

Performance Measurement and Evaluation

A Review of System and Metric Design Issues

Performance Measurement and Evaluation

A Review of System and Metric Design Issues

Introduction

Why evaluate the performance of organisations? Why is so much measurement in purely financial terms? Are 'soft' measures of performance of any use? Is performance evaluation an end in itself, or a potentially valuable tool for business managers? Is it feasible to have a measurement system that monitors all the lead indicators of an organisation's performance?

The literature currently published about performance measurement and evaluation consists largely of 'theoretical speculation, together with case studies which describe best practice among a limited number of household names, which has made it difficult to assess the degree to which these measures are actually used; what the perceived benefits are; and the context of use of 'soft' measures.¹ This, implicitly critical, view of the current debate suggests a need for a review of current thinking about, and recent developments in, the concept of managing business performance - performance management based on performance measurement.

Background - Critique of Financial Monitoring

Both the public and private sectors recognise that the survival of an organisation depends on its ability to both evaluate current performance and identify strategies that will enable it to maintain good performance in the future. In other words, for an organisation to achieve its goals and objectives, performance measures must be used in order to evaluate, control, and improve the production or the service delivery process. Managers need to be able to measure progress. The principles of 1960s public sector rational comprehensive planning and 1970s private sector management by objectives both reflect this need - and emphasise that measuring performance against strategic objectives is critical to control and so to success. But measurement and evaluation is just one of the components within the process of improving results through effective management.

Even today, the overwhelming majority of performance measurement activity in the private sector is still financial - primarily for financial audits and the publication of statutory and management accounts - and often undertaken in response to legislative demands. But, as illustrated below, such financial measurements contribute little or nothing in helping an organisation to achieve its strategic goals.

¹ Stone & Banks 'The Practical Challenges of 'Soft' Business Performance Measurement Theory' (Anglia Polytechnic University, 1996)

The growing a growing recognition of the weaknesses inherent in traditional, i.e. financially-based measures - principally that they are too vague and aggregate in nature, and that they contain information about the past - something over which managers have no control, and therefore about which they have little interest. What factors should be of interest to business managers? Jack Welch, the former CEO of General Electric Corporation in the USA stated that 'the three most important things you need to measure in a business are customer satisfaction, employee satisfaction, and cash flow.'

In 'The Service Profit Chain'², Heskett *et al* propose a chain that links the elements of customer satisfaction and loyalty on the one hand, and employee satisfaction, capability and loyalty (what the authors term employee productivity) on the other, to an organisation's revenue growth and profitability. A greater focus on 'soft' factors seems to have stimulated both profitability and growth within the organisations studied by the authors. This 'link' appears to be confirmed in a forthcoming survey report from Harvard Business School, which concludes that 'managers and students of management should have confidence that high-quality customer service enhances, rather than coming at the expense of, profits.'³

A further look at what business managers perceive as the shortcomings of traditional (i.e. financial) performance measures can provide useful indicators for the design of a system of performance measurement and evaluation that will be an effective tool in managing an organisation's performance. These perceived shortcomings include that:

- They are essentially lagging rather than leading indicators of success (or failure!). As such, they provide little or no guidance for managers' future actions in markets where the pace of change and the level of competition keep increasing. The reader has to look no further than what happened to IBM in the late 1980s, and the speed at which 'Big Blue' plummeted from profitability to one of the largest corporate annual losses ever recorded.
- Because they are partial, as well as historic and aggregated, they often disguise or distort underlying or current business realities. For example, a rising level of customer disloyalty will have a significant negative effect on future marketing costs - and therefore on margins.
- They largely ignore customer and competitive perspectives, and thus fail to generate early warning signals of coming changes in the market. Because a failure to react promptly to such changes may result in an organisation losing its competitive position, it can be argued that traditional financial measures actually work against the maximisation of shareholder value.

² Heskett, Sasser, Schlesinger 'The Service Profit Chain' (Free Press, 1997)

³ Loveman 'The Service Profit Chain: Large Sample Evidence from the Financial Services Sector' (Harvard Business School, 1998)

- They focus on outcomes rather than on processes, thus providing only a weak link between management and individual operating units. As a result, managers are unable to identify activities that may be inhibiting the achievement of strategic goals. Here one is reminded of another high-profile financial disaster - Barings Bank.
- For similar reasons, employees on the lowest rungs of the organisational ladder cannot evaluate their own contributions to the achievement of strategic goals.

The perceived shortcomings outlined above point to the characteristics that many now argue should (indeed must) be embedded in any system of performance measurement and evaluation if it is to be effective. In summary, current thinking is that an effective system should:

- Monitor the vital signs that determine future performance - from top to bottom of the organisation, from both internal and external perspectives.
- Translate strategic objectives into performance measures that every employee can relate directly to their own activities.
- Focus as much on the processes that contribute towards the achievement of strategic goals as on the results themselves.
- View such processes in a cross-function manner, so minimising (any negative) competition between individuals and between functions, while at the same time acknowledging the need for the trade-offs that are inherent within any system of performance management (because you can't have everything).
- Allow individual employees to contribute to the development of their own performance measures, so encouraging the all-important personal commitment achieved through 'ownership'.
- Link the appraisal of individuals directly to these performance measures.

What is described above has been summarised by one participant in the debate about performance measurement as:

*'A system that strikes an appropriate balance between financial and operational performance measures, translates strategic vision and objectives into actions for individual employees, provides a set of forward-looking (predictive) performance indicators, and links performance to recognition/reward.'*⁴

⁴ Hoffecker & Goldenberg 'Using the Balanced Scorecard to Develop Companywide Performance Measures' (Journal of Cost Management, Fall 1994)

The Role of Performance Measurement

According to the marketing perspective, organisations achieve their goals, i.e. they perform by satisfying their customers with greater efficiency and effectiveness than their competitors⁵. Efficiency is a measure of how economically the supplier's resources are used when delivering a given product or service; effectiveness refers to the extent to which customers' expectations are met. This is key in that it reveals the multi-dimensional nature of performance - in this instance that both internal and external factors influence a (product or service) provider's actions. The level of performance an organisation attains is a function of the efficiency and effectiveness of such actions⁶. Thus:

- Performance measurement can be defined as the process of quantifying the efficiency and effectiveness of action.
- A performance measure can be defined as a metric used to quantify the efficiency and/or effectiveness of an action.
- A performance measurement system can be defined as the set of metrics used to quantify both the efficiency and effectiveness of actions.

The above suggests that a performance measurement system can be examined at three different levels:

- the individual performance measures
- the set of performance measures
- the relationship between the performance measurement system and the organisational environment within which it operates

Further, it has been suggested that there are two types of performance measures used in any organisation - those that relate to results, and those that relate to the determinants of results⁷. This, in turn, suggests that it should be possible to build the framework of a system of performance measurement and evaluation around the concepts of results and determinants.

Any initiative to construct such a framework would lead, sooner or later, to the work of Robert Kaplan and David Norton, among the most prominent of the figures in the current debate. They have translated the definition of a performance measurement system given above into just such a framework - for which Norton coined the term 'Balanced Scorecard'⁸. The Kaplan and Norton framework is based

⁵ Kotler 'Marketing Management Analysis, Planning and Control' (Prentice-Hall, 1984)

⁶ Neely *et al* 'Performance Measurement System Design' (International Journal of Operations & Production Management Vol.15 No.4, 1995)

⁷ Fitzgerald *et al* 'Performance Measurement in Service Business' (CIMA, 1991)

⁸ Kaplan & Norton 'The Balanced Scorecard - Measures That Drive Performance' (Harvard Business Review Jan-Feb 1992)

on the principle that a performance measurement system should provide business managers with information sufficient to respond to four basic questions:

- How do we look to our shareholders (what they term the financial perspective)?
- How do we look to our customers (the external perspective)?
- At what must we excel (the internal perspective, viewed in terms of core competencies)?
- How can we maintain continuous performance improvement, and create added value (what they term the innovation & learning perspective)?

Many limitations of financial-only performance measures are overcome in the balanced scorecard system. The method forces organisations to recognise explicitly those activities that contribute to its success and to develop specific performance measures. The balanced scorecard concept has two principle strengths: it summarises in one management report many of the seemingly disparate elements of an organisation's competitive agenda; and it prevents local optimisation at the expense of global optimisation by forcing senior managers to consider all operational measures concurrently - it serves to reflect the linkages between the performance measures and the trade-offs that are necessary to achieve a variety of objectives.

But it must be recognised that organisations operate in a dynamic environment - suggesting that the most important of the four basic questions detailed above is that which refers to continuous performance improvement. New management initiatives, competitor actions, and the concerns of stakeholders must be reflected in performance evaluation. Additionally, managers must be kept up to date and engage with new problems facing the organisation. Evaluation and reporting should change as a result of a range of factors - seasonality, process improvements, reorganisations, the business life cycle, to name but a few.

The remainder of this paper looks at several approaches to designing a system for performance measurement and evaluation, as well as to identifying appropriate performance metrics. However, these various approaches can, themselves, only be evaluated effectively if the characteristics of the broader management system (as mentioned above - the process of improving results through effective management), within which performance measurement and evaluation is one of the components, are clearly understood.

A practical approach to such an understanding can be made through 'The Business Control Cycle', a model of corporate decision-making developed by Metapraxis and described in an article published in 1997⁹. The Metapraxis model applies the

⁹ Bittlestone 'Exploding the Money Myth: From Performance Measurement to Performance Management' (Accountancy Age, March 1997)

principles of rational comprehensive planning (used since the 1960s in the public sector - and criticised because it was weak on implementation). The model is based (necessarily) around a statement of the obvious - that 'results happen'. In order for results to be known, they have to be measured but these measurements, on their own, are meaningless without analysis. The business analysis is, in turn, ineffectual without an effective dialogue between the analyst and the business manager. Such a dialogue will be wasted unless the manager commits to action but if effective action emerges, results will be improved. Thus a virtuous circle is formed:

Measurement → Analysis → Dialogue → Commitment → Action → Results

As well as showing how measurement leads to action and results - through the mechanism of business control - the Metapraxis model also illustrates how measurement leads to external judgements being made about an organisation. The audit (measurement) of an organisation's performance leads to publication (e.g. annual accounts), which is followed by a response from the market. The response is likely to lead to the setting of new business targets that, in turn, are fed back into the analysis process. Strategies are developed from analyses, leading to an internal dialogue in order to bring future results in line with external expectations:

Audit → Publication → Market Response → Target Setting → Strategies →
Dialogue → Commitment → Action → Results

The value of the Business Control Cycle model lies in revealing that 'the process of measurement serves two masters' - the compliance-based audit process and the control-based business process - which pull in different directions (the attention given to the first is usually at the expense of serving the underlying needs of business control). The significance of this is reflected in the 'balance' element of the balanced scorecard approach to measurement and evaluation.

The article by Metapraxis is concluded with 'Performance measurement is crucial, but it is just one component in the overall process of improving results through better performance management. The other components are analysis, dialogue, commitment, and action, and historically much less formal attention has been paid to these. The remedy is to take a fresh look at the whole performance cycle and to tackle each area through a mixture of carefully chosen weapons: people reorientation, process improvements, and new technologies'¹⁰.

Why Measure Performance?

Before approaching the task of designing any system or any specific measures, it is important to separate 'Why measure?' from 'What to measure?' because the reasons for the evaluation of performance underpin any measurement that is needed. 'Any consideration of measures suitable for evaluation needs to consider the whole

¹⁰ Bittlestone Op cit

purpose for which the evaluation takes place, in order to prevent the problems of meeting one need at the expense of others.’¹¹

It is important to recognise that there are a variety of purposes for which performance is evaluated, which are concerned with the actual functioning of the organisation, from a planning viewpoint and from an operational viewpoint. Further, an organisation is concerned with its future as well as with today - and so should have both a long-term and a short-term focus. It is concerned also with its internal operations and with its external environment, and so must have both an internal and an external focus.

As Crowther remarks, performance measurement is undertaken for one of three main reasons:

- Measurement for control
In order to determine whether or not an organisation is operating as expected (or, for the public sector, as required), it is necessary that there is a plan for the activities of the organisation. Measurement is necessary in order to assess performance against such a plan, and to have a means of assessing any changes in control necessary to correct any deviations from that plan. In this context, evaluation is concerned with past data and its current implications.
- Measurement for accountability
The increasing power and concern of the stakeholders in an organisation, and the way in which their respective power continues to change, have led to an increasing demand for accountability. Accountability is therefore an area of performance measurement that is increasing in importance and changing in nature. In this context, evaluation is concerned with accountability rather than with accounting.
- Measurement for strategy formulation
Evaluation for strategy formulation is concerned with prediction. In developing its strategy, an organisation has to select from a range of alternative courses of action the one most appropriate to its current circumstances and constraints, and to its future objectives. To make this selection, the organisation must have a means of evaluating the alternatives in whatever terms it considers appropriate and relevant.

Each of these reasons exists in isolation from the others, and so should be considered separately. There is no reason to suppose that measures developed for control purposes will be appropriate for accountability or for strategy formulation; measures used must be appropriate for the purpose to which they are put.

Crowther reminds us, too, that measurement theory states that measurement is a relative rather than an absolute process, and it is comparison that provides the

¹¹ Crowther ‘Corporate performance operates in three dimensions’ (Managerial Auditing Journal, 11/8 [1996])

meaning for measurement. An organisation first describes performance (through objective measurement), and then evaluates performance (through subjective value judgements). Value judgements rely on comparisons about activities in different spheres - what Crowther calls 'the constituents of performance':

- temporally - by enabling the comparison of one time period against another
- geographically - by enabling the comparison of one unit against another
- strategically - by enabling the forecast consequences of alternative courses of action to be compared

Because it is essential to assess comparatively - 'better than expected', 'worse than competition', etc., a quantitative approach to measurement is necessary, even if some aspects of performance are, by nature, qualitative.

Designing a Performance Measurement System - A Structured Approach

There are a variety of recommendations about system design frameworks, e.g. Keegan¹², and system design aids. Many writers suggest guidelines for identifying a set of performance indicators, the following being drawn from just two^{13 14}:

- The purpose of each indicator must be clear, as should be methods for data collection and calculating 'scores'.
- Indicators should be selected in discussions with those involved (customers, managers, employees), and under the control of the evaluated organisational unit.
- Indicators should be related directly to the organisation's business strategy, be simple and easy to use, change as circumstances change, be variable (a single measure is unlikely to be suitable throughout an organisation), and provide rapid feedback.
- Indicators should be designed to stimulate continuous improvement, rather than simply monitor.

Crowther's recommended approach to developing a framework for performance measurement reflects the 'multi-dimensional' aspect of evaluation. It is based on his belief that there is a requirement to recognise that the different perspectives and individual needs of all members (of an organisation's stakeholder community) must be reflected in establishing a system of performance measurement and evaluation.

¹² Keegan *et al* 'Are Your Performance Measures Obsolete?' (Management Accounting, June 1989)

¹³ Globerson 'Issues in Developing a Performance Criteria System for an Organisation' (International Journal of Production Research, Vol.23 No.4, 1985)

¹⁴ Maskell 'Performance Measures of World Class Manufacturing' (Management Accounting, May 1989)

Rather than adopting the piecemeal approach of many authors, Crowther argues that a more efficient method is to consider all (stakeholder) needs initially and then design a framework for evaluation that meets all these needs and can be expressed as a measurement and reporting system. He recommends that the different aspects of performance can be considered as dimensions, and suggests three¹⁵:

- the perspective dimension - which seeks to recognise that stakeholders may have more than one (of nine suggested) perspective from which they evaluate an organisation's performance
- the purpose dimension - the five purposes suggested include strategy formulation, strategy implementation, control, accountability, and valuation
- the focus dimension - summarised as internal vs. external, short-term vs. long-term, and past vs. future.

Crowther's approach is valuable in that, in developing his recommended framework, he has demonstrated that the issues of importance as far as performance evaluation is concerned are not sector-specific but apply generally to all organisations - public or private, local or multi-national. 'Fundamentally, however, it can be seen that the approach taken to the measurement and evaluation of performance should be the same whatever the type of organisation, whichever market it is operating in, and whatever the unique characteristics of that organisation.'¹⁶

What to Measure?

Designing a balanced score card, or any other system of performance measurement and evaluation, is a process within which one of the key questions is about how the specific measures of performance (the metrics) themselves should be designed. The key question 'What constitutes a well-designed performance measure?' has been addressed in a recently published paper from a group of researchers at the University of Cambridge.¹⁷ In seeking to answer this question, the paper draws together a number of themes published in relevant literature, proposes a framework for specifying performance measures, tests the application of this framework, and explores how it might be enhanced.

The paper concludes with a recommended performance measure record sheet - which can be used to design and audit performance measures. 'Experience suggests that the record sheet is valuable because it facilitates the design of performance measures and encourages the designers of such measures to consider the behavioural implications of the measures in particular settings (the dimensions mentioned above). The record sheet has also proved valuable in the education

¹⁵ Crowther Op cit

¹⁶ Crowther Op cit

¹⁷ Neely et al 'Designing performance measures; a structured approach' (International Journal of Operations & Production management, Vol.17 No.11, 1997)

process as it provides a framework which can be used to explore what constitutes a well-designed performance measure.¹⁸ The authors' modified performance measurement record sheet looks like this:

Title
Purpose
Relates to ...
Target
Formula
Frequency of measurement
Frequency of review
Who measures?
Source of data
Who owns the measure?
What do they do?
Who acts on the data?
What do they do?
Notes and comments

Summary

Because of the range and volume of the literature now available about performance measurement and evaluation, and the rate at which this literature is being expanded, it is impossible to provide a balanced but succinct summary of who recommends what. Nevertheless, some key points and key questions can be extracted from what has been published in order to help the reader progress their own system and metric designs. These include:

- General Issues:
 - A pre-condition for an organisation wanting to create a balanced system of performance measurement and evaluation is having a clear corporate mission statement and clear strategic vision.
 - Management philosophies and organisational concepts are being revamped continually to accommodate changing technologies and competitive challenges. To overcome these (obstacles?) successfully, new approaches to performance measurement must be adopted.
 - At every level within an organisation, a few simple measures should be linked to strategic objectives. In order to develop a set of performance measures that clearly supports a corporate vision/mission, it is helpful to keep track of the links between strategy, leverage points, drivers, and performance measures.
 - Wherever possible, more than one set of measures should be used to create balance, e.g. a system should include long-term as well as short-term measures.

¹⁸ Ibid

- Top managers cannot be expected to convert masses of data into decision-making intelligence for competitive advantage - they need help in mixing, matching, and modelling data to reach organisational goals. And lower-level employees need to know on what to focus their individual efforts so as to contribute to the achievement of an organisation's goals.
- The best systems will be characterised by a focus on: measures of output at the highest levels of the organisation; measures of processes at managerial and supervisory levels; and measures of inputs at the lower levels.
- Measures should measure the rate of change as part of the continuous improvement effort - and against internal and external benchmarks.
- As you go down the organisation, fewer measures are shared between functions, but each relates back to the performance measures of the next higher level, a linkage that is guaranteed by each employee's measure being developed between the employee and his superior. The assignment of performance measures stops when everyone in a group, function, or team has a common set of measures.

- For The System Itself:
 - A system should be used as an improvement tool rather than simply as just a monitoring and controlling tool.
 - How can measures be integrated both across an organisation's functions and through its hierarchy?
 - How can conflicts between measures be avoided?
 - Can functional and process measures co-exist?
 - Everything can be measured but how can the number of measures be kept to a meaningful but manageable set?
 - How can the cost/benefit of a system be analysed?
 - How does process measurement build capability?

- For Individual Measures:
 - How can 'flexibility', which is often simply a property of the business process, be measured?
 - How can measures be designed to promote inter-function co-operation?
 - How can measures be designed that do not encourage 'short-termism'?
 - How can measures be designed to encourage appropriate (e.g. employee) behaviour?
 - How can 'flexible' measures, those that take account of changes in the business environment, be defined?

 - How should data generated from a measure be displayed?
 - How can management ensure that appropriate (perhaps corrective) action follows measurement?
 - How can predictive measures be identified and developed?

- For The Business Environment:
 - How can organisations integrate measures into strategic control systems?
 - How can management ensure that the system matches the organisation's strategy and culture?
 - Where are the strongest links to business strategy?
 - To which dimensions of the internal and external business environment does the system have to be matched?

Conclusion

There are many views about the philosophy as well as the detail of performance measurement and evaluation system design, as well as about the design of individual performance measures. However, one theme runs through the current literature; an organisation that can measure itself at every level against a common corporate vision possesses a potent competitive advantage.

As Hoffecker & Goldenberg wrote: 'A state-of-the-art system for performance measurement and evaluation should do no less than monitor the vital signs of the (organisation). At every level, it should translate an organisation's highest visions into individual performance measures that focus on organisation, highlight excellence, support competitive spirit, provide a foundation for continuous improvement, and support the good of the organisation over the good of particular individuals or functions.'¹⁹

© D R Backinsell 2001

¹⁹ Hoffecker & Goldenberg Op cit