# The role of SD in changing the performance metrics in the private sector

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## I Abstract

Traditionally private sector organisations have measured performance in terms of financial performance measures: most often ROCE, ROI, EPS and similar. These are notoriously short term measures and rarely relate to the critical success factors for the firm. It is a small conceptual leap to apply the principal elements of system dynamics (stocks and flows) to traditional financial reporting measures (financial stocks and flows) and then to extend the concept beyond finance into other stocks of value that the company possesses - these include brands and patents, research capability, employee skills and morale etc. This paper describes the principles behind the use of system dynamics to concepts of accounting beyond financial performance measures. This allows company managers to identify balanced performance measures which are more appropriate for running the company, and to devise performance regimes that encourage behaviour designed to maximise the value of the company overall for all stakeholders. We describe the process by which performance measures are identified and give examples of the approaches adopted by two organisations.

## II Performance Measurement within the Decision Making Process

Fitzgerald et al (1991) have identified three questions that need to be answered within performance measurement. We have re-interpreted these to: what is happening?; why is it happening?; and what should be done about it? Using system dynamics naturally answers these questions but also introduces issues which have particular implications for strategy and process management.

## III The role of Performance Measurement

It is a truism, universally accepted - and almost as universally ignored - that what you measure is what you get. As Tom Peters puts it in Understanding Chaos, '"What gets measured gets done," has never been so powerful a truth.' Accepting that proper control of a business system requires feedback and, necessarily, performance measurement, then you

must be absolutely certain that you are measuring the right things. This emphasises both the power and the danger inherent in performance measurement: it is a tool capable of aligning behaviour in a potent and beneficial manner, but also capable of doing immense damage if any of the following situations pertains:

- there is an *alternative pathway* between behaviour and measure;
- there are *misaligned objectives*;
- the behaviour in one area, produces *unforeseen side-effects* in another;
- the measure is *ambiguous.*

We define performance measures quite simple as a set of criteria against which the organisation wishes its performance to be measured. We define performance indicators more broadly, as a set of criteria which the organisation wishes to monitor. We believe that the distinction is important because mistaking one for another can lead to disasterous consequences. In practice, indicators are useful as information and feedback, but measures are useful for alignment, motivation and reward.

The starting point in developing performance measures is the objectives of the organisation. It is the achievement of these that must ultimately be measured. As Dixon et al stated (1990) 'One needs to recognise that measures are necessarily tied to strategy; as strategies change, performance measures must change to reflect those new strategies'. Traditionally most work has been concentrated on financial performance. They are (relatively) objective; they ultimately collect all the information about performance in other areas (although often far too late for control purposes); and they are easier to capture and compute. However, as Kaplan says (1984, our italics), '... if senior management place *too much* emphasis on managing by the financial numbers, the organisation's long term viability may be threatened.' The important point not being that management should take both their eyes off the financial stocks and flows, but they should have one eye on non-financial measures. Non-financial measures are important because they tend to be leading indicators of the future financial performance of the organisation. It is vital to understand in what way the non-financial variables affect the finances of the organisation, otherwise we are making a 'leap of faith' which it will be hard to justify to the financial stakeholders.

A second problem with existing performance measures is that they are not cascaded throughout the organisation. Currently there tends, at some level within the organisation, to

be a discontinuity between a manager's objectives and those that he sets for his subordinates. To maximise the benefits available through performance measurement it is essential to have a set of measures that align staff objectives at all levels within the organisation, not just at the top level.

## IV Development of Performance Measures and Indicators

In system dynamics we describe the world as a set of stock and flows. In financial terms it is easy to imagine that stocks are balance sheet items and flows are profit and loss or cashflow items. It is also apparent that each business activity will affect a number of different flows, both directly and indirectly and hence a number of stocks. For example, a decision to run a machine on overtime will affect the production flow - and hence stocks of raw materials and finished goods - overtime payments - and hence cash in bank and, perhaps, worker morale - and many others. It is a small leap to move from the traditional approach to an inclusive approach by making a move from purely financial stocks and flows to consider all stocks and flows.

We have used system dynamics to define performance measures successfully in many organisations (Philips, IMRO, Allied Dunbar and Post Office Counters for example). Causal loop diagrams enable us to identify all the influences on a variable. If this variable is incorporated into a performance measure, it is, therefore, possible to identify the means of influencing it and the implications of doing so: thus, answering the three questions set by Fitzgerald et al, above.

The process of developing measures is described in Davis & O'Donnell (1997). The first stage of formulation is to develop statements of the organisation's objectives at a series of levels. The top level objectives should be available from the organisation's mission statement, or something similar. At lower levels it will be necessary to develop objectives in terms of the causal loop diagram and the different activities that the organisation enters into. This is a process of asking the question 'how to ...?' for each of the higher level objectives. This question will elicit a set of drivers leading to the achievement of the high level objective.

For example, in a retail organisation an organisational objective might be to maximise retail profits. This would be cascaded down to maximising profit per outlet and then to department

level and even to the salesperson. There will, of course, be other factors and objectives coming in which help determine the profit such as attractiveness of store, friendliness of staff, length of queues, location, product availability etc.

For each objective, at each level it will be necessary to consider measures that cover each of efficiency, effectiveness and quality of service. It is not necessary to have all these measures for all drivers, for example friendliness of staff will only require a quality of service measure. Each of these measures will, ideally, be an objective, quantitative measure. If this is not possible qualitative measures are a good substitute.

In developing either quantitative or qualitative measures it is vital to refer to the influence diagram, as this will illuminate potential problems with 'alternative pathways', 'unforeseen side-effects' or 'ambiguity'. This will be an interative process leading to further development of both the influence diagram and the performance measures as understanding of the implications of the proposed measures increases.

At Allied Dunbar, measures are reported to the board as a set of six indices - each one made up of a large set of measures and weighted according to their perceived importance. These six strategic measures are audited each year and used to determine to what extent the overall strategy is achieved. At another company the central management defines traffic light measures, which are those that the centre demands from operating companies. In addition the operating companies define spotlight measures which define their strategy. Any investment must be justified on the basis of the causal loop diagram which defines the measures.

**References**

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