Introduction

Since the early 1990s, when the idea of a balanced scorecard (BSC) was first proposed, many thousands of companies ranging from small to large, public sector as well as private, all over the world have adopted the BSC approach with many achieving remarkable successes. Since measurements form the backbone of all testing and calibration laboratories day-to-day operations, it is surprising that those who run and manage these laboratories have not considered using the BSC in order to meet their objectives.

This article uses the scorecard to propose how a test or calibration laboratory could benefit from adopting a similar approach and thereby adopting solid business principles in order to improve the viability of the laboratory in whatever environment a particular organisation finds itself.

The BSC

Over many years, it was a well-accepted business practice to evaluate the performance of a business by using the financial accounting model to measure whether the organisation, business unit or department was successful. Whist the success of any business is essentially whether or not it makes a profit, it became obvious to many that only evaluating a company in terms of its financial performance was becoming less and less helpful in shaping and guiding the company in the modern era.

In the early 1990s, Norton and Kaplan, were requested to develop a new performance measurement model. This was as a result of a study conducted by KPGM, which indicated that many companies were dissatisfied with their reliance on financial measures as the sole indicator of economic value and success.

Companies operating in the 1990s were of the opinion that this approach was hindering their ability to create value and effect change. Norton and Kaplan began a process that culminated in the BSC, which proposes that various non-financial measures be used in order to balance the evaluation of the company.

“Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it you can’t improve it.”

Norton and Kaplan established four critical areas that they considered sufficiently generic to establish a balanced view of the company but, more importantly, could be used by any organisation in order to create meaningful measures for itself. It should be remembered that financial measures are always at best an indication of the financial health of a company at a point in time (the balance sheet is the best example of this) or a reflection of past performance (the income statement being the best example in this case). Essentially, these two documents, which all companies, small and large, use for reporting purposes, are merely indications of past or current performance but do very little to indicate how the company will perform in the future.

In addition, whilst it is true that these financial measures can be used to gain useful information such as the time it takes to collect outstanding debtors, debtors days, or use of cash, cash flow statement, it gives very little information about non-tangible issues such as efficiency or quality of the process or effectiveness, e.g. training programmes. One can see, therefore, how relying purely on the financial model, could impinge on a modern, knowledge-based organisation to understand whether it was successful or not since many non-tangible issues need to be monitored and evaluated if the organisation is to achieve success.

Figure 1 is a generic model of the BSC and one can see how a number of very important aspects are covered in what is essentially one simple, easy-to-read overview. One of the most interesting aspects of this model is how it is the strategy of the organisation and often its need to implement change that sparked its development. It should be noted that the vision and strategy are located at the core, and that the various measures are used to focus on its communication to every level of the organisation as well as to ensure that the
measurement of the associated objectives are used to drive the necessary change and/or performance goals required. As a summary, therefore, BSCs reflect "the knowledge, skills and systems that employees will need (learning and growth) to innovate and build the right strategic capabilities and efficiencies (internal processes) that deliver specific value to the market (customer) and which will eventually lead to higher shareholder value (financial)" for the organisation.

**Lead and Lag Indicators**

Finally, a most important feature of this model is the fact that not only can a balanced view of an organisation be obtained, but a mix of what are known as lead and lag indicators/measures can be used. This of course means that a much better view of future performance is represented and this leads to organisations being in a good position to make operational corrections to their strategy implementation, long before the traditional financial approach provides feedback.

**The BSC and the Laboratory**

Whilst the first step when a company implements a BSC is usually to construct a scorecard that reflects the overall company’s strategy, the next step is to push the methodology down lower and implement scorecards for individual business units. Clearly, therefore, it is quite practical for a test or calibration laboratory to consider using this approach and this could apply where either the laboratory is part of the company or it is the company itself.
Laboratory Considerations

Having been exposed to many different types of laboratories, the author is of the opinion that there are essentially two generic types, which are as follows:

- **Internal** – the laboratory in this case forms part of a larger operation and often its role is to support the other activities of the company. In this case the financial motivation is often 'break-even', cost reduction or even, in some cases, subsidisation.

- **External** – here the company provides both testing or calibration services, and these are the prime motivation for the company to exist. In this case it is vital that these services are profitable since often there is no other form of revenue generation to support the laboratory’s activities.

Some readers may be more comfortable with the terms ‘non-commercial’ and ‘commercial’ rather than internal and external, but in either case, the intention is to provide a term of reference for laboratories where there is a real profit motive as opposed to one where the profit motive is break-even and/or cost reduction. It is therefore suggested that when building a suitable strategy for the laboratory, the following items need to be considered in order to ensure that a suitable BSC is constructed:

- **Customer needs/requirements**
  - competent services;
  - scope of work;
  - speed of response;
  - level of uncertainties;
  - volume; and
  - onsite.

- **Laboratory internal processes**
  - equipment required;
  - automation;
  - overheads (e.g. rent, water and lights, wages, telephone, fax. etc.); and
  - staff skills.

Of course, none of the above, or for that matter many of the other issues that may need to be taken into account, are very unique for a specific laboratory. What is, or should be, unique is the individual strategy that a specific laboratory will embark on in order to satisfactorily meet its mission and vision.

**Test Laboratory**

Cal_Test Services is a hypothetical multi-disciplinary laboratory whose main activities are in the area of electrical and temperature calibration. It seeks to serve its customers by providing calibrations to meet the requirements of ISO 17025 and has been accredited by the national accreditation body. Whilst the owners of the laboratory have relied on measuring the performance of the company purely in terms of its profitability, they have decided to implement a BSC in order to improve and broaden their activities. After conducting a strategic planning exercise they established the following mission and vision.

**Mission**

Cal_Test provides accredited electrical and temperature calibration services to ISO 17025.

**Vision**

Cal_Test seeks to profitably meet its clients’ calibration needs in terms of quality, level of uncertainty and speed of response. The next step in this process would typically be to establish the strategy that is required to achieve the mission and vision and then map the strategy according to the four perspectives of the scorecard. In order to establish a suitable strategy, a thorough planning exercise is required and the end result is a strategy map that can be portrayed in a number of different ways, but in all cases the objective is to provide an easy reference to enable communication of the map and the resultant measures to both the organisation internally as well as outside stakeholders. Figure 2 is an example of such a map. It not only illustrates the company’s strategy, it also provides links between the various perspectives and shows how they can be used together to evaluate both the individual areas and the overall strategy.

**Back to Cal_Test**

When Cal_Test had completed its strategy planning, it revealed that a number of objectives were critical and,
Using the Balanced Scorecard to Measure Laboratory Performance

when placed in a table (see Table 1), one can immediately see how they link upwards through all four perspectives. It should be remembered that in order to construct an effective scorecard, it is preferable to proceed in a top-down fashion. This is because the overall goals of the organisation need to be established first, no matter what its size is. Only then can the strategy of how to achieve this be worked out. In order to follow the reasoning behind the map, we can see that to grow the revenue stream, it was established that there are two main criteria that need to be focused on: one is the laboratory’s ability to respond to customer needs; and the other is to gain more customers. From these two hypothetical, but hopefully realistic objectives, the laboratory’s strategy is to improve its operational efficiency as well as to broaden the number of services (types of calibrations) that it can offer to prospective clients.

Finally, one can then see how the knowledge and learning required to support this strategy is reflected in how it intends to enhance its skills and capabilities in the areas of engineering computer skills, an electronic document system and metrologists who have broader capabilities in terms of the types of calibrations they can perform.

This article is continued, with additional tables, in the Reference Section on the website supporting this business briefing (www.touchbriefings.com).

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Objectives</th>
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<tr>
<td><strong>Financial</strong></td>
<td>Shareholder value, Grow revenue</td>
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<td><strong>Customer</strong></td>
<td>Leader in response time, Acquire more customers</td>
</tr>
<tr>
<td><strong>Internal Processes</strong></td>
<td>Improve operational efficiency, Broaden services offered</td>
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<tr>
<td><strong>Learning and Growth</strong></td>
<td>Automate DMM Calibration, Produce e-version Certificates and Store Results, Reduce Outsourced Calibrations, Enhance engineering computer skills, Implement electronic document system, Train metrologists in new areas</td>
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Table 1: Cal_Test Strategy Map

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