

A PROCESS FOR DEVELOPING STRATEGICALLY RELEVANT MEASURES OF INTELLECTUAL CAPITAL

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Abstract

Intellectual capital measures must have relevance to the organisation to which they relate, such relevance being obtained through linking intellectual capital measures to strategy. Literature on intellectual capital frequently advocates the route to strategic linkage through the use of taxonomies, however such taxonomies can lead to the selection of *generic* measures that may lack local relevance. This paper describes a *process* for the selection of relevant measures of intellectual capital. A key attribute of the process is its provision of an explicit method to link strategy to measure selection.

Intellectual capital

The term intellectual capital (IC) describes organisational resources that may be used as a source of competitive advantage (Savage, 1990; Drucker, 1992; Drucker, 1994; Nonaka & Takeuchi, 1995; Roos & Roos, 1997; Leonard-Barton, 1998; Edvinsson & Malone, 1997; Davenport & Prusak, 1995; Bontis et al, 1999). The ability of an organisation to manage IC may therefore be a key success factor (Quinn, 1992).

Much of the recent work on IC has been undertaken within the area of Knowledge Management. Over the last decade many useful tools have been developed aimed at: mapping and communicating tacit and explicit knowledge (for example Snowden, 1998); developing new knowledge (for example Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998); and addressing underlying knowledge drivers (for example Senge, 1990; Tsoukas, 1996; Darling, 1996). Some authors argue further that the focus of IC work in the knowledge management field has been on systems and structures for storing, retrieving and disseminating knowledge (Davenport & Prusak, 1998; Nonaka & Takeuchi 1995). One consequence of both these areas of research was the requirement to re-examine approaches to the selection of IC measures. Most of this literature refers to the general importance of linking IC measures with strategy to ensure their relevance to an organisation. However, guidance on the selection of IC measures that are linked to short and long-term strategic business plans is largely absent.

One outcome of this stream of work has been the development of formal taxonomies for selection of IC measures; for example, the Skandia Navigator (Edvinsson & Malone, 1997). These seek to promote the adoption of common IC measures to facilitate comparisons across industries, on the basis that such comparisons will facilitate:

1. communication of a more accurate value of an organisation to investors by accounting more clearly for changes over time in both tangible and intangible assets, and facilitation of the comparison of these against other similar organisations;

2. assisting management in improving external performance of an organisation through a better understanding of intangible asset values (Brooking 1996).

As with most resources, a first step in managing IC resources is to be able to quantify them. However, since any discussion of IC measurement is inherently context specific (Bontis et al. 1999) the specification and use of *generic* IC measures may be at best a waste of effort, and at worst risky and damaging. The idea that an understanding of cause-and-effect processes within a organisation is key to effective selection of strategic management activities is well established (e.g., Drucker 1955, Hedburg 1981, Burke & Litwin 1992, Epstein & Manzoni 1997, Hatten & Rosenthal 1999). But so also is the idea that the huge tacit complexity of specific organisations' internal structures, relationships, and operational linkages undermines the utility of generic prescriptions for, or measures of organisational form and behaviour (Mintzberg 1990, Nonaka and Takeuchi 1995). It seems to be likely, therefore, that generic IC measures will be useful to an organisation's managers more by accident rather than by design, since they will, by definition, inform managers only about generic causal relationships. Without explicit activity to determine the causal links between behaviour and performance applicable in a specific organisational context the utility of generic IC measures will not be established with certainty. Without this effort to investigate specific causality, even post hoc, then measurement effort linked to generic IC measures may be expended unnecessarily. Without this validation activity, it is possible that irrelevant measurement information will be used for strategic control purposes; the risks to an organisation of this failure are obvious.

IC has also figured in writings about the development of strategic management tools and frameworks, particularly work on various "scorecard" frameworks (Kaplan & Norton, 1992a; Kaplan & Norton, 1992b; Kaplan & Norton, 1996; Epstein & Manzoni 1997; Edvinsson & Malone, 1997; Roos et al, 1997). The authors of these scorecard frameworks claim the ability to form the linkage of IC measures to strategy, and view this linkage as both a success criterion for their models as well as a goal in itself. The frameworks focus on the use of measurement (including IC measurement) specifically to support effective delivery of strategic goals, which is achieved by focusing management attention on measures of activities and processes specifically relevant to the organisation's strategic context.

Therefore we can observe that the choice of framework for developing IC measures for an organisation is dependent upon the expected use of the measures; either external comparison or supporting internal management behaviour. This is because the selection and use of IC measures that can support general comparisons across industries is self-evidently at odds with the selection and use of measures specifically relevant to an organisation's strategic context. Such flaws are evident in the literature relating to taxonomies. For example, the authors of two popular IC measurement models designed to support industry wide comparison (IC-report and IC-Index) explicitly recognise this paradox (Roos et al, 1997; Edvinsson & Malone, 1997).

So in practice, the use of particular IC measures is more likely to generate value if the measures direct management behaviour in ways that facilitate the achievement of strategic goals. Currently, IC measures arising from the application of methods seeking to facilitate cross industry comparison are probably unhelpful at a managerial level (for the reasons explained above); indeed they may even lead managers to focus on the achievement of irrelevant generic outcomes at the expense of more appropriate strategic issues.

A fundamental argument of this paper is therefore that comparing measures beyond their immediate context makes little sense. This paper sympathises fully with the *desire* to enable comparison of intangible assets values. However, as suggested in a recent report by the International Financial and Management Accounting Committee (IFAC, 1998), the goal of

defining and agreeing on such measures in a useful way, is still a long way off. Further, even if such comparisons were possible, the paradox described above would remain a problem.

Process Models

In this paper, therefore, we have focused instead on frameworks that emphasise and support the need for strategic relevance at a local level. Both Roos' "IC-Index," and Kaplan and Norton's "Balanced Scorecard" models focus on supporting the more effective application of internal resources possessed by or made available to an organisation. The main difference between them is in their theoretical basis:

- The process model described by Roos et al, (1997) is a single-loop learning process, in which the underlying assumptions on which the index is based (measures and weightings) are not regularly reviewed and changed. This suggests a lack of flexibility in the model that could be problematic in the all too common strategic context of rapid environmental change.
- The Balanced Scorecard framework described by Kaplan & Norton is based on a "double-loop learning cycle" (Argyris, 1977; Argyris, 1991) that calls for regular appraisal of strategic performance. The framework uses the information provided by the selected measures to drive changes in the measures themselves in the light of changing market and organisational conditions.

Given that the aim of this paper is to help organisations in the selection of strategically relevant IC measures; it is self-evident that an appropriate approach could be closely aligned to that proposed for Balanced Scorecard by Kaplan & Norton.

Balanced Scorecard Frameworks

A concern with the Kaplan and Norton Balanced Scorecard approach is the way in which the underlying strategic objectives are evolved. Kaplan & Norton propose that the organisation's strategy is first analysed by a small group comprising key personnel supported by consultants. Their analysis is used then to drive the selection of objectives on behalf of the organisation's management team. So external agents lacking intimate connection with either the firm or its strategy are the articulators of strategy. As Mintzberg argues, while such agents may be able to mechanistically articulate strategic goals and vision, their understanding of such goals and vision is unlikely to coincide with that of those within the firm. (Mintzberg, 1990) A further concern with the Kaplan & Norton framework is its method of linking strategic goals to the measures ultimately selected. In the development approach described in their book (Kaplan and Norton, 1996) measures are selected through a process of strategic articulation that requires first the selection of key "strategic objectives" across the four Balanced Scorecard perspectives. This selection process involves the choice of strategic objectives in a way that is decoupled from any consideration of the causality between them. Cause and effect links are only considered "post-hoc." But, as Epstein & Manzoni (1997) argue, the key to linking strategy with performance measures is found in the development of assumptions relating to the *prior* understanding of cause-and-effect relationships. This view is also supported in the cause-and-effect theories as described by Hedberg (1981) and later elaborated on by, for example, Burke & Litwin (1992).

From the above arguments there would therefore appear to be scope to improve on the Balanced Scorecard design process proposed by Kaplan & Norton both to accommodate the requirement for accurate articulation of strategy, while still satisfying the primary requirement to develop appropriate measures of IC. Such an improved design process is the subject of the remainder of this paper.

Development Process

The process here proposed is based upon one developed by a multinational firm as part of a major programme to introduce the Balanced Scorecard as a strategic management framework for the whole business. The need to repeat the Balanced Scorecard process many times throughout the organisation, working with a wide range of operational and commercial units of varying sizes, and operating in organisational and market spaces of varying maturity required the development of a simple, repeatable, generally applicable process. It also required the development of a common design structure, to allow communication concerning Balanced Scorecards as a class of objects within the organisation. A variety of approaches were tried, including ones based closely on that proposed by Kaplan and Norton. The process described here was developed largely as a result of evolution within the firm as the project progressed.

The process is based around a core set of principles:

- The process must involve directly those who will eventually make use of the measures developed to manage the entity for which the Balanced Scorecard is being designed. Typically this was “the Board” or some analogue. Therefore, relevant representatives of those who are going to use the information produced by the measurement system must undertake the development of a scorecard.
- The articulation of the strategic objectives, and the development of measures associated with these must be done directly by the group, primarily done “live” during extended workshop sessions. (These first two principles differentiate the process here described from Kaplan and Norton’s process wherein such design work is carried out remotely by consultants.)
- The Balanced Scorecards developed must conform to standard design criteria set out in a common “reference” design developed by the organisation.

The reference design

The standard design criteria for the organisation’s Balanced Scorecard requires it to include the following elements:

- Vision Statement: The design must include a formal statement of vision, in which the management group describe how the organisational unit is expected to be five years later, should the unit achieve reasonable success in implementing its plans. The statement describes in concrete detail elements such as size, revenues, structure etc. and also qualitatively describes other elements such as working conditions, management style and market position. The group themselves decide the choice of elements within the vision. In this respect the vision sets out long-term targets and success criteria for the unit, as well as acting as a focus for identifying the key strategic activities that need to be concluded if the vision is to be achieved.
- Strategic Linkage Model: This model is a graphical representation of the entity’s proposed strategic objectives, spread across the four Balanced Scorecard perspectives, linked by arrows showing the primary cause and effect relationships. Once again, the group themselves decide the selection of the objectives and causal linkages. However, there is a limit to the allowed complexity – normally no more than 24 objectives in total are permitted. Each objective is indicated by a short descriptive title. (Here also is

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a key point of differentiation from Kaplan and Norton's design process in that this process forces prior consideration of causality.)

- Strategic objective descriptions: These are brief descriptive statements that state more fully each of the objectives selected for the Strategic Linkage Model.
- Performance measures and targets: For each objective, one or two measures are chosen on the basis of their ability to monitor progress towards desired outcomes. Choice of measures is normally driven by the need to obtain information quickly and cheaply, and to use sources that update fairly frequently (typically four times a year or more). Targets are set partly in reference to contents of the vision statement.
- Implementation plans: These are a set of short-term actions that if delivered will ensure that the Scorecard becomes a core element of strategic management activity within the entity. Typically this includes setting a timetable for the management group to meet to review the Balanced Scorecard information.

Case Study

The organisation considered in this study is a manufacturing and retailing business operating across multiple national F.M.C.G. markets, mainly in Europe. The following case material is derived from a Balanced Scorecard developed for the organisation's Technical Services Department (TSD). The TSD is accountable for all central product development and basic research activities, in addition to management of quality systems and "crisis" response policies. In line with the design guidelines, the unit's management team designed the Balanced Scorecard using a process *facilitated* by an external consultant. The vision described in detail the department's expected structure and size five years hence. Since the wider organisation had been going through major organisational change (triggered in part as a result of an earlier Balanced Scorecard development exercise), this visioning activity was difficult, time consuming, and undertaken totally during a series of workshop sessions. The activity triggered substantial discussion within the group about the nature both of the department's role in the future organisation, and how the managerial task faced by the group would change over time. The group informed their deliberations in part through reference to the vision statements already prepared by other units within the organisation.

The group decided to structure the vision statement as blocks of sentences collected into categories: Financial, Relationships, Processes, Organisation, People and Culture. For example, the Relationship category contained the sentence:

- *"Customers believe that "Technical" gives value for money through successful delivery of projects to agreed time, budget and service standards, and the provision of solutions that create competitive advantage."*

The group then moved on to develop its Strategic Linkage Model. This model comprised the set of primary strategic objectives the group believed described the future development of their strategic management agenda. The group settled on twenty objectives spread over the four Kaplan & Norton Balanced Scorecard perspectives (Financial, Customer, Internal Processes, Learning & Growth). These objectives were linked to show the primary cause-and-effect hypotheses of the group. For example, the Internal Process objective "Excellence in Project Delivery" was linked to the Customer objective "Technical deliver commercially relevant solutions," as the group thought improving the management of development projects was to be a key route to improving its reputation with its customer groups. Thirty-two such causal links were represented across the complete diagram, an average of 1.5 per objective, a ratio typical of such designs generally within the organisation.

It was only when the objectives and their causal linkages had been agreed that the group turned to selecting measures. In total thirty-three measures were selected, an average of just over 1.5 per objective. Where more than one measure was selected for an objective, rules were set out that indicated how the multiple measures were to be combined to give a single composite measure showing the overall status of the objective. Of the thirty-three measures, only four were financial. The group had thus selected twenty-nine IC measures (88% of the total) to help guide its strategic management activities. Examples of the types of IC measures selected are shown in the table below.

| Objective | Measures |
|--|---|
| “Use training to drive behaviour change.” | Proportion of key role holders (managers above level 3 and other key staff) meeting requirement defined in agreed HR profiles. |
| “Make technical information more widely available.” | % new projects using database search facilities during first two months of project. |
| “Effective use and transfer of knowledge.” | % of NPD projects resulting in actual product launches: measure 1 based on numbers of projects, measure 2 based on share of total NPD budget. |
| “Develop and provide technical training outside department.” | Comparison of pre- and post- training competencies assessed via questionnaires. |
| “A preferred partner for innovation.” | Number of technical confidentiality agreements signed with 3 rd parties during previous quarter. |

The final stages in the development process revolved around the development of a set of actions that would lead to the continued use of the Balanced Scorecard by the group. One part of this stage was to assign subsets of strategic objectives to “owners.” The owners were members of the group who would take responsibility for ensuring that at the planned Balanced Scorecard review meeting the measures associated with their objectives were updated. Another action taken was to agree a regular series of management team meetings specifically allocated to reviewing the Balanced Scorecard design, with a view to adjusting its design in the light of organisation or other changes that lead to changes in strategy.

At the conclusion of the process (that took a little over three months) the management team had developed a comprehensive set of strategically aligned performance measures, within a framework of strategy articulation that facilitated both the selection of the measures and their subsequent interpretation. The highly interactive and participative approach used had ensured a very high degree of “ownership” of the measures by the group, and had ensured that the strategic vision upon which the whole design was based was well understood and supported by the whole team. That the group concluded by selecting a very large majority of their measures from the class that would usually be called “intellectual capital measures” is an interesting endorsement both of this process as a useful mechanism for their selection, and by the proponents of IC measures as being critical to the management of businesses.

Discussion

As was argued earlier, one of the key success factors for implementing IC measurement systems is relevance. Such relevance being achieved by linking the selected IC measures to strategy. The case study clearly demonstrates that the process proposed in this paper is effective at achieving relevance via strategic linkage. First, it would appear that creating a detailed vision statement did in fact result in what Senge (1990) calls a “shared vision” backed by the whole group, and that the existence of this vision facilitated the selection of strategic objectives and so IC measures. Second, the strategic objectives were developed in a way that effectively highlighted the areas where the unit needed to focus its energies if it was to achieve its vision; 80% of the objectives related to intangible factors. The requirement of the process for objectives to be “described” is consistent with what Hamel & Prahalad (1993)

have described as “interim goals for knowledge leverage.” Third, the basis of measure selection allowed for the pragmatic choice of available measures, which although not necessarily “complete” were nonetheless effective indicators of general levels of progress toward achieving an objective. What was important was whether the measure selected would reliably alert management to issues that needed to be considered. Having identified a need to probe further, additional information could be sought before action was taken.

Conclusions

The business management literature overflows with suggestions of “relevant” knowledge and IC measures, supported by the view that if these are measured they will benefit from greater management attention, and so facilitate value creation by the organisation. As pointed out in the literature review this is as far as the consensus carries.

Generalised approaches to development of IC measures necessarily rely on use of an abstract model. This paper proposes one based on Balanced Scorecard thinking that differs from static IC models proposed previously. The Balanced Scorecard shown here is rooted in “Learning Organisation” theory; where the sole purpose of the measurement model is to improve the organisation’s ability to make informed decisions on the actions needed to implement its strategy, while at the same time evaluating the relevance of the strategy on an ongoing basis. It is based on attempting a “process of asking questions and listening to answers...and [resolving questions on] the relevance of basic assumptions about its objectives, strategy, and operations, and their interactions.” (Hatten & Rosenthal, 1999)

We have demonstrated that there is a clear need for a process model that facilitates the development of IC measures that are immediately consistent with the strategy of the organisation. Conversely, within this context, the application of a generic set of measures as advocated in the content-only models, (for example, Edvinsson & Malone, 1997) because of the inherent paradox associated with them, may be doomed to failure.

Finally, a further benefit of the proposed approach is that it promotes the creation of an operational environment that is conducive to ongoing review of both the strategic objectives and the IC measures chosen to track progress.

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