Business Intelligence for Strategic Decision Making Using Balance Scorecard

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Abstract— *Dashboards and Balanced Scorecards is a component that is almost the same in both business performance provides a visual display that can be ingested at a glance and in exploration with ease. Visual display that can be presented in a geospatial map Indonesia in accordance with the location and area of work units in BPJS Ketenagakerjaan, this display can present the performance of the regional offices, branches office, and branches office assistant, so the BOD (board of management) or ranks direksi easily take a strategic decision. Balance Scorecards or Key Performance Indicators is an assessment unit roomates Reflects the four perspectives the which consists of 28 indicators of measurement of data analysis dashboard. From this assessment will be known work unit performance is good and less. The dashboard analysis and Key Performance Indicator this perspective and where the indicator unit where work had to be repaired and maintained.*

Keywords— *Performance, Balance Scorecard, Dashboard.*

I.   INTRODUCTION

The increasingly rapid global competition makes companies have to be able to create fast and accurate decision making strategies. This strategy is implemented in the BPJS Employment office, which is a public service body under the president that handles social security in Indonesia. BPJS Employment is a social security organizing body for workers, both formal and informal, that has an Old Age Insurance (JHT) program, Work Accident Insurance (JKK), Death Insurance (JK), and Pension Insurance (JP). The Manpower Social Security Organizing Agency (BPJS Employment), which in this Guide is called BADAN, is a public legal entity formed by the Law of the Republic of Indonesia Number 24 of 2011, which is a transformation of PT Jamsostek (Persero) to accelerate the implementation of the national social security system for all Indonesian people

In making this strategic decision using a performance monitoring tool called the dashboard analysis and key performance indicator (KPI) with the balance scorecard method. For dashboard analysis using graphs and geospatial maps with Indonesian map display adjusted to the operational area of each branch office so that it is easy and fast to analyze and make decisions. Data is collected secondary, adjusted for indicators that have been determined by the central office. Data is collected through direct databases or secondary data with legacy indicator types while manual indicator types are taken from each related division.

The dashboard analysis and key performance indicator (KPI) will make it easy for companies to see the company's position and performance, both financially and non-financially, from the national level, regional offices, branch offices and sub-branch offices. Not yet available dashboard analysis on a national, regional and branch consolidation basis. The consolidation office is a joint office under it.

Development of Data Warehouse so that it can produce information that can be used by BPJS Manpower maximally in the decision making process and policy making in order to provide optimal benefits to BPJS Employment program participants. Data needed for decision-making is sealed off into separate applications and databases making it difficult to find data and cross-analysis between separate applications such as operational applications (CARE) with financial applications (CORE). For example, when you want to analyze the acceptance of contributions with the development of membership, it is very difficult to do. In addition, so far it has also been difficult to see BPJS Employment growth both in terms of company membership, labor participation, contributions, guarantee services, and others.

II.   DATA WAREHOUSE AND DASHBOARD ANALITICS

Data warehouse is a database specifically designed to work on the query process, create reports and analysis. The data stored is business history data from an organization / company, where the data is not stored in detail / detail. So the data can last longer in contrast to OLTP (Online Transactional Processing) data stored until the process is complete.

Data sources at data warehouses come from a variety of different formats, software, platforms and networks. The data is the result of the day-long corporate / organizational transaction process. Because it comes from different sources, the data in the datahouse must be saved in a standard format.

Data warehouse is also one of the decision support systems, namely by storing data from various sources, organizing it and analyzing it by policy makers. But data warehouse cannot provide a direct decision. But he can provide information that can make users more understanding in making strategic policies. The general characteristics of data warehouse are:

a. Integrated data from various sources originating from the transactional process (OLTP)
b. Data is made consistent
c. Is an aggregate data / data conclusion, not detailed data
d. Data lasts longer
e. Data is stored in the right format so that the query and analysis process can be done quickly
f. Data is read only

ETL (Extraction, Transformation, Loading)

The three main functions that need to be performed to make data ready for use in a datahouse are extraction, transformation and loading. These three functions are found in

the staging area. In this data staging, a place and area are provided with several functions such as data cleansing, change, convert, and prepare data to be stored and used by data warehouse.

Data Extraction is the process of taking the required data from a datahouse source and then entering it in the staging area to be processed at a later stage. In this function, we will deal a lot with various types of data sources. Data formats, different machines, software and architecture are not the same. So before we do this process, we should need to define the requirements of the data source that we will need to make it easier to extraction this data.

In fact, in the transactional process data is stored in various formats so that we rarely encounter consistent data between existing applications. Data transformation is intended to overcome this problem. With this data transformation process, we standardize data in a consistent format. Some examples of data inconsistencies can be caused by different data types, data length and so on.

Data loading is moving data to data warehouse. There are two loading data that we do at the data warehouse. First is the initial load, this process is carried out when we have finished designing and building the data house. The data that we enter will certainly be very large and take relatively longer. Second, Incremental load, is carried out when the data warehouse has been operated. We do data extraction, transformation and loading of the data.

For initial load is done only once, but for incremental load we can schedule it according to needs, it can be every day, month, quarter or year according to the needs of our system.

OLAP (Online Analitycal Processing) is a technology that processes data in databases in a multidimensional structure, providing fast answers to complex queries and analyzes (Robert Wrembel, 2007). The data presented is usually an aggregation function such as summary, max, min, average and others. The characteristics of OLAP, namely:

a. Allows the user to view data from a logical and multidimensional perspective on the datahouse.

b. Facilitating complex queries and analysis for users

c. Allows the user to drill down to display data at a more detailed level or roll up for aggregation of one dimension or several dimensions

d. Provides a process of calculation and comparison of data

e. Showing results in the form of numbers included in the table and chart

Multidimensional Cube

Cube is an example of multidimensional data other than spreadsheets. With data cubes it is easier to manipulate. Each cube axis represents dimensions. There is a measure that is the quantitative database value that we want to analyze. Usually the measure is a nominal value or number. Measures are calculated based on the dimensions of the cube. Suppose we want to analyze the achievement of contributions against the target per period (month, year). Multidimension

III. BALANCE SCORECARD

According to Robert S. Kaplan and (Kaplan and Norton, 2008) the Balanced Scorecard is an assessment and control management system that can quickly, precisely and comprehensively provide managers with understanding of business performance.

The basic principle of the Balanced Scorecard is that a company's point of view of valuation should not only be viewed from a financial perspective, but also must be added to the measurements from other perspectives such as the level of customer satisfaction, internal processes and the ability to innovate. The Balanced Scorecard is more than a tactical or operational measurement system. Innovative companies use the Balanced Scorecard as a strategic management system, to manage long-term strategies and produce management processes

The next Balanced Scorecard concept will be abbreviated as BSC. The BSC is an approach to management strategies developed by Drs. Robert Kaplan (Harvard Business School) and David Norton in the early 1990s. The BSC comes from two words namely balanced and scorecard. Balanced means that there is a balance between financial and non-financial performance, short-term performance and long-term performance, between internal performance and external performance. While the scorecard (score card) is a card used to record a person's performance score. Scorecards can also be used to plan scores to be realized by someone in the future.

The perspectives in the BSC are as follows:

Financial Perspective, BSC uses financial performance benchmarks such as net income, because these benchmarks are generally used in companies to determine earnings. Financial benchmarks alone cannot illustrate the causes that make changes in the wealth created by companies

Customer Perspective, In the customer's perspective, companies need to first determine market segments and customers who are the target for the organization or business entity. Furthermore, managers must determine the best measurement tool to measure the performance of each operating unit in an effort to achieve its financial targets. Furthermore, if a business unit wants to achieve superior financial performance in the long run, they must create and present a new product / service of better value to their customers (Kaplan, and Norton, 1996).

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Internal Process Perspective, Internal business process perspective presents a critical process that enables business units to provide value propositions that are able to attract and retain customers in the desired market segments and satisfy the expectations of shareholders through financial returns (Simon, 1999).

Learning and Growth Perspective, This perspective provides the infrastructure for achieving the three previous perspectives, and for generating long-term growth and improvement.

It is important for a business entity when investing not only in equipment to produce products / services, but also investing in infrastructure, namely: human resources, systems and procedures. Benchmarks of financial performance, customers, and internal business processes can reveal large gaps between existing capabilities of people, systems, and procedures. To reduce this gap, a business entity must invest in the form of employee reskilling, namely: improving the ability of information systems and technology, and reorganizing existing procedures.
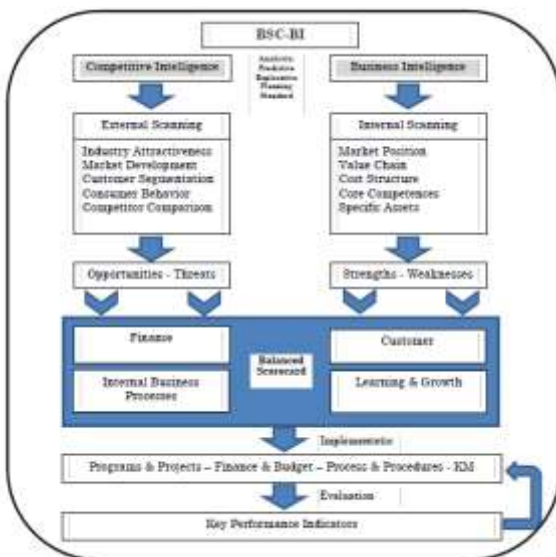

Figure: BSC-BI Framework, the integration of strategic intelligence with balanced scorecard methodology

IV. RESULTS AND DISCUSSION

A Data Transformation

Data transformation is a process in which raw data from extracted results is filtered and modified in accordance with applicable business rules by mapping input data from the original data scheme to the data warehouse scheme, converting data types or data formats, cleaning and removing duplicates and errors data, counting aggregate or summary values, charging blank values with default values.

a. Daily periodic data transformation for ETL from LB1.

Transforming daily data from LB1 to Fact_Realisasi_Target_ per period and per office, this data is displayed in the dashboard analysis to find out the realization of the target per period. This dashboard analysis data moves daily from LB1 so that users can find out the movements every day.

b. Transform data in a monthly scheduler for ETL from OJK

Transforming monthly data from OJK data table to Fact_realization_target_iuran by updating ETL result data from LB1 so that the data formed is OJK data, from fact_realization_target_iuran, the ETL update KPI data in the kpi_rekap_data table, this ETL consists of two packages: (i) kpi_target_iuran. , This package is used to transform from fact_realization_target_target and update the target of revenue_ acceptance, active_post participation, addition_tk, collaboration_preparation, recurring_contribution_station, number of collaboration_stations in the KPI table. , digital_digital_tk services, collectivity_fill, detailed_billing_dues, archive_use, validation_k_on_nik, SLA, effectiveness, cancellation of reconciliation, collaboration_presentation_tk, collaboration_paris

c. Output dashboard analysis.

Analysis of BPJS Employment Performance in Map Indonesia shows the operational area map of each branch office unit as many as 21 branches with a choice or layer: (i) Total Score ie this layer if selected will show the total score of each unit of the console branch office obtained from total calculation of 28 KPI indicators per period (ii) Achievement of active TK ie if this layer is selected it will show the performance achievement of total active TK for each work unit against the target up to months per period. (iii) Achievement of contributions if selected will indicate BPJS Employment performance console branch office units in achieving the monthly targets per period. (iv) Achievement of IBR or unspecified contributions is contributions that have not been entered into each program with a maximum target of 0.2% of the total contributions received. (v) Status of the surplus deficit is operating income minus operating costs by July 2016 as follows:

Figure. Comparison Results (A) Achievement of targets in the graph, (B) Achievement of targets in the table, (C) Targets and realization on the performance board

V.   CONCLUSION

Dashboard analysis using Oracle Business Intelligence tools to measure unit performance in the Employment BPJS in the form of maps, graphs and tables, each of which can be drilldowned to the KCP level so that the head of the unit and board of directors can find out the performance achievement of the target up to the month per period. This dashboard analysis is formed from OLTP data which is transformed using ETL to OLAP. From OLAP, analysis can be made according to the needs of both the branch office and the head office using row level security, each work unit can see the data according to the units and levels of authority they have. OLAP data can be transformed into KPI tables to measure the performance of each unit with the KPI indicators that have been set, with this KPI Board of Directors (BOD) can see the performance and rank of the office. And can find out which indicators can be improved and maintained. With this office rank, work units can compete to achieve the set targets.Key Performance Indicators (KPI) are a unit performance measurement tool in the BPJS Employment using 4 perspectives with 28 indicators set by the central office. From these 28 indicators, it can be known that the performance of branches and regional offices on a consolidated basis and the consolidated office can also know the results of its performance, so that it can catch up with the lack of achievement of targets

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