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IMPROVING PERFORMANCE MEASUREMENT PRACTICES IN CONSTRUCTION ORGANISATION

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ABSTRACT

Performance measurement (PM) is being practised by a variety of construction organisations and many are aware of its importance to them. It is necessary for organisations intending to extend businesses locally or globally and as an important ingredient for the strategy development process. The paper contributes to a growing body of knowledge on PM and describes a maturity model to help organisations to structure and organise the PM practices. In particular, it explores the importance of PM and potential tools such as the Balanced Scorecard (BSC) and the European Foundation for Quality Management (EFQM) Excellence Model. These two tools are widely known and the most used in all sectors including construction to measure organisations' performance. This paper focuses on current PM practices in two countries, UK and Malaysia. Information on knowledge and understanding of PM, PM processes, criteria, tools and models used and challenges in implementing PM was gathered using semi-structured interviews with twelve large construction organisations. The purpose of interviews was to seek the organisations' views on how they approach and conduct PM and derive benefits from it. Results indicate that organisations understand what they can gain from implementing PM. It is being practised in organisations to help improve business and gain more profits. Involvement of all staff, managerial level to bottom level, is important either directly or indirectly in the PM process. Furthermore, all organisations agreed that the appropriate use of tools and models to measure performance simplifies the process and indicates how organisations can move in future. Financial and non-financial aspects are evaluated and measured for assessing organisations' performance. However, PM for organisations remains a challenge. It is seen that organisations face difficulties not only in understanding the PM process but also where appropriate data for measuring performance can be sourced. A critical analysis of the literature reviewed and the interview results lead to ways of helping organisations to target relevant performance measures, based on their maturity level.

Keywords: Balanced Scorecard (BSC), Construction Organisations, EFQM Excellence Model, Performance Measurement (PM)

INTRODUCTION

Many large organisations have realised the importance of measuring organisations' performances. It is an integral part of management and thus may have been exercised ever

since management has existed (Bassioni et al., 2004). These days, organisations are looking to PM as an additional way to increase their profit, enlarge their market and strengthen their existence in industry. PM creates understanding as well as helps to facilitate competitiveness (Theeranuphattana and Tang, 2008). Organisations with the vision to expand their businesses and markets will look at PM as an approach to help them identify what they need to do to move forward from their current stage to a future stage with the highest possible movement they can.

As PM is required for organisations in extending their business not only in local but also in international level, PM is being practised in many countries such as in the UK as well as in Malaysia. PM is not a new agenda to the UK as it has been implemented formally after government initiated the Latham Report in 1994 and the Egan Report in 1998. Since then, many organisations aware of PM and its importance for improving business of their organisation. The declaration of developed country for Malaysia in year 2020 has brought the country to look seriously on PM. Many organisations in the country believe that PM can bring them to an international level as what has been listed as one of aim for vision of 2020. There is a need for Malaysia to learn from other developed countries such as UK as PM has growth early in their industry and they really understand PM and more of it as an approach that can help organisations identify way to improve their businesses. Therefore, this paper focuses on the importance of PM to organisations and current practices of PM in the construction industry of two countries. An introduction to a maturity model to facilitate the implementation of PM processes will be described. The model is produced as an alternative way to improve PM practices in construction organisations based on studies in the two countries.

IMPORTANCE OF PERFORMANCE MEASUREMENT

Over the past decade, many organisations have been alerted to the importance of measuring performance of their businesses. They understand that measurement can help them to realise their business potential for sustaining long-term competitiveness. The changing nature of work such as increasing competition, specific improvement initiatives, national and international quality awards, changing organisational roles, changing external demands and the power of information technology have driven organisations from all sectors to search for ways of monitoring and improving performance (Neely, 1999; Beatham, 2003; Robinson et al., 2005).

PM has been used to assess the success of organisations (Kennerley and Neely, 2003). It has also been used by a number of organisations with the intention to improve their performance in business management. PM is an additional way for identifying the strengths and weaknesses as well as opportunities and threats of organisations either in financial or non-financial aspects (Hoque, 2004). The main reason why organisations measure their performance is to identify their level of excellence in financial terms such as return on investment (ROI) or net earnings and non-financial such as leadership, customer satisfaction and policy compared to their competitors. The results gained from measuring performance in these two aspects will be used to create and develop strategies for the organisation in achieving its aims and objectives in business. It is used as well to attract future investment, increase share value and recruit high calibre employees

(Kagioglou et al., 2001). PM is used as a business tool for formulating corporate strategy (Yu et al., 2007). Acceptance of PM in the strategy development process is a way to make sure that organisations take good consideration of all aspects when developing their objectives and goals (Luu et al., 2008). An organisation not only has to consider what it intends to achieve in the future but also to accept PM as a consideration for making its goals and objectives more realistic, achievable and accepted by everyone for a brighter business future.

BALANCED SCORECARD AND THE EXCELLENCE MODEL

These two instruments are amongst the established instruments using measures of an organisation's performance to drive organisational improvement. This is done by highlighting to management teams current shortfalls in performance. Both have been widely adopted in recent years (Shulver and Lawrie, 2007) as useful to business of any type, sector and public as well as private. They are broad ranging (EFQM, 2008), combining traditional financial measures such as profit margin, growth and cash flow with non-financial such as workers' performance, customer satisfaction and human resources (Latiffi et al., 2009). Both performance measures have their characteristics and advantages in making them widely used in industries.

The Balanced Scorecard (BSC), developed in 1992 by Professor Robert Kaplan from Harvard Business School and David Norton, President of Renaissance Solutions, is a tool that provides managers with richer and more relevant information about activities they are managing thus increasing the possibility of organisational objectives being achieved (BSC Institute, 2007). It uses specific Key Performance Indicators (KPIs) to assess organisations' performance. They must measure key strategic mechanisms for implementing and judging strategy for business (Beatham, 2003). BSC consists of four perspectives to be measured (Bassioni et al., 2004; Dalrymple and Bryar, 2006): financial, customer, internal and learning and growth.

The Excellence Model is based on practical experience of organisations across Europe (Pyke et al., 2001). It is a practical instrument to help organisations by measuring where they are on the path to excellence, helping them understand the gaps and then stimulating solutions (Beatham, 2003; BQF, 2001). This instrument is known as a primary model for assessing and improving organisations in order that they may achieve sustainable advantage and use it as well as a management system and associated growth in the key management discipline of organisational self-assessment (Marrewijk et al., 2004). It is structured following nine basic criteria, five at enablers level and four at results level and 32 sub-criteria detailing scope and application of the model (Pyke et al., 2001; Shulver and Lawrie, 2007). Enablers comprise leadership, policy and strategy, people, partnership and resources and processes. Results contain customer results, people results, society results and key performance results (Shulver and Lawrie, 2007; EFQM, 2008). The criteria have a prescribed weighting. Enablers concentrate on how the organisation is run and operated. Results concentrate on what is seen to be achieved, by all those who have an interest in the organisation and how achievement is measured and targeted (Pyke et al., 2001; Marrewijk et al., 2004). Table 1 shows information on strengths and weaknesses of the instruments.

Table 1: Strengths and weaknesses of BSC and EFQM Excellence Model

ITEM	BSC	EFQM EXCELLENCE MODEL
Strengths	<ul style="list-style-type: none"> Provides manager with instrumentation needed to navigate to future competitive success (Kaplan and Norton, 1996) 	<ul style="list-style-type: none"> Helps define and assess continuous improvement of an organisation (Beatham, 2003; Shulver and Lawrie, 2007). Delivers total business improvement using a holistic approach (Beatham, 2003). Relationships between enablers and results criteria give strength to model.
Weaknesses	<ul style="list-style-type: none"> Useful only if applied correctly. Potential benefits depend on how it is to be used (BSC Institute, 2007). Number of potential mistakes when implementing BSC (Kagioglou et al., 2001): <ul style="list-style-type: none"> - Measuring wrong things even if measured in right way. - Assuming some un-measurable or people undertaking activities are too professional to measure (rather than measuring all necessary activities). - Yielding to conflict between managers along functional lines. 	<ul style="list-style-type: none"> Self-assessment process needs to be applied rigorously in order to be effective (Shulver and Lawrie, 2007). Self assessment does not improve organisation by itself – Subsequent improvement activity is needed. So there must be follow-up to get benefit (D&D, 2008).

DATA COLLECTION METHOD

To establish current PM practices, semi-structured interviews were conducted with twelve large construction organisations in the UK and Malaysia, six from each, involved in building and civil works as well as services such as infrastructure.

Interviews and Procedure

The interviews were a major part of data collection on current practices in PM in the UK and Malaysia. The purpose is to identify the differences in implementing PM for running businesses so as to understand the loop from PM and identify the needs of both countries. Considering this, the interviews had four objectives:

- To identify knowledge and understanding of PM in construction organisations.
- To assess current practices and effectiveness of PM in construction organisations.
- To identify PM tools and models used in the organisations.
- To identify the relationship between PM and strategy development.

The face-to-face interviews involved twelve managerial staff of different organisations. All selected interviewees have many years of experience with the industry. Ten had more than 10 years' direct experience in PM and another two had less than 10 years. They all are responsible for the development of PM in their organisations. They all are involved directly with arranging, managing, implementing and evaluating organisation performance.

The interviews consisted of questions developed for the purpose of gaining information mentioned above on the reasons for implementing PM, PM processes, tools and models used, relationship between strategy development and PM, and challenges to implementing

PM and approaches to addressing them. Information obtained was then analysed, evaluated and presented using a content analysis approach.

INTERVIEW FINDINGS

The interviews provided an in-depth analysis of issues critical to the implementation of PM and the following is a summary of the key findings.

Knowledge and Understanding of PM

PM is being practised to improve business in the sense of making improvements in the process of projects and overall business organisation. All interviewees agreed that PM is an approach that can help to maximise profits and provide opportunity for organisations. PM leads to a positive approach in businesses by identifying potential areas to be improved by organisations and helps them in creating and developing strategies for organisations. It can assist in identifying their needs for strategy development and mitigating risk. More benefits they can obtain through implementing PM are creation of high productivity in work, more efficiency from employees in delivering their tasks and managing resources, as well as enhancing organisation reputation and market position.

PM Processes

Staffs of a wide spectrum of responsibility are involved either directly or indirectly in the PM process. Employees play their role by supporting managerial staff in doing their tasks and delivering good work to the organisation. Managerial staffs are responsible for assisting business and functional units' staff in their tasks and aligning these with the organisation's target. They decide on organisation targets needing to be achieved every year. Cooperation among them is necessary to ensure that the PM process can be implemented smoothly and run successfully.

Performance Criteria Measured

Financial and non-financial aspects have been measured in organisations. Four criteria: business performance, staff or workers, customers or clients and society have been used to measure the results of business performance. Some of the criteria were measured monthly and some yearly. All organisations mentioned that identification of criteria is based on organisation needs.

PM Tools and Models

All respondents agreed that PM tools and models are needed to measure performance. The tools and models used by all respondents are BSC, Excellence Model, Key Performance Indicators (KPIs) and ISO 9000/1, 14001 and 18001. Apart from that, some create their own instruments. The important criteria needing to be considered in choosing appropriate tools or models for PM are results anticipated and those must be best suited to the organisation's business. In addition to that are simplicity to use and the action to put in place the measurement element. The type is not important as long as they can measure things that need to be measured correctly. One UK respondent stressed that the most critical things are what action can be taken after measurement and delivering the right

choice for the organisation to improve business. Another from the UK added that the use of PM tools and models is also influenced by clients. It is not about measurement but about what you do with the information and how to improve it. Other factors influencing selection of tools and models are clients' requirements and government requirements. This is happening in Malaysia as every construction organisation needs to implement ISO if it wants to get government projects. All respondents mentioned that nothing more needs to be changed in the tools and models they use at the moment. They stressed that they first need to determine what they have to establish (stabling what already has already been used and practised) rather than thinking about using different types of tools and models.

Relationship between PM and Strategy Development

The interviews revealed that there are direct relationships between PM and strategy development. The former influences the latter at all levels of the process. It involves everything from the planning stage or where their project should go to what the organisation needs to do in the implementation and evaluation stages. All agreed that PM is one of the key success indicators for organisations to achieve objectives or targets and strategy.

Challenges in Implementing PM

Based on the interviews, there are challenges in implementing PM. The challenges are as follows:

- Changing people's mindset about PM is the most challenging part in implementing PM. Some staff or workers are afraid of existence of feasibility in evaluation and assessment of their performance by their leader. The leader has a tendency to evaluate their performance and level their performance based on feelings and emotional or personal reasons.
- Some staff or workers think that by implementing PM in organisations, they have to work much harder than they should. Furthermore, staff try to justify the measurement (justify what we are) rather than understand how to achieve the target.
- For organisations new to PM, one of the challenges is to really understand in depth the PM process of the organisation and the way to make it easy to be implemented and followed by all staff or workers and aligned with the existing management practices in the organisation.
- Using numerous PM systems in an organisation can create difficulty for staff. It brought difficulty to one in the way of delivering information to the right person in the fastest way.
- Many staff or workers are unaware of what they have to measure and what they can get from what they measured. It is easy for managerial staff to come out with a list of criteria needing to be measured by the organisation. The managerial staff might not have any problem or difficulty to understand what needs to be measured but it can be a problem and difficult for staff at functional level, especially the new ones unfamiliar with PM.

Mistakes in measuring performance and fully understanding the criteria needing to be measured will bring unacceptable results for organisation performance.

STRATEGY APPROACH

Based on current studies in the two countries, levels of understanding in organisations are similar. They look at PM as an approach to improve businesses and understand what PM can do more for organisations, such as increase profits and identify risks for them. They can do this by measuring the organisation's performance in a certain period (depending on the organisation, some measure their performance every year, some every six months, etc.). Results of measurement can be used as references for organisations to develop strategies that can improve their businesses by earning more profits and sustaining them in the market. An action plan can be made for any risks and problems that can cause difficulty to organisations in achieving their businesses target.

Even though they tend to understand the use of PM, there are still organisations which need to be guided properly in the way that they think of PM. There is more that PM can do for an organisation. It can be used to identify organisation capability level in terms of financial and non-financial aspects compared to their competitors. Apart from that, lack of understanding of roles and tasks of each member of staff, especially in the functional level in PM, have brought difficulties and have made the PM process become complicated.

The difficulties and challenges in implementation of PM lead to improving PM practices by developing a maturity model. There is a need to look at the maturity of PM practices on the way to improve them in organisations. It is clearly understand that there is a need for a structured approach to facilitate and benchmark implementation attempts.

PERFORMANCE MEASUREMENT MATURITY MODEL

A maturity model is proposed to help organisations to structure and organise the PM practices in their organisations and as an indicator of their maturity with respect to PM. It is a tool for organisations to benchmark their PM activities and to develop a PM strategy that would improve their activities. The model has been produced by taking the Capability Maturity Model (CMM) and STEPS as references. STEPS is an example of a model created and developed for the construction industry. Even though it was created for knowledge management (KM), its purpose is similar to that of the model created for this research. STEPS is there to provide a mechanism for organisations to benchmark their KM activities and to develop a KM strategy to improve them (Robinson et al., 2006). CMM is a good example of a maturity model (Harter et al., 2000). It was developed as a tool to improve software development processes. It can be used over and over by organisations and is known as a maturity model of an organisation's software process in industry. Most existing maturity models are based on CMM, one of the earliest complete maturity models (released in August 1991), well known in industries (Paulk et al., 1993). The purpose of the model is to classify the maturity of an organisation's PM development in business process. It can be used to guide the effective PM process for creating and developing organisations' strategies and aid in improving organisational business in diverse areas by guiding the organisation into the appropriate way and towards being more methodical in implementing PM to get results for organisation improvement.

Concept

The concept of the maturity model is shown in Figure 1. The model is composed of five levels and moves upwards from Level 1 (lowest) to Level 5 (highest). Each level comprises several key aspects that need to be addressed. In Level 1, the lowest level of the model shows PM knowledge level and readiness of organisations for using PM in the organisation's management. The highest level in the model, Level 5, is where an organisation has awareness to extend PM to other business units and offices. Each level needs to be accessed to make sure that the model's purposes can be achieved. It is important to note that no level can be left out as the purposes of the model cannot then succeed. Each level contains different characteristics to achieve sustainability. Different organisations need different time scales to accomplish each level as every organisation has a different time of implementation of PM and different plans, strategies, aim and objectives they need to achieve.

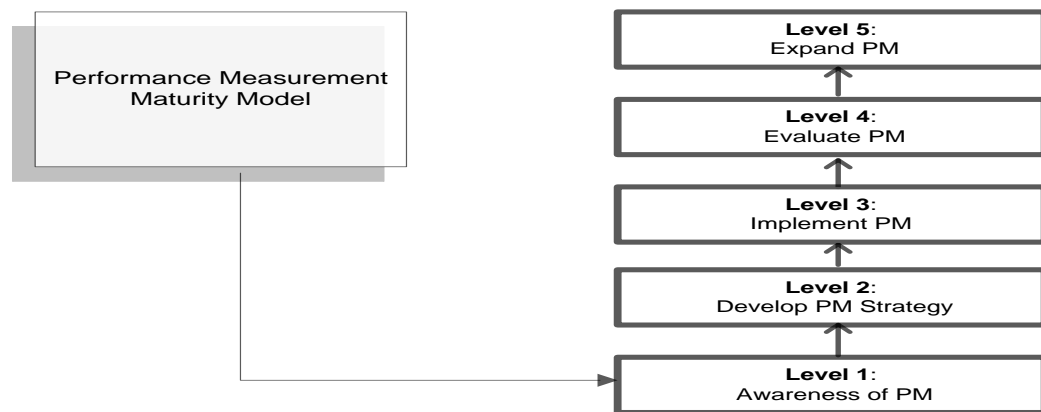


Figure 1: Concept of Maturity Model

The model contains several key aspects under each level as follows:

- *Level 1: Awareness of PM.* This level focuses on identifying organisation awareness of PM. The organisation understands its direction in future business and tendency to achieve success with PM. At this level, the organisation identifies level of PM knowledge and readiness for using PM in the organisation's management.
- *Level 2: Develop PM strategy.* This level involves developing and creating convenient PM activities. Strengths, weaknesses, opportunities and threats of organisations in their business are justified for smooth PM processes.
- *Level 3: Implement PM.* This level requires managing PM in the organisation. It involves how organisations manage and formulate the PM process.
- *Level 4: Evaluate PM.* This level is characterised by assessing PM process, improving action of PM and the organisation's action on PM implementation.
- *Level 5: Expand PM.* At this level, awareness of PM is expand or extend to other business units and offices. This will be a way to increase the scale of PM processes.

As PM becomes institutionalised, sustainability of PM appears in each level and its cycle in the model. Sustainability level appears in each level after all five levels have been gone through by organisation.

CONCLUSIONS AND FURTHER WORK

This paper has demonstrated that PM is used as an important way of improving performance of organisations and to sustain business in the long-term as well as creating and developing strategies. It is not an individual's agenda but it is the responsibility of all staff and also organisation for the benefits of both parties. Current practices in PM revealed the same in two different geographic countries, The UK and Malaysia. Based on current practices in the two countries, there are differences that have been identified in implementing PM. These are duration in implementing PM and the tools and models used in measuring process. Organisations in the UK implemented PM much longer or earlier than organisations in Malaysia. They used different PM tools and models in measuring performance in PM process. Apart from that, organisations created their own tools to fit with their need and suitability of their business. The advancement in PM of UK organisations can be adopted and learnt by other countries. As PM is becoming important to organisations in Malaysia in gaining opportunity to further business locally and globally, improvement should be made in the level of awareness of PM as well. Lessons learnt from UK will help them in improving their PM process and make it easy to be understood and followed by all staff in organisations.

There is a need to identify the maturity of PM in Malaysia organisations as it shows and guide organisation to appropriate way in PM process. The maturity model shows organisation benchmarks in the PM implementing process that would improve organisations' PM activities. The development of the model could help organisations in running PM in a more well-organised and systematic way. After model development, a migration path will be developed. The purpose of developing a migration path for this research is to explore how organisations move from a current level to another level in improving businesses with PM.

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