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Measuring strategic performance in construction companies: a proposed integrated model

Strategic performance in construction companies

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Abstract

Purpose – This paper aims to examine and compare a performance measurement system and performance frameworks commonly used within the construction industry. The paper explores the strengths and weaknesses of balanced scorecard (BSC) and business excellence model (BEM) to propose an integrated model for measuring strategic performance of construction organisations as a single model. The purpose is to help organisations achieve performance excellence, financial integrity and continuous improvement in business results to sustain competitive advantage.

Design/methodology/approach – This paper examines and compares performance measurement system and performance frameworks commonly used within the construction industry. The paper explores the strengths and weaknesses of BSC and BEM to propose an integrated model for measuring strategic performance of construction organisations as a single model. The purpose is to help organisations achieve performance excellence, financial integrity and continuous improvement in business results to sustain competitive advantage.

Findings – The study reveals that the most popular performance measurement framework in construction includes: BSC; Key Performance Indicators and European Foundation for Quality Management. However, literature also reveals that Malcolm Baldrige National Quality Award is being used to measure performance in the construction. The study findings indicated that BSC and BEM could be combined to provide an integrated model that will encompass every facet of construction performance measures.

Research limitations/implications – The paper integrates the BSC and BEM performance measurement models, to provide construction organisations the opportunities of benefitting from the two models as a single tool without having to use more than one model or miss out any important aspect of performance measures. The model will assist organisations perform regular health checks of all business process and at the same time help align organisational activities with strategic primacy.

Practical implications – The paper offers an integrated construction excellence model as a useful tool for measuring both financial and non-financial performance aspects of construction organisations. This will provide managers, owners and other stakeholders the chance of measuring processes and pre-eminent strategic initiatives using a single model.

Originality/value – The conceptual paper presents an integration of processes and perspectives for measuring performance as a new and useful tool in the context of the South African construction



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industry. The paper suggests that research efforts should be directed on how to implement the strategic performance model efficiently within a specific construction environment.

Keywords Performance measurement, Construction company, Construction industry, Performance model, South Africa, Strategic performance

Paper type Research paper

Introduction

The growing importance of performance measurement has made performance measurement systems to be recognised by researchers as the required efforts to support continuous improvement methods and measure the effectiveness of organisations' actions (Garengo *et al.*, 2005). Performance measurement is a task undertaken by most organisations with different manners of approach. Different techniques have been employed globally to measure performance, and the concept has drawn more attention from researchers (Niven, 2002). Parker (2000) contends that many organisations measure performances methodically and comprehensively, while some adopt an unplanned approach or do it sketchily. However, construction organisations have yet to reap benefits, in spite of the level of awareness of performance measurement and high prioritisation of the concept on the programme of many construction organisations (Bassioni, 2004).

The construction industry has an age long history of sub-optimal performance in every aspect of performance, from health and safety to strategic management performance (Price, 2003; Ankrah *et al.*, 2009). Pun *et al.* (1999) assert that proliferation of performance frameworks require adequate attention in their selection to yield desired outcomes. There is also the difficulty of finding a perfect balance between organisation strategies and the numerous performance measurement frameworks in use (Wongrassamee *et al.*, 2003).

This study therefore reviews performance measurement frameworks in general use and with emphasis on those applicable to the construction industry. The study investigates whether a perfect balance between organisation strategies and performance measurement framework could be established. To this end, the study covers key performance frameworks in use in construction and presents the elements common to strategic performance measurement frameworks in the next section. Finally, the study proposes an integrated model for strategic performance measurement, which would be significant to construction organisations, managers and other stakeholders, as they measure performance within their entities.

Review of performance management literature

Performance measurement and system defined

The measurement of performance is central to decision-making and judgement by organisations, but despite a plethora of research on the concept of performance and its measurement, the definition of the term remains inconclusive. Keats and Hitt (1988) opine that the concept is viewed as problematic both in terms of definition and measurement. Bassioni (2004) also argues that the definition of performance, performance measure, performance measurement and performance management processes are rarely given in literature, when dealing with the issue of performance. EFQM (2003) views performance as a measure of an individual, a team, an organisation or a process level for goal attainment achieved. In other words, performance is a measure

of how effective and efficient the mechanism/process put in place by an organisation attains its desired results (Wu, 2009). Neely *et al.* (1995) and Capon (2008) underscore effectiveness and efficiency to be the two basic components of strategic control and performance. Neely (1998) acknowledges that for an organisation to achieve superior performance relative to its competitors, it must accomplish its targeted objectives and mission, with higher efficiency and effectiveness than its industry rivals. Effectiveness as an element of performance connotes the degree to which stakeholder requirement is achieved, while efficiency, measures how well the organisation utilises its resources and capabilities economically to meet requirements or desired levels of stakeholder satisfaction (Wu, 2009).

Neely (1998) describes performance measurement as a process of quantifying the efficiency and effectiveness of past actions through acquisition, collation, sorting, analysis, interpretation and dissemination of appropriate data. Neely *et al.* (2005, p. 1229) view performance measurement system “as the set of metrics used to quantify both the efficiency and effectiveness of actions”. However, this study adopts the definition of performance measurement given by Nanni *et al.* (1990) who view performance measurement system “as a means of monitoring and maintaining organisational control, which is the process of ensuring that organisation pursues strategies that lead to the achievement of overall goals and objectives”.

Performance management

Bititci *et al.* (1997) in their development of a guide for integrating performance measurement systems distinguish between performance management and measurement. Where they view performance measurement as the process of investigating how effective organisations or individuals actions are in achieving success, and achieving their strategic objectives, similar to Nanni *et al.* (1990). On the other hand, Bititci *et al.* (1997) consider performance management as the process through which the organisation manages its action or process of performing strategic task, or function in line with its set corporate and functional strategies and objectives. Performance management process is viewed as a closed loop control system which assists organisations in their deployment of mission, strategic direction, policies and strategies and receives feedback from various levels (corporate or functional) to manage the outcome of the actions of the system.

Overview of performance measurement models

The competitive nature of the construction business environment is compelling construction organisations to re-design their strategies to survive, and become more competitive. Towards this end, construction organisations re-evaluate their strategies by measuring their performance to monitor the outcomes of their strategies and strategic objectives, thus identifying gaps for performance improvement. Many organisations use traditional accounting measures of performance in making their decisions, but these measures of performance are considered inadequate for strategic decision-making. Bourne *et al.* (2000), Kaplan and Norton (2001) and Gomes *et al.* (2004) summarise the criticisms of these traditional accounting measures to include:

- backward looking and historical in nature;
- lack predictive ability to explain future performance trend; and
- provide information only on root causes.

Other shortcomings identified include:

- inability to provide linkages between financial numbers and non-financial metrics;
- inability to offer report on cross-functional processes;
- lack of consideration for intangible assets;
- lack of new measures to provide more descriptions with few numbers in broader context; and
- poor ability to aggregate from an operational level to strategic level.

To overcome these shortcomings, more comprehensive frameworks have been designed to combine both financial and non-financial measures of performance. Many of these frameworks subscribe to the fact that measures of performance should be designed from the organisations' strategy and fashioned in a manner that will fit to specific organisations' characteristic and structure (Neely *et al.*, 2000a). These will provide clear gaps in performance that require measuring by organisations. Neely *et al.* (2000b) provide a summary of characteristics of performance framework design process and these include that:

- performance measures should originate from the organisations' strategy; and
- the purpose of each performance measure should be explicit enough.

Nelly *et al.* added that collection of data and methods of calculating the level of performance must not be ambiguous. They suggest that all stakeholders have to be involved in the selection of the measures. Further, performance measures that are selected should take organisations' specifics into account, and the process should be flexible to permit revisiting the measures in case of changes in circumstances.

Performance measurement in the construction industry

The perspectives of performance measurement have expanded beyond focuses on cost, time and quality to company performance measurement which is usually evaluated using traditional accounting system. Yang *et al.* (2010) posit that performance measurement in the context of construction centres on three different levels, namely: project, company and stakeholders' levels. The review provided in this study looks at the corporate performance of organisations within the construction industry. It presents some integrated approaches and multi-faceted corporate performance measurement, developed since the late 1980s that combine both financial and non-financial measures (Ghalayini and Noble, 1996; Neely, 1999). Wongrassamee *et al.* (2003) categorised the models into groups, to include models that lay emphasis on self-assessment such as the Deming Prize (Japan and Asia), Baldrige Award (USA) and European Foundation for Quality Management (EFQM) Award using business excellence models (BEMs) (Europe). Other models designed to assist leaders/managers measure and improve business performance include Capability Maturity Matrices, Performance Pyramid, effective progress and performance measurement and the balanced scorecard (BSC). However, the need for framework and brief explanation of some of the most frequently used frameworks in the construction industry, as argued by Robinson *et al.* (2005), is provided in the following sub-headings.

The need for performance framework

Different definitions of framework exist in literature, [Deros *et al.* \(2006\)](#) define a framework as a set of theory or knowledge used by individuals as a basis for judgement or decisions. [Deros *et al.* \(2006\)](#) assert that failure or poor implementation of new approaches to improving quality and performances of organisations necessitate the design of frameworks. In addition, [Brown and Devlin \(1997\)](#) define performance measurement framework as a complete set of performance measures and indicators derived in a manner that is consistent to set of rules and guidelines stated in performance measurement systems. Put succinctly, [Aalbrecht *et al.* \(1991\)](#) reiterate the reasons for having frameworks as:

- illustrating an overview and communicating a new vision to organisations;
- forcing management to address a substantial list of key issues, which otherwise might not be addressed;
- giving valuable insights into organisations strengths and weaknesses, and its overall strategic position in the market-place; and
- supporting implementation and improving the chances of success.

Performance framework is systematic identification of process or procedure that will guide the thinking and implementation of change efforts or where failure requires adequate attention. As a result, [Medori and Steeple \(2000\)](#) itemise the required steps to be followed or put into consideration in developing a framework and these include:

- establishing procedures for selecting and implementing measures;
- determining whether existing measurement system is up to date and can measure critical issues (i.e. audit capability);
- selecting measures congruent with company strategy and have a strong relationship with six core competitive priorities (quality, cost, flexibility, time, delivery and future growth); and
- selecting measures from a data bank and workbook approach (a step-by-step methodology).

Performance measurement frameworks in construction

The revolution in performance measurement systems in the business environment has made countless frameworks and models available from diverse backgrounds for measuring corporate performance ([Neely and Bourne, 2000](#)). The revolution that led to the development of these frameworks was as a result of the inability of conventional metrics to give a complete picture of organisational performance in the ever-changing market that characterises business environments ([Stone and Banks, 1997](#)). Many of the archetypes or models evolved for adoption in business come with significant diversity both in design and implementation. The most frequently adopted frameworks in construction identified by [Robinson *et al.* \(2005\)](#), includes BSC, EFQM and the key performance indicators (KPIs). [Lam *et al.* \(2008\)](#) also used Malcolm Baldrige National Quality Award (MBNQA) to assess the strengths and weakness of contracting organisations in Hong Kong for continuous improvement accomplishment. These frameworks were analysed to assess their strengths, weaknesses or criticisms, typical application and their key success factors (see [Table I](#)).

Table I.
Analyses of
frameworks for
measuring corporate
performance in the
construction industry

Dimensions	BSC	MBNQA	EFQM	KPIs
Weaknesses	Top-down approach only which does not offer interaction between top executive and the firm employees. It does not identify the relationship between measures developed for specific goal. It is time-consuming and difficult to implement in a large organisation. There is problem of selection of measures. BSC information is not directly useful for benchmarking activities and cross-industry performance comparisons	The model is result-oriented and not quality-focused. The model does not take care of privately owned organisations and large with diversified line of business will have its division considered separately. There is difficulty in keeping eyes on the journey to the award due to turnover of workforce and lack of commitment of employees. Lack of evidence of the link between financial performance and the Baldrige Award. The award criteria is static and do not keep pace with change of events	It requires rigorous application of the self-assessment process for it to be effective; its vague and underrated in the areas of improvement, innovation and supplier partnership strategy; complex underlying criteria scoring system required to enable benchmarking become difficult without it been carried out by a trained and experienced personnel; and it requires the use of external assessors	Subjective assessment crude/questionable measures; large number of schemes-fragmentation; lagging measures that barely provide opportunity for change; being employed within the construction industry as a marketing tools rather than being part of the construction business management Lack a holistic viewpoint on the relationship among different indicators
Strengths	Focus management programme on attaining strategic goals. Prioritisation of activities and investment behind strategic objectives. Enhance continuous learning about strategic (causes and effects) relationships affecting an organisation. Aligns goals and rewards behind common strategy across organisation	The model offers feedback as an outcome of the evaluation method; It encourages sharing of information on successful strategies for performance excellence and the accrued advantages in adopting the strategies	Evaluate organisational processes quality; identify areas of weaknesses or low performance against industry rival; capable of helping organisations achieve excellence through continuous improvement in the deployment and management process to prompt expansive use of best practice	Track long-term trends in performance, and specifically, to demonstrate whether the construction industry was achieving the industry improvement targets; Provide companies with a simple method of establishing a performance measurement system in an organisation

(continued)

Dimensions	BSC	MBNQA	EFQM	KPIs
Evaluation	Four perspectives: financial; customer; internal process; and innovation, learning and growth	It consists of seven basic criteria: leadership; strategic planning; customers and market focus; workforce focus; measurement, analysis and knowledge management; process management; and results. A total of 1000 points allocated over 20 sub-criteria	It consists of nine criteria: leadership; people; policy and strategy; partnership and resources; processes; customer; people development; performance and corporate social responsibility. A total of 1000 points allocated to the criteria	Drivers for change (five sub-criteria); improving the Project process (four sub-criteria); targets for Improvement (seven sub-criteria)
Key success factors	Total commitment and sponsorship by entire management team and on-going process embedded in governance processes	Management team-level sponsorship and commitment, On-going process embedded in day-to-day management	Total commitment and sponsorship by management team. Embed the on-going process in management governance process to drive improvement	Total commitment and sponsorship by management team
Purpose	Designed to communicate and evaluate strategic performance, test the validity of strategy and monitor organisation's performance against its delivery on a regular basis, ensure organisation strategies are implemented to assist in continuously learn from its performance and adapt its strategy accordingly	Promote quality awareness, performance excellence and competitiveness improvement, share information on successful performance strategies and the benefits derived	Perform regular "Health checks" of all business process to identify strengths and weaknesses, develop a "checklist" to indicate good practices used for business planning and assessment, promote continuous improvement and enable benchmarking of organisation processes	Financial and operational objectives adopted in assessing company's performance; Improve organisation management decision-making; to identify if improvement in performance is being achieved; to drive continuous improvement process in an organisation
Mechanistic	provides a clear strategic link between corporate strategy and operational units to enable strategic continuity	Self-assessment, performance measurement and audit, qualification for site visit and competition	Self-assessment, considers past and present performance and audit, qualification for site visit and competition	

Sources: Pun *et al.* (1999), Lamotte and Carter (2000), Andersen *et al.* (2000), Kagioglou *et al.* (2001), Dror (2008) and Yang *et al.* (2010)

The balanced scorecard. The BSC was introduced by Kaplan and Norton (1992) as a strategic planning and management tool to assist organisations align business activities to their vision and strategy, improve internal and external communications and monitor organisation performance against strategic goals (BSC Institute, 2006). The tool incorporates four distinct but related measurement perspectives, and with a wide range of potential sub-measures (Kagioglou *et al.*, 2001). The four perspectives in BSC according to Andersen *et al.* (2000), Parker (2000), Kagioglou *et al.* (2001) include:

- (1) financial perspective;
- (2) customer perspective;
- (3) internal business process; and
- (4) innovation, learning and improvement perspectives.

Amaratunga *et al.* (2001) assert that the BSC provides a balance between economic and operating performance. According to Kagioglou *et al.* (2001), the strength of BSC includes:

- guarding against sub-optimisation by forcing senior managers to consider all pertinent operational issues;
- communicating objectives and vision to the organisation; and
- focusing organisational efforts on a relatively small number of measures with relatively low costs if properly implemented.

The model integrates all the key stakeholders (owner, employees and customers) and strikes a balance between financial and non-financial measures with adequate attention on short- and long-term strategic objectives as well as lagging and leading indicators (Phusavat, 2007; Chiang and Lin, 2009). However, researchers have criticised BSC to be a top-down approach only and that it does not offer interaction between top executive and the firms employees and, thus, it is not a useful tool for benchmarking activities and in promoting best practices (Kanji and Moura, 2001; Andersen *et al.*, 2000; Chiang and Lin, 2009). Lamotte and Carter (2000) identify the reasons for adopting BSC which are as follows:

- the ability to translate organisational strategy into focused, operational, measurable terms and it makes strategic implementation of organisation goals take place;
- direct management attention and effort to key issues and create a basis for more consistent decision-making;
- provides management team the means to coalesce around a common strategic agenda, gain focus, align issues and build consensus;
- enable a clear strategic link between business/operational units strategy and “corporate” to create strategic continuity;
- define a platform to communicate strategic priorities across an organisation and provide a means for teams and individuals to know how they contribute to the success of the strategy, ultimately linking reward and compensation to performance;

- improve the bottom line by making better resource allocation and investment trade-offs; and
- learn continuously from the company's performance to assess and redirect strategic goals systematically.

Key performance indicators. The widely held view is that the construction industry is complex and fragmented, and these characteristics impair its performance. According to [Beatham \(2003\)](#) the fragmentation of the construction industry creates management problems that render it ineffective and inefficient relative to other industries. Recognising these inadequacies, the UK Government instituted a Construction Task Force to challenge the industry to commit itself to change, so that it reaps the benefits of fundamental improvements in design, quality, sustainability and customer satisfaction ([Beatham, 2003](#)). The Construction Best Practice Programme (CBPP) and the Movement for Innovation (M4i) were set up by the Task Force, and their terms of reference were to define the requirements needed to deliver targeted improvements ([Beatham, 2003](#)). CBPP and M4i came up with key performance measures tagged KPIs for the industry. The indicators include: client satisfaction (product & service), defects, predictability (cost & time), profitability, productivity, safety, construction cost and construction time. According to [Bassioni \(2004\)](#), the main target of these initiatives was to give a clear indication of overall construction industry performance using the performance measures of projects and organisations. However, the KPIs are regarded as lagging measures that barely provide an opportunity for change and so it is lowly rated in the areas of improvement, innovation and in identifying best practices in construction organisations ([Beatham, 2003](#)).

EFQM excellence model. EFQM is an organisation established by 14 European companies in 1988 to help organisations achieve improved performance. EFQM introduced a BEM in 1991, as a model that could be used within organisations to measure and improve on their entire performance. The model is developed on eight basic concepts of excellence:

- (1) leadership;
- (2) customer and stakeholders' focus;
- (3) result orientation;
- (4) management by process and the fact;
- (5) people development and involvement;
- (6) continuous learning;
- (7) innovation and improvement; and
- (8) partnership development and corporate social responsibility ([Wu, 2009](#)).

[Bassioni et al. \(2005\)](#) developed the construction EFQM excellence model for adaptation in the construction industry and listed its enabling criteria to include:

- leadership;
- customers and stakeholder focus;
- strategic management;
- information and analysis;

- people;
- partnerships;
- suppliers;
- physical resources;
- intellectual capital and risk work culture; and
- process management.

BEM such as EFQM achieves business excellence as continuous improvement model, through being a useful model capable of performing regular health checks of all business processes. The model identifies best practice and performance gaps by allowing both internal and external benchmarking of firms' business processes, without proffering solutions (Andersen *et al.*, 2000). Therefore, its efficiency and effectiveness as a viable strategic management tool is in doubt.

Malcolm Baldrige National Quality Award. MBNQA is well-known and one of the most commonly used performance self-assessment model. The model was developed in the USA in 1987 to offer a systematic viewpoint for understanding management of performance. The MBNQA forms the basis for many National Quality Awards developed by many countries. National Institute of Standards and Technology (NIST, 1998) asserts that the main essence of MBNQA award is to enhance and foster common understanding of the needs for continuous performance improvement and excellence in competitiveness, providing information on successfully adopted performance strategies and the advantages obtained from the use of those strategies. It focuses on establishing a self-assessment benchmark against which performance improvement can be measured and monitored (Pun *et al.*, 1999). Its criteria for measuring performance excellence are modelled to assist organisations apply an integrated approach to management of organisational performance that will lead to delivery of continuous improvement values to customers (Dror, 2008). Considering the characteristics of individual organisations and the nature of their environments, the Baldrige model defines and profiles organisation using the following latent variables (Dror, 2008):

- *Organisational environment:* This includes the supply chain, organisation life stage, market profile and technologies.
- *Organisational relationship:* Internal structure, customers and suppliers.
- *Competitive environment:* Competition and strategic priorities.
- *Strategic tasks:* Long-term programme.
- *Performance management system:* Management performance and learning.

The structure of the model is similar to that of EFQM; it starts with leadership and ends with results. It consists of seven basic criteria: leadership, strategic planning, customers and market focus, workforce focus, measurement, analysis and knowledge management, process management, and results.

Comparison of MBNQA and EFQM. The objective definition of the MBNQA and EFQM models with respect to quality or excellence is a reflection of total quality management (TQM) philosophies. As a result of this, there are commonalities in the criteria used by the two models, each having at least seven criteria. The EFQM model consists of nine criteria in its basic structure which is categorised into enablers and

results, whereas MBNQA seven criteria are group into three: leadership triangle; result triangle; and measurement, analysis and knowledge management (Dror, 2008). The EFQM places more emphasis on the role of processes and comprise two types of results: the business result and human-oriented result such as people satisfaction, impact on society and customer satisfaction. The focus of MBNQA is on a single type of result but with emphasis on the measurement, analysis and knowledge management (Dror, 2008). EFQM builds on the key principles of MBNQA to introduce field research, basically the business result which is one major flaw of MBNQA, which was later adjusted to incorporate the US National Institute of Standards and Technology.

The South African construction excellence model. The South African Excellence Model (SAEM) is an internationally recognised model for business performance evaluation developed by the South African Excellence Foundation (SAEF). The model was launched in 1997 and became operational in 1998. The South African Construction Excellence Model (SACEM) is an adaption of the SAEM which enables business self-assessment in the construction industry. The model was developed by the Council for Scientific and Industrial Research basically to promote continuous improvement within the construction industry. The need for it becomes apparent when poor performance of construction organisations continues unabated and customers are losing confidence and interest in engaging contractors because of fear of sub-optimal performance (Dlungwana *et al.*, 2002). Therefore, SACEM is viewed as a pertinent and comprehensive tool developed to promote the concept of TQM and culture of best practices in the construction industry at all levels (Dlungwana *et al.*, 2002). SACEM comprise 11 criteria used in evaluating organisation performance. The criteria include: leadership 10 per cent, policy and strategy 7 per cent, customer and market focus 6 per cent, people management 7 per cent, resources and information management 6 per cent, process 12 per cent, impact on society 6 per cent, customer satisfaction 17 per cent, people satisfaction 9 per cent, supplier and partnership performance 3 per cent and business result 15 per cent (Dlungwana *et al.*, 2002). Basically, the criteria were developed using the EFQM and MBNQA criteria as points of departure (South African Excellence Foundation (SAEF), 2004) (see the equation below). Therefore, the shortcomings of BEM are apparent in the model and as such cannot precipitate best practices in isolation.

Mathematically, $MBNQA + EFQM = SACEM$.

Developing a performance measurement system

A review of literature provides information on several frameworks developed for measuring performance of organisations. Those provided in this paper are related frameworks which underlie the performance measurement system (PMS) proposed in this study. A more comprehensive list of performance measures include: performance measurement questionnaire (Dixon *et al.*, 1990); strategic measurement analysis and reporting technique (Lynch and Cross, 1991); the results and determinants matrix (Fitzgerald *et al.*, 1991); the BSC (Kaplan and Norton, 1996); consistent performance measurement systems (Flapper *et al.*, 1996); integrated performance measurement systems (Bititci *et al.*, 1997), comparative business scorecard (Kanji, 1998); integrated PM framework (Medori, 1998), the Cambridge performance measurement process (Bourne *et al.*, 2000); dynamic performance measurement systems (Bititci *et al.*, 2000) and The SACEM (Dlungwana *et al.*, 2002). Despite these large number of measures,

researchers demand more effective frameworks that will ensure that organisations' measures of performance emanate from their strategic decisions (Price, 2003). Price (2003) accordingly recommends that measurement tools such as BSC and the BEM are better positioned to achieve the linkages between performance and strategy and should be modelled. Therefore, to attain and sustain continuous improvement in performance and bring about the required change in business sphere such an integrated framework is a necessity. This will allow PMS to be integrated into the strategy process of organisations. From the foregone review, it is evident that different models from different field of studies, measure different aspect of performance from different perspective. Thus, it is relevant to ask, why has there not been a merging of all these archetypes into a comprehensive and exemplary one rather than the proliferation of models, frameworks and typologies?

This current study does not aspire to reinvent the wheel, but rather proposes a new model, developed by examining the successes and accomplishment of earlier models and build upon these existing philosophies. Many of the existing models have proven to be precise and rational but most do not take into cognisance every perspective of performance criteria to managing organisational performance (Bassioni, 2004). To develop the new model, the SACEM which is a BEM that originates from the combination of EFQM and MBNQA and shares the same characteristics peculiar to two models is considered as BEM. This is because the model is designed specifically to take care of performance issues and promote culture of performance excellence in the South African construction industry environment (Dlungwana *et al.*, 2002). It is essential to consider the industry and country specifics in the design of models; failure to do this is a recipe for operational failure of such model. Rwelamila *et al.* (2000) argue that the failure of the construction industry in many developing countries, especially in Africa, is traceable to their dogmatic acceptance of various approaches that tend towards development without considering local factors.

Integrating BEM and the BSC

From the review, this paper proposes the integration of BSC and BEM as a viable model which could be used by organisations to establish clear strategic vision of their strategic process and concentrate attention on improving their long-term strategic performance. The two models selected share a common idea about management; however, each model using different approaches to address issues of measurement and management of organisation's performance (Lamotte and Carter, 2000). Combining the two models will be complementary to each other and provide a better means of assessing performance within organisations. This argument is entrenched by Lamotte and Carter (2000), and by Andersen *et al.* (2000, p. 10) who quoted Paul Gemoets that: "EFQM needs Scorecards to: align with the vision, mission and strategy; keep good promises 'alive and kicking'; [and] for continuous [management] attention and communication". Within the construction industry, Price (2003) asserts that existing measures of performance within construction organisations that are based on accounting systems are lagging indicators that measure only short-term performance and fail to monitor strategic performance. Price suggests a tool that measures strategic performance more efficiently and effectively. Price (2003) had suggested an integration of BSC and BEM into strategic management processes to enhance continuous improvement. Wongrassamee *et al.* (2003) argue that both academic and industry practitioners agree that both BSC and BEM measurement tools are useful

for enhancing business performance and continuous improvement, but are sceptical of how managers can identify the KPIs from their corporate strategy.

Andersen *et al.* (2000) reported that BEM can be used at two different levels: at the passive level to act as checklist for configuring the strategic vision, values and strategy of organisations, and at the active level, BEM provides a health check of organisations performance and identifies areas for improvement. BSC on the other hand is a performance measurement tool that encourages two-way communication of strategic vision and strategic results between top management and employees. It is one of the most researched and highly utilised performance models that provide balanced performance measure from the organisational strategic mission, to management and operational levels and to individual performance. Table II provides a summary of the comparison of BEM and BSC based on five key areas of management control system. The development of the PM model involves the combination of BEM and BSC to identify their KPIs. Garengo *et al.* (2005) identified nine generic criteria that an effective PMS model should satisfy. These include depth and breadth; clarity and simplicity; strategy alignment; strategy development; focus on stakeholders; balance; dynamic adaptability; process orientation; and causal relationships. The set of criteria from SACEM are then related to different perspectives of the BSC and evaluated against the nine generic criteria that models must satisfy in line with (Garengo *et al.*, 2005) as shown Table II and Table III.

The proposed integrated construction excellence model

The proposed integrated construction excellence model adopts the principle of TQM upon which BEM was built and the preferred corporate strategy on which the objective perspectives of BSC is premised. The model is depicted in Figure 1 and extends performance criteria from 7 to 11 (see Figure 1 and the discussion below) to take care of some missing measures of performance [South African Excellence Foundation (SAEF), 2000]. The model starts with leadership and terminates with business results so as to benefit from wider usage and have integrity. The criteria are mapped into the four perspectives of the BSC because the model is targeted at aligning organisation strategic

PMS models	BSC	BEM
1. Depth and Breadth	Yes Yes	No Yes
2. Clarity and simplicity	No	Yes
3. Strategy and alignment	Yes	No
4. Strategy and improvement	Yes	No
5. Focus on stakeholders	No	Yes
6. Balance		
Internal & external	Yes	Yes
Financial & non-financial	Yes	Yes
7. Process and oriented	Partial	Partial
8. Causal and relationship	Yes	Partial

Table II.
A summary of the BSC and BEM performance models against the nine dimensions of PMS model

Sources: Garengo *et al.* (2005) and Bergin-Seer (2007)

Key areas of Management	Excellence model	BSC
Objectives	It is based on TQM philosophies and has multiple objectives which include: leadership; people management; strategy and planning; resources management; process management; people satisfaction, customer satisfaction; impact on society; and business results	This consists of many objectives based on organisation strategy and lays emphasis on four generic perspectives: financial, customer; internal business processes; and innovation, learning and growth
Strategies and plans	It does not address strategic issues, but use weighted criteria and sub-criteria as guidance	Assign strategic measures. Develop strategy map of actions to align each measures to organisational strategy
Targets	It is not specific. Management set the expected levels of performance	It does not set target. It is a non-prescriptive model, thus managements are required to set target for expected performance level
Rewards	Needs an adequate reward and excellence performance recognition mechanism, but offers little explanation about it	Suggests that individual reward should be related to strategic measure of performance
Feedback	This is not addressed. Nevertheless, the framework itself provides feedback information as a default not by design of the evaluation model	It requires double-loop learning which is more complicated than single-loop feedback

Table III.
Comparison of BEM
and BSC models

Source: [Wongrassamee et al. \(2003\)](#)

objectives to every facet of PMS and integrates same to the strategy process. BSC evaluates performance of selected operational activities adjudged to be central in contributing to fulfilment of organisation strategic objective or adopted to identify the strategic drivers for performance excellence, while BEM evaluates performance against a set yardstick of activities, and against the generic best practice ([Andersen et al., 2000](#)). The BEM will pinpoint the areas of weakness of the organisation which may be an impediment to achieving its vision ([Lamotte and Carter, 2000](#)). The criteria are mapped to allow for self-assessment of an organisation's performance and embedded in the continuous day-to-day management process so as to accomplish the organisation's strategic goals. This enables organisations to benchmark their internal process, business results and compare results with similar organisations using similar principles or models of self-assessment.

As indicated earlier, the model has four elements based on objective perspectives of BSC, the customer, innovation; learning and growth; internal; and financial perspectives. The customer perspective consists of client satisfaction; social responsibility; and client and market focus. This explains how the organisation expects customers to view the organisation when its visions and missions are accomplished. This perspective also encompasses how organisations develop good relationships with their customers; assess their requirements; and measure their satisfaction in terms of services or product delivery. Innovation, learning and growth perspective involves people management; leadership; strategy and planning; and people satisfaction. To

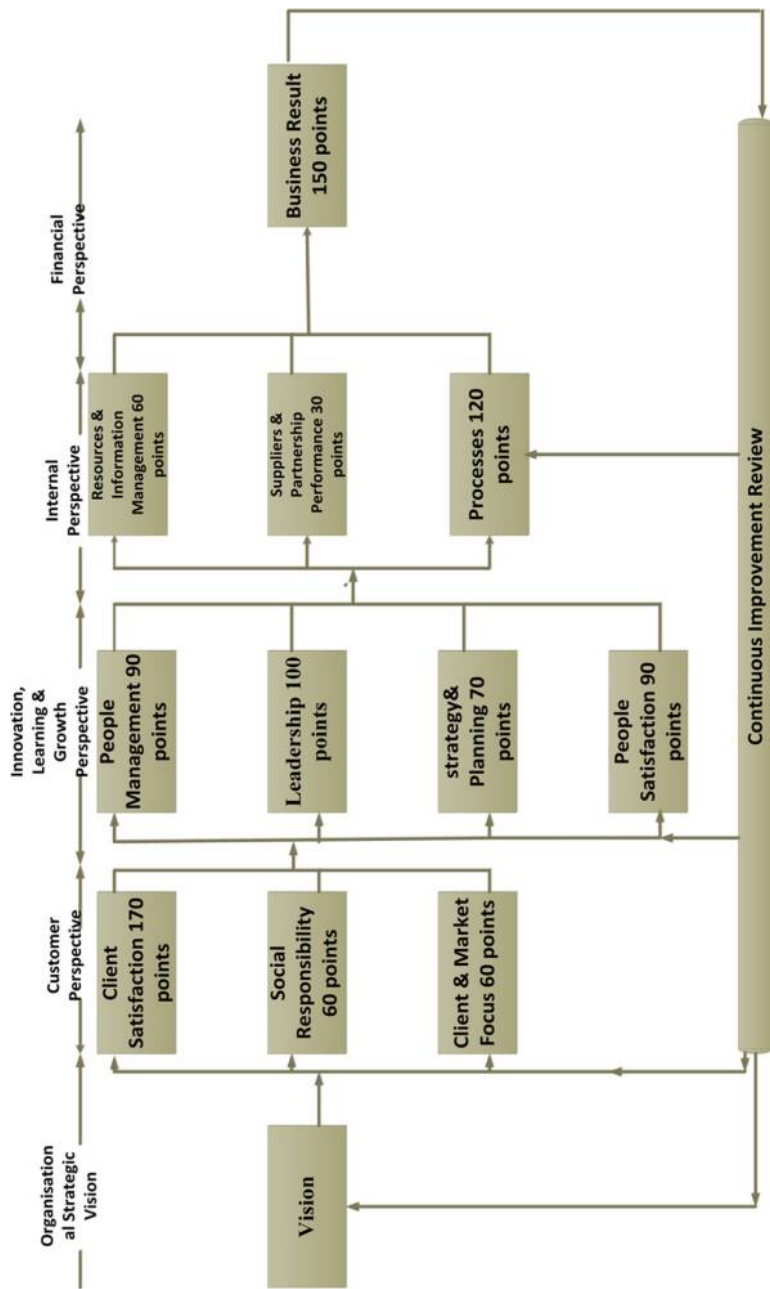


Figure 1. Proposed integrated construction excellence model

achieve the mission and vision of the organisation, what and how must the organisation learn, innovate and improve? Strategies are conceived or formulated by the leaders or top management team who are the main drivers of the organisation. They create the atmosphere for the organisation to thrive and also develop concept that move the persistent search for continuous improvement and enhancement of customer's value. This perspective focuses key issues related to practices that can lead to the development of higher performance of the workforce as a growing organisation. This perspective offers opportunity to employees to continually increase their knowledge, improve on their performance and imbibe the culture of best practices and always strive to give their possible best to the organisation.

The internal perspective entail resources and information management; suppliers and partnership performance; and processes. To satisfy customers, the model maps the strategy consisting of well-defined methods of satisfying customer's requirement and enhances improvement in organisational performance in achieving excellence. This involves gathering of information to offer improved business excellence in providing value for money, meeting the need of the internal stakeholders', strengthening of customer's relationship and partnership. The last element is the financial perspective. The financial perspective reveals the performance of an organisation in achieving financial probity and integrity and establishes leadership concerns for effective and efficient deployment of organisation's resources. This ensures that organisational financial performance indicators are monitored to enhance performance excellence and competitiveness improvement. This is result-oriented and is a measure of performance as wide range KPI encompassing both financial and non-financial metrics.

The model is principally presented as a strategic performance and self-assessment tool for health checks by organisations to achieve their strategic goals, and business excellence. BEM is a diagnostic tool capable of identifying areas for improvement but cannot prioritise areas where improvement could be made to create performance excellence and business results (Lamotte and Carter, 2000). This is where BSC complements the model by providing the strategic focus needed by organisations to prioritise their strategic action and effectively deploy resources (Lamotte and Carter, 2000).

The model is essentially based on adaptation of generic BEM and BSC models that have been established to be rigorous and workable even within the construction industry. The model is not designed for awards like its founding models. The scores are allocated for ease of evaluation of the perspectives, and this should provide objective self-assessment that can help organisations identify gaps in their performance, strengths and weaknesses, prioritise and offer assistance in exploring the opportunities to enhance improvement. The model can be used to obtain and share information to establish a self-assessment benchmark and enhance organisational learning concept which is important for future organisation development (Leonard and McAdam, 2002). The 11 criteria and points allocated to each as given by SAFRI (2004) are as follows: leadership (100 points); strategy and planning (70 points); client and market focus (60 points); people management (90 points); resources and information management (60 points); process management (120 points); suppliers and partnership (30 points); client satisfaction (170 points);

people satisfaction (90 points); social responsibility (60 points); and business results (150 points).

Model application

The implementation of the model in [Figure 1](#) requires total commitment from entire management and employees of any organisation willing to adopt the model. Various components and practices must be put in place; management of organisations need to have a clear strategic roadmap and better understanding of the underlying principle on which the self-assessment tool is built ([Pun et al., 1999](#)). The developed model requires reflections and considerations before it is implemented. Inappropriate self-assessment can make organisations invest in non-strategic priority areas. It is possible that areas of weakness identified by the self-assessment tool are not of strategic importance to the organisation, hence there may be no reason for committing resources to improving those areas. However, there may be justification for allocating resources to those areas of weakness if the performance is below standard ([Lamotte and Carter, 2000](#)). At the same time, areas where the organisation seems to be performing well may also be non-strategic areas, thus it is those areas where an organisation is weak but support strategic priority that requires the most attention ([Lamotte and Carter, 2000](#)). Therefore, BSC can be employed to provide strategic direction required to prioritise and deploy resources effectively.

The proposed model will methodically evaluate the general performance of construction using the identified criteria aligned to the four linked perspectives of the BSC. Although, there is no universally superior method of conducting self-assessment, it is dependent on the organisation strategic stance, culture and the willingness for continuous improvement. The development of positive and supportive organisational change culture has been underscored when organisations desire or adopt performance excellence and improvement tool ([Beckhard and Harris, 1987](#); [Griffis, 1992](#); [Low and Chan, 1998](#)).

The key issue envisaged by this study is to direct the attention of organisations to how its strengths and weaknesses can be identified to enhance continuous improvement. There is little consideration for winning performance awards. Therefore, the paper adopts the questionnaire approach as the simplest and cheapest way for conducting self-assessment in line with EFQM recommendations. According to [Dlungwana et al. \(2002\)](#), several but relevant questions regarding the general performance of a construction organisation business are posed under each criterion. Respondents' are then required to score them on a 0 to 3 scale, where 0 denotes that the objective or operational activity is yet to be accomplished or has "not started", and 3 represents a situation where "performance objective is fully achieved". The scores are summed up to a total possible score of 1,000. In the award models such as MBNQA, EFQM and SAEM, organisations need to score between 650 and 700 points, between 700 and 750, and minimum of 500 points to be able to qualify for awards, respectively.

To reiterate, the current model is not developed for the purpose of an award, but using aggregated average of 650 of the award models will be a good basis. This indicates that construction organisations need to score 188.5 points of 290 points for customer perspectives; 227.5 points of 350 points for innovation, learning and growth; 136.5 points of 210 points on internal perspectives; and 97.5 points of 150

points for business results. Organisations with aggregate scores that is close to, and above these points can be considered to be performing more than their competitors.

The self-assessment model follows [South African Excellence Foundation \(SAEF\) \(2000\)](#) involving seven application steps:

- (1) organisational commitment;
- (2) planning;
- (3) collection of information on the organisation current position;
- (4) identification of strength, gaps in performance and areas for improvement;
- (5) identification of priority areas for performance excellence improvement;
- (6) establishment, recommendation, plan and implementation of further action; and
- (7) review and revisit the process.

The stages described briefly in the next paragraphs, provide a better understanding and feedback that allow both internal and external benchmarking based on the model criteria.

Commitment. Total commitment and full sponsorship of organisational management is essential for a successful implementation of the self-assessment model. The leadership of organisations must be ready along with employees to implement changes and avoid resistance.

Planning. The self-assessment model requires planning to be successful. The initial step is training of participants that will use the tool, and also provide a clear delegation of responsibility and line of authority. The time to start the evaluation must be stated as well as an estimated likely time for completion. The essence of the assessment should be made clear that it is to encourage business excellence but not to measure the performance of individuals. This should reduce resistance from employees.

Collection of information. This begins with self-organisation health checks by management of the organisation in aligning their strategic initiatives to the desired level of performance. BSC allows a top-down approach in carrying out evaluation, while BEM can be adopted at operational or functional level to obtain information from the employees or functional or operational management on how successful the organisation performance strategies are, and how the organisation has benefited from the process in achieving improved performance.

Identification of strength, gaps in performance and areas for improvement. The model helps in characterising individual organisation and its environment, thus assists the organisation in identifying the main strength of the organisation and weaknesses. This will help in identifying the gaps or areas that requires improvement. An organisation needs to identify external opportunities that can help in neutralising threats.

Identification of priority areas for performance excellence improvement. After identifying the areas for improvement, managements of an organisation is required to align their operational activities to strategic priorities with respect to their mission and vision. This involves the use of strengths to match the weaknesses using the enabling driving forces to obtain desired results. The process should be

reviewed, and should permit a two-way communication between management and employees.

Implementation. Successful prioritisation of strategic areas for improvement will assist an organisation to establish, recommend, plan and implement plans for further action. It will enable management to set targets or standards against which performance improvement agenda will be verified. This will require delegation of authority to individuals, set targets for them and time for delivering on their assigned tasks.

Review and revisit the process. The model involves repeating the process at regular intervals. This may be on a short-term or a long-term basis as part of business strategic routines and plans, and for continuous performance improvement.

Conclusion

This paper comprehensively reviews extant literature on performance measurement and performance frameworks with emphasis on models commonly employed within the construction industry. The paper identifies and examines major performance measurement models used in construction; EFQM excellence model; MBNQA, BSC, KPI and the SACEM developed for the South African construction industry environment. These major frameworks have proven to be effective and efficient in assisting organisations achieve performance excellence and improvement in competitiveness, whilst also beset with certain limitations. Consequent upon this, the paper examines the strengths, weaknesses, purpose and key success factors of the frameworks and conclude that there are improvement opportunities within the frameworks, so that they enhance business excellence.

As a result of multiplicity of models in general and in construction, several organisations have become confused but earnestly desire means of achieving business excellence and sustained competitive advantage. Different operational environments and different challenges mean that performance measurement frameworks must align closely with their strategic objectives. Researchers agree that BSC and BEM excellence are very useful tools for continuous improvement and business excellence. Therefore, this paper integrates BEM (SACEM) and the BSC into a single model to serve as a self-assessment and strategic performance measurement tool. The fundamental objective of the proposed model is to assist organisations in achieving performance excellence, improved business results and gain healthy financial outcomes. The two models have their inherent strengths and weaknesses depending on their application, and as such, the integration brought both models together to complement each other. The BSC is a dynamic tool and deeply rooted in cause and effect association with an obvious attention on strategies used by organisations. This complements the static design upon which BEM is based as a diagnostic tool that supports cause and effect logic to connect enablers and results. Hence, combining the two models for measuring organisational performance has the potential to assist organisations to achieve performance excellence while concurrently escalating their dexterity and sustained competitive advantage. The integration of operational activities and their evaluation in measuring business results would still require to be conducted by individual organisations based on their vision, strategic objectives and needs.

The developed model follows generic BSC and BEM frameworks and has the potential to be adapted to match different contexts in terms of business and industry. It

takes into cognisance diversity in the structure of organisations, decision-making style including the economic climate within the industry and practices of the stakeholders' along the supply chain.

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