

Towards the Third Generation of Performance Measurement

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In this article we introduce the concept of third generation performance measurement systems. First generation measurement systems were based on the assumption that financially biased measurement systems should be supplemented with non-financial indicators, including intangibles. Whilst this was a valuable development, the problem with these first generation approaches was that they were static and failed to illustrate adequately the linkages between different performance measures. Second generation measurement systems addressed this issue by using strategy and/or success maps to take into account the dynamic nature of performance and the transformation processes linking objectives and resources. Third generation measurement systems will build on these developments and seek to link explicitly the non-financial and intangible dimensions of business performance to the generation of free cash flow.

1. The First Generation: Balanced Measurement Systems

The 1980s and early 1990s saw an explosion in the number of authors writing about and criticising the performance measurement systems used by organisations. Highly vocal and influential critics, such as Bob Kaplan and Thomas Johnson (1987), argued that traditional accounting methodologies were fundamentally flawed and that they had lost their relevance, because they were developed for an age when organisations generated value through labour, rather than the application technology or knowledge. Others identified inappropriate measurement methodologies and the short-term behaviours that they encouraged as a primary cause of the United States' economic decline (Hayes/Abernathy, 1980). So powerful and influential were these critics that academics and practitioners began in earnest to seek new and better ways of measuring organisational performance. Some tried to improve methods of measuring financial performance by developing and applying concepts such as activity based cost-

ing, activity based management, economic profit, free cash flow analysis and shareholder value analysis. Others tried to supplement the traditional financial measures with non-financial (and often intangible) measures. In doing so they ended up developing more rounded and comprehensive measurement frameworks, such as the **Balanced Scorecard** (Kaplan/Norton, 1996), the **Performance Prism** (Neely et al., 2002) and **Skandia's Navigator** (Edvinsson/Marlone, 1997).

In effect, what these first generation approaches achieved was to supplement the traditional financial measures with non-financial measures and to provide a framework for prompting people to think through which non-financial measures they should include in their organisation's performance measurement system. Interestingly the more recent frameworks that have been developed, such as the Performance Prism, have adopted a much broader perspective on stakeholders than the earlier ones, such as the Balanced Scorecard and the Skandia Navigator. Whilst this broader perspective better reflects the current challenges facing executives, it also brings with it

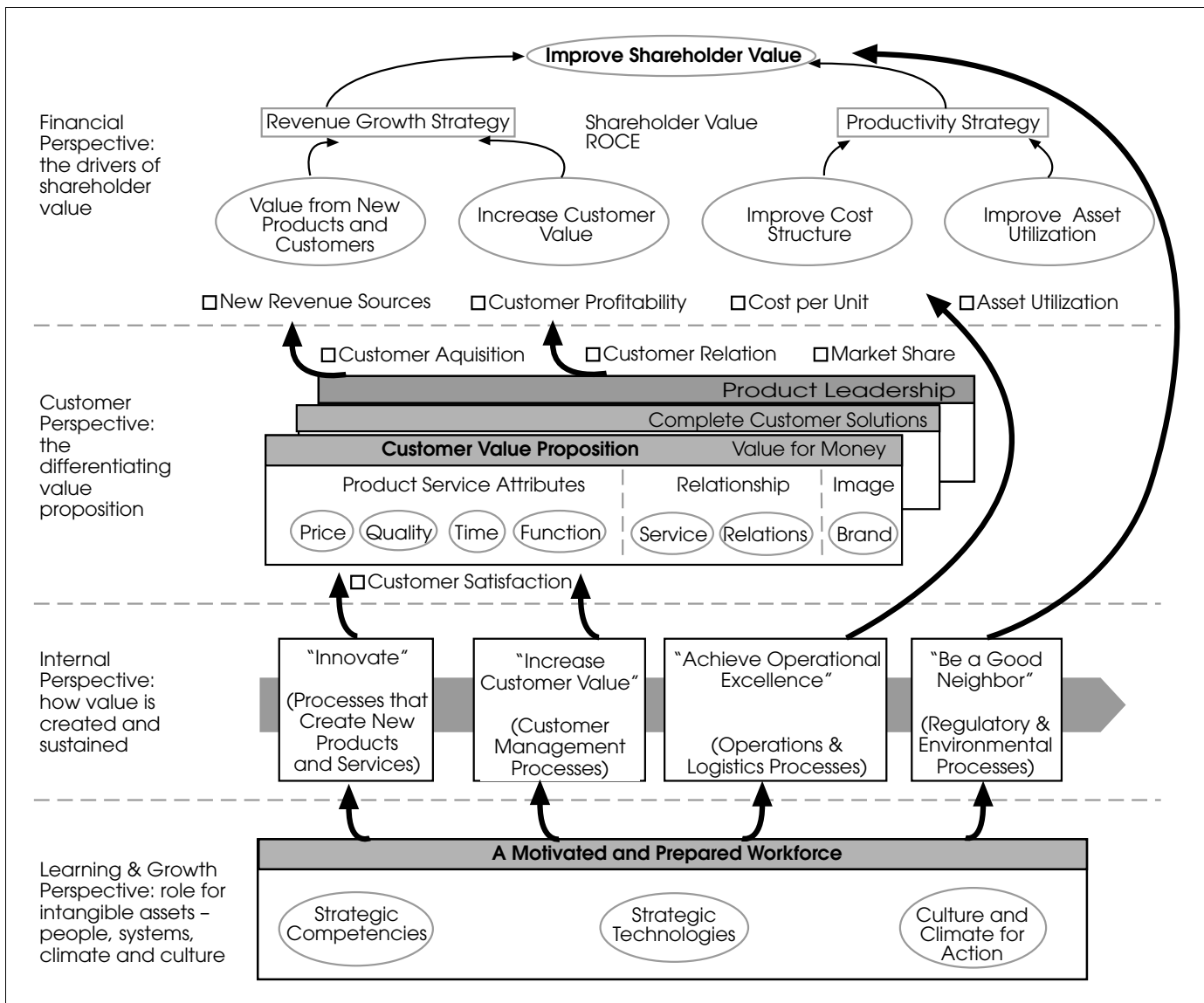


Fig. 1: Strategy Map (Kaplan/Norton, 2000)

an increasingly complex problem – namely how to link together and integrate all of the individual measures.

2. The Second Generation: Mapping The Flows and Transformations

As performance measurement methodologies capable of assisting the decision maker, second generation approaches made a significant step forward as they started to address the dynamics of value creation by investigating transformations of resources as well as the stocks of these resources. Indeed, the emphasis in second generation practices is on the transformations rather than the individ-

ual stock measures (Pike/Roos, 2001). Examples of second generation measurement frameworks include strategy maps developed by Kaplan and Norton (2000), success and risk maps developed by Andy Neely and colleagues (2002), and the IC-Navigator model developed by Göran Roos and colleagues (Roos et al., 1997; Chatzkel, 2002).

Strategy maps are a natural extension to balanced scorecards and enable them to operate as second generation measurement frameworks. Although the strategy map follows the logic of the scorecard, it offers a different visualisation of the four scorecard perspectives. In this way it reflects the assumed causal relationships between the objectives on

the scorecard (see Fig. 1). Although strategy maps are relatively easy to produce, they can be constraining if they are bound too closely to the four balanced scorecard perspectives. Most organisations today are more complex than the four perspectives included in the scorecard and executives are required to address the needs of stakeholders other than just customers and shareholders (Freeman, 1997).

To overcome the shortcomings in the balanced scorecard approach, the **Performance Prism** was developed. The Performance Prism deliberately takes a broader view of stakeholders and encourages organisations to address the following questions:

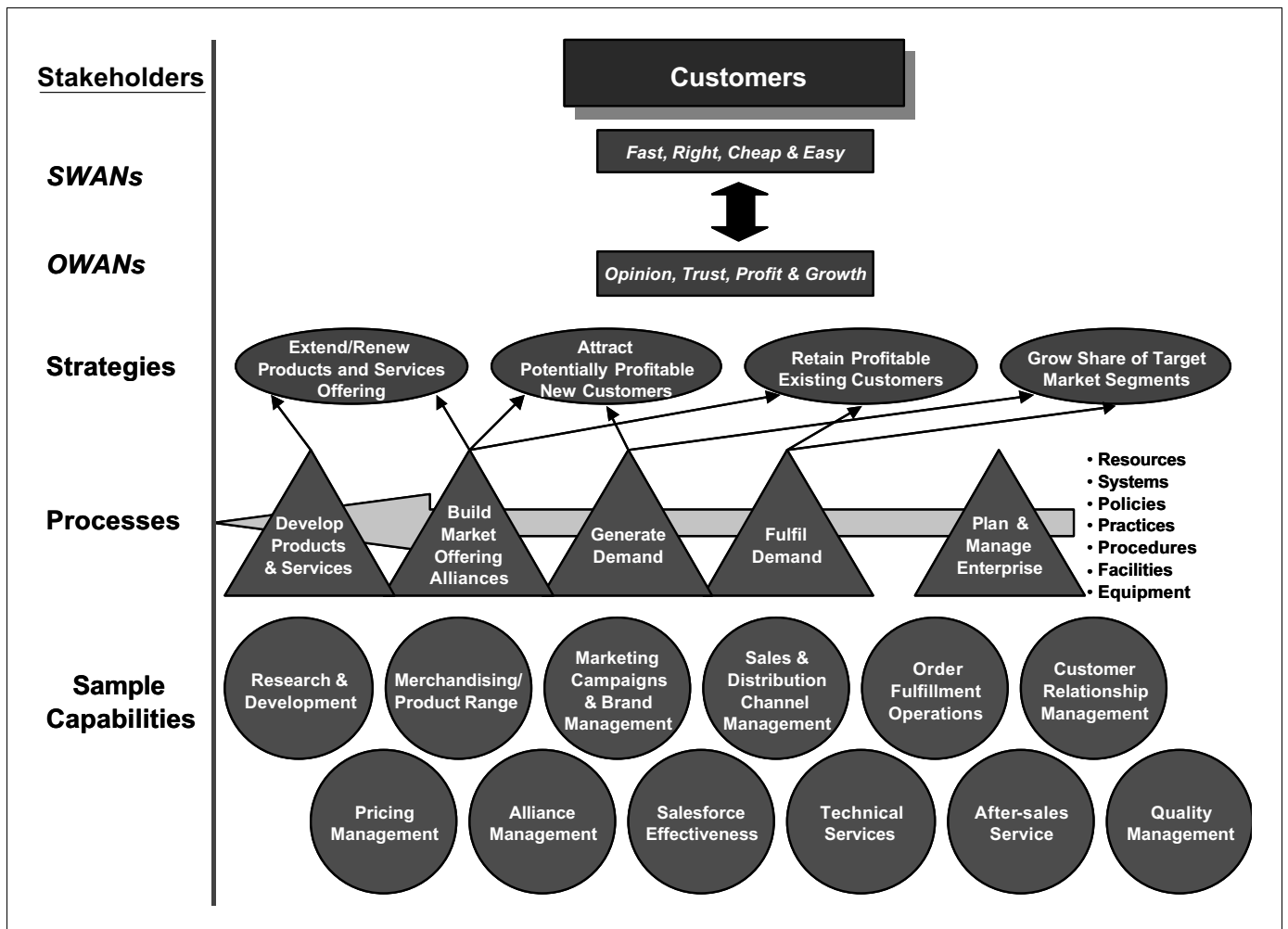


Fig. 2: Success Map (Neely et al., 2002)

- (1) Who are our key stakeholders and what do they want and need?
- (2) What strategies do we have to put in place to satisfy these needs?
- (3) What process do we need to have in place to execute our strategy?
- (4) Which capabilities do we need to perform our processes?
- (5) What do we expect from our stakeholders in return?

Addressing these five questions allows organisations to build comprehensive success maps, sometimes by each major stakeholder (see Fig. 2 for an example of a customer success map). A further refinement suggested by Neely et al. (2002) is the notion of failure or risk maps. These identify the potentially critical failure points in the organi-

sation, that if unmonitored could lead to excess exposure to risk. The broader stance adopted by the Performance Prism and its reliance on success and failure maps provides a flexible structure that enables organisations to map everything that is important to them in their success and failure maps.

Another methodology to unearth the most influential value creating pathways in organisations is the *IC-Navigator* model. As a conceptual map, the Navigator depicts the presence and importance of tangible and intangible resources and the transformations of these resources in accordance with achieving the organisation's strategic intent. In the Navigator (see Figure 3 for an example) the size of the circles represents the stocks of resources ranked according to their relative impor-

tance to the strategic objectives and the width of the arrows represents the importance of the transformations from one resource into others, again in accordance with the strategic objectives.

In contrast to first generation approaches, the Navigator has a stronger focus on long-term value creation potential. By focusing on the resource level, increased clarity is given to the processes through which an organisation's resources contribute to the development and deployment of strategic capabilities. With the Navigator, only proxy measures are taken of resources and transformations, hence all metrics are dimensionless, ordinal numbers (Roos et al., 1997). Evaluating performance through the Navigator approach brings some structure to the complexities and peculiarities involved with the

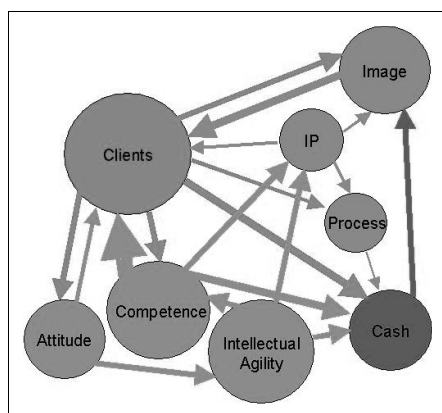


Fig. 3: Navigator Model

measurement and management of intangibles. Subsequently, the strength of the Navigator lies in its ability to emphasize subjectivity, by simultaneously offering an objective means of looking at the critical resources, which the firm can leverage in order to define its strategic territory. The Navigator accounts for all the resources that contribute to value in an organisation however unique they may be and omits or discounts those that have little importance in value creation, no matter what emotional value is attributed to them. As a result, the analysis provided by the Navigator does not get bound to a set of connotations that may exist in first generation approaches.

According to *Pike and Roos* (2001), second generation performance measurement has 'won its spurs' as far as a practical business management methodology is concerned but it has a fundamental weakness that needs to be recognized. The weakness is that whilst the existence of monetary resources is explicitly included in the mapping approaches, there is no ability to link the business-orientated methodology to real free cash flow, which is the current cornerstone of market valuation. In other words, second generation performance measurement makes no attempt to enter the 'no-man's-land' between business orientated and financially orientated management and measurement methodologies. The fundamental shortcoming of second generation approaches provides the onset for the development of third generation performance measurement approaches.

3. The Third Generation: Linking Financial to Non-Financial

The third generation of performance measurement requires organisations to seek greater clarity about the linkages between the non-financial and intangible dimensions of organisational performance and the cash flow consequences of these. Before such models can be developed it is essential that three fundamental criteria be satisfied (*Pike/Roos*, 2001).

- (1) Appropriateness and adequacy – the model must reflect reality.
- (2) Information adequacy – the right information must be provided.
- (3) Practicality and organisational alignment – the outcomes must be practical insights that will enable action.

Appropriateness & Adequacy

In the evolution from purely financial-ly biased to first and second generation measurement approaches, the models have gained appropriateness in how they reflect the realities of organisations. Second generation models are particularly valuable in that they allow visualisation of the linkage between intangible assets and business value. The challenge for third generation performance measurement approaches is to maintain the usefulness of the second generation approaches in addressing the key business areas but to do so in a way which extends the measurement to flows of cash. Most organisations today are subject to dynamic environments and subject to constant change. Subsequently, in order to keep any model relevant third generation frameworks must evolve with the change that takes place in organisations.

If measurement tools are to be used to support decision-making then they must give people the confidence that the models used reflect reality. If they do not then managers will revert to 'rule-of-thumb' measures, outdated techniques, or simple 'gut feel'. There is a clear trade-off between reflecting

the complex reality in order to gain confidence in the model and being able to use the tool to manage the business and to take decisions. Somewhere in between the two extremes of reflecting all complexities of reality and reducing the model down to a manageable set of key performance areas lies the 'pareto point' which allows for enough complexity in order to have confidence in the model but does not make it too impractical to manage. Taken as a whole, there is a decreasing return on investment in the development of complex models above the pareto point whereas models below the pareto point may be cheap and simple but are effectively useless. Above the 'pareto point' there appears to be a point where model complexity matches the degree of inherent uncertainty that exists simply because the world is not structured. Models, which seek to support structured decisions beyond the quality and quantity of the input information, again represent poor investments and are difficult to produce. A solution to this balancing problem is to build a structured model and allow for the adding back of uncertainty to match the quality of the information available for decision-making.

In general, information internal to a company is well structured since managers are in control of the company and as a defined object, it can be measured. Of course there will be uncertainty such as the price of raw materials but uncertainty is different from risk. Information whose origin is external to the company often carries risk and this can be introduced as an external modifier to the decision aid. The advantage of such an approach is that it can introduce rigour to the main part of the internal performance measurement model. This means that there is little need for an exhaustive audit of both model and information. Those wishing to compare companies such as analysts and the investing community need only seek assurance that the (rigorous) model was used. There is evidence from the recently completed work of *CEST* (*CEST*, 2000) that amongst companies, audits of intellectual capital models used in

companies to support strategic or operational decisions would be unwelcome. On the other hand, there was no objection to assurance.

One route to gain confidence in such models is to empirically test them. If organisations have sufficient measurement data for each of their performance items then they can start testing their assumptions. *Shell International* recently conducted empirical analysis to verify their Success Maps (Marr et al., 2002). However, to be able to do this organisations need adequate information which brings us to the next challenge.

Information Adequacy

Looking at corporate disclosure patterns, and with the exception of those organisations involved in delivering public services, the only information that seems to have traditionally been required by stakeholders to be reported in a standardised form has been financial information. Financial stability has long been a key performance indicator but along with that have been the quality, level and extent of the service the organisation provided. In the knowledge era, the concept of stakeholder and shareholder value extends far beyond simple financial performance measures. To communicate with stakeholders, all organisations are now required to deeper understand the attributes of value creation from the stakeholders' point of view. Internally in the company this means that the management's strategy must be more sophisticated and the levers that management pull to improve their performance are much more numerous and complex.

In terms of determining the extent of measurement and the information needed by decision makers, this is the defining stage. Decisions based on the necessary and sufficient levels of information are required. Less than this leads, after the 'Pareto point', to unnecessarily unstructured decision-making. More than this leads to wasteful and unnecessary measurement. Key attributes that have to be measured, especially the non-financial attributes, should be broken down only as far as

required. Two dangers emerge from over-measurement. The first is that the cost of data collection far outweighs the benefits of having it and that its collection also causes considerable irritation amongst those doing the measurement and those being measured. This is especially the case if the redundancy of the measurement information is obvious. The second danger is that management based on over-measurement leads to justified accusations of micro-management and the tendency to instil unwanted behaviours. People who want to improve performance will be dragged down to focus on many trivial elements in an over-elaborate measurement system. In doing this they lose sight of the bigger and more important picture.

One of the biggest challenges for performance measurement is to realise the difference between data and information. Far too often decision-makers are presented with raw performance data and are expected to analyse and translate the data into information straightaway. Scientists would never make a presentation to an audience without first analysing the data and understanding the messages it contains. Yet far too often performance data is presented without prior analysis. We give people figures on profitability by customer segment, on absenteeism levels, figures on productivity, but nobody in advance has been through the data and extracted the insights from it. *David Coles*, the Managing Director of *DHL UK*, described this as 'numerical crosswords'. *DHL's* board used to spend all of their time at performance reviews trying to join up the pieces of the numerical jigsaw that they were presented with. Individual directors would be looking at performance reports trying to draw spurious correlations between different events to offer explanations for unusual observations. More consideration must be given to presenting information instead of just raw data.

A further major challenge remains the struggle organisations face with measuring intellectual capital resources and transformations. Although second-generation approaches such as Success

Maps or the Navigator are already adept at identifying what needs to be measured and elucidating measures, organisations continue to face difficulty in areas of metric quality, and the interpretation and understanding of what they are measuring.

Consideration must also be given to the users of information at lower levels in companies and the effects they have on information as it passes along to those who make strategic decisions. What happens is that as the levels are ascended within the company there is an inevitable blurring as data is interpreted and re-interpreted. Information handling is a continuum problem beginning with those who collect the raw data inside the company and ending with worldwide reporting and disclosure. Information is processed and used at all levels in organisations, any third generation measurement system must take this into account.

The challenge for third generation approaches is to make information handling for decision-making as transparent as possible by concentrating on communicating information instead of raw data. Organisation must also integrate rigorous measurement of their intangible assets and fully integrate this information into the models. In this way the use of information will turn into a powerful resource itself adding to the competitive advantage of any organisation.

Practicality and Organisational Alignment

The condition of 'practicality' requires that the third generation performance measurement models must be able to inform the operation of the organisation and deliver insights about the real levers of value creation. If performance measurement and management is to be of any real value to organisations then it must help management to translate their strategic intent into appropriate actions and deliver feedback information showing whether these actions are working or not. *The Boston Consulting Group* report has suggested that managers have only three effective

levers in the creation of value namely, margin, asset productivity and investment (BCG, 1999). However others give more extensive lists adding innovation, attraction of talented people, alliances and customer satisfaction (see for example Baum et al., 2000).

In terms of decision-making, one of the major influences that affect managers is the external perception of actions they take, especially from a future cash flow perspective. This concentration on cash-flow, usually calculated using some kind of NPV techniques, within a specified and often short time period has tended to mask the importance of the intellectual capital transformation processes which create that cash flow. The flaws of NPV have been summarised by Lewis and Lippitt (1999) who suggest various modifications to overcome those shortcomings. However, the best solution might be to avoid NPV techniques by considering alternative futures as options and hence make this an opportunity to integrate real options theory or scenario planning (Fink et al., 2002). The most important impact is in the planning of projects to generate options and also to find ways of realising the value of the options. The challenge for third generation methodologies is to be flexible enough to incorporate these techniques within the model.

Practicality and organisational alignment also means that the measurement system is fully integrated with other organisational processes such as planning, budgeting, reporting, as well as performance reviews. If systems are not aligned and integrated it creates confusion and can jeopardise the entire implementation. Too often organisations put comprehensive performance measurement systems in place but when you attend meetings the only thing people talk about is budgets that are not aligned or linked to the performance measurement system. In the case of DHL UK they realised that their performance review meetings were not aligned with their performance measurement system. They decided to change the structure of their board meetings and defined

specific questions that they wanted answers to. They now ask their performance analysts to come to the board meeting armed not with raw data or excuses, but instead with presentations which address questions of fundamental concern to the board – e.g. are we going to hit budget this year, how are our customers feeling, how are our employees feeling. The analyst's role at the board meeting is to present their answer to the question. The board's role is to probe the quality of the analysis and once they are comfortable with it decide what they are going to do to move performance in the desired direction. In changing the structure of their board meetings the board of DHL UK has been able to eliminate the defensive behaviours associated with performance reviews and encourage the creative dialogue associated with performance planning.

In adopting this new structure and format DHL recognised that they had to upgrade the skills of their performance analysts. But at least DHL had performance analysts. Many organisations do not and in these cases they need to appoint them. These performance analysts need not only to be able to manipulate performance data, but also interpret it and present it in a way that engages and provides insight to others. Research being undertaken in the *Centre for Business Performance* into this issue has resulted in the development of a concept called *The Performance Planning Value Chain*, which effectively encapsulates a systematic process for extracting insights from performance data. The analogy underpinning *The Performance Planning Value Chain* is that of a journalist. If you think about what a journalist does when presenting a story he or she is very careful to identify the "hook", or headline that will capture the reader's attention and then flush out the detail in the small print. Rarely do we do this with performance reports. Rarely do we ask our performance analysts to tell us the headline. In fact, rarely do we ask our performance analysts to really analyse data. Instead we expect them to spend

all of their time pulling, collecting, and collating data.

This issue becomes even more important when the focus of measurement is shifted to systems not functions. The reality of organisations, as every executive knows, is that they consist of complex inter-dependencies. Marketing relies on Operations. Operations relies on Human Resources. Human Resources relies on Finance, etc. Yet when it comes to measurement we often ignore these inter-dependencies. Marketing looks at the marketing and customer satisfaction data. Human resources looks at the people data. Operations looks at the operational data, etc. It is as if we have functionalised measurement, just as we have functionalised everything else in organisations. Yet the functionalisation of measurement is a mistake. If there is a downturn in employee satisfaction, everyone assumes this will have an adverse impact on customer service. If the operation becomes too inefficient everyone knows this will impact the financial results. The reality of organisations is that the activities being undertaken in different parts of them interact and we have to recognise this interaction if we are to get the most from our measurement data.

The challenge for third generation approaches is to overcome these functional silos. We need to use our measurement data to understand the big picture, the big story of what is happening inside the organisation. And this requires to collect the right data, provide the right information and integrate the performance measurement model into organisational processes so performance analysts can understand the complexities of today's organisations but still gain valuable insights that inform actions in order to add real value.

4. Summary: Towards the Third Generation

To date research in the field of performance measurement has mainly focused on first generation frameworks. Increas-

ing attention is paid to second generation approaches, but to really overcome the measurement crisis organisations need to address the challenges of the third generation approaches, namely:

- (1) Models must reflect the static and dynamic realities of organisations but at the same time not lose appropriateness as a managerial tool.
- (2) We must move from data to information and must provide rigorous information especially for the intangible value drivers in organisations.
- (3) The models must be practical and aligned with other organisational processes in order to allow actions to be taken.
- (4) And most fundamentally of all, we must seek increasingly robust ways of demonstrating the cash flow implications of the non-financial and intangible organisational value drivers.

Guiding a business towards strategic goals requires third generation performance measurement approaches that are soundly based and can reliably measure progress in order for organisations to gain real value from measuring business performance, be it tangible or intangible.

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Keywords

- Balanced Scorecard
- Intangible Assets
- Intellectual Capital
- Performance Measurement
- Strategy Maps

Zusammenfassung

Bei der ersten Generation der Performance Measurement-Systeme stand die zunehmende Bedeutung nicht-finanzieller Indikatoren im Mittelpunkt. Um der Dynamik beim Zusammenwirken von Zielen, Ressourcen und Leistung gerecht zu werden, wurden in der zweiten Generation Strategie- und/oder Erfolgslandkarten entwickelt. Der vorliegende Beitrag beschreibt basierend auf diesen Entwicklungen die Konzepte für Performance Measurement-Systeme der dritten Generation. Damit wird ein Bezug zwischen nicht-finanziellen und intangiblen Performance-Dimensionen und deren Auswirkungen auf den Cash Flow hergestellt.

Stichwörter

- Balanced Scorecard
- Intangible Assets
- Performance Measurement
- Strategie-Landkarten
- Wissenskapital,

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