBC.

II. Business Intelligence

Nowadays, definition of business intelligence (BI) has been used in many different areas with many different interpretations. In a brief, we will use statement from Ben Gilad for a simple description. BI is a system to help managers make a better decision on time (Gilad, 1996). BI is designed to retrieve particular information asked by users in the company's extensive database and then display that information with a model or presentation. From this model, managers should have a clear picture about what is going on within the company. Thus, manager will deliver better decision from it.

Data warehouse

Before we talk more about BI, one term that will be commonly used in this report is data warehouse. Essentially, data warehouse is a **logically** consolidated store of data drawn from one or more sources within the company and/or outside the company (Simon, 2001). While most data warehouses are currently implemented in a single database instance, it will become increasingly common to find larger complex store of data are implemented across multiple databases that are logically related to one another. This situation is called data warehousing environment (Simon, 2001).

How BI works

In order to make BI deliver good analysis, BI needs whole information from the company. Company usually has all its information scattered around the place. Therefore,

three steps need to be done before BI is able to deliver appropriate reports (Simon, 2001).

See figure 1.

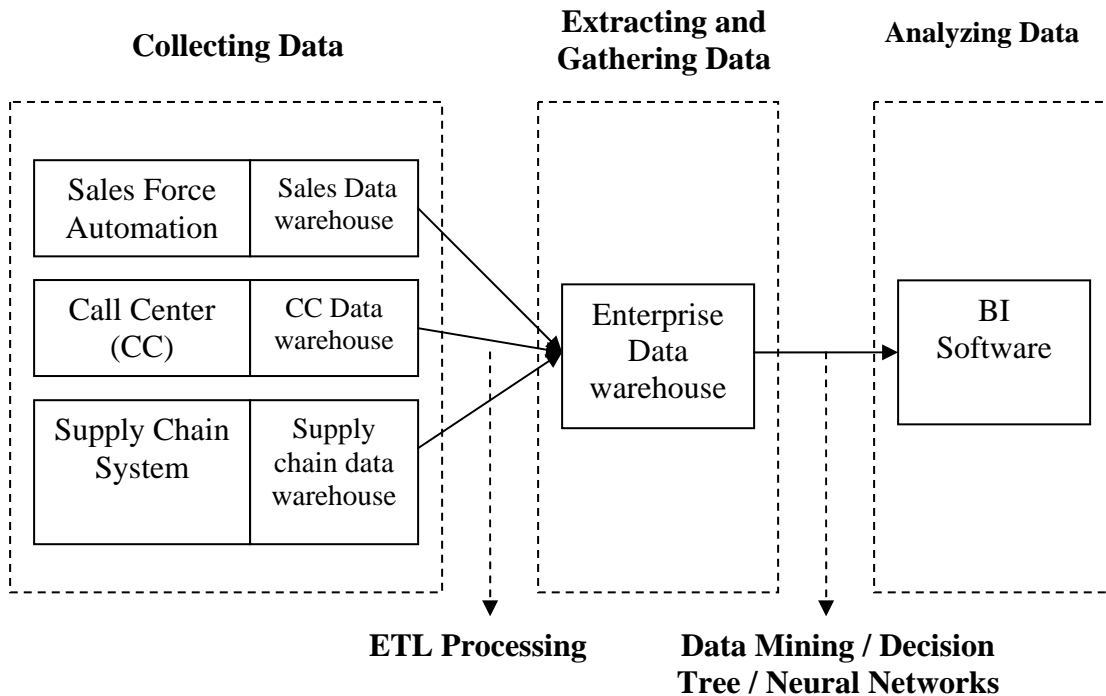


Figure 1 – How BI works

Modified from (Simon, 2001)

Figure 1 show in principle how the data is being collected, transformed, and managed.

Basically they are divided to three parts (Simon, 2001), which are:

1. **Collecting Data.** The first part is collecting data. In this part, all information around the business process is collected. Interface of each business process will collect the data and store it in local data warehouse. For example, sales data will be put in the sales database. This process is called Online Transaction Processing (OLTP)(SCN Education, 2001). Usually, each process is handled by other independent systems (hence, it is not handled by BI itself).

1. **Extracting and Gathering Data.** After the local data is collected. Each data warehouse will transfer the data to the enterprise data warehouse and then standardized. Therefore, once all data has been transferred, it becomes standardized. This process is done by Extraction, transformation, and loading (ETL) processing³. After that, the enterprise data warehouse will then manage the data and put them in a proper place.
2. **Analyzing Data.** Lastly, since the data has been transferred and standardized, BI will be able to retrieve and analyze data freely from the enterprise data warehouse. BI can finish this process by using data mining procedure, decision tree procedure or neural networks. In Business Objects Solution (BOS), this process can be accessed online through Online Analytical Processing (OLAP) function (businessobjects, 2004).

Data mining

Because data mining, decision tree and neural networks are very technical, we cannot cover all procedures in this report. We will only briefly describe how data mining is executed so that BI can be viewed to the details. We also choose to describe data

³ Note that sometimes ETL processing can slow down the local data warehouse. This might happen because it is common that the data that is being transferred is a bulky one. To avoid such problem, message-oriented middleware (MOM) is invented.

Basically, MOM objective is to divide a one large chunk of data into thousands of messages. Next, these messages are sent bit by bit so that it will not burden the computer. Normal data transferring requires a large portion of the computer performance in a one long time. Compare to that, MOM able to manage the time of message transferring. Hence, the computer will not be burden by ETL processing (Simon, 2001).

mining because this procedure is also implemented in BOS which we choose as our recommended BI system.

Data mining capability is to drill down the information that comes up from particular query. This enabled BI to focus the information searching down to lowest level.

Look at this problem as an example (Liataud, 2000). John is a concerned sales manager. Sales for this year have gone below the target and he is curious what is actually going on within the company. Therefore, he states below questions to find the root-cause of this problem and uses BI as his toolkit. See figure 2.

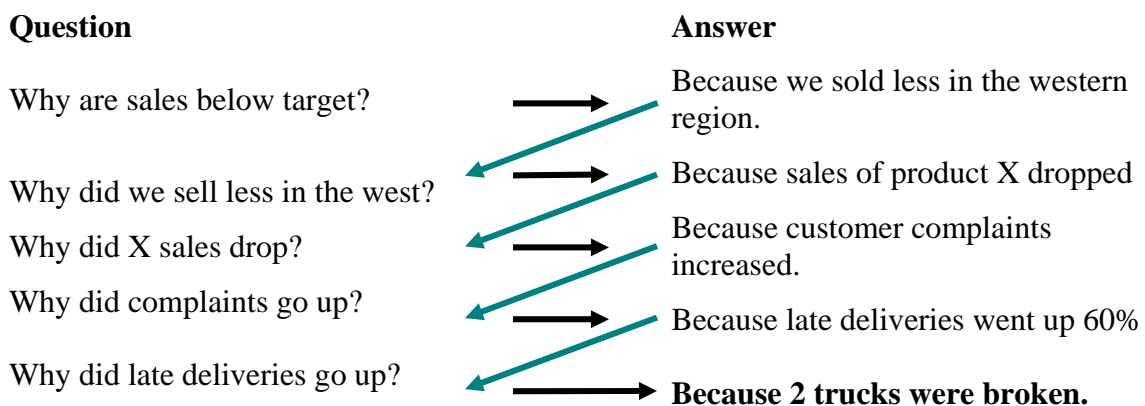


Figure 2 – Data mining analysis

Excerpted from e-Business Intelligence (Liataud, 2000)

The above figure shows that, each time an answer comes up, John is not satisfied because he believes that the answer that he has is not the actual answer of the problem. Thus, he keeps asking question until finally he find the one that seems to be root-cause of the problem.

BI is capable of answering John's questions even though the questions become more and more specific. This can happen because BI has data mining capability.

Data mining is able to resolve queries in a newly found set of data. Hence, data mining can be repeated continuously on each newly found set of data. This enables BI to drill down the data to the lowest level.

Business Objects Solution (BOS)

Business Objects is one of the biggest software companies in the world among other big companies such as MicroStrategy or BroadVision. Similar to any other BI product, BOS also has the same capabilities to standardize and analyze data. We are interested in BOS because it has friendlier interface than other companies' product. BOS main ideas are to provide users with simple presentation of data and putting all related information in one display without losing its simplicity (businessobjects, 2004).

Even though BOS interface is simple, BOS still provide the options for users to drill down each of the information provided. This gives BOS a brand as an easy-to-understand yet advance BI system.

III. Business Impact

Implementation of BI, which in this case will be Business Objects Solution (BOS), will bring many benefits to SVBC. Mainly, it is because BI can solve the two major problems. Aside from that, BI also provides many significant benefits to SVBC. Unfortunately, every coin has two sides; BI may also inflict negative impacts on SVBC's daily business caused by its limitations.

Positive Impact

Main benefit from implementing BOS is, of course, solving the two major problems within SVBC. BOS capability to deeply analyze the data will greatly help managers' capability to redesign SVBC's complex business environment. BOS implementation also collect the data and standardize the format of data that scattered in all SVBC's offices. This will save a lot of managers' time in gathering the data. Hence, they will be able to focus more on analyzing the data (businessobjects, 2004).

While BOS is capable of solving SVBC's problem, BOS also create other benefits. Business intelligence solutions offer rich visuals and personalized dashboards that make it easy for business managers to monitor any information that matter. BOS provides early effective warning to decision maker, preventing management blunders. They also supply quick and effective analyses to decision maker. All these benefits put together will result in cost reduction through more effective and responsive management. (businessobjects, 2004). See Figure 3.

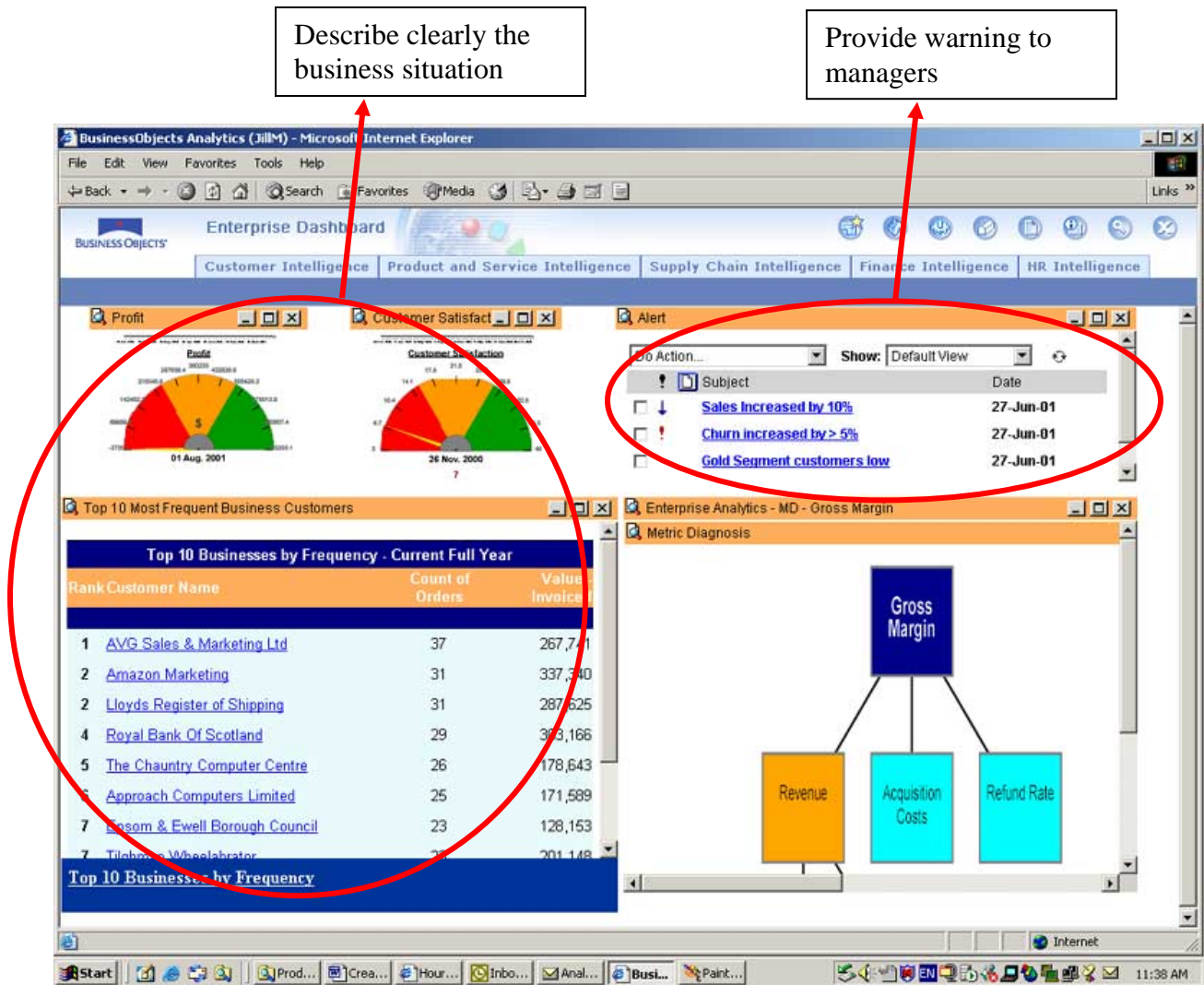


Figure 3 – Business Objects resourceful dashboard

Taken from www.businessobjects.com

Figure 3 shows clearly, how managers can easily see the current business behavior. BOS provides warning to managers by displaying the fluctuation in the business. BOS also shows overall business situation to managers which can be viewed in more details should managers want to analyze any further. See figure 4.

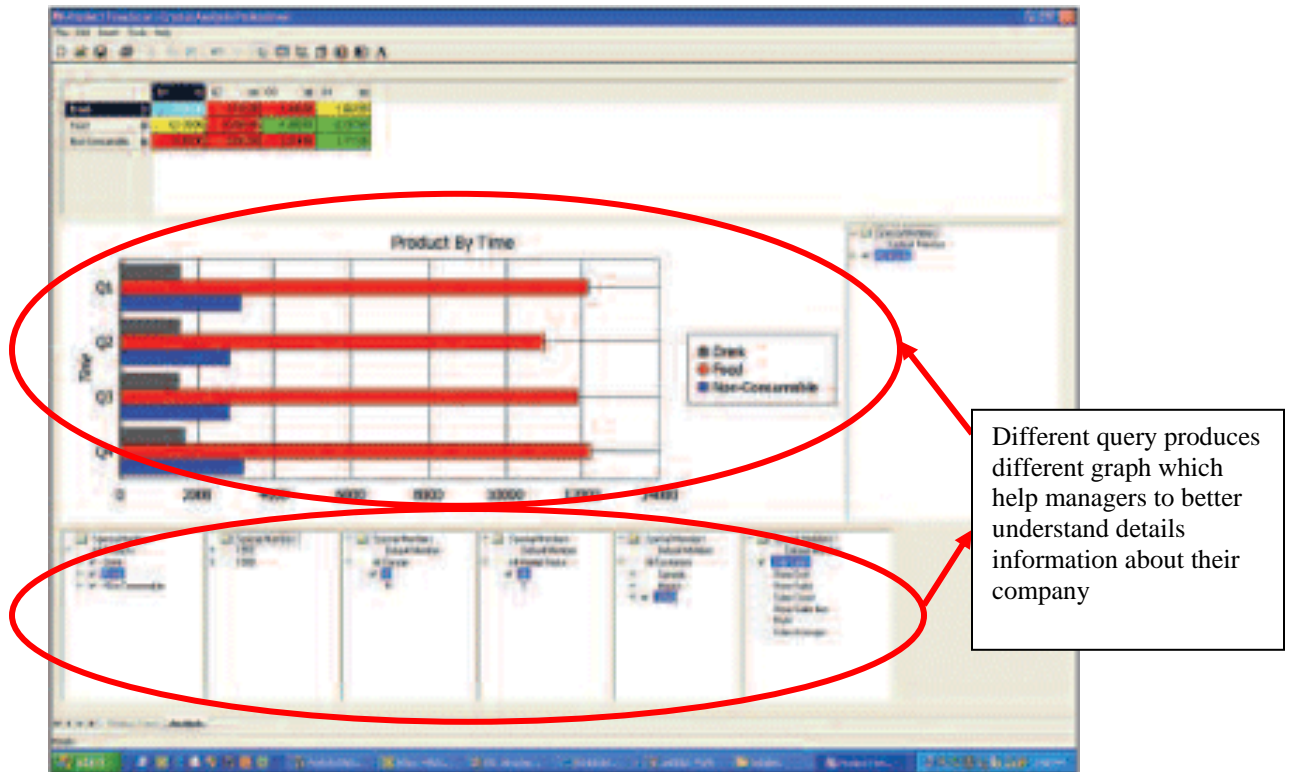


Figure 4 – Business Objects interactive query analyzer

Taken from www.businessobjects.com

Figure 4 shows that BOS provides an analysis tool for managers to help them better understand the details of what happening in the company.

Negative Impact

Beyond all the benefits, there are still two significant negative impacts that can be inflicted by BI:

1. **No common sense:** BI software sometimes can only analyze the input data as assistance to our decision making (Liataud, 2001). It can not present us the intelligent enough result with consideration of common sense. High level of decision making still need to be leaved to human beings. For example, most of the

commodities shipped from China to USA are stones or cast iron wares, and most of the containers moved eastbound are 20 feet containers, what is the relation between them? It is because 20 feet containers are used for heavy cargoes. This is the kind common sense from work experience that BI may fail to recognize. This is why SVBC must not depend on BI totally.

- 2. Loss of control/no exception:** This problem is also related to technology's lack of common sense. BI treat all data in the system equally while in the real world, information sometimes no longer valid (Biere, 2003). For example, business relationship sometimes can be broken by government policy or natural disasters which prevent any longer relationship. Thus, any information regarding this relationship will render obsolete and therefore should be removed from consideration. Obviously, BI cannot recognize such accident and this false input may cause false analysis or suggestion. This can happen because human loss the control to decide which data is available for analysis since BI processes all data just the same.

Limitation

BI dependency on data warehouses makes it impossible to work independently. It needs to be integrated into enterprise-class applications that have data warehouse working in background such as CRM or ERP. It would be important for SVBC to find ways of modifying and extending legacy operational database systems to support BI initiatives.

However, BOS succeed to outcome this limitation. By building its own datawarehouse, BOS reduce its dependency from enterprise-class applications.

Nonetheless, BOS is unable to completely wipe out its dependency. BOS still need input from other system. The benefit from this situation is SVBC will have the options to keep its existing business system which obviously may reduce a lot cost.

Another drawback is that BI definitely needs correct input in order to deliver correct analysis. Otherwise, BI's analysis will produce erroneous analysis and even might bring the company into jeopardy. This limitation should be handled with care as input accuracy is subjects to human error. Therefore, some sort of controls need to be implemented to cover this limitation.

IV. Opinion and Recommendation

Opinion

Business intelligence is rapidly becoming a major source for the company to achieve competitive advantage. BI can “Tell users in the company what happened” through simple reporting and querying function, furthermore, enable users to further analyze results of reports and queries in order to “ Tell users what happened, and why” through Online Analytical Processing (OLAP) and data mining (Simon, 2001). In this way, BI is extremely helpful for SVBC to provide assistance in making effective decisions and shorten the time it takes to respond the changes of outside economy environment.

On the other hand, all of things have two sides, so as BI has bring several positive impacts for companies, there are also still some limitations in this realm. A stable “electronic-enabled business environment” is required for optimal BI’s performance (Liautaud, 2000). Technology immaturity also limits BI compatibility in implementation (Bier, 2003). These limitations might bring result in negative impacts if SVBC believes and depends on BI totally without attending the existing problems carefully.

Recommendation

Concluding all the positive and negative impacts that BI brings, limitations in it and SVBC overall conditions, it is recommended that:

1. SVBC needs to implement Business Objects Solution (BOS) as SVBC’s Business Intelligence system. BOS implementation will fix the two major problems in

SVBC and will optimize SVBC managers' capability to deliver right decision efficiently. Furthermore, BOS also features data warehousing capability which is rare among BI developments. This feature enables BOS to stand alone as an independent system regardless BI's dependency on enterprise-class systems.

2. In a drawback, SVBC must automate every existing basic transaction process that has not been automated yet, for optimum BI usage. Otherwise, BI will remain useless, as no information can be entered into the system.
3. Despite of all its benefits, SVBC will still need human resource to keep control. Especially, it is because BI still requires correct input before it can deliver correct analysis which is subjects to human error.

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