Balanced Scorecard Framework for IT Project Tender Evaluation

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ABSTRACT

Balanced scorecard (BSC), a strategic performance management tool, provides non-financial performance measures which reflect a more 'balanced' view of organizational performance. It has been extensively used in business industries, government agencies, and non-profit organizations worldwide particularly in aligning their business/management activities to the vision and strategy of their organizations. BSC can also improve internal and external communications, and monitor organizational performance against strategic goals. The BSC approach provides a clear prescription to organizations in identifying non-financial elements/components to be measured in order to 'balance' the financial perspective. The financial perspective is one of the key measures that are normally used in a tender evaluation process. The tender evaluation process is performed to determine and select suitable contractor for a particular project. Therefore, this paper aims to contribute an understanding on the effective use of the BSC and establish a conceptual framework for an information technology (IT) project tender evaluation. The framework describes the objectives and organizes the measures or criterions for tender evaluation based on four different perspectives: financial, internal business process, customer and learning, and growth perspectives.

Keywords: Balanced Scorecard, e-Tendering, and performance evaluation

I INTRODUCTION

In information technology (IT) industry, large IT projects are often acquired through a tender process where organizations will set the project requirements and a number of suppliers or contractors will submit their tenders. The tenders will then be evaluated based on certain criteria and a suitable contractor will be selected (Chan et al. 2007). In the current practice, most of the time the tender evaluation processes are based on human or decision makers judgements. Therefore, the people involved in the evaluation process need to ensure that the environment of making judgements about the contractors and their ability must be coherent and maintained with fairness, probity and transparency to maintain the quality and consistency of the tendering process and achieve the best outcome (SPS 2007).

As tender evaluation occurs at the early stage of a project life cycle, the effectiveness of the evaluation is certainly important and directly related to the project success and the achievement of specified objectives (Lopes & Flavell, 1998). Therefore, without a proper and accurate method, not only the performance of the project (Faridah, 2007) will be affected, but the organization, and contractor reputation will also be impaired in the future (Mohamad Noor et al. 2003, 2007). The effectiveness of tender evaluation is influenced by several factors such as the relevancy and suitability of the criteria used, appropriate weightage, and experience of the evaluators.

Consequently, as selection of suitable criterion is important, this study is conducted to construct a conceptual and systematic framework for tender evaluation by using the Balanced Scorecard method. The framework describes the objectives and organizes the measures or criteria for tender evaluation based on four different perspectives: financial, internal business process, customer and learning and growth perspectives. Later, the proposed framework will be used to design and develop an e-tender evaluation system for awarding contract of an IT project. This paper aims to contribute an understanding on the effective use of the BSC and establish a conceptual framework for tender evaluation.

II CURRENT PRACTICES FOR TENDER EVALUATION

Currently, the practice of selecting suitable contractor for a project involves the following procedures; open tendering, prequalification, tender evaluation, and negotiation (Topcu, 2004). An organization will open a tender by issuing the project requirements. Contractors will then apply for the open tendering. Prequalification is a screening phase where the contractors with minimum capabilities are established. In the

evaluation process, only qualified contractors who are able to fulfill the project requirements will be considered and the most suitable contractor will then be awarded with the contract. Finally, a negotiation procedure will be implemented especially for emergency situation when the contract is too complex and no application is made for the above mentioned procedures.

Research in the area of competitive bidding strategy models has been in progress since 1950s (Fayek 1997). Some of the studies specifically focused on designing models for construction industry (Stark & Rothkopf 1979), while others are focusing on introducing IT for effective decision making and managing tender (Mohamad Noor et al. 2007; Chan et al. 2007). Mohamad Noor et al. (2007) conduct a study to produce a complete electronic tendering evaluation systems. They use Multi Criteria Decision Making (MCDM) analysis to assist evaluators in evaluating multi criteria of tender selection. Chan et al. (2007) introduce the use of electronic based tendering system to handle problems occured in the traditional tendering process.

In his invaluable study, Topcu (2004) reports the use of different procedures for tender evaluation in various countries such as Turkey, Denmark, France, Italy, Portogal, Peru, and Korea. According to Topcu, one of the most frequently used procedures for selecting contractors is through competitive bidding where the contract will be awarded to the lowest bid price. In Turkey, the lowest bidder among prequalified contractors will be considered as the winner. The criteria used during the prequalified evaluation include the ability to complete projects on time, organizational expertise, availability of experienced technical staff, and availability of resources such as machinery and equipment. However, in France, the abnormally low bid prices will be excluded. On the other hand, in some countries such as Italy, Portugal, Peru, and Korea, the highest and the lowest bid prices will be excluded, while the closest bid price to the average of the remaining ones will be selected. The similar procedure is also used in Denmark but with the two highest and the two lowest bid prices excluded.

Another invaluable study has been done by Ng and Skitmore (1999) who determined prequalification criteria by conducting a postal questionnaire survey in the UK construction industry. The study has successfully identifed 10 prequalification criteria which are financial stability, performance, fraudulent action, contract failure, managerial and corporate stability, progress of work, health and safety, previous debarment, competitiveness, and quality standard.

As mentioned before, tendering process involves decison making process. The accuracy of the decision depends on the evaluation of the selected criteria or indicators. Unfortunately, the tender eveluation process is still considered as unmatured as there is no standardized criteria and methods been established. Recently, many related studies has been conducted and different researchers suggest different criteria for tender evaluation. Faridah (2007) suggests tender price as a key indicator for determining tender acceptance. However, according to Hatush and Skitmore (1998) and Holt et al. (1994) in Topcu (2004) the evaluation on the lowest price basis is one of the major causes of project delivery problems due to the raises of quality problems during and upon the project completion. In order to solve problems related to the contractors evaluation, Topcu (2004) suggests the use of multi-criteria approach that takes into account the economic and technological aspects, quality standard, and past performances (in term of cost, time and ability to produce compeleted product with high quality aspects). In addition, Mohamad Noor et al. (2007) recoomend several criteria to be considered such as professional and technical staff, experiences, reputation records, current projects in hand, financial background, and current facilities and projects remain or in progress.

III OVERVIEW OF BALANCED SCORECARD

The Balanced Scorecard (BSC) is a strategic management system that aims to clarify strategy and to translate it into action (Kaplan & Norton, 1992). The BSC was developed by Kaplan and Norton in 1990s. It has been widely used by organization as a tool to assess and manage their organizational performance. Kaplan & Norton (1996) state that for the achievement of a balanced result, the evaluation of a company performance should not be restricted to the traditional financial accounting measures (such as the return on investment (ROI) and payback period) but should be supplemented with non-financial criteria concerning customer satisfaction, internal processes, and the ability to learn and grow. In addition, results achieved within the additional perspectives should assure future financial results.

Kaplan and Norton propose four perspectives for BSC: 1) measures of customer satisfaction; 2) financial measures; 3) internal process metrics; and 4) organizational innovation measures. For each perspective, researcher should select and agree on the important measurement criteria in each quadrant. The strength of BSC is that it able to provide insight into dynamically complex situations

and allows managers to assess whether improvement in one area may have been achieved at the expense of another.

Therefore, we hypothesized that the proposed framework which combined the concept of dynamic complexity of the BSC would become a useful tool to help manage the tender evaluation process especially for IT projects.

IV RESEARCH METHOD

The approaches that we use in this research are document review, expert review, and case study. The tender process procedure and guideline from the Malaysia Public Works Department (MPWD), widely employed by most Malaysian organizations, is used to help the understanding of the process. The tender evaluation criteria are determined from the literature review. At the same time, a case study was conducted at the Universiti Utara Malaysia (UUM) Bursary Department.

Basically, the tender evaluation process can be divided into financial and technical aspects. In order to understand more about the financial criteria and method, a discussion with a UUM Bursary officer who directly involved in the tender evaluation process was initiated. In addition, another discussion regarding the technical aspects is conducted with an IT officer from the UUM Computer Centre. According to them, tender evaluation procedure used in UUM is prepared by the MPWD. However, the UUM tender committees can add their own tender evaluation criteria based on certain projects launched for tendering.

Additionally, we also initiated discussion with BSC expert about the BSC approach and for evaluation of the proposed framework. It took about two months to just only extract the important strategic information and to agree on the proposed framework for tender evaluation.

V THE PROPOSED BALANCED SCORECARD FRAMEWORK FOR TENDER EVALUATION OF IT PROJECT

The process of formulating the criteria consists of four (4) main activities: i) mapping the identified criteria with BSC perspectives, ii) defining the strategic goals and tender evaluation objectives for each perspective, iii) deriving measures for each criterion, and iv) making relationship of each objective in every BSC perspective with organizational goals. Next, the finalized criteria are validated by the appointed experts from three (3) different areas: financial, technical, and BSC.

The proposed measurement criteria for tender evaluation which has been organized by using BSC are listed in four quadrants as presented in Figure 1. The framework describes the objectives and organizes the measures or criteria for tender evaluation based on four different perspectives: financial, internal business process, customer, and learning and growth perspectives.

A. Financial Perspective

The strategic goal for financial perspective is "*Manage the University's financial resources in the most optimum way*". The Financial dimension shows that effective tender evaluation is certainly required in managing financial resources in the most optimal way which significantly contributes to the organization successfulness. As a strategy for managing the university's financial resources in the most optimum way, selecting the best bidding price should be considered as the most dominant criteria in awarding the tender.

B. Customer Perspective

The strategic goal for customer perspective is "*Obtain the best service provider and reduce the tender evaluation time*". A customer in this study refers to the organization which offers the project. Among the corresponding measures for this perspective involves time, quality, service, and cost. The strategy can be achieved by selecting the most suitable contractor and reducing the duration of tender evaluation process.

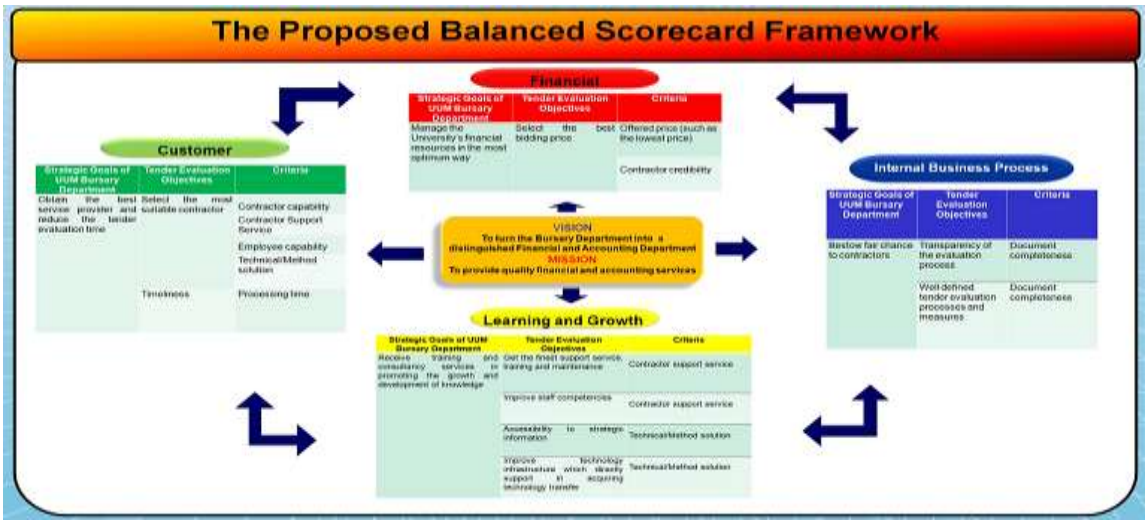

Figure 1. The proposed Balanced Scorecard Framework for IT project Tender Evaluation

C. Learning and Growth Perspective

The learning and growth perspective strategic goal is "*Receive training and consultancy services in promoting the growth and development of knowledge*". This perspective focuses on the future orientation that will benefit the organization. It also looks at the long-range growth impact of the organization by providing infrastructure to enable the achievement of the objectives of three other perspectives. In order to achieve this strategy, four different tender evaluation objectives are defined:

- to get the finest support service, training and maintenance,
- improves staff competencies,
- accessibility to strategic information,
- Improving technology infrastructure which directly support acquiring technology transfer.

D. Internal Business Perspective

The strategic goal for internal business process perspective is "*Bestow fair chance to contractors*". This perspective is concerned on the evaluation of key criteria and processes that is able to create and deliver the customers with the value expected such as improving productivity and efficiency. In this study, the Internal Business Process aims to increase stakeholder satisfaction by selecting the most suitable contractor through a clearly defined measures and transparency process.

Relationship among the objectives of each perspective towards the achievement of strategic goals and organization's vision is shown in Figure 2. This balanced scorecard framework is only the starting point. The performance of the tender evaluation process may evolve over time and would change as they obtained more requirements.

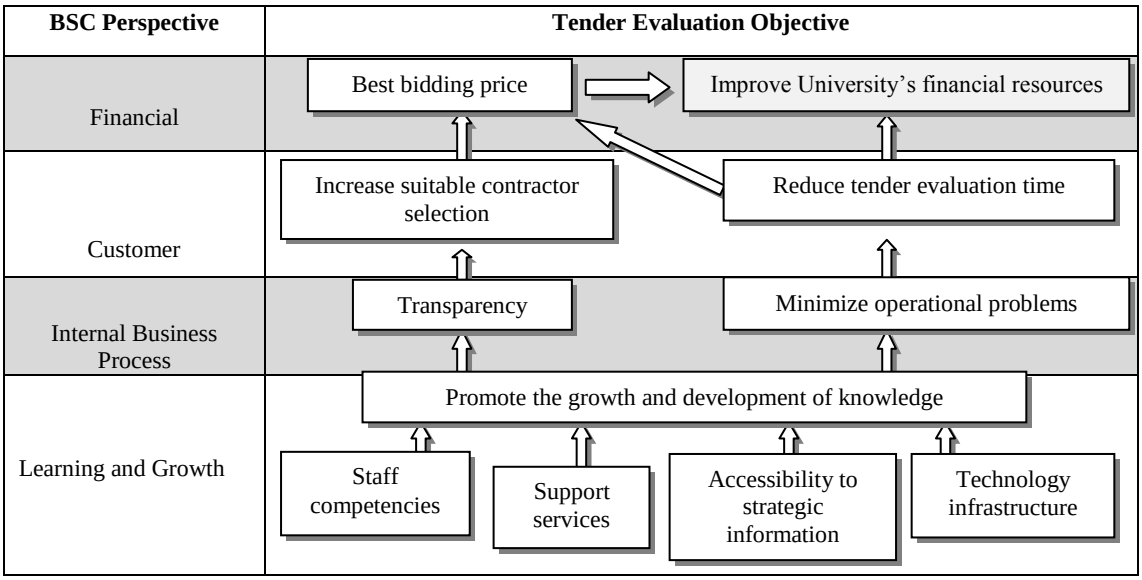

Figure 2. Relationship among the objectives of each perspective towards the achievement of strategic goals and organization's vision

VI DISCUSSION AND CONCLUSION

The BSC, a measurement framework that provides an integrated look at business performance of a company by a set of both financial and non-financial measures seems to be a good solution for tender evaluation. The most important thing that has to be considered while constructing the scorecard is the cause-and-effect relationships. This means that the scorecard should contain a good formulation of outcomes and performance drivers. The measurement criteria should be specific, measurable, actionable, relevant, and timely. Therefore, the proposed framework can be applied for e-tendering evaluation system.

As conclusion, BSC has helped us to identify the measurement criteria for tender evaluation. The proposed framework composed of four perspectives. Therefore, the starting point for the e-Tendering evaluation has been established. This performance evaluation system for e-Tendering may help Bursary's Officer to identify the weaknesses and the strengths of the e-Tendering system to tailor with UUM business strategy and objectives.

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