STRATEGIC PERFORMANCE MEASUREMENT GUIDELINES AND FRAMEWORK TO MERGE BALANCED SCORECARDS AND BUSINESS INTELLIGENCE TECHNIQUES

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ARTICLE INFO

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Keywords: - Business Intelligence; Strategic Performance; BSC; performance measurement; KPIs

ABSTRACT

Recently lots of companies in the world today make use of the Balanced Scorecard as their tool for managing the organization performance. The main challenge is to have an integrated measurement framework that effectively defines the performance measures and link them to the organizations strategies, then to analyze the represent and report the measured data and analyzing them; here comes the role of the BI as an essential key factor that contributes in presenting and translating the measurement results. This paper is focusing on adopting the Balanced Scorecard (BSC) as a key framework for managing and measuring the companies’ businesses. In addition to being a strong tool for communication of key strategies, the BSC provides clear linkages between strategies, the business processes by which the strategies are executed, and the Key Performance Indicators (KPIs) that measure business performance, moreover, a quick look is provided for how the BSC results can be presented using the business intelligence techniques.

I. INTRODUCTION

Over the past decade, more and more companies have adopted the Balanced Scorecard (BSC) as a key framework for managing their businesses. In addition to being a strong tool for communication of key strategies, the BSC provides clear linkages between strategies, the business processes by which the strategies are executed, and the Key Performance Indicators (KPIs) that measure business performance [1].

From a performance management perspective, the BSC provides the baseline for performance measurement; and, according to industry research, many companies who adopt the BSC are satisfied with the method and plan to continue its use. Therefore, there is no denying that the way of measuring performance from financial, customer, operational, and learning perspectives is valuable [1].

The aim of this paper is to provide a detailed investigation about how to define the strategic goals and objectives for an organization, and how to set measures to specify the performance levels of these objectives, the research will focus on the formulation of a balanced scorecard by setting strategic objectives, measures, management initiatives and actions then define the cascading relation between the organizational objectives.

An additional aim of the paper is to define the methods and techniques that can be used to automate the BSC reports and adapt business intelligence tools to provide trend analysis, predictive analytics, integrated customer views, and dashboards by building a consistent knowledgebase to monitor the performance trends within the organization and to define the most appropriate needed corrective actions [2].

Finally an important aim is to represent the strategic performance results, therefore, adapting business intelligence while representing these results is an essential part when presenting the BSC model as a solution for measuring the performance; as BI systems are assumed to be solutions that are responsible for transcription of data into information and knowledge and they create some environment for effective decision making, strategic thinking and acting in organizations [10].

II. BSC EFFICIENT PRE-BUILDING CONSIDERATIONS

“How can we understand the a) Process of defining a balanced scorecard and its b) BSC impact on monitoring business performance and how to use it c) Business intelligence procedures to improve the readiness and representation of the strategic performance results?”

a) Process of Defining a Balanced Scorecard

What you measure is what you get [6]. There are four steps required to design a Balanced Scorecard [5],

1) Translating the vision into operational goals;
2) Communicating the vision and link it to individual performance;
3) Business planning; index setting
4) Feedback and learning, and adjusting the strategy accordingly.

Later on, The Balanced Scorecard was initially conceived as an organizational performance measurement tool that included non-financial as well as financial measures. By ensuring that all of the objectives and measures related to are
derived from an organization’s vision and its resulting strategy, Strategy-Focused Organizations have transformed the Balanced Scorecard from a performance management tool into a strategic tool [5].

In the Strategy-Focused organization, they show how the following five principles transform the Balanced Scorecard from a tool for performance measurement to a tool for creating a strategy-driven performance management company:

1) Translate the strategy into operational terms. Use the Balanced Scorecard to describe and communicate strategy in consistent, insightful, and operational terms.

2) Align the organization to the strategy. For organizational strategists to work, they must be linked and integrated across many functions —finance, manufacturing, sales, marketing and so forth. The Balanced Scorecard can link these contrasting and detached functions.

3) Make strategy everyone’s everyday job. Use the Balanced Scorecard to educate the organization about strategy, help employees develop personal objectives, and then compensate them based on their adherence to and implementation of the business’ strategies.

4) Make strategy a continual process. Use the Balanced Scorecard to link strategy to the budget process, review strategy regularly in management meetings, and develop a process for learning and adapting strategy.

5) Mobilize change through executive leadership. Through a method of mobilization, governance, and strategic management, executives can embed new strategy and new culture into their management systems, creating a continual process to meet the strategic needs of today and tomorrow.

b) BSC Impact on Monitoring Business Performance

The importance of applying the BSC concept comes from its ability to define and measure the key drivers of the business in addition to the weakness points and the opportunities.

The balanced scorecard encompasses the organizational mission, vision, core values, critical success factors, objectives, performance measures, targets and improvement actions. Therefore we can efficiently monitor the business performance and the accomplished targets as well.

Analyzing the measurement data will then have an effect on taking decisions towards the resulted targets values and the organization processes followed to achieve these targets.

c) Adapting the Business Intelligence Procedures to Represent the Performance Results

Business intelligence will contribute in providing trend analysis, predictive analytics, integrated customer views, scorecards and dashboards, thus, the representation of the strategic performance results will be more readable, and can help the decision makers in taking more consistent trends in getting their targets done.

III. BUILDING A COMPREHENSIVE BSC MODEL

In order to build a complete BSC framework, specific steps should be followed in order to obtain evaluative performance measurement results.

A. Specifying the organizational mission, values, vision, and strategy.

B. Aligning startgy maps.

C. Defining the key performance indicators needed to measure the strategic objectives.

D. Setting targets and management initiatives related to the defined key performance indicators.

E. Precisely defining the strategic objectives and connecting them to the previously defined performance measures.

IV. THE GAIN OF APPLYING BSC MODEL

Each developed balanced scorecard—regardless of what level of organization it represents—must link back to the overall objectives, upon the measurement results presented as the output of the BSC corrective actions can be taken then, new objectives can be set and preset targets can be re-defined.

An effective organizational alignment can be defined by cascading the defined scorecards and defining the cascading, and cause and effect relations among the objectives.

Moreover building a full BSC model can be used to define more BSC linkages such as defining the attributes that can contribute in the compensation and motivation strategy in an organization as well as contributing in controlling the corporate governance.

BSC based applications can define global organization KPIs such as:

- Average revenue per employee
- Customer satisfaction
- On time delivery

Most modern BI systems now have the capability to allow for loading or entering all the data needed to create a balanced scorecard, and they have the report-writing features (for advanced calculations), as well as the analytical functionality needed (such as drill-down and graphics). As balanced scorecards are being offered by BI software vendors, large organizations with applications from multiple vendors in use around the world have found it necessary to integrate their scorecards. The idea behind the balanced scorecard is to address the issues and to give decision makers a performance measurement and planning tool that is easy to understand and focused, and that can help the company link its strategic plan with key performance indicators.

V. INTEGRATING BALANCED SCORECARD RESULTS WITH BUSINESS INTELLIGENCE

Strategic Performance Measurement means to make a business successful as the budget process. Just as with setting near-term direction for the company with a budget, management has the responsibility for setting longer-term strategic direction and goals for the company. Examples of strategic management activities are deciding what markets the company will target, and determining what does the company need to compete in these markets. What specific products or services will be offered for customers, and why? How will a competitive advantage be achieved and sustained with these products and services? How employees are best trained to be most effective in handling the needs of customers? What internal processes that most critically need improvement to reduce cost or increase level of service?
Simply put, Strategic Performance Measurement lets the company focus on those goals and activities that will make a difference 2, 3, or even 5 years down the road. The lead-lag relationship between strategic activities undertaken in the present is enormous, so the decisions made for direction set is critical for the long-term success of the company.

Even more important is ensuring the strategic success drivers are being achieved. This is why all employees should be concerned, aware, and knowledgeable of how their day-to-day jobs are involved with these strategic activities. Strategic Performance Measurement is a formal way of focusing not only managers but also for each employee in the company in each department or function on these critical activities [8].

Presenting the measurements results is the most important part after having all strategic objectives, key performance indicators and initiatives defined, and connecting them with the target values upon which the measure will be measured.

Using the business intelligence techniques in defining the BSC parts and representing the BSCs results will have a positive effect in understanding as well as analyzing the business parts and the measurement results, which leads to having the necessary actions defined.

Presenting the balanced scorecard structure in the most simple, readable and neat way is very important to provide the correct directions for the business strategies. So, business intelligence can be used to present the BSC structure in addition to presenting the output values using charts, dashboards, strategy maps (to represent the cascading relations among the objectives in different perspectives), trending graphs and figures. The output data can be stored in knowledge bases, and data mining techniques can be used for the future analysis and trends.

Different delivery channels can present the BSC data (the linkage between the perspectives, objectives, KPIs, management initiatives and actions such as Excel formatted kpis, Mobile apps, Ipad applications, Desktop applications and Web based applications.

It has been noticed then that most organizations are facing problems in defining strategies, missions, visions and goals, and accordingly, evaluating the performance towards the objectives and putting the defined strategies into actions. Moreover, measuring the organization's performance and merging that with business intelligence techniques is a challenging area that can prove a result in more successful organizations and can fit all types of businesses at all scales.

Clearly, there is a need for better understanding on how to measure the enterprises performances and adopting the technologies needed for that.

When approached as a means to support corporate strategy, business intelligence (BI), solutions can enhance performance management programs’ ability to optimize value to the organization. A business that is pursuing Balanced Scorecard strategic alignment can use BI solutions for trend analysis, predictive analysis, customer data integration, scorecards and dashboards, and data mining. it has been found through studies that the most successful organizations proven performance management methodologies are depending on how to present the measure and follow up them using tools such as strategy maps and Balanced Scorecards, then choose metrics based on the strategic objectives set through those methodologies, and finally deploy business intelligence solutions to gather the data necessary for performance optimization.

Companies become handicapped by limited low-quality data views when they allow the already available information, which is easiest to gather, determine how they manage the business. It makes sense that an organization should first make decisions about its strategies and information requirements, then subsequently align information assets to support strategy management. But many companies continue to operate in reverse [4].

The business intelligence balance scorecard is designed in such a way that the results are easy to understand and interpret. The scorecard is unique in its structure because it will assess how a company’s business intelligence system and data warehousing compares with the best in the industry. It helps you establish IT standards, identifies what kind of data you need to gather, and evaluates the history of business intelligence within your company.

**Figure 1: BSC Structure**
VI. MAINTAINING BALANCED SCORECARD RESULTS

Once the BSC framework is done, specific questions should be addressed in order to find out whether the resulted framework can help the organization in addressing the weakness points and finding new ways for improvements, examples for these questions can be:

Is the balanced scorecard completed? How can the results be evaluated? What steps should be followed once the BSC framework is up and running? What elements can be updated in the BSC model?

All these points should be focused on after implementing the BSC and having its results presented.

The adoption of business rules, procedures, and processes will assist the scorecard in making the transition from a communication and measurement system to a management tool, therefore, organizations must evaluate how the scorecard fits into long term strategic planning, how and when new scorecards will be developed and under what circumstances measures should be changed [9].

The balanced scorecard is not a metrics project, it's not a technology project and it's not a human recourses program, the BSC represents a major change initiative, as the business continues measures will take place. Accordingly, the BSC is never really complete; many factors can affect the balanced scorecard model such as changed strategies, visions, new business adoptions, so the BSC should be flexible enough to accept such challenges.

In order to get a consistent alignment of the strategic direction, full understanding of the recourses prioritizations and allocations, and deriving a set of balanced measurements that can measure organization's objectives, the following points are to be considered:

1) Providing long term strategic planning and re-verifying the planned strategies periodically as this is considered a key tool in strategic effective execution.
2) Translating the strategy into staff's everyday speak.
3) Understanding and identifying linkages between objectives, initiatives and perspective themes a very important part is to clearly specify the cause and effect of linkages between strategy/processes and objectives [3].
4) Measuring not only the objectives but also an essential key driver for the success of a BSC is to define the measures for the processes and management initiatives along with clearly defined targets.
5) To make the scorecard more efficient and useful, a large number of both financial and non-financial measures are to be included in it and these should be continually modified on the basis of measurement feedback.

What is Next? This is the most important key question that usually comes in minds when looking at the measurements results.

Action plans should take place. Department managers have to identify correspondent plans and their time frames to be achieved, and then follow up on these actions till completion; these actions can be an essential part in automated BSC framework, as these actions are related to the previously defined management initiatives.

Tracking the effect of the management corrective actions on the overall scorecard performance in order to accordingly re-define the KPIs targets, define new objectives, and revisit the cause and effect relations in the strategy map.

Rationale of any change must be clearly communicated along with what is expected, so any change in the targets, objectives, initiatives and KPIs must have a clear, emerging reason and should be communicated with the employees as well.

VII. FACTORS THAT CONTRIBUTE IN THE SUCCESS OF THE BALANCED SCORECARDS

I. Adapting a Consistent Process while Building the BSC Framework

While building the performance framework, a consistent process definition for the measurement model should be followed in order to have a well-established performance measurement system.

There are key stages in any successful Scorecard effort: design, develop, implement, and sustain (or institutionalize) its use. Therefore the “top ten success factors” list that contributes in the success of a BSC model consists of:

1. Gain top leadership support; it helps if there is a ‘burning platform’ for change.
2. Measure the right things - things that customers, stakeholders, and employees find value in - not everything.
3. Create a governance process that engages key stakeholders.
4. Design the system to follow the actual work of the organization.
5. Start development of measures at both the top and bottom of the organization and cascade them in both directions.
6. Create a communications campaign that explains how a Scorecard both reflects and drives a focus on a mission.
7. Align systems; tie them to the organization's planning, measurement, and budget cycles.
8. Insure the credibility of the process and honesty in reporting.
9. Create transparency of information that is as real-time as possible; this is key to its credibility and usefulness to both senior and frontline managers.
10. Align incentives; link rewards to performance through effective evaluation and performance appraisals [7].

Creating a successful Balanced Scorecard is not blocked on technical issues. The real challenges are in engaging leaders, managers, employees, customers, and stakeholders in the design process. While some efforts are staff-generated; the really successful ones start with top leadership support. Fortunately "top level" can apply to the leadership level of a staff, a program, or a "parent" organization.

With top leader support, the key concept is to measure the right things - things that customers, stakeholders, and employees find value in -- not everything.

Creating communications campaign that explains how a Scorecard both reflects and drives focus on mission is important to obtaining managerial and staff support for collecting and reporting new measures. When managers and staff see the value of the information, the content of their conversations changes. Employees should get some training on how to use their key performance metrics to improve performance in their own jobs.

**Implement.** Developing and reporting Scorecard measures does not matter if they are not tied to the established administrative systems that employees use regularly, such as the planning, budget development and implementation cycles.

Also one of the important success factors is the credibility of the process and honesty in reporting. Teams involved in the BSC building process have to meet regularly to discuss the ongoing data collection and reporting activities to ensure the process is not being "gamed." This can enable the auditing on the flow of information to take place and how one set of measures influences the performance of another.

**Sustain.** The greatest challenge in most Scorecard efforts is to sustain them over time, especially if the champion of the initiative leaves. One way to assure continuity and support data credibility is to create information transparency that is as real-time as possible. This also makes Scorecard information useful to both senior and frontline managers. Furthermore, a key motivation for using Scorecard information is to align it with incentives.

In addition to the "Top Ten Success Factors", some recommendations are worth following such as partnering with another organization that has been through the development process "many lessons learned can be gained informally". A Scorecard approach can be seen as a learning tool, not just a measurement system, as it creates a framework, a discipline, and a common language within an organization and that, as this evolves, the organization's culture begins to change to become performance oriented, more fact-based, and more customer-centric. Finally, the experience of long-term users of a Scorecard, correspondent users can place less emphasis on the Scorecard as a measurement approach and view it more as a different way of communicating with each other [7].

**Choosing the Right Key Performance Indicators**

Most companies choose performance indicators that can easily check and control the cash flow and profitability of the business. Hence, there are three key areas needed to be considered when selecting KPIs: Costs, working capital and the sales. These three will let the management determine if there are problems in the cash flow as well as in the movement of the profitability of the company because they will show immediately through the figures.

Meanwhile, there are also enterprises that make use of the indicators so that they can reach their goals. If one of the goals of the company is to become profitable, the indicators to be selected should provide a helping hand in this area. When choosing performance indicators, BSC consultants should ensure that they can be compared in the past, present and future. This is an essential consideration as plotting the values for the measure over a time period that encompasses the history of the measures values, and the current values will help the managers to identify the potential problems as well as the opportunities.

Reviewing the selected indicators and having the direct managers’ approvals on them is also an important factor in having the BSC measures take place, accordingly extra KPI can be removed or exchanged with a better indicator set.

**CONCLUSION**

When approached as a means to support corporate strategy, Business Intelligence (BI) solutions can enhance performance management programs' ability to optimize value to the organization.

A business that pursues Balanced Scorecard strategic alignment can use BI solutions for trend analysis, predictive analysis, customer data integration, scorecards and dashboards, and data mining. It has been found that the most successful organizations adopt performance management methodologies such as Strategy Maps and the Balanced Scorecard, and then choose metrics based on the strategic objectives set through those methodologies, and finally deploy business intelligence solutions to gather the data necessary for performance optimization [4].

Developing a Scorecard requires addressing three challenges: (1) Creating a process to design, manage, report, and analyze the metrics, (2) Addressing the cultural and behavioral changes that are inherent in this approach, and (3) Ensuring the technical aspects of data collection honesty and quality [7].

**REFERENCES**