INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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WHERE ARE CURRENT PERFORMANCE MEASUREMENT FRAMEWORKS LEADING COMPANIES TO: FROM ACADEMIC AND PRACTITIONER PERSPECTIVES

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ABSTRACT

The purpose of this paper is to create awareness amongst academics and practitioners that the knowledge era we are going into demands more sophisticated performance measurement frameworks. With the balanced scorecard, results and determinants matrix, performance pyramid and performance prism each having their own strengths and weaknesses, it would be a breakthrough if by leveraging on the strengths of each of them, these frameworks can be integrated into one. The author suggested that the SMART performance pyramid of Wang Laboratories be made the starting point for the integration, as it has a practitioner perspective of manufacturing excellence, and is quite comprehensive. In the realm of management accounting, theories and concepts are first laid for the manufacturing environment and later adapted for other sectors e.g. costing for service industries. However the problem with the SMART framework is that has not been tested empirically as much as the balanced scorecard.

KEYWORDS
Measurement, Performance pyramid, Performance, scorecard.

INTRODUCTION

Performance measurement is often confused with performance appraisal. Performance measurement in the context of a business, relates to how a business has performed over a period of time. On the other hand, the latter concerns the performance of employees within the business.

A broader topic called Performance Management, comprises the methodologies, metrics, processes, software tools, and systems that manage the performance of an organization. Three essential tools for Performance Management which are: performance measurement, business intelligence and knowledge management. It is clear from this definition that performance measurement is an essential part of performance management. Researchers in the area of performance measurement have proposed various frameworks

The first type of framework is referred to as structural frameworks (typology for performance measure management). Some notable examples are given below:

- Strategic Measurement and Reporting Techniques (SMART) 1988, Wang Laboratories
- Balanced Scorecard 1992, Prof. Kaplan
- European Foundation Quality Framework (EFQM) 1997
- Performance Prism 2001, Prof Neely

The second type is referred to as procedural frameworks:

- Framework for Designing and Auditing Performance Measurement Systems 2000, Medori and Steeple
- Framework of Factors Affecting the Evolution of a Performance Measurement System 2003, Kennerly and Neely

The above frameworks are intended to move away from the traditional financial measures to frameworks using multiple measures. These include non-financial measures ('leading') which are able to predict the subsequent financial performance ('lagging'). With a plethora of frameworks available, the issue is: "which performance measurement framework best suits the company?".

DISCUSSION

Companies tend to rely on consultants to design a performance measurement framework for them. For some reason, most consultants tend to propose the use of the Balanced Scorecard. Such an approach sometimes lands itself into difficulties as we shall see below. Whilst not denying the power of the scorecard in the strategic alignment of goals to achieve long term success, the weaknesses of the balanced scorecard has been highlighted as:

- It attempts to integrate four important performance perspectives in one simple and easy-to-use management report. The main weakness of this approach is that it is primarily designed for senior managers to provide them with an overall view of performance. Thus, it is not intended for, or applicable at, the factory level. Gregory 1993 [p. 296].
- Absent of a competitiveness dimension (Neely et al., 1995). Most scorecards do not have external benchmarks to measure performance. Employees set their own targets and their superiors approve it like in the budgeting process called bottom-to-top budgeting except that the latter is purely financial. For service industries, competitiveness is an extremely important dimension of performance as highlighted by Fitzgerald and Moon (1996) in their books published by CIMA (UK).
- Failure to consider the human resource perspective (employee satisfaction), supplier performance, product/service quality, and environmental/community perspective (Maisel 1992; Ewing and Lundahl, 1996; Lingle and Shiemann, 1996; Brown, 1996). Company balanced scorecards only consider one stakeholder group; the shareholder group. Neely et al (2002) pointed out the significant impact other stakeholder groups may have on the company leading to events like foreclosure, strikes, bailouts,etc.

- Does not reflect different dimensions of performance as the SMART pyramid, and results and determinants framework do. Some measures in the scorecard like employee training cannot fit into Brown's framework¶, as the immediate output is dubious, but is given weight age in the employee's scorecard.
- There is no diagnostic phase for current performance, and no measurement process to facilitate operational definition and reporting. Organizations that have implement scorecards, know that the diagnose comes only at the end of a period by which time it may be a bit late.
- Does not give focus on core processes as the means of managing improvement, and no real focus on continuous improvement. Promotes periodic improvements based on performance management cycles with no real-time valid measurement of regular processes, products and services.
- Supports the 'organizational chart' view of authorities and responsibilities through its cascading (hierarchical deployment) approach. Cross-functional measurements are much lacking even though cross-perspectives (inter-relationship between perspectives) exist.
- It is not process-based. A study by Neely et al (1996) on manufacturing companies revealed that companies which utilize formal process-based approaches to performance measurement system design find it easier than those who do not, in: deciding what they should be measuring, deciding how they are going to measure it, collecting appropriate data, eliminating conflict in the measurement system.

Arguably, the strength of any good performance management system lies in the extent to which the data is independent from human intervention and manipulation.

GUIDELINES PROPOSED FOR COMPANIES

Several guidelines have been proposed for performance measurement frameworks (Neely 1998 pp. 5-6):

a. There would be relatively few measures. The more measures used the more is the tendency for violation between them.
b. The non-financial measures would predict subsequent financial performance. If the non-financial measures correctly measure the output from activities, then this would translate into financial measures.
c. The measures would permeate the whole organization – the same measures would apply everywhere. Performance measures used should at least be the same for each level of the organization pyramid. #
d. Measures would evolve slowly i.e. relatively stable over time, regardless of changes in top level management. Changing measures abruptly creates misunderstanding and confusion. @
e. People are fairly compensated for achieving targeted performance. This falls under the Human Resource purview – performance appraisal.

THE PROBLEM

In several conferences, audience responded that they are currently using Balanced Scorecards. But when asked the question how good they feel about the Balanced Scorecard's impact on their company's bottom line, no hand went up (Tyagi and Gupta, 2008). Too many perspectives and measures also make employees lose focus on critical activities. This happens when measures are cascaded down the organization in the interest of achieving organizational goals.

A large pool of experienced employees from all levels (a representative group) should be called together to determine what they feel are their most critical activities that value add to the organization. Undoubtedly this information can be cross-checked to the employees' SOPs (standard operating procedures). More than say 90% of the weight age in the employees' or department's scorecards should relate to these critical activities. For example a production manager whose most critical activity is meeting production schedules would probably spend 7 out of his 8 hour working day concentrating only on this, thus by right the weight age for other measures in his scorecard would only be 1 out of eight. Training and other discretionary activities whose benefits are unpredictable, no doubt important, should take up only a small weight age of his scorecard. However, hands-on training (either receiving training or giving training) and those that relate directly to the jobs performed should be considered critical.

According to Ghalayini *et al.* (1997), the main weakness of the Balanced Scorecard is that it is constructed as a monitoring and controlling tool rather than an improvement tool. Furthermore, Neely *et al.* (2000) concluded that the balanced scorecard does not consider the competitor perspective at all.

When we reproduce the Criteria for Performance Excellence of the Malcolm Baldrige Award below,

2010 Categories and Items	Point values
Leadership	120
Strategic Planning	85
Customer and Market Focus	85
Measurement, Analysis and Knowledge Management	90
Human Resource Focus	85
Process management	85
Business Results	450
	1000

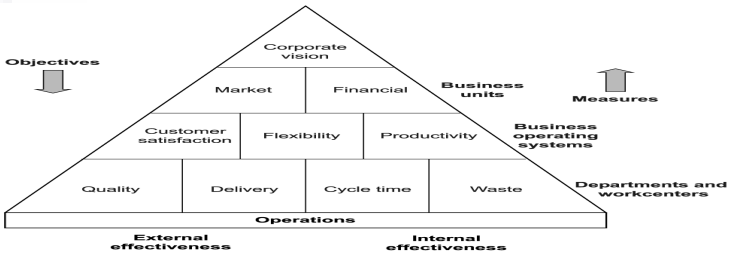
Source: http://www.baldrige.com/criteria/the-baldrige-criteria/

We can see that the Balanced Scorecard as a tool for achieving business excellence is lacking in many aspects:-

- There is no measure for *leadership* when other frameworks like the European Business Excellence Model do have.
- Measures directly having impact on *strategic planning* e.g. Analysis of Budget Variances are absent.
- *Market focus* particularly competitiveness are absent.
- Measurement of *knowledge work* is absent. Knowledge workers will drive performance in the future era.
- No measures for an important stakeholder, i.e. *employees*, to ascertain their level of satisfaction.
- No *process management* and lack of definition of internal business process (Fitzgerald et al, 1991)

Its main strength is only in achieving *business results* (only 450 out of 1000 point values as seen above), not business excellence.

FUTURE RESEARCH AND CONCLUSIONS



Source: Cross and Lynch (1992)

The performance pyramid derives from the idea that an organization operates at different levels each of which has a different focus. However, it is vital that these different levels support each other. Thus the pyramid links the business strategy with day-to-day operations. The inventors of the performance pyramid realized that traditional performance measurement systems were falling short of meeting the needs of managers in a much changed business environment. The conclusions below helped to shape the performance pyramid which can be regarded as a modeling tool that assists in the design of new performance measurement systems, or alternatively the re-engineering of such systems that are already in operation (Johnson, S., 2005).

The strength of the performance pyramid model lies in the fact that it ties together the hierarchical view of business performance measurement with the business process review. It also makes explicit the difference between measures that are of interest to external parties - such as customer satisfaction, quality and delivery - and measures that are of interest within the business such as productivity, cycle time and waste.

Lynch and Cross concluded that it was essential that the performance measurement systems adopted by an organization should fulfill the following functions:

- The measures chosen should link operations to strategic goals. It is vital that departments are aware of the extent to which they are contributing - separately and together - in achieving strategic aims.
- The measures chosen must make use of both financial and non-financial information in such a manner that is of value to departmental managers. In addition, the availability of the correct information as and when required is necessary to support decision-making at all levels within an organization.
- The real value of the system lies in its ability to focus all business activities on the requirements of its customers.

Given the shortcomings of the Balanced Scorecard discussed earlier, researchers should study and develop alternative Performance Measurement Frameworks. The Strategic Measurement and Reporting Techniques (SMART) pyramid developed by Wang Laboratories should be a good starting point to attempt to generate more advanced frameworks. It has market position as one of its main crux to achieve corporate vision (consistent with the results and determinants model of Fitzgerald which has competitiveness together with financial as two important results). The cascading effect is clearly seen when objectives that meet the organization's vision are cascaded down to various levels of the organization right down to the factory floor, a bottom-most level which the balanced scorecard of Kaplan and Norton failed to reach. Linkages between the functions can then be developed; not just linkages between perspectives as noted in the balanced scorecard. A closer look at the SMART Pyramid revealed that it contained critical success factors for a manufacturer. To be used for a merchandising or service oriented company is then a matter of adaptation e.g. cycle time can be adapted to become service cycle time, quality becomes service quality (service level agreement).

Its purpose is to link an organization's strategy with its operations by translating objectives from the top down (based on customer priorities) and measures from the bottom up. The SMART Pyramid includes four levels of objectives that address the organization's external effectiveness (left side of the pyramid) and its internal efficiency (right side of the pyramid).

Corporate vision at the first level, is translated into individual business unit objectives, where short-term targets of cash flow and profitability are set to meet long-term goals of growth and market position (i.e. market, financial). The business operating system bridges the gap between top-level and day-to-day operational measures (e.g. customer satisfaction, flexibility, productivity). Finally, this model shows recognition for the importance of the human resource in achieving the company's vision by placing four key operational measures (quality, delivery, cycle, and waste) at department and work centres on a daily basis at the bottom of the pyramid. Ghalayini *et al.* (1997) suggest that the main strength of the performance pyramid is its attempt to integrate corporate objectives with operational performance indicators.

The shortcoming of the balanced scorecard that it considers only one stakeholder (the shareholders) appears to be valid if we realize that satisfying the needs of suppliers, employees, regulatory bodies, etc. has a profound impact on the longevity of the organization. Of course the immediate shortcut would be to replace the shareholders perspective with stakeholder's perspective. However, this replacement may not work as the basic shortcoming of the balanced scorecard that its measures do not cascade down to the shop-floor means it lacked the employee involvement perspective. Furthermore the end (lagging) indicator of a company's balanced scorecard has been claimed to be its bottom-line financial perspective (i.e. "how does the company appear to its shareholders?"). Also there is no concrete evidence that the supplier (an important stakeholder) has been given due prominence in the balanced scorecard. With the SMART Pyramid, flexibility and cycle time has important links with suppliers. However, it does not consider an important component of the stakeholder group which is the regulatory bodies.

As we enter into the Knowledge Era (diagram below) where customer value is the main driving force, a more sophisticated framework should be developed.

Evolution of Performance Measurements

Aspects	Industrial Age	Quality Age	Information Age	Knowledge Age
Objective/Scope	Increase Productivity	Improve quality	Improve bottom line	Sustained profitable growth
Driver	Basic needs	Expectation	Shareholders driven	Customer value driven
Methodology	Metrics	KPIs	Balanced Scorecard	Business Scorecard
Type	Output	In-process	Organization wide	Supply chain
Purpose of establishing measurements	Quantity-Units (cost per unit)	Yield % Good (defects per unit)	% Profit (profit per unit)	% Profitable Growth (value per unit)
Outcome	Fulfill customer needs	Get customer business through quality	Increase market value through profit	Achieve business growth through innovation
Challenge	Orders shipped	Quality received	Financials achieved	Performance achieved
Beneficiaries	Producer	Consumer	Shareholder	Stakeholders

Source: Authors

To conclude, we concur with Shane Johnson's remark that the SMART Pyramid is simple and comprehensive enough to be used as a basic framework for further research to develop more advanced performance measurement frameworks (Johnson, S., 2005). What is aimed at in the knowledge era is a Business Scorecard (not a Balanced Scorecard) driven by customer value with all stakeholders as the beneficiary. The question for any company is how to incorporate the stakeholder focus of the performance prism and the balanced approach of the balanced scorecard into the SMART Pyramid and then "making it work".

As Shane Johnson correctly put it: "These conclusions helped to shape the performance pyramid which can be regarded as a modeling tool that assists in the design of new performance measurement systems, or alternatively the re-engineering of such systems that are already in operation." (Johnson, S., 2005).

FOOTNOTES

¶ Brown (1996) developed the concept of linking measures through cause and effect relationships further. He showed the five stages in a business process and the measures of their performance. These stages are defined as inputs, processing system, outputs, outcomes, and goals respectively. The framework demonstrates how inputs to the organization affect the performance of processing systems and ultimately the top-level objectives of the organization (goals). Brown argues that each stage is the driver of the performance of the next.

As we go higher up the pyramid, the measures changed a little bit but this is not surprising when we are able to visualize the change in the form of rewards, from highly monetary reward at the lower level to less monetary reward at higher levels e.g. more units of stock options, higher contribution by employers towards top executive pension plans, etc.

@ Change is required gradually over the lifecycle of the firm, from growing stage to harvest and divest stages. At the growing (building) stage, firms are too obsessed in capturing the market for a new product that more attention has to be given to the internal processes of the business; increasing output through more effective sales and efficient processes. As the firm goes into the 'hold' stage, the focus shifted into protecting the market share through emphasizing

customer satisfaction. At the harvest stage, the focus is on cutting costs in order to maintain volume, but at this stage the firm has to embark on another innovative idea and this is where the learning and innovation perspective becomes important.

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