

USING E-BALANCED SCORECARD IN MANAGING THE PERFORMANCE AND EXCELLENCE OF ACADEMICIANS

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Abstract

The corporate performance and measurement discipline is dynamically changing. Organizations will increasingly identify sets of performance issues and build tracking mechanisms to monitor how the enterprise is doing. As a practice, performance measurement and management requires objectivity and careful planning in order to see its successful, continuous implementation. University Malaya is currently looking at the balanced scorecard (BSC) 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 (e-BSC) in measuring the performance and excellence of academicians in University Malaya 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 were conducted. Graphs are presented to depict the user requirements of the development of the e-BSC System. Furthermore, based on the obtained information too, the performance measurement framework is proposed. The advantage of adopting an automated balanced scorecard to manage the performance of academicians is that it sanctions excellence and provides a platform for better organization-wide alignment of strategies. The demand for a better performance measurement system has thus far been proven through the findings obtained.

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

1 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. In the current business environment, many organizations are realizing that maintaining focus on a one-dimensional measure of performance (i.e. increased of profit or ability to manage cost effectively) is inadequate. Traditionally, organizations used tools or measurements such as Economic Value Added (EVA), Earnings Before Interest and Taxes (EBIT), Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA), Activity Based Costing (ABC), Statistical Process Control (SPC), Process Measures, Customer Metrics, Free Cash Flow, and Balanced Scorecard (BSC) to measure the current position of the organization with regards to achieving corporate goals. However, in recent years, it is undeniably common to hear about BSC being adopted and gaining popularity since it advocates using a balanced form of measurement that organizations require in juggling with various challenges in today's dynamic business environment (Fernandes *et al.*, 2005).

This paper shares our research in studying the use of the BSC to measure the performance and excellence of academicians in University Malaya (UM) from the perspectives of Financial, Customer, Internal Business Process (IBP) and Learning and Growth (L&G). In higher learning institutions such as UM, there are acceptable conventions for measuring performance and excellence. Rather than emphasizing on financial performance, higher education places priority on 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 contributions to the society.

While it is a common belief that non-profit organizations such as public universities have not been pressured to ensure their survival, for the fact that continuous stream of funding would always be provided by the government, they are facing growing competition from private education providers and the pressure of accountability to the stakeholders (Ramachandran and Foo, 2007; Anon, 2008). Henceforth, the universities are required to establish certain performance indicators (PIs) to show to the public. Additionally, the universities also need to exhibit the achievement of their vision, mission, and strategies to all stakeholders including the government, existing and potential students, parents and potential employers.

This paper discusses the research approach which uses a survey and interviews to collect systems and functional requirements for the proposed e-BSC followed by the development of the system framework.

2 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, the quality of education offered by an institution of higher learning can easily be assumed to be excellent (Stewart and Carpenter-Hubin, 2001). By focusing on these, the institution is actually giving priority to the public image projected. In other words, such measures are only useful to estimate how well the institution is doing compared to its peers. 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 ascertain that internal performance measures are linked to the corporate goals that attempt to improve the organization's operations and not simply competing with peer institutions (Hamid *et al.*, 2007). In that way, the organization should focus on internal measures according to the nature of work of the staff and link them to the strategic goals of the organization resulting in academic excellence.

However, some have the perception that the balanced scorecard as a performance measurement tool, may not be suitable for the academic industry and may be more beneficial to profit-oriented organizations. In different instances, it has been proven that the scorecard can be personalized to go with the needs of the organization (Cardoso *et al.*, 2005; Shun-Hsing *et al.*, 2006). Even though a public institution's main priority may not be financial gain, a university, as any other organizations, is accountable to its stakeholders and the public. 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 created 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). In the same manner, though UM 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 organization. Complete emphasis on financial indicators not only does not secure the future of the organization, it only advocates ensuring short term goals are achieved (Kaplan and Norton, 2001). 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 organization-wide learning and growth culture to continuously make it relevant in the industry.

A study conducted by Ingle and Schiemann as reported by Niven (2006), shown in Figure 1 illustrates the power of measurement to transform virtually every aspect of an organization. Measurement drives agreement on strategy, the communication of that strategy, leading to successful change efforts, and ultimately improved financial performance. It was shown that BSC undertaken as the last major change effort gave an astounding 97% of success rate. That finding represents one of the outstanding benefits of the Scorecard system, the creation of a new language that galvanizes an entire organization toward the achievement of overall goals.

Niven (2006) also reported that in a recent survey conducted by the Institute of Management Accountants, 90% of respondents said the Balanced Scorecard was worth implementing in their organization.

Measure of Success	Measurement-Managed Organizations	Non Measurement-Managed Organizations
Industry leader over the past 3 years	74%	44%
Reported to be financially ranked in the top 3rd of their industry	83%	52%
Success in last major change effort	97%	55%

Measure of Success	Measurement-Managed Organizations	Non Measurement-Managed Organizations
Agreement on strategy	93%	37%
Communication of strategy	60%	8%
Information shared openly and candidly	71%	30%

Figure 1: Performance management gets results

In our previous work (Hamid *et. al.*, 2008), we have highlighted the weaknesses and the inappropriateness of using some common performance measurement techniques for evaluating individual staff. The paper considered several commonly used performance measurement techniques such as Benchmarking, Key Performance Indicators (KPIs), Relative Value, Appraisals, Six Sigma and Total Quality Management (TQM). In comparison to the BSC, those tools have been found to be more suitable in other contexts. In one example, benchmarking can only be used to measure performance with regards to the front-runner in the same context. By forcing employee to adhere to the standards of a specific individual, creativity would be restricted. On the other hand, KPI is relevant when used in conjunction with other performance measurement techniques. By itself, the tool is only practical in indicating the success rate in achieving set objectives. Meanwhile, using Relative Value to evaluate the performance of individuals would be establishing the subjective value of the employee. Determining the performance of a staff requires more objective measures to establish the amount of contribution made. Among all the performance measurement techniques discussed, appraisal may be one of the more familiar tools used. However, Coens and Jenkins (2002) have criticized the tool for its somewhat structured nature that supports conformity. By using the tool, staff are required to adhere to whatever that guarantees positive rewards from the management. Consequently the organization may enter a situation where internal businesses processes are static and are unable to adapt well to the dynamic environment (Ballantine *et al*, 1996). On the other hand, Six Sigma uses scientific measures such as statistical techniques (Bendell, 2006) to determine performance which may prove to be inappropriate for evaluating individuals. On another note, TQM emphasizes only on maintaining the quality in fulfilling customer requirements which makes this its major weakness for ignoring other aspects while maintaining focus only on one factor (Wessel and Burcher, 2004).

Nevertheless, not using any form of performance measurement would make efforts to establish the rate of achieving goals somewhat hard to determine. To ensure the whole organization is functioning in the same direction, proper communication of strategies with expected targets have to be established. Therefore the Balanced Scorecard was designed to provide such features where all levels of the organization can clearly be aware of the corporate future direction and yet observe how individual contributions lead back to high level aspirations. Moreover, the feedback and learning nature of the scorecard allows organizations to reflect on the current performance of the

company and to take necessary actions to correct efforts that may seem off tracked (Kaplan and Norton, 1996) making the tool exceptionally appropriate for measuring the performance of individuals as well. With feedback and learning, employees can reflect on past performance and improve to continually contribute to the organization in a positive manner. In other words, 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 somewhat difficult to achieve. An automated performance measurement system would enable timely information to be easily communicated to all levels of the organization while ensuring accurate dissemination of top management aspirations (de Waal, 2001 cited by Marr and Neely, 2003). As a result, having an automated balanced scorecard would enable faster organization-wide adoption of the performance measurement method as mentioned by Assiri *et al.* (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 and need for an automated balanced scorecard.

To demonstrate the importance of an automated and customized BSC system, the survey conducted by the State University of New York and Pepperdine University in 2004 showed that organizations using in-house developed scorecarding systems experienced exceptionally more benefits compared to organizations that do not (Lawson *et al.*, 2004). However, some may argue that common spreadsheet software such as Microsoft Office's Excel can completely fulfill the requirements to automate a balanced scorecard. On the other hand, there are several benefits that standard spreadsheet software cannot offer unlike specialised scorecard systems can. Specialised software tends to be developed with better security features besides the fact that it is a more focused tool. Marr and Neely (2003) highlighted several disadvantages of adopting a standard spreadsheet software as having little or no scalability, cumbersome to update as data is manually entered and updated, no support for collaboration and the difficulty that comes with analysing the spreadsheets that are mostly separated and stored in disconnected workstations. This especially does not fit well with the purpose of the balanced scorecard to ensure organization-wide alignment with the long-term strategies.

Then again, some organizations may choose to employ the conventional paper-based system. However it is an unquestionable fact that this method is unreliable and troublesome. Furthermore, if an organization intends to use the balanced scorecard as its main performance measurement system, automation would be a necessity (Classe, 1999 cited by Marr and Neely (2003)). As mentioned by Classe (1999), paper and pencil may be suitable as the first step to adopting the scorecard. However, continuous dependence on paper and pencil there after, would make the communication process of organization-wide understanding of top management objectives hard to achieve. Instead, with an automated version of the scorecard, staff can easily see how individual efforts contribute to the organization's purpose if the system can link top level aspirations to the objectives of lower level employees.

Taking cues from the literatures analyzed above and the interviews and survey undertaken (to be further discussed in Section 4.0), this study will entail the analysis, design and development of an e-BSC customized for the performance measurement of academicians in UM. Available balanced scorecard packages would be studied in order to learn the best practices or features being offered,

the aesthetics of user interface design and eventually develop a better e-BSC system for UM deployment.

3 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. Interview sessions with the relevant parties and observations on the current performance measurement system was performed to further understand the needs for improvement in the current performance measurement system. Meanwhile, for quantitative research, a cross-sectional survey was conducted on a sample representing the population of study.

3.1 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. To aid the research efforts, several hypotheses were made regarding the current practice in performance measurement and its problem domain based on the study conducted are as follows:

- BSC is still in its early stage of implementation in many education institutions in Malaysia;
- By having the e-BSC, the academicians would be able to manage their performance contracting (early of year), tracking (middle of year) and evaluation (end of year); and
- By having the e-BSC, the academicians are able to improve their performance to ensure excellence is achievable, well defined and no longer just a moving target.

3.2 Quantitative research

A cross-sectional study was performed using survey questionnaires that were distributed to several lecturers in Faculty of Computer Science and Information Technology (FCSIT) to obtain further substantiation for the research.

3.2.1 Research Instrumentation

To aid the research, primary data was collected using interview and survey questionnaire 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 UM to obtain information regarding the strategic planning practice in the university. To obtain further clarifications, interviews with questions similar to those posted to the SPU were also conducted with the current and previous deans of the FCSIT to identify tactical planning methods performed at the faculty level. The results obtained from all the interviews were used to analyze the consistency of information from all parties and observe if tactical planning at lower levels are parallel to top level aspirations.

Meanwhile, questionnaires were also handed out to selected academicians in FCSIT to sought potential end-user requirements for the proposed system. The findings obtained from the survey, interviews and questionnaires are discussed in Section 4.0. In addition, official university strategic planning documents provided by the SPU were also reviewed. Meanwhile, an observation on the performance measurement system used currently by the university was also made.

3.2.2 *Sample of study for Survey Questionnaire*

For the survey questionnaire, the population for this research includes academicians serving in public higher learning institutions. Since this is a pilot research on providing new means of measuring the performance of academicians in a higher learning institution, FCSIT was selected to observe the requirements of and the response to the proposed system. A judgment sample of academicians in FCSIT 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, judgment sampling is done using the discretion of the researcher. Judgment sampling sometimes called a non-probability sample or purposive sampling uses the researcher's personal judgement in selecting the participants for the survey based on certain characteristics (Fraenkel and Waller, 1990). The basis for selecting judgment sampling over random sampling is to ensure accurate and representative 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 and the current and previously used staff performance measurement systems. In addition to that, the current and previous head of departments among the selected participants would provide necessary information from the point of view of staff performance reviewers. With judgment sampling, the interpretation of the results will also be useful for the qualitative understanding of the issues studied. As stated by Deming (1966, p. 11), 'The usefulness of data from judgement-samples is judged by expert knowledge of the subject matter and comparisons with the results of previous surveys, not from the knowledge of probability'. The author also mentioned that in pilot researches, it is typical and more practical for judgement sampling to be carried out to get an estimate of how receptive and feasible the research will be, as demonstrated by the research conducted by The Paul Coverdell Prototyp Registries Writing Group (2004) and Tuoghy (2003). Instead of using a full-fetched probability survey, a trial survey would be adequate for pilots due to the reason that a completely unbiased random sample may result in providing the responses that do not truly represent the target population (Kish *et al*, 2003, p. 10).

If at this level, the proposed system prove to be successful and the target users are receptive, then further research will be conducted by carrying out a survey on random samples of all academicians in UM. This will be followed by an analysis to compare the results of the pilot research and results from the subsequent survey. By doing so, probable biasness in the pilot survey can be eliminated if the results from the subsequent survey are consistent with the initial results.

3.2.3 *Format and Purpose of Questionnaire*

The main purpose of the questionnaire distributed among selected academicians is to collect information with regards to the comfort level with the current performance measurement system used in the university. Additionally, the potential strengths and weaknesses of the system are also determined.

The questionnaire contains 4 sections, where:

- Section 1 has 5 questions detailing respondents' personal information and the length of service in the university.
- Section 2 consists of 1 question with sub-questions detailing the awareness of the university or faculty's mission and vision.

- Section 3 consists of 11 questions which attempt to analyze the current performance measurement system used in the university.
- Section 4 comprises of 8 questions which attempts to determine what constitutes excellence in academicians and respondents' preference towards the method of measurement used in the e-BSC. In this section, respondents' opinions were also enquired about the need for the e-BSC to enable better performance measurement and the preference towards the method of performance being measured through the e-BSC approach.

3.2.4 Data Collection Procedure

Initial data collection efforts included reviewing official university strategic planning documents (i.e Strategy Map, Proposed KPIs, Targets for the proposed KPIs, Owners of the KPIs, etc) provided by SPU to understand the practice in the institution. This provided adequate knowledge to proceed to the interview sessions and prepare for the survey questionnaire.

For the interview data gathering method, one-to-one question and answers sessions were with the SPU as well as current and previous deans of FCSIT. The open-ended questions entailed subject-matters concerning:

- The strategic planning process practiced in UM or the faculty, people involved and the role of the balanced scorecard in this process.
- Period for the strategic planning process
- Period for formal review of performance and gap analysis
- External and internal evaluation performed prior to formulating new or reviewing existing strategies
- Inputs used in formulating new and existing strategies
- Method of cascading newly formulated strategies to lower level staff
- Setting KPIs for each academician (to be integrated in individual scorecards)
- Elements of process improvements in the subsequent years' targets
- Response and action taken for underperformance
- Obstacles faced during strategy formulation and execution
- Obstacles faced in performance measurement efforts
- Constitution of an "Excellent Academician"
- View with regards to the development of e-BSC to manage and measure the excellence of academicians
- UM or the faculty's aspirations for an ideal performance measurement system for academicians.

The interviews were taped and reviewed later while incorporating researchers' additional remarks. Meanwhile the survey questionnaire was administered to 20 academicians selected based on the number of years of service in the university and leadership positions held. The questionnaires used in the survey were distributed to the selected academicians who were briefed of the objectives of the survey and their role as the potential users of the proposed system. The academicians were also informed of the possibility of them being requested to take part in a follow-up testing procedure for the prototype of the proposed system. The selected participants were then given a short interval of time, specifically 2 weeks to complete the questionnaires. Consequently, the completed forms were collected by hand.

An observation on the current performance measurement system was also conducted to determine its strengths and weaknesses while assessing its suitability for academicians in UM. To do so, potential users were requested to demonstrate how the system worked and information required from the academicians in different instances. Following that, sessions were conducted among the researchers to propose improvements that may suppress the prevalent weaknesses in the current system and therefore use them in the system development process for the proposed system.

4 SURVEY AND INTERVIEW FINDINGS

4.1 Survey Findings

The following results were obtained based on the responses of the 20 participants selected for the survey questionnaire. As shown in **Figure 2**, a small percentage of negative response with respect to the comprehension of the vision and mission of the university and faculty confirms that there may be a minority group of staff who do not completely understand the future direction of the institution. Shockingly, this is also evident among associate professors. As such, this meant that whatever initiatives, activities and targets set and performed by the lecturers, they may not be strategically aligned to the vision and mission of the organization. All levels of the organization should be clear of the top management aspirations to ensure that the objectives of the university can be fully accomplished while maintaining staff conscience that all efforts contribute to organization-wide success. In other words, there is likelihood of an average to poor communication of top management goals to all levels of staff.

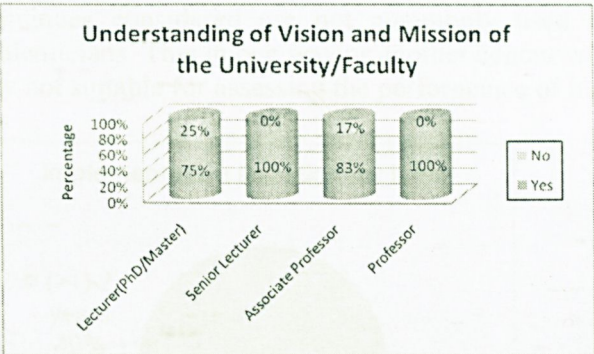


Figure 2: Understanding of Vision and Mission of the University/Faculty

The findings above indeed supports the fact that the current performance measurement tools do not provide a clear view of how the staff could support the Organization’s vision and mission. In **Figure 3**, the percentage of responses, over the total number of participants, with regards to the performance measurement tools that have been or are currently used in UM is indicated.

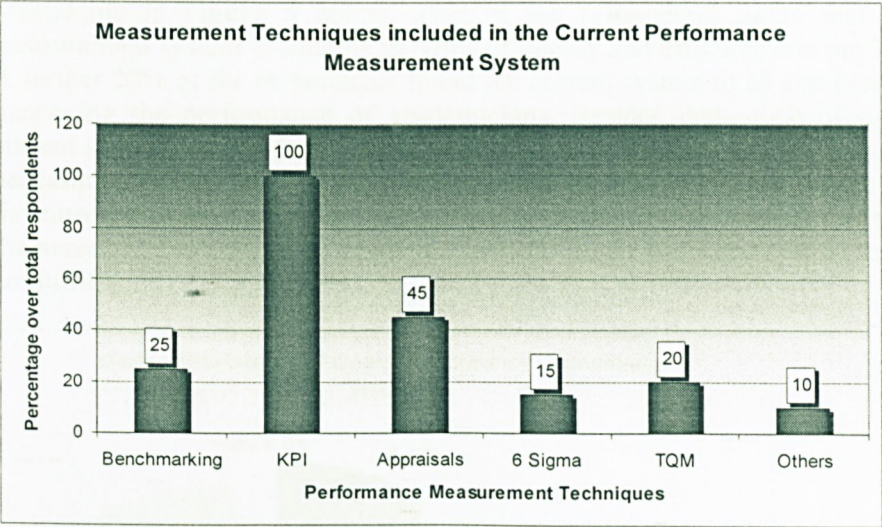


Figure 3: Performance Measurement Techniques Currently Used in the Organization

As illustrated in the figure above, all respondents selected KPI as one of the main techniques applied in the current performance measurement system. This gives firm evidence that the performances of academicians are measured with set targets for KPIs. With this finding, it provides the assurance that the concept of the BSC can be easily applied into the measurement system as KPIs can be readily integrated into the scorecard to further increase the strengths of both management tools. In addition to that, it is clear that the other performance measurement techniques considered are not commonly used as a form of performance measurement for academicians. This in one way or another concur with initial literature review that those techniques may not suitable for assessing the performance of individuals.

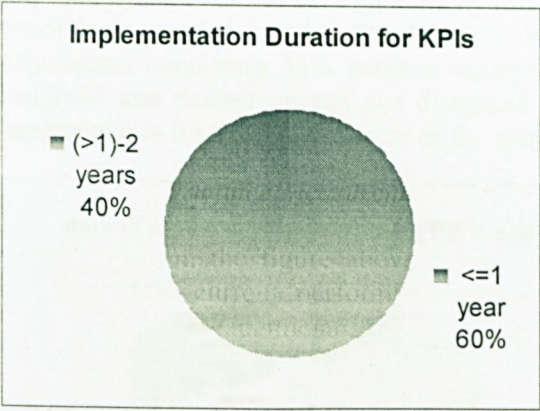


Figure 4: Implementation Duration for KPIs

Additionally, the results illustrated in **Figure 4** give clear indication that KPI have been recently adopted. The only problem with KPI when used independently is that KPI does not give clear translation and alignment of the KPIs to the vision, mission and strategy of the organization. Instead, it only indicates the rate of achievement with regards to accomplishing set objectives. By integrating the scorecard with set KPIs, the institution can ensure that focus is given to all sectors, namely financial, customer, internal business process and learning and growth that will contribute to the eventual success of the university.

Meanwhile in **Figure 5** below, most of the respondents agree that the current performance measurement system is suitable in terms of quality and effectiveness but improvements are needed. A further 20% of the respondents found the current system to be completely unsuitable in terms of measuring the performance of academicians. Besides that, none of the respondents found the current system to be sufficient and effective nor very effective. This result gives further reason to necessitate the development of a better performance measurement system provided observations on the current system is made to check where improvements are needed. With the information gained, the necessary improvements can be integrated into the proposed system to ensure user requirements are fulfilled.

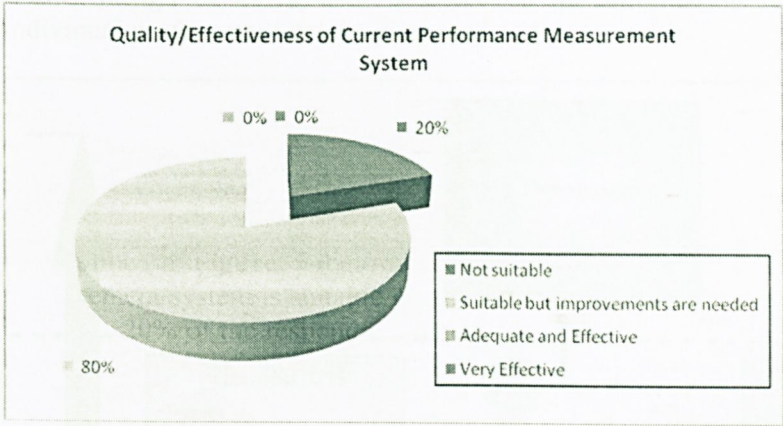


Figure 5: Quality/Effectiveness of Current Measurement System

Following the survey questionnaire distributed to the selected academicians in FCSIT, several important findings were established. **Figure 6** below shows the rate of agreement in developing the e-BSC. From the results obtained, there is substantial support from the potential users of the proposed system for the development of this project. A majority with a percentage of 55% of the respondents agreed to the development of the proposed system. Meanwhile, a portion of respondents consisting 35% percent strongly agreed to the project. Only 5% of the respondents disagreed and neither agreed nor disagreed respectively. The findings did not show any strong disagreements for the development of the project.

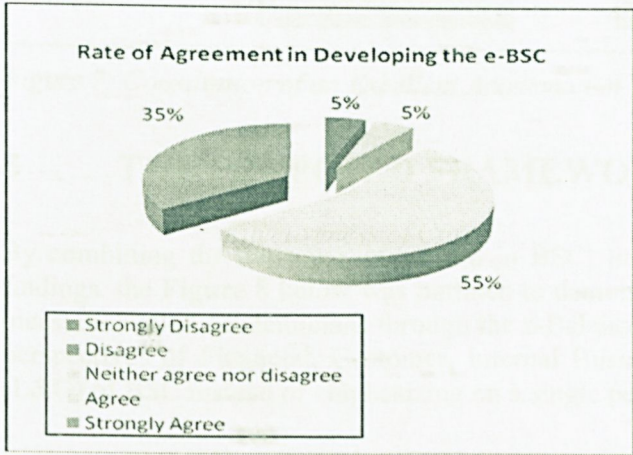


Figure 6: Rate of Agreement in Developing the e-BSC

4.2 Interview Findings

The main findings from the interviews with regards to the constitution of an “Excellent Academician” are shown in **Figure 7** below. Based on the interviews, publications (in terms of the publications’ high quality and the extensiveness of academicians in publishing their research findings in books, journals, etc) are considered to be the most important contribution while professional development and administrative duties are of lesser importance as the constitution of excellence in academicians. Henceforth, the development of the prototype for the proposed system will use these as inputs for the types of contributions expected by the top management. As such, further design of the system is based on the information required from the users to ensure individual performance can be measured.

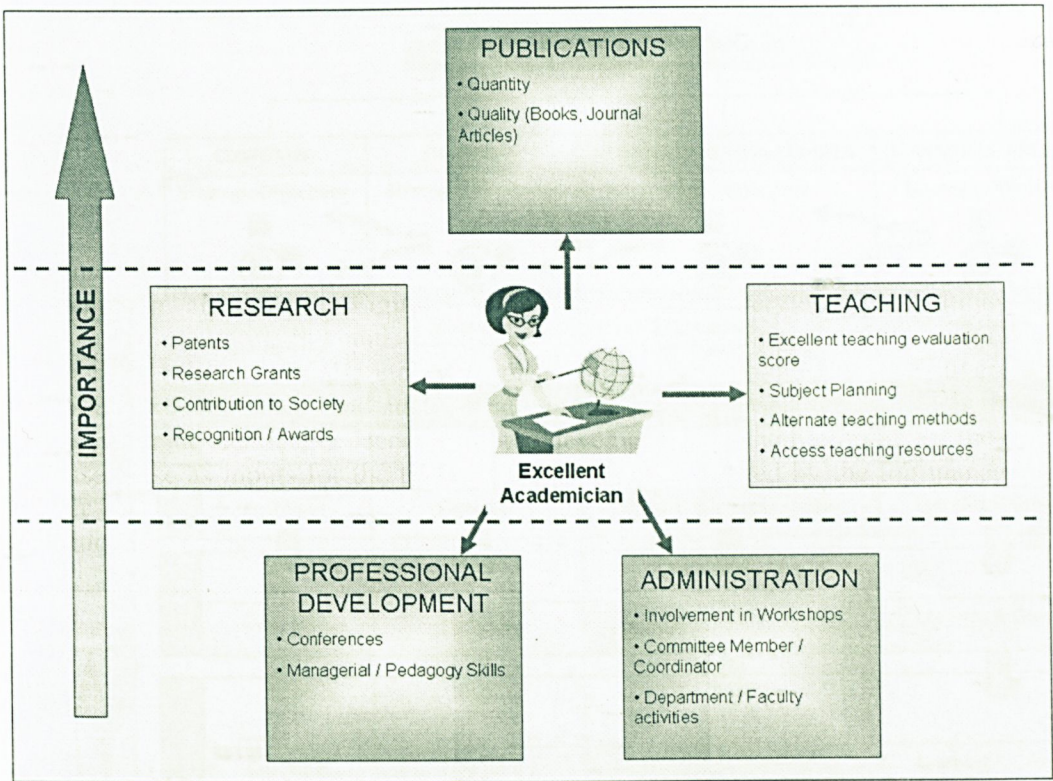


Figure 7: Constitution of an Excellent Academician

5 THE PROPOSED FRAMEWORK

By combining the concepts introduced in BSC, literature reviews and the survey and interview findings, the **Figure 8** below was outlined to demonstrate the proposed framework of performance measurement on academicians through the e-Balanced Scorecard (e-BSC). It takes into account the perspectives of Financial, Customer, Internal Business Process (IBP) and Learning and Growth (L&G) of BSC instead of emphasizing on a single perspective.

The vision and mission of the University are translated into strategic objectives that are connected by cause-and-effect relationships while categorizing them into the four BSC perspectives. Academic measures are defined accordingly for each strategic objective within the aspects of teaching and administrative loads, research/publications and other contributions to the society; and

later to be translated into key performance indicators (KPIs), as chosen by all respondents as one of the main techniques used in their current performance system.

This proposed framework suggested performance measurement of academicians to be done in three stages which are contracting, tracking and evaluation. Contracting involves the agreement of target setting while at the same time to notify the academicians of their responsibilities. In the tracking stage, it provides the ease to monitor how well each academician is doing within a period of formal performance review. At the end of the evaluation period, the performance of the academicians is evaluated respectively by the assigned appraiser or superior.

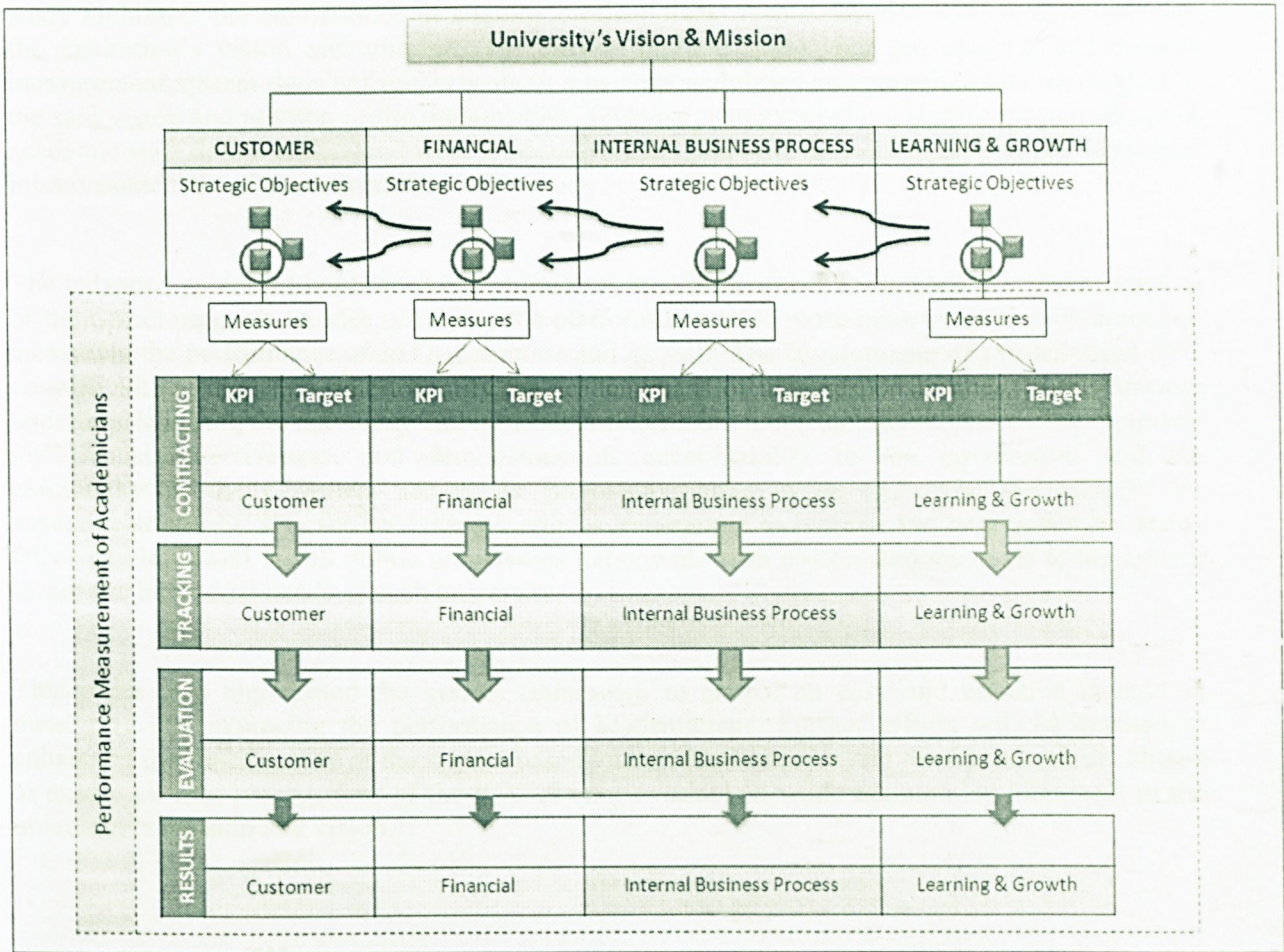


Figure 8: Framework of Performance Measurement of Academicians in UM

The final performance result is reported to top management as the input for the consolidated University's performance evaluation that takes the strength of BSC in measuring both the performance of the University as a whole as well as for an individual. While the vision and mission of the University can be effectively and easily communicated down, this proposed framework emphasizes in putting all performance measurement activities into the four BSC perspectives to measure overall performance of the University. The strategically top to down alignment of this

framework gives a clearer view of how the staff could support and commit to the University's vision and mission in the exact perspective.

6 CONCLUSION

This study contributes to a better understanding of positive impacts relative to the embracement of the BSC into the environment of higher learning education. A focus on performance measurement would raise the encouragement among academicians to deliver their performance promises and accountability for under performance. It draws the attention of institutions towards its performance achievement in order to gain confidence and satisfaction from internal and external customers. This study highlights the significance in aligning academicians' responsibilities and commitment with the institution's vision and mission. The survey findings show that the existing performance measurement system does not properly show how responsibilities and commitments are aligned to the said vision and mission of the organization. To make matters worse, a significant percentage of academic staff do not understand what is actually meant and how they could support the vision and mission statement of the university.

The balanced scorecard holds so much promise as an effective tool to enable better understanding of the corporate goals besides providing the platform to enable more objectivity in evaluating and measuring the performance of an Organization and its staff. The development of a full-fledged BSC coupled with a computerised system such as e-BSC is deemed appropriate for University Malaya to undertake in giving the university and its academicians more focus on internal processes to improve institutional effectiveness, and demonstrate its accountability to the government and the community. If the pilot test proves the proposed system to be successful and suitable for academicians in FCSIT, further research will be undertaken to propose the system for use at the university level and for all public universities nationwide with customizations made to the system to suit the individual needs of each university.

This paper also highlighted the system framework to enable an easy and effective method in measuring and managing the performance of academicians. Further efforts will be devoted to enhancing the functionality of the system based on user requirements and the framework developed to ensure all four perspectives of the BSC are not overlooked while maintaining alignment to the university's mission and vision.

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References

- Anon (2008). Move to improve education system in varsities. *The Star Newspaper*, 12 February. [<http://thestar.com.my/news/story.asp?file=/2008/2/12/nation/20298168&sec=nation>]
- Assiri, A., Zairi, M., and Eid, R. (2006). How to profit from the balanced scorecard. *Management and Data Systems*, 106(7), 937-952.
- Ballantine, J., Levy, M. and Powell, P (1996). Against Taylor-made solutions: Information system strategy in a learning organization. *SIGCPR/SIGMIS '96*, 36-48.
- Bendell, T. (2006). A review and comparison of Six Sigma and the lean organizations. *The TQM Magazine*, 18(3), 255 – 262
- Coens, T. and Jenkins, M. (2002). *Abolishing Performance Appraisals: Why they backfire and what to do instead*. San Francisco, CA: Berrett-Koehler Publishers
- Cardoso, E., Trigueiros, M.J., and Narciso, P. (2005). A Balanced Scorecard Approach for Strategy- and Quality-driven Universities. *Proceedings of the 11th International Conference EUNIS 2005*, Manchester, UK.
- Deming, W. E. (1966). *Some Theory of Sampling*. USA: Courier Dover Publications.
- Fernandes, K. J., Raja, V. and Whalley, A. (2008). Lessons from implementing the balanced scorecard in a small and medium size manufacturing organization. *Technovation*, 26(5-6), 623-634.
- Fraenkel, J. R. and Wallen, N. E. (1990). *How to Design and Evaluate Research in Education*. Highstown, NJ: McGraw Hill Publishing Co.
- Hamid, S., Yu, M.L. and Soo, H.P. (2008). 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
- Kish, L., Kalton, G. and Heeringa, S. (2003). *Leslie Kish : Selected Papers*. Hoboken, NJ: John Wiley & Sons Inc. Publications
- Marr, B., and 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.
- Kaplan, R. S. and Norton, D. P. (1996). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review*, January-February 1996, 1 – 13.
- Kaplan, P.S., and Norton, D.P. (2001) The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment. Boston, MA: *Harvard Business School Press*.
- Lawson, R., Stratton, W. and Hatch, T. (2004). Automating the Balanced Scorecard. *CMA Management*, February 2004. [http://www.managementmag.com/index.cfm/ci_id/2747/la_id/1.htm]
- Niven, P. (2006). *Balanced Scorecard Step-by-Step: Maximizing Performance and Maintaining Results*, 2nd edn. USA: Wiley.
- Ramachandran, S. and Foo, H. (2007). Public Universities Fail Outstanding Test. *The News Straits Times*, 3 November, p.6 [http://www.nst.com.my/Current_News/NST/Saturday/Frontpage/2075659/Article/index_html]
- Rowley, J. (2000). Is Higher Education ready for Knowledge Management? *The International Journal of Education Management*. 14 (7). 325 – 333.

- Shun-Hsing, C., Ching-Chow, Y., and 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., and 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.
- Sutherland, T. (2000, Summer). Designing and implementing an academic scorecard. *Accounting Education News*, 11–13.
- The Paul Coverdell Prototype Registries Writing Group (2005, June). Acute Stroke Care in the US. *Stroke*, 2005; 36, 1232-1240.
- Tuoghy, D. (2003). Student Nurse-Older Person Communication. *Nurse Education Today*, 23(1), 19-26.
- Umashankar, V., and Dutta, K. (2007). Balanced scorecards in managing higher education institutions: an Indian perspective. *International Journal of Educational Management*, 21(7), 54 – 67.
- Wessel, G. and Burcher, P (2004). Six-sigma for small and medium enterprises. *The TQM Magazine*, 16(4) 264 – 272.