Performance Measurement Using Balance Score Card and its Applications: A Review

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Abstract

This paper aims to propose the idea of briefly explaining the balance scorecard by highlighting its use, application in depth. A critical enabler in achieving desired performance goals is the ability to measure performance. Despite the importance of accurately measuring organisational performance in most areas of academic research, there have been very few studies that have directly addressed the question of how overall organisational performance is or should be measured. Perhaps more importantly, none of these studies seems to have significantly influenced how overall organisational performance is actually measured in most of the empirical research that uses this construct as a dependent measure. The most popular of the performance measurement framework has been the balanced scorecard abbreviated as BSC. The BSC is widely acknowledged to have moved beyond the original ideology. It has now become a strategic change management and performance management process.

The approach used in this paper is the combination of literature review on evolution of balance score card and its applications in various sectors/organisations/areas. This paper identify that the balanced scorecard is a powerful but simple strategic tool and the simplicity of the scorecard is in its design. By encompassing four primary perspectives, the tool allows an organisation to turn its attention to external concerns, such as the financial outcomes and its customers' expectations, and internal areas, which include its internal processes to meet external requirements and its integration of learning and growth, to successfully meet its strategic expectations. This paper provides a comprehensive overview of the balanced scorecard combined with application and strategy, which are now in a better position to begin to recognise management's expectations and to discover new ways to build value for workplace learning and performance within organisation.

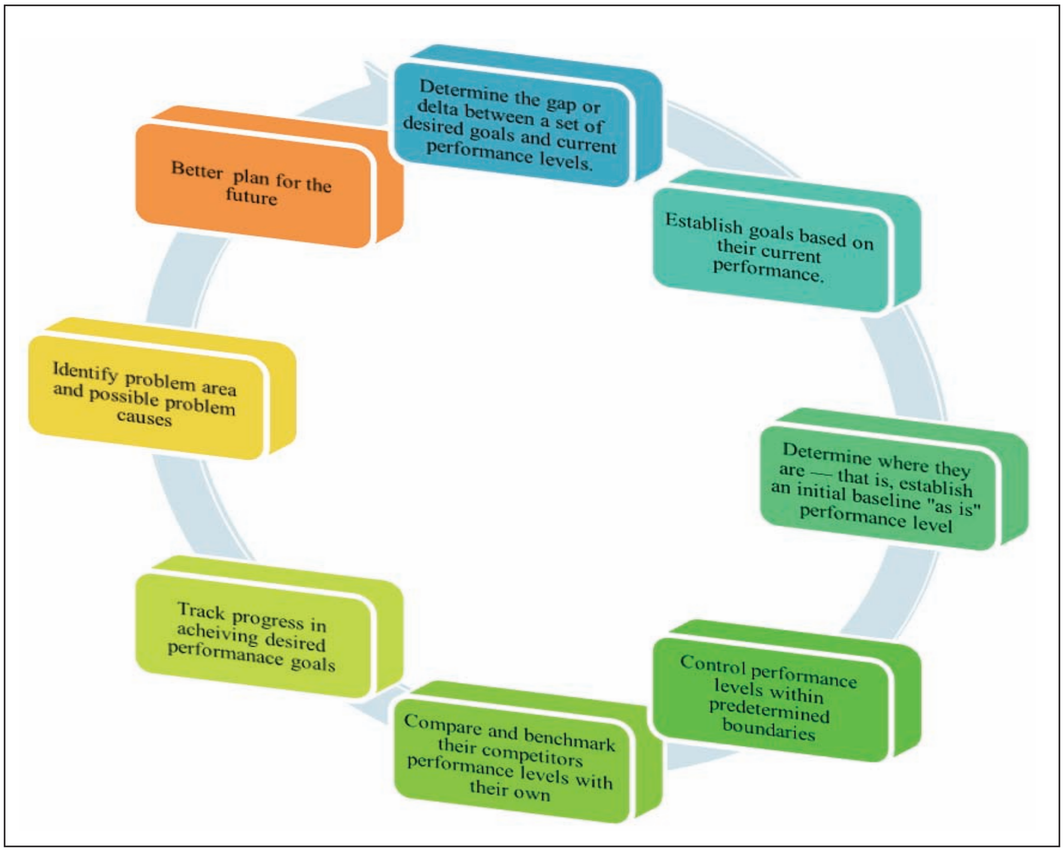
Keywords: Performance Measures, Performance Measurement, Balance Score Card

Introduction

Over the past few decades, the complex global business environment and increasing business competitiveness have highlighted the importance of performance measurement. Performance measurement methods were widely adopted in many industries and they had received more and more attention (Niven, 2002; Yang, John, Albert, Chiang & Daniel, 2010). Owing to recent pressures attributed to technological and competitive changes faced by all sectors, performance measures and measurement continue to be critical to the tracking, management and improvement of the competitive performance of organisations. In this context, understanding the scope, frequency and relevance of different performance measures available to executives is essential to the process of integrating the different dimensions of organisational performance. (Gomes, Jabbour, Adriana & Charbel, 2011).

Research in the field of performance measurement (PM) has drawn on a wide cross section of disciplines, from operations and production management to accounting and management control (Neely, Gregory & Platts, 1995; Neely, 2005). Over the last two decades, the focus has moved from PM system design (Neely *et al*., 1995) to the design and deployment of enterprise performance management systems (Neely, 2005). With academic and practitioner interest in the balanced scorecard (BSC), there has spawned a literature around the design (Kaplan & Norton, 1992; Neely, Mills, Gregory, Richards, Platts & Bourne, 1996; Bititci, Turner & Begemann, 2000), implementation (Bourne, Neely, Mills & Platts, 2003; Bourne, Kennerley & Franco-Santos, 2005; Bititci, 2006) and use of performance measures to manage performance

Figure 1: Process of Performance Measurement



(Bourne *et al*., 2005; Wouters & Wilderom, 2008) together with a more critical interest in whether scorecards work (Norreklit, 2000, 2003) and whether they have a positive impact on performance (Bourne, Melnyk & Faull, 2007; Griffith & Neely, 2009). However, there remains one fundamental yet excruciatingly complex question – how is the performance of an organisation managed? (Pavlov & Bourne, 2011).

Especially in the 1990s a growing need to confront this situation was observed in managerial theory. Purely financial figures of a company just show whether operation is either running smoothly or deteriorating, but give no clue as to which actions have to be taken (Smandek, Barthel, Winkler & Ulbig, 2010). Performance indicators show the past, but neither start a learning process nor generate ideas for future action. The literature of this period is crowded with keywords such as ‘‘Boston-strategy-matrix’’, ‘‘benchmarking’’, ‘‘business reengineering’’, ‘‘deming-cycle’’ or ‘‘EFQM’’, to name but a few (Have, Have & Stevens, 2003).

Figure 1 clearly indicates the significance, importance and the extent which performance measurement enables to compare organisations performance and further growth. Organisations are managing their improvement efforts based on fact. And measuring performance is deriving those facts. That is, organisations are using performance measurements to help achieve desired performance levels. Companies are discovering that performance measures can help any organisation:

As indicated in Figure 1 performance measurement is, therefore, the key to calibrating the effectiveness of a built facility in a comprehensive manner. Amaratunga, Baldry and Sarshar (2000) argue that performance measurement is vital to an organisation as it provides much-needed direction to management for decision making. Performance measurement extends opportunities to review past and present functioning, and to derive future strategies for successful operation of the organisation and for the fulfilment of its strategic goals (Lebas, 1995, Lavy, Garcia & Dixit, 2010)

Rationale for Performance Measurement

Elaborating on the logic of the arguments that have been advanced by Osborne and Gaebler (1992) and Halachmi

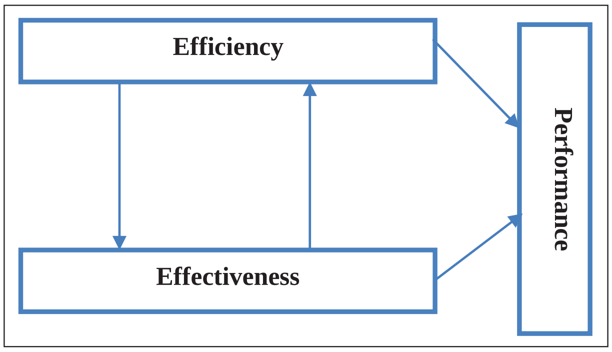
Table 1: The Basic Questions that Signify the Necessity for the Performance Measurement

Sr. No.	Basic Question which signify the need of the performance measurement
1	If you cannot measure it you do not understand it;
2	If you cannot understand it you cannot control it;
3	ifIyou cannot control it you cannot improve it;
4	If they know you intend to measure it, they will get it done;
5	If you do not measure results, you cannot tell success from failure;
6	If you cannot see success, you cannot reward it;
7	If you cannot reward success, you are probably rewarding failure;
8	If you will not recognize success you may not be able to sustain it;
9	If you cannot see success/failure, you cannot learn from it;
10	If you cannot recognize failure, you will repeat old mistakes and keep wasting resources;
11	If you cannot relate results to consumed resources you do not know what is the real cost;
12	If you do not know the actual cost you cannot tell whether or not you should do it or outsource it;
13	If you cannot tell the full/real cost you cannot get the best value for money when contracting out;
14	If you cannot demonstrate results, you may undermine your ability to communicate with important stakeholders to mobilized necessary support because you provide value for money;
15	If you cannot document that the business process, material or people you use are the most suitable for achieving the sought after results your performance will be questioned;
16	If you cannot show that in comparison to the past or to another provider you are at par or doing even better there may be questions about your accountability; and
17	If you do not have the data about who is happy/unhappy with your performance and why, you may change when you should not or, even worse, stay a course that on its face seems to be right but in fact is wrong

Source: Halachmi (2005)

(2002) offered an expanded list of reasons in support of introducing performance measurement as a promising way to improve performance. Table 1 indicates the basic questions that signify the necessity for the performance measurement in organisations.

Figure 2: Components of Performance



Source: Ozcan (2008)

It is significant to note that though efficiency and effectiveness are two mutually exclusive components of overall performance measure yet they may influence each other. More specifically, effectiveness can be affected by efficiency or can influence efficiency as well as have an impact on the overall performance (Ozcan, 2008). Figure 2 puts the argument in proper scenario. Nevertheless, it is possible that an organisation can be efficient in utilizing the inputs, but not effective; it can also be effective, but no efficient.

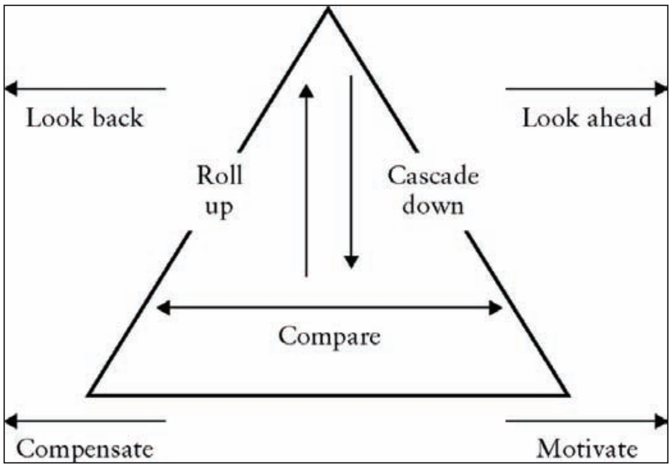
Role of Performance Measures

Performance measurement is a key function in organisation, Performance measurers provide real added value, with feedback into the decision process and analysis of structural issues. Performance measures are in effect alternative risk controllers able to protect the firm from effects of failing to meet client expectations (Bacon, 2008).

The Seven Purposes of Performance Measures

In larger and more complicated firms, measures are also expected to roll up from the bottom to the top of the organisation, to cascade down from top to bottom, and to facilitate performance comparisons across business and functional units. These seven purposes of performance measures are illustrated in Figure 3.

Figure 3: Seven Purposes of Performance Measures



Source: Marshall (2002)

In Figure 3, the look ahead, look back, motivate, and compensate purposes of performance measures are placed outside the organisational pyramid because they are common from the smallest and least formal to the largest and most organized firms. By contrast, the roll-up, cascade-down, and compare purposes, which become significant as firms grow in size and complexity, are placed within the pyramid because they are artifacts of organisation. Second, look ahead and look back are placed at the peak of the pyramid because measures having these purposes gauge the economic performance and past accomplishments of the firm as a whole, whereas motivate and compensate are at the bottom of the pyramid because measures having these purposes motivate and drive the compensation of individual people.

Performance Measurement Frameworks

PM frameworks have arguably made the largest impact upon the PM literature, with a plethora of evermore-complex framework models being developed in many fields since the late eighties. The term framework refers to the active employment of particular sets of recommendations: for example, a set of measurement recommendations may suggest the development of a structural framework (e.g. balanced scorecard, 1996) or they may give rise to a procedural framework (e.g. Wisner and Fawcett framework, 1991). A performance measurement framework assists in the process of performance measurement system building, by clarifying performance measurement boundaries, specifying performance measurement dimensions or views and may also provide initial intuitions into relationships among the performance measurement dimensions; two types may be envisaged:

a. the structural framework (i.e. a framework specifying a typology for performance measure management)
b. the procedural framework (i.e. a step-by-step process for developing performance measures from strategy (Folan & Browne, 2005).

The main emphasis in PM framework design has been upon structural framework development, which has considerably outstripped the pace of procedural PM framework development. Although PM frameworks have become increasingly more complex in terms of measurement scope (for example, Sink and Tuttle (1989) attempted to measure in one functional area (planning), while Paul and Putterill (2003) have attempted to integrate a number of frameworks), a truly holistic PM framework has, so far, been unrealisable.

Hence this papers attempts to offer some possible reflections on the current thinking and writings about Balanced Scorecard as an effort to overcome some common weaknesses of performance measurement. It goes on to explore some of the meaning and implications of performance management for managers and organisations.

The following sections discuss the issues pertaining to Balance scorecard, its evolution and transformations and its components.

Performance Measurement Using Score Card

The goal of a scorecard in an organisation is to provide decision makers with data they need to identify and solve problems and to improve performance where necessary. The challenge faced by most designers of scorecards is coming up with meaningful measures that have integrity. Most measures that are easy to track are of dubious value and are sometimes worse than not having any data at all. Another problem is that such a measurement can be time consuming and expensive.

Performance Measurement Using Balance scorecard

Introduction to Balance Scorecard

Successful competition in this era requires competencies not traditionally reflected in the existing financial statements. To a certain extent, a heavy reliance on financial performance measures could hinder future competitive advantage as financial indicators are outcome measures, which do not reflect drivers of future performance and true value creation (Adrien, Mark & Sin-Hoon, 2009).

Hence, a balanced perspective ought to be adopted in approaching the topic of performance measurement (Kaplan & Norton, 1996). The balanced scorecard (BSC) has attracted considerable interest among researchers and practitioners. Gautreau and Kleiner (2001) cite Silk as reporting that 60 percent of Fortune 1000 companies are either implementing the BSC or are attempting to do it. It is over 20 years since Schneiderman (1987) first used a Balanced Scorecard in analogue devices and now over 15 years since Kaplan and Norton's (1992) first HBR article (Bourne *et al.*, 2008). The balanced scorecard (BSC) is a powerful and balanced strategic management system that facilitates the implementation of strategy, using measures to ensure that corporate vision and strategy are implemented and achieved (Kaplan & Norton, 1996). The Balanced Scorecard (BSC) translates an organisation's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system. The scorecard measures organisational performance across four linked perspectives: financial, customer, internal business process, and learning and growth (Armstrong, 2006).

In the early 1990s, Robert Kaplan and David Norton developed a new approach to strategic management. They named the system the "balanced scorecard". In dealing with some of the weaknesses and vagueness of previous management approaches the balanced scorecard approach provides a clear definition as to what business organisations should measure in order to balance the financial perspective. The balanced scorecard can effect large-scale organisational change and improvement but it does require a degree of expertise in its implementation (Pitt & Tucker, 2008). The balanced scorecard is not just a system of performance measurement but it is also a management system that enables organisations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. When it has been fully deployed, the balanced scorecard transforms strategic planning from a routine undertaking into the focus of organisational strategic direction. Kaplan and Norton claim that "The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology and innovation".

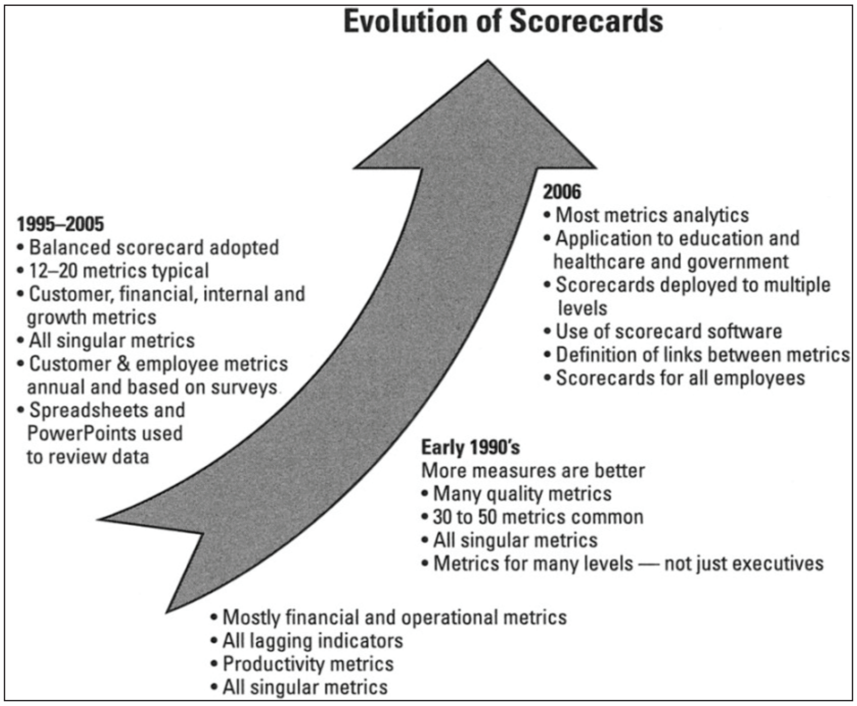
Evolution of Balance Scorecard

Performance measurement in organisations is not something new, but in the last 30 years or so, organisations have realized that financial measures alone are not sufficient for evaluating the success of an enterprise. In the 1970s, productivity became a big concern, and business and government organisations began tracking the productivity of labor; machinery, and other resources. In the 1980s, we all became concerned with quality and customer satisfaction, so those measures became part of organisational scorecards.

In the mid-1990s, the balanced scorecard concept was introduced; forcing executives to take a hard look at how many of their metrics were financial and then balance out their scorecards with non-financial metrics. The balanced scorecard approach also recommended that fewer are better: The number of metrics that companies tracked had been increasing each year for many years, but Kaplan and Norton suggested that no one should have more than 15 to 20 metrics per scorecard.

Over the last 30 years or so, the approaches that organisations use to measure performance have gone through three clear phases or stages. Each phase has lasted 10 or 15 years, and with each successive phase, the practice of measuring performance has become more exact. The process is still a long way from what you would call science, but the measures are improving, as is the integrity of the data. Models like the Baldrige criteria have helped facilitate this systematic approach to measuring and managing performance. Figure 4 shows the evolution of the balanced scorecard.

Figure 4: Evolution of the Balanced Scorecard



The four perspectives of Balance Score Card

The balanced scorecard views the organisation from four perspectives, develops metrics, collect data and analyses them relative to each of these perspectives: They are indicated in Figure 5.

Figure 5: The four perspectives of Balance Score

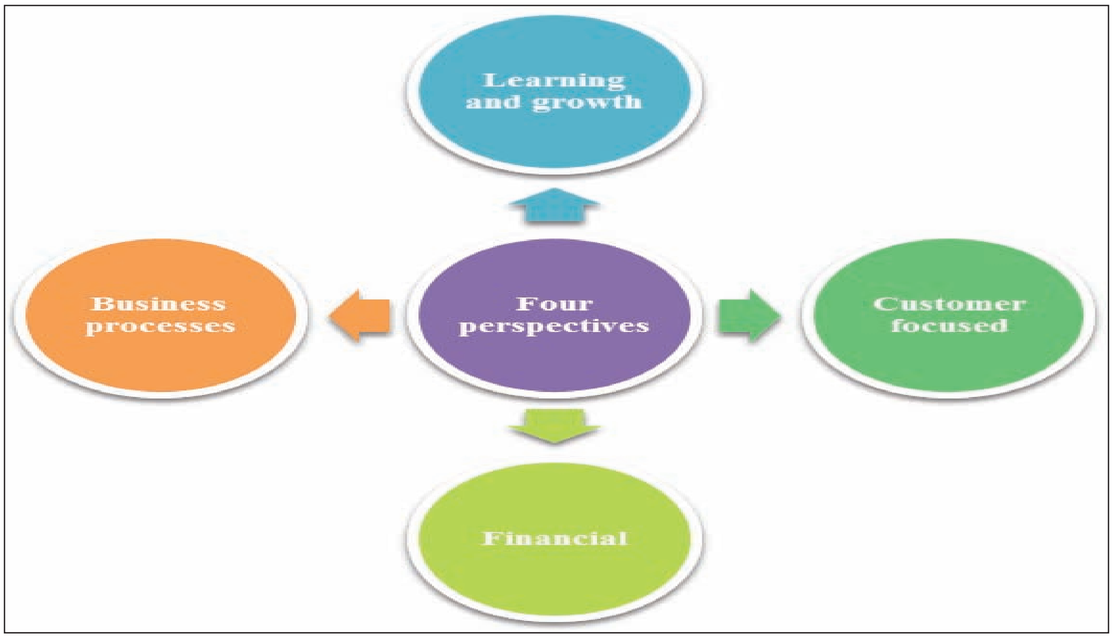


Table 2: The summary of these four perspectives

Sr.No.	Organisation four perspectives	Description
1	Learning and growth	This perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. In a knowledge-worker organisation, people are the main resource and in the current climate of rapid technological change, it is becoming necessary for employees to be in a continuous learning mode. Metrics can be put into place to guide managers in focusing staff training funds where they can help the most. In any case, learning and growth constitute the essential foundation for success of any knowledge based organisation. Kaplan and Norton emphasise that "learning" is more than "training" as it also includes things like; mentors and tutors within the organisation, things that enable effective communication among workers, effective help in problem solving when it is needed and it also includes technological tools.
2	Business processes	This perspective deals with internal business processes. Metrics based on this perspective allow the managers to determine how effectively their business is operating and whether its products and services are meeting customer requirements. These metrics have to be carefully designed by those who are most familiar with these processes. In addition to the strategic management process two kinds of business processes may be identified: core business focused processes; and support processes. The support processes are often more repetitive in nature, and hence easier to measure and benchmark using generic metrics. However, the changing nature of facilities management since the introduction of the balanced scorecard means that the two types of processes cannot now be treated in isolation.
3	Customer focused	The importance of customer focus and customer satisfaction in any business might be regarded as self-evident. If customers are not satisfied, they will eventually find other suppliers that will meet their needs. Poor performance from this perspective is seen as an indicator of potential future decline of the business even though the current financial situation may look good. In developing metrics from this perspective, customers should be analysed in terms of sector, organisational similarity and the kinds of processes for which the product or service is being provided.
4	Financial	It is important to note that within the balanced scorecard system Kaplan and Norton do not disregard the need for traditional financial data. Accurate data, which is available as and when needed, should always be a priority. The argument is, however, that emphasis on financial data alone leads to the unbalanced situation with regard to other perspectives. It is this that the balanced scorecard system seeks to address

Source: Michael Pitt (2008)

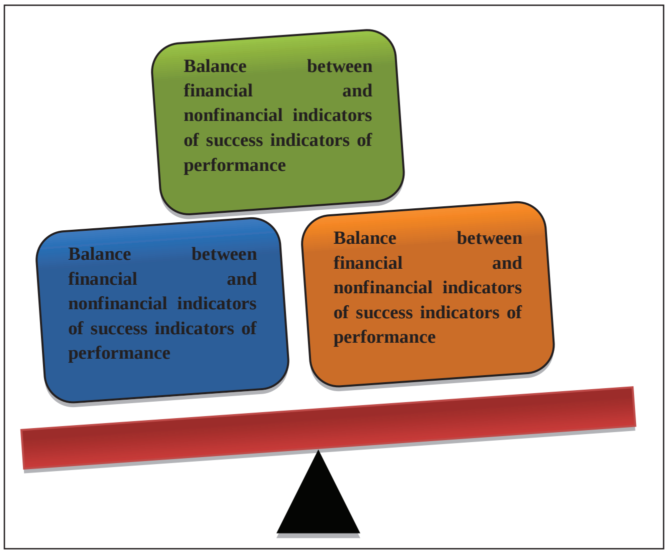
Balance in the Balanced Scorecard

The concept of ‘‘balance’’ refers to the need of using different measures and perspectives that tied together give a holistic view of the organisation (Kaplan & Norton, 1996, Taticchi, Cagnazzo & Brun, 2010). The balanced scorecard was first introduced to address the limitations of single dimensional PM and was claimed to be a comprehensive strategic management mechanism for linking an organisation's long-term objectives and local operations (Kaplan & Norton, 1992, 1996, 2001). Neely *et al*. (1995) and Otley (1999) argued that the four dimensions of the balanced scorecard are rather simplistic and do not take into account some key stakeholders' interests (e.g. competitors) into account (Chang, 2007).

First, the balanced scorecard has conceptual limitations in serving as a strategic management mechanism. Norreklit (2000) argued that to be applied as an effective strategic management mechanism, the scorecard should be rooted in the management practice of an organisation. However, the implementation procedure of the scorecard does not always have this feature. It may be difficult for an organisation to implement the scorecard effectively, since its four perspectives may be different from the strategic model in terms of which the management prefers.

The BSC idea is to communicate a holistic model, linking individual efforts and accomplishments to business-unit objectives because the concept of balance is central to the system, specifically relating to three areas (Johanson, Skoog, Backlund & Almqvist, 2006) as showed in Figure 6.

Figure 6: Balance in the Balanced Scorecard



In 1993 Kaplan and Norton provided some step-by-step approach of balanced scorecard.

Aim

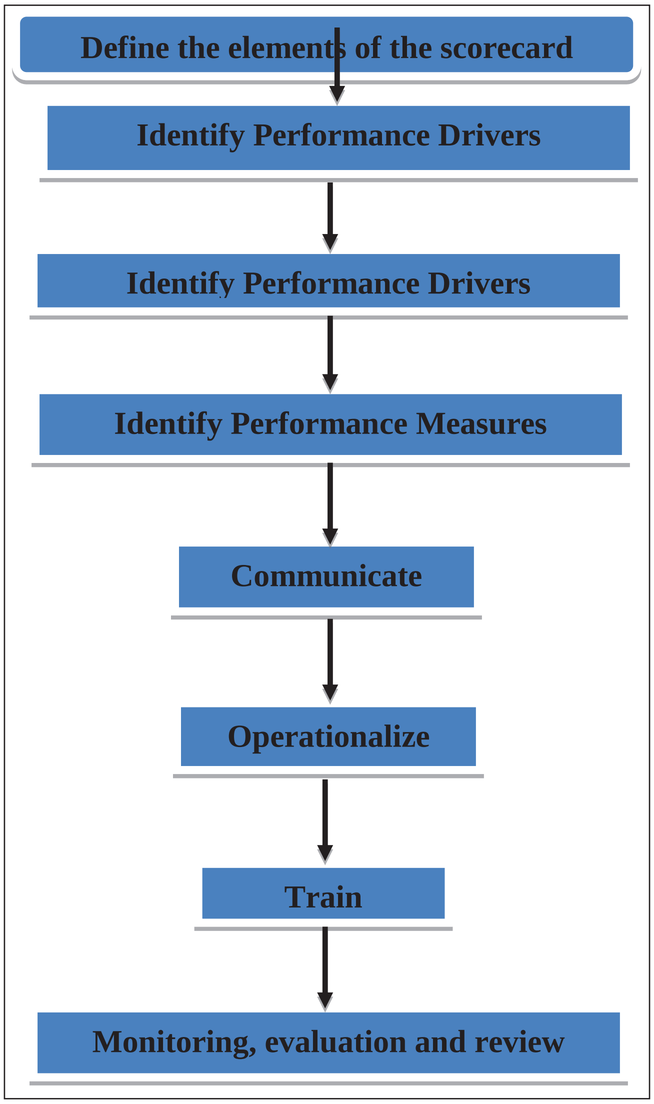
As described by Kaplan and Norton, the balanced scorecard enables companies to track short-term financial results while simultaneously monitoring their progress in building the capabilities and acquiring the intangible assets that generate growth for future financial performance. Its aim is to ensure that a broader and more balanced view is taken of the factors affecting business performance. This replaces the focus on financial indicators alone, which could lead to short-term decisions, over- investment in easily valued assets through mergers and acquisitions with readily measurable returns, and underinvestment in intangible assets, such as produce and process innovation, employee skills and motivation or customer satisfaction, whose short-term returns are difficult to measure.

The balanced scorecard is, however, not simply a measuring device. It can and should be used as a fundamental approach to managing a business by ensuring that strategic goals in key performance areas are defined and communicated to all employees. If this is done, individual goals can be aligned to corporate goals within a clearly defined framework, which can also be used as a basis for measuring, rewarding and improving their performance.

Methodology

The steps required to introduce and operate a balanced scorecard approach are listed in Figure 7.

Figure 7: Steps of Balance Score Card Approach



Applications of Balance Score Card

The application of BSC and its approach has been widely used since its beginning and in its various modified formats. Though the balance issue in the BSC approach and its weightages for various components have been different in all spectrums of industrial applications, it is clearly evident that BSC approaches are relevant from small trading firms to large conglomerates and even the areas of application have been basic cost cutting exercises to electronic procurement practices. Table 4 provides a brief summary 30 of such applications in various segments of industry for variety of applications. Table 4 summarises approaches of Balance score card and application of BSC in various sector/ context of industry.

Table 3: The methodology of BSC

Sr.No.	Steps Involved	Balanced Score card Methodology
1	Define the elements of the scorecard	First, it is necessary to establish the constituents of the balanced scorecard – the perspectives from which performance requirements will be defined and measured as a basis for improvement. The elements usually include financial, process and customer factors. People factors covering development, motivation, leadership, and so forth, are sometimes substituted for learning and growth. At this stage it is also necessary to define clearly the objectives of the balanced scorecard approach.
2	Identify performance drivers	The second step is to identify the performance drivers for each of the categories – for example, repeating and expanding sales from existing customers, the internal processes at which the company must excel, the needs and wants of customers and the particular people skills the organisation needs now and in the future. Links will need to be established between each of these areas so that they are mutually reinforcing. For example, high levels of customer service in defined areas will lead to better financial performance; customer service levels can be improved by attention to processes such as on-time delivery, and customer care will be enhanced if the right people are selected and given the training to develop the necessary skills.
3	Identify performance measures	The third step is to determine how performance in each of the categories will be measured. In some areas such as finance and customer service it may be quite easy to determine quantitative measures such as sales or levels of service as assessed by surveys, questionnaires and mystery shopping. The measures for the process and change in perspectives may, however, have to focus on the achievement of development programmes to meet defined specifications and to deliver expected results.
4	Communicate	This fourth step is to communicate to all employees what the balanced scorecard is, why it is important, how it will work, the part they will be expected to play and how they and the organisation will benefit from it.
5	Operationalize	The fifth step is to operationalize the system. This means developing policies, procedures and processes that ensure that it is applied at all levels in the organisation – strategically at the top, tactically in the middle – and as a matter of continuing importance so far as working practices are concerned to all employees. Operationalisation might include the definition of performance requirements in terms of targets and the introduction of new processes, the communication of these requirements, and the development and application of processes for measuring outcomes and taking corrective action when required. At an individual level, performance management processes may be based on the four elements of the scorecard. Objectives and standards of performance and competencies that are aligned to corporate objectives would be agreed for each element and performance reviews would assess progress and lead to agreed improvement and personal development plans.
6	Train	The sixth step is to provide training for everyone in the organisation on the operation of the balanced scorecard and on what, on their different levels, they are expected to do about managing and implementing the process.
7	Monitoring, evaluation and review	Finally, the operation of the balanced scorecard should be monitored and its effectiveness evaluated in agreement with its objectives. A review can then take place to decide on where improvements or amendments need to be made and how they will take place

Table 4: Balance score card and application

Author	Year of Publica - tion	Sector/Area /Application	Application of Balance Score Card
Hasan, H. and Tib-bits, H. R.	2000	Strategic management of electronic com-merce	This paper discusses a case study of the implementation of the balanced scorecard in a public utility and that will be analysed to suggest how the basic concepts and philosophy of the balanced scorecard can be retained in its adaptation to the stra-tegic management of electronic commerce.
Turner, G.	2000	Human Resource Ac-counting	This paper considers, in relation to the human element of an organisation, how it may be possible to strengthen the innovation and learning perspective of the balanced scorecard, where the knowledge and skills of employees are the prin-cipal asset of an organisation. This model may well be considered the beginning of Puxty's (1993) long road in search of a planning, control and performance measurement system that accounts for the human element of an organisation's intellectual assets.
Olsson, B, Karls-son, M. and Sharma, E.	2000	Telecommu-nication Firm Ericsson	This paper explores the links between aspects of the implementation of BSC with observations with the help of theories of organisational change.
Johnsen, A.	2001	Public manage-ment	In this study it is argued that positive agency theory is a relevant theoretical per-spective in studies of the balanced scorecard in business management because agency theory addresses implementation and organisational control issues.
Rodney A. Stewart, Sherif Mohamed	2001	Construction	This paper looks at potential applications and benefits of using the BSC as a framework to evaluate the performance improvement resulting from IT/IS im-plementation by a construction organisation. The paper firstly seeks to adapt the original BSC concept to construction and then attempts to develop a performance measurement framework in the form of a tiered "Construct IT" BSC.
Chua, C. C. and Goh, M.	2002	Hospitals	This paper discusses a specific case study of a public sector hospital in Singapore is provided to illustrate how the SQA and the BSC can be integrated to help a pub-lic sector hospital implement and manage performance-based programs. Through this framework, hospitals can make better quality decisions based on structured measurement and knowledge
Carmona, S and Grönlund, A	2003	Swedish Law Enforcement	This paper discusses implementation of the balanced scorecard in police work this study details concern about the aggregation of non-financial performance measures.
Dabhilkar and Bengtsson, L	2004	Manufacturing companies	This paper illustrates how strategic continuous improvement (CI) capabilities were developed in three Swedish manufacturing companies that have implement-ed the Balanced Scorecard (BSC).
Kettunen, J and Kantola, I	2005	Management information system	This paper concludes that the balanced scorecard approach is useful not only in accomplishing the objectives, measures and targets of the institutional strategy but also in the planning of the management information system.
Kaplan, R. S	2005	McKinsey 7-S model	This paper indicates that the BSC model as the contemporary manifestation of the 7-S model, helping to explain its popularity as a practical and effective tool for aligning all the organisational variables and processes that lead to successful strategy execution.
Gibler, R. R.	2006	Distribution fa-cility locations	The paper gives examples of how one company identified their key performance indicators and applied them to the facility closure decision-making process.
Funck, E.	2007	Healthcare organisations	The study indicates that different interests that are made visible within the per-spectives of the BSC without giving priority to one interest over another.
Simmons, J	2008	Stakeholder-accountable performance management systems	The paper identifies the concept of the responsible organisation as a means of assessing organisational maturity in performance management, and links it to di-mensions of organisational justice.
Chavan, M	2009	Australian organisations	The paper concludes that the balanced scorecard approach may require some substantial changes in culture within the organisation. The balanced scorecard requires understanding, commitment and support from the very top of the busi-ness down.

Author	Year of Publica - tion	Sector/Area /Application	Application of Balance Score Card
Yongvanich, K and Guthrie, J	2009	Thai stock exchange	The study found no significant association between types of BSC usage and company size. Also, the extent of BSC use is not significantly different between different types of BSC usage. Further, the extent and manner of BSC use are not significantly associated with all performance variables.
Foster, A. et al	2010	Foster and Ferguson-Boucher at Aberystwyth University.	This study identified compatibility between the principles identified in the Foster Ferguson-Boucher (FFB) model and the principles associated with the balanced scorecard (BSC) technique and Broady-Preston's earlier work. Bringing together the FFB model and the BSC technique the resulting matrix, the Information Situation Scorecard.
Aidemark, L. G	2010	Hospital privatisation	This paper discusses the balanced scorecard (BSC) with the attempt to control both volumes and health care quality delivered by the private competing contractors.
Lee, J. K and Morrison, A. M.	2010	Web site performance	This paper attempts to use BSC approach to measure the overall effectiveness of the hotel websites, by comparing hotel websites in South Korea and USA.
Jafari. M., Rezaeenour, J., Akhavan, P., and Fesharaki, M. N.	2010	Aerospace industries	The analytical approach identifies eight issues as critical success factors of the knowledge strategy map in this case study. The overall results from the case study are positive as well, thus reflecting the appropriateness of the suggested SKMM model.
Schneider, R. and Vieira, R.	2010	Wind-farm company	The paper identifies the main issues related to performance measurement and presents a BSC designed for a wind-farm company.
Yu-Jia Hu, Yi-Feng Yang, and Majidul Islam	2010	Manager-Employee Relationship	The findings supported the hypothesis that there is a positive and statistically significant relationship between sales managers' transformational leadership and sales associates' job satisfaction. The result identified the predictors of sales managers' transformational leadership on the sales associates' job satisfaction through regression analysis
Smandek, B., Barthel., A., Winkler, J. and Ulbig, P.	2010	Intellectual property (IP) rights	The BSC approach implemented in this paper provides guidelines to reconcile seemingly conflicting requirements for a public entity while at the same time generating economic benefits in terms of additional income from licensing.
Rasila, H., Alho, J. and Nenonen, S.	2010	Operationalizing FM strategies	The paper illustrates how the balanced scorecard can be used in the workplace network. An exemplary goal is derived to the level of numeric measure.
Bigliardi, B. and Dormio, A. I.	2010	R&D	The preliminary result obtained from this case study, that is a BSC model suitable for R&D, helps in the development of a general BSC model to be tested on a wide sample of firms that actively operate in the R&D field.
Zandi, F. and Tavana, M	2010	Electronic business process management (e-BPM)	A case study is presented to demonstrate the applicability of the proposed framework and to exhibit the efficacy of the procedures and algorithms. The contribution of the proposed method is threefold: it is grounded in the four perspectives of a BSC, it considers imprecise or vague judgments which lead to ambiguity in the decision process, and it uses a meaningful and robust multi-objective model to aggregate both qualitative judgments and quantitative data.
Agostino, D. and Arnaboldi, M.	2011	Non-financial companies	The results show the interdependence between the change process, which is influenced by organisational forces, and its outcome.
David Longbottom, and Julie Hilton	2011	Financial services sector	The paper found that service improvement initiatives have focused on the use of popular business models, SERVQUAL, balanced scorecard, and European Business Excellence Model. Results show that participant perceptions towards these models are generally negative, with a high incidence of failure to achieve expected results and negative organisational consequences.
Huang. H. C., Lai. M. C., and Lin, L.H.	2011	Biopharmaceutical firm	The study concludes with implications for theory, research, and practice. Its results provide a logical and reliable way for individual business units to describe and implement their strategies.
Seyedhosseini, S. M., Taleghani, A. E., Bakhsha, A., and Partovi, S.	2011	Auto part manufacturers.	In this research, a systematic & logical method is introduced for the auto part manufacturers to enable them to extract and set criteria for being lean by using the concept of balance scorecard. There is a cause & effect relationship among the objectives and draw a lean strategy map for the organisation. This will help an organisation to improve criteria selection strategy by using the higher weighted lean objectives.

Author	Year of Publica - tion	Sector/Area /Application	Application of Balance Score Card
Northcott, D. and Smith, J.	2011	Performance of New Zealand board	The proposed BSC for the study incorporates multi-dimensional outcome (i.e. lagging) measures. It also recognises the importance of including subjective measures, rather than focusing on readily quantifiable measures that board members perceive as less informative.
Garengo, P. and Biazzo, S.	2012	Small- and medium-sized enterprises (SMEs)	The authors identify a circular methodology to implement a strategically aligned PMS in SMEs. The proposed methodology is based on the balanced scorecard model and features four main phases: (1) the analysis of current 'individual dashboards' to actually show the performances that are kept under control; (2) the clarification of the key success factors (critical success factors (CSFs)) underlying the measures under control; (3) the definition of the desired strategy map as a result of the comparison between CSFs that are currently under control and the desired strategy; (4) the translation of the desired strategy map into a dashboard of indicators necessary for the implementation of the strategy. The identified implementation process features key aspects, connecting the actual strategy with the intentional strategy and engaging SMEs in a process of observation and clarification of their future vision.
Danaei, A. and Hosseini, A.	2013	Pipe company.	The proposed study of this paper investigates the existing strategic objectives in the strategy map of a pipe company located in city of Shiraz, Iran. The results of our study indicate that the firm could reach 41.4% of its financial objectives, 87.38% of its customers' requirements, 66.13% of internal processes and 70.94% of its learning necessities according to four major BSC requirements. In summary, the firm could reach 66.45 % of its requirements during the fiscal year of 2011.
Memari, F., Momeni, M., and Ghasemi, A. R.	2014	Application of synthetic technique	Some indexes are necessary for performance evaluation of a management system. Balanced scorecard (BSC) is used in order to extraction of these indexes for evaluating the necessary performances in the evaluation process. Utilisation of BSC causes to prevent in increasing information and data. Furthermore, all of the important indexes are considered in evaluation performance. Data envelopment analysis (DEA) is applied for evaluating the system performance. It is a non-parametric method based on linear programing. This method uses multiple inputs and outputs indexes. Synthetic application of BSC-DEA causes the weak points of each method is enveloped using strong points of another one. In the other hand a systematic relation between the methods can be created. In this paper, the BSC-DEA techniques are considered in order to improve the systems performance, synthetic application of BSC and DEA are considered and reviewed
Valmohammadi and Ahmadi	2015	Petrochemical Company	This paper is to present a holistic approach regarding evaluation of knowledge management (KM) practices on organisational performance. The effects of seven critical success factors (CSFs), namely leadership role, organisational culture, KM strategy, processes and activities, training and education, information technology, and motivation and rewarding system, on organisational performance in the framework of four perspectives of balance scored card (BSC) approach were surveyed.

Conclusion, Managerial Implications and Future Research lines

Organisations understand that in order to thrive in a competitive environment, they must make their processes deliver products and services better, faster, and cheaper. It is crucial for leaders to monitor performance in order to make correct and timely management decisions. Increasing competition and globalisation of markets has led organisations to strive to differentiate themselves from their competitors. Markets are driven more by value than cost, forcing organisations to consider quality, customer service, response and other such attributes. This change of focus has generated the need for performance measures to facilitate the control of these attributes (Bourne *et al*., 2000). Performance measurement is not a one-off activity and should be viewed as a continuum. Measurement and using its output is an on-going effort to identify performance levels against a set of expected baseline performance by meshing strategy with reality and aligning people with goals

Measurement is at the core of process and performance management and is a key enabler for developing and executing organisational strategies and business goals. The Balanced Scorecard assists organisations in overcoming two fundamental problems: effectively measuring organisational performance and successfully implementing strategy.

Finally, this paper stressed the importance of the word *balance* in the Balanced Scorecard. It represents the balance among:

1. Financial and nonfinancial indicators
2. Internal and external constituents of the organisation
3. Lag and lead indicators

This paper highlights the various applications of balance score card which indicates that the approach is most widely accepted for organisational performance in all contexts and almost in every field or sectors. The most important managerial implication of the BSC is that it makes possible to evaluate managerial activities from a broad viewpoint, by looking at both tangible financial aspects and intangible nonfinancial aspects. BSC having its root in practical application provides a means of measuring organisational performance in the new age. Organisations have been using it for two different but related purposes one for controlling the organisation and other as a strategy implementation tool. BSC tries to provide a balance measure of control between past performances indicators (measured by financial perspective) and future performance indicators (measured by other three perspectives viz. Customer, internal business processes and learning and growth). Strategy implementation has always been a complex issue for companies as reflected in low success rate of implementation. BSC gives solution to the problems related to strategy implementation (viz. linking strategy to organisational goal, bringing all on board, establishing cause and effect relationship, adaptive learning or double loop learning.

Upcoming research area could be identifying variables or measures under each perspective highlighted in the paper and linking the same with organisational performance both in short term and long term using techniques like structural equation modelling.

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