Towards A Better Performance Measurement & Management in Assessing the Excellence of Academicians Using the e-BSC

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ABSTRACT

One of the premier universities in Malaysia is currently looking at the balanced scorecard (BSC), introduced by Robert Kaplan and David Norton as the performance measurement and management tool in assessing the whole spectrum of what defines an excellent organization. This study specifically researches the use of an electronic BSC system (called e-BSC) primarily in measuring the performance and excellence of academicians in this university from the perspectives of Financial, Customer, Internal Business Process (IBP) and Learning and Growth (L&G). To substantiate this research work, a survey and several interviews was conducted. The proposed performance measurement framework is introduced together with the e-BSC's system architecture.

Keywords

Balanced Scorecard, e-Balanced Scorecard (e-BSC), Performance measurement and management, Higher Learning Institutions

1.0 INTRODUCTION

The balanced scorecard (BSC), introduced by Robert Kaplan and David Norton in 1992 is a set of measures that allow for a holistic, integrated view of business performance. Many business organizations realized that focus on a one-dimensional measure of performance (i.e. increased of profit or ability to manage cost effectively) was inadequate. BSC was chosen as it provides the necessary balance that organizations really need in the juggling with various aspects in today's dynamic business environment.

This paper shares our research into the study of BSC adoption in measuring the performance and excellence of academicians in one of the premier universities in Malaysia from the perspectives of Financial, Customer, Internal Business Process (IBP) and Learning and Growth (L&G). In higher learning institutions such as this university, there are acceptable conventions for measuring performance and excellence. Rather than emphasizing on financial performance, higher education has emphasized academic measures that are easily quantifiable. These measures (later translated as the key performance indicators) usually are built on and around such aspects as teaching and administrative loads, research/publications and other contribution to the society.

While it is common belief that non-profit organisations such as public universities have not been pressured to ensure their survival (for the fact that continuous funding would always be provided by the government), they are facing growing competition and the pressure of accountability. Hence, universities nowadays need to establish certain performance indicators (PIs) to show to the public. Universities also need to show evidence of the attainment of their vision, mission, and strategies to all their stakeholders including the government, existing and potential students, parents and potential employers.

This paper discusses the research approach which includes survey and interviews to gauge systems and functional requirements for the proposed e-BSC, development of a framework for the performance measurement of the proposed system and followed by system architecture.

2.0 LITERATURE REVIEW

It is a common misconception to believe that by having large student number intakes, high graduation rates, state of the art resources and facilities and good scholastic rankings actually project the quality of education offered by an institution of higher learning (Stewart and Carpenter-Hubin, 2001). By focusing on these, the institution is actually giving priority to the public image projected. It has to be understood that by having good scores for external indicators such as those mentioned, an organization may not necessarily be successful internally (Umashankar and Dutta, 2007). Instead, to ensure a healthy culture, the institution has to make certain that internal performance measures are linked to the corporate goals that strive to improve the organization operations and not simply competing with peer institutions (Hamid, Yu and Soo, 2007). In the same manner, though the university being studies is a public institution of higher learning, it is still subjected to external pressures and has to use innovative methods to continually sustain in the industry.

The Balanced Scorecard (BSC), as mentioned earlier is designed to take into account all aspects that measure the overall performance of an organisation. Instead of focusing on financial indicators alone, the scorecard emphasizes on placing equal importance on other factors such as customer satisfaction, internal business process success and an organisation-wide learning and growth culture to continuously make it relevant in the industry. Likewise, non-profit oriented organizations can use the scorecard as the BSC can be customized to suit the needs of the organization (Cardoso, Trigueiros, Narciso, 2005; Shun-Hsing, Ching-Chow and Jiun-Yan, 2006). The perfect example for this is a Management, Social Sciences and Information University in Lisbon that used the scorecard in its strategic information system to structure and to create a new postgraduate degree in Decision Support System. Likewise, the Rossier School of Education at University of Southern California utilized the scorecard to measure the effectiveness of the academic program offered (Sutherland, 2000 cited by Umashankar, 2007).

In our previous work (Hamid *et. al.*, 2007), we have highlighted the weaknesses and the inappropriateness of using some common performance measurement techniques for evaluating individual staff. Instead the BSC offers a management tool that can be used to measure both the performance of the organization as whole as well as for an individual. By using the scorecard, high level aspirations can be easily communicated down and organization-wide alignment of strategies can be achieved.

However, simply adopting the management tool without developing an automated scorecard would make the effort for alignment difficult to achieve. Besides, an automated balanced scorecard would enable faster organization-wide adoption of the performance measurement method (Assiri, Zairi and Eid, 2006). Likewise, the existence of numerous scorecard software packages such as Oracle Balanced Scorecard, SEM Balanced Scorecard, SPImpact Balanced Scorecard, Balanced Scorecard Analytic Application, IFS Scorecard, Enterprise Scorecard and QPR ScoreCard clearly show that there is justification for an automated balanced scorecard. By having an automated scorecard, timely information can be easily retrieved for effective decision making (de Waal, 2001 cited by Marr and Neely, 2003).

3.0 RESEARCH METHODOLOGY

This study uses both quantitative and qualitative research methods to obtain further information and requirements for the proposed system. For qualitative research, action research is used to enable understanding of how improvement can happen with organizational and individual change. Meanwhile, for quantitative research, a cross-sectional survey was conducted on a sample representing the population of study.

3.1. Research Instrumentation

To aid the research, primary data was collected using questionnaire and interview as the main means of instrumentation for the data gathering process. An interview consisting of 20 questions was held with the Strategic Planning Unit (SPU) of the said university to obtain information regarding the strategic planning practice in the university. To obtain further clarifications, interviews were also conducted with the current and previous deans of the faculty in the university where this research is performed to identify tactical planning methods used at the faculty level. Meanwhile, questionnaires were handed out to selected academicians in the faculty to sought potential end-user requirements for the proposed system.

3.2. Qualitative Research

Action research was selected as a means for qualitative research due to its cyclical nature that allows feedback and learning from prior steps. The following 5 steps were performed to identify the means of improvement that can be taken to address issues regarding measuring the performance of academicians.

i. **Diagnosing** – The current issues and nature of problems at both organizational level and individual level with regards to performance measurement are identified and analysed to understand the current culture. This was followed by the development of hypotheses regarding the current practice in performance measurement and its problem domain.

ii. **Action Planning** – Actions that will improve the current practice of performance measurement and promote individual performance through the use of the e-BSC were drawn out. The development of the e-BSC were based on the framework and the system architecture built. This allows the establishment for change and the appropriate steps and measures to be taken for change towards an improved performance measurement culture.

iii. **Action Taking** – The alignment of e-BSC with organizational strategies were introduced at the individual level.

iv. **Evaluation** – The results of the actions taken were evaluated to verify if positive benefits are accomplished and that the expected improvements were realised. Where there is improvement, the evaluation entailed queries of whether the actions taken, actually produced the desired results. On the other hand, where otherwise, alternative steps and actions were taken in the next iteration of the action research, to repel any further problems.

v. **Specifying Learning** – The process of learning is a continuous effort throughout all the steps in the research, even though its formal specification only takes place last. The knowledge gained from the research is used to establish a new and improved

organizational culture. All results, whether positive or negative, and knowledge gained from the research are used to establish a beneficial contribution for future research.

3.3. Quantitative Research

A cross-sectional study was performed using survey questionnaires that were distributed to several lecturers in the faculty to obtain further substantiation for the research.

3.4. Sample Of Study

The population for this research includes academicians serving in public higher learning institutions. A judgement sample of academicians in the faculty who currently hold or previously held positions of head of departments in the faculty were selected for the survey. Besides that, lecturers who have served in the faculty for at least 3 to 5 years were also chosen to participate in the survey. Unlike random sampling where given a population size, there is equal opportunity for any element in the population to be selected, judgement sampling is done using the discretion of the researcher. Judgement sampling sometimes called a non-probability sample as the participants of the survey are selected based on certain characteristics. The basis for selecting judgement sampling over random sampling is to ensure accurate information is gathered for the research area (Marshall, 1996). The sample for the study had to be academicians who have served a significant number of years in the faculty, have held leadership positions and are well aware of the practice in the faculty. With judgement sampling, the interpretation of the results will also be useful for the qualitative understanding of the issues studied.
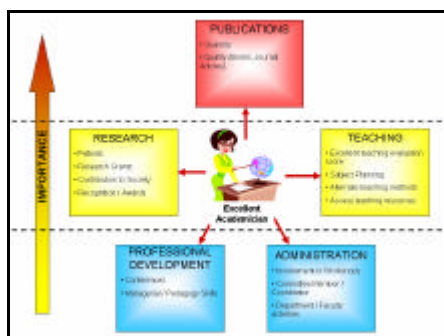
4.0 SURVEY AND INTERVIEW FINDINGS

Figure 1: Constitution of an Excellent Academician

Figure 1 shows the constitution of excellence in academicians based on the survey and interview findings. Publications were touted as the most important and professional development and administrative duties of lesser importance.
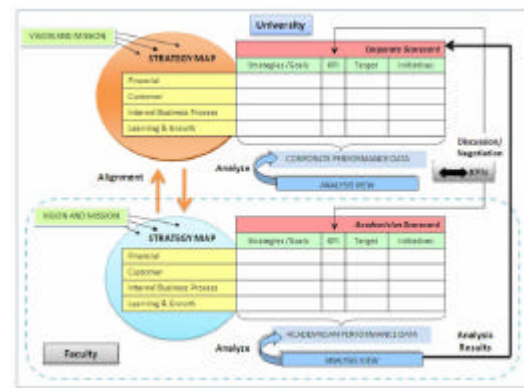
5.0 THE PROPOSED FRAMEWORK

Figure 2: Framework of Performance Measurement in University

By combining the concepts introduced in BSC and the research findings, the framework shown in Figure 2 above was outlined to demonstrate a clear structure of how performance measurement works within the University.

At the University level, a strategy map is developed by transforming vision and mission into a set of strategies objectives which are connected by cause-and-effect relationships and categorized into the four Balanced Scorecard perspectives; Financial, Customer, Internal Business Process and Learning & Growth. Based on the strategy map, a corporate scorecard is created where Key Performance Indicators (KPIs), targets and initiatives are set accordingly for each strategy in every BSC perspective.

At the Faculty level, internal strategy map is developed as well as aligned to the University's strategy map and consequently academician scorecards are created. All KPIs are discussed and negotiated among Steering Committee members, Vice Chancellor, faculties and academicians for agreement. In each level, performance data obtained from scorecards is analyzed by higher management to come out with the overall performance result. The final performance result of Faculty is reported to University as the input for the University's performance evaluation.
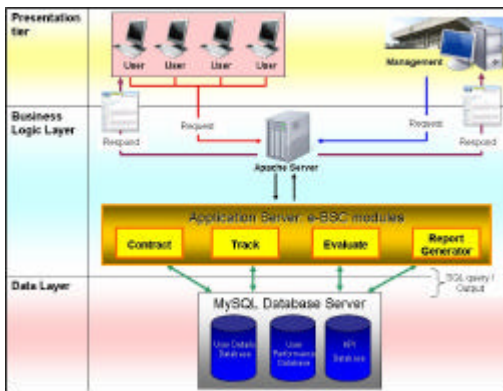
6.0 SYSTEM ARCHITECTURE

Figure 3: e-BSC System Architecture

The system architecture was drafted as shown in Figure 3. A three-tiered architecture was selected as the architectural design for the proposed system to provide scalability for future enhancements and modifications.

To enable all the users to frequently update the system with performance progress, the e-BSC has to be designed for access from the Internet and Intranet network systems.

In this architecture, the Apache web server is responsible for receiving http requests from the clients and responding by sending the requested *php* documents. Within the application server, the e-BSC modules handle the business logic by offering services to contract, track, evaluate and generate reports for both management and users.

Meanwhile in the third tier, resides the MySQL Database Server which offers database services to the upper tier by performing data manipulation processes through handling SQL queries and returning the corresponding output.

7.0 CONCLUSION

The deployment of an established business management tool such as Balanced Scorecard provides better understanding on what truly constitutes excellence among academicians. An automated BSC (e-BSC in this case) will enable them to contract out, track and evaluate their performance indicators and be accountable for under performance. This paper also highlighted the framework for performance measurement in a university setting and the proposed e-BSC's system architecture to enable an easy and effective method in measuring and managing the performance of academicians.

8.0 ACKNOWLEDGEMENT

REFERENCES

Assiri, A., Zairi, M., & Eid, R. (2006). How to profit from the balanced scorecard. *Management and Data Systems,* 106(7), 937-952.

Cardoso, E., Trigueiros, M.J., & Narciso, P. (2005). A Balanced Scorecard Approach for Strategy-and Quality-driven Universities. *Proceedings of the 11th International Conference EUNIS 2005*, Manchester, UK.

Hamid, S., Yu, M.L. & Soo, H.P. (2006). Measuring the Performance and Excellence of Academicians through the e-Balanced Scorecard (e-BSC). *Proceedings of the 9th IBIMA Conference Information Management in Modern Organizations.* ISBN: 0-9753393-8-9

Marr, B., & Neely, A. (2003). Automating the balanced scorecard – selection criteria to identify appropriate software applications. *Measuring Business Excellence*, 7(3), 29 – 36.

Marshall, M.N. (1996). Sampling for Qualitative Research. *Oxford University Press*, 13(6), 522 – 525.

Shun-Hsing, C., Ching-Chow, Y., & Jiun-Yan, S. (2006). The application of balanced scorecard in the performance evaluation of higher education. *The TQM Magazine*, 18(2), 190 – 205.

Stewart, A.C., & Carpenter-Hubin, J. (2001). The Balanced Scorecard, Beyond Reports and Rankings: More commonly used in the commercial sector, this approach to strategic assessment can be adapted to higher education. *Planning for Higher Education*, 29(2), 37-42.

Umashankar, V., & Dutta, K. (2007). Balanced scorecards in managing higher education institutions: an Indian perspective. *International Journal of Educational Management*, 21(7), 54 – 67.