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Modelling the strategy management process

An initial BPM approach

E.J. Munive-Hernandez

Total Technology Centre, UMIST, Manchester, UK

F.W. Dewhurst

Manchester School of Management, UMIST, Manchester, UK

M.C. Pritchard

Singapore Institute of Manufacturing Technology, Singapore, Malaysia, and

K.D. Barber

Total Technology Centre, UMIST, Manchester, UK

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Abstract Businesses face increasing competition in local, international and global markets where responsiveness to changes within these markets is the key to success and survival. Consequently business strategies need to be consistently re-defined to effectively reflect the different requirements of customers and to respond to changes in the business environment. The process of generating strategies is not always a simple decision-making task and revised business and corporate strategies are often generated without considering the structure of the business, particularly at operational level. Furthermore, there is considerable vagueness in the literature and in practice about what constitutes strategy management. This paper reviews the diverse literature in strategy management and presents a business process model of the strategy generation process to ensure consistent generation and communication of strategy throughout an organisation. The performance of a business strategy can then be measured against a model of initial alignment and effective implementation.

1. Introduction

In his keynote address to the Performance Measurement Association (PMA) Kaplan (2002) stated that "It is difficult to agree about a common language to talk about strategy" and furthermore, citing *Fortune Magazine*, that "less than 10 per cent of effectively formulated strategies are effectively executed".

Quinn *et al.* (1988) define strategy as:

... the pattern or plan that integrates an organisation's major goals, policies, and action sequences into a cohesive whole ... a well-formulated strategy helps to marshal and allocate an organisation's resources into a unique and viable posture based on its relative internal competencies and weaknesses, anticipated changes in environment, and contingent moves by intelligent opponents ...

As all businesses are in competition they must first formulate a competitive strategy. Competitive strategy has been defined as: "positioning a business to maximise the value of the capabilities that distinguish it from its competitors" (Slack *et al.*, 1998; McDonald, 1996). Porter (1982) identified three generic competitive strategies:



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- (1) overall cost leadership;
- (2) differentiation; and
- (3) focus.

Over a period, any company could evolve through all the strategies as exemplified by Japanese television manufacturers. In order to adopt any of the competitive strategies, the various functional strategies, such as manufacturing, design, marketing, finance and human resources, must all be aligned with the competitive strategy and a competitive strategy cannot be adopted without knowledge of the capabilities of the various functions. At the highest level, it should be recognised that strategy can be defined as the ongoing search for competitive advantage, since this is the fundamental task of every business.

Effective strategic management is essential for organisations to cope with increasing competition and business complexity. This means dealing effectively with strategic decisions, which Slack *et al.* (1998) define as:

... those decisions which are widespread in their effect, define the position of the organisation relative to its environment, and move the organisation closer to its long-term goals.

The majority of the literature, (e.g. Keong Leong and Ward, 1995; Mills *et al.*, 1995; Voss, 1995), has focused on the strategy decision arena that involves a considerable level of qualitative values. Slack *et al.* (1998) identified two main areas of strategic management: strategy content (i.e. what the business is to be and how it will get there) and strategy process (i.e. what procedures the business will follow to formulate its strategy content).

As well as defining the long-term direction and scope of the organisation, the purpose of strategic management is also to match internal activities to environmental change, and match resources to those activities (McDonald, 1996). The interfaces between the strategic, tactical and operational decisions have been recognised (Mertins *et al.*, 1997) but are more often ignored. Not only is a top-down approach needed but also a bottom-up voice is required so that the current and future constraints of an organisation can be used to shape strategy formulation. However, the specialist knowledge of such constraints is usually held at the functional and operational level. Therefore, a mechanism is required to feed such information into the relevant stages of the strategy generation process. Furthermore, all companies are constantly developing their competitive strategy in line with the competitive environment and will be changing it to achieve their objectives. Therefore, such changes should be reviewed quickly before formal inclusion into the strategy document.

In order to bring such rationality to strategic management it is necessary to first gain a clear understanding of the concept of strategy and subsequently to design and develop a model of the strategy process. Although some attempts have been made to identify strategy performance, model strategy formulation and the strategy process all have focused on functional strategies, particularly in manufacturing, see for example Thethi and Wainwright (1995); White (1996); Wainwright *et al.* (1997) and more recently Domeingts *et al.* (2001).

This paper begins with a discussion of the concept of strategy and then considers existing approaches to modelling the strategy process and the supporting tools available. A case is then made for employing a business process modelling (BPM) perspective and an ICAM Definition (IDEF), (USAF, 1981) methodology is presented to

allow a bottom up review of the strategy. The proposed methodology ensures that the strategy content is realistic, implementable within the strategy time frame and is consistent with a rational plan irrespective of the culture and bias of those developing the strategy. Finally, the paper concludes with a summary and a discussion of how the proposed methodology is to be further developed.

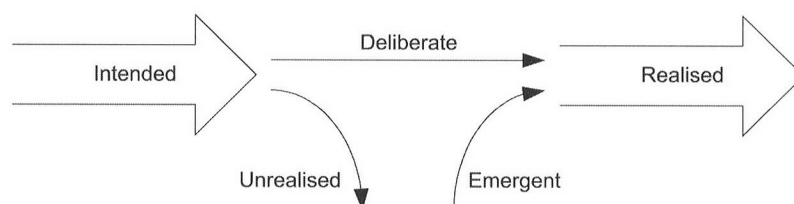
2. The concept of strategy

There are two extreme schools of thought on how organisations formulate their strategies: the design, rational or deliberate, school and the learning, incremental or emergent, school. Rationalists think that strategy should be planned in advance and then implemented (deliberate), whereas incrementalists think that strategy can only be developed from attempting to implement change (emergent). Porter was the first supporter of the rational school, with his view that a firm could gain competitive advantage by its strategic positioning (Menon *et al.*, 1999). An example of an emergent strategy in the UK can be found in the burger chain, McDonalds. Its competitor Wimpy realised that McDonalds had a major advantage because its outlets were much cleaner. When Wimpy investigated the reason for the difference they found that McDonalds staff were trained to clean up during slack periods. This was simply an operational policy which when taken across the organisation, had a significant impact on customer perception (Dibb *et al.*, 1994).

The recognised strategic planning philosophies (Burns, 1997; DeWitt and Meyer, 1994; McDonald, 1996) form a continuum from deliberate to emergent types:

- Planned – rational methods, decided then articulated (deliberate).
- Ideological – driven by a relatively fixed set of shared beliefs (deliberate).
- Entrepreneurial – driven by a single visionary leader (mainly deliberate).
- Umbrella – boundaries are defined by leaders, but the specifics are defined by “subsystems”, such as departments (partly deliberate, partly emergent).
- Process – specific activities are controlled, but not their outcomes (partly deliberate, partly emergent).
- Political – a consensus negotiated amongst participants (mainly emergent).
- Aggregate – a combination of the actions of organisation individuals (emergent).
- Imposed – dictated by the environment (emergent).

It can be seen that strategy arises through a variety of means and the two extremes (deliberate and emergent) can be brought together as shown in Figure 1.



Source: DeWitt and Meyer (1994)

Figure 1.
Integration of deliberate
and emergent strategy

Figure 1 shows that a strategy which is eventually realised, or implemented, is a combination of deliberate and emergent strategy, where the deliberate component is only a part of the original intended strategy. Thus, although planned, rational methods are not the whole story, they have an important part to play in creating competitive advantage. They can lead to successful strategies in their own right, and perhaps more importantly they can create the correct environment for emergent, bottom-up initiatives to develop.

The characteristics of strategic objectives and decisions change along the organisation's structure as shown in Table I.

Individuals, responsibilities and authority are clearly identifiable for the different decision-making tasks of the strategy process and are determined by:

- size of the organisation;
- management style;
- complexity of environment;
- production processes; and
- problems within the firm.

Quinn *et al.* (1995) identified three main types of strategic management modes:

- (1) entrepreneurial mode – informal (e.g. small firms);
- (2) planning mode – comprehensive and formal (e.g. large organizations); and
- (3) adaptive mode – related to previous strategies (e.g. medium firms in stable environments).

Strategy formulation has been shown to be (and is widely accepted as) a process. Therefore, the first stage in bringing rationality should be to model the strategy process effectively and comprehensively.

3. Traditional approaches to strategic planning and control

Figure 2 shows a typical textbook strategic planning and control process.

Phase 1 defines the overall goals and objectives for the whole organisation (i.e. the mission statement), for example, "Accessibility, affordability, acceptability" – Coca Cola; "The document company" – Xerox; "Kill Mercedes" – Lexus (Morgan, 1996).

Objectives (performance targets) (what is intended to be achieved successfully?)	Means – strategy (through what kind of strategy is it to be achieved?)	Strategic decision makers			
		Board of directors	Corporate managers	Business unit managers	Functional managers
Mission statement and vision, including goals and philosophy of the organisation	Previous to setting the strategy				
Long-term objectives	Grand strategies	✓✓	✓✓	✓	
Annual objectives	Short-term strategies and policies	✓	✓✓	✓✓	
			✓	✓✓	✓✓

Notes: ✓ indicates a secondary responsibility; ✓✓ indicates a primary responsibility

Table I.
Hierarchy of objectives and strategies

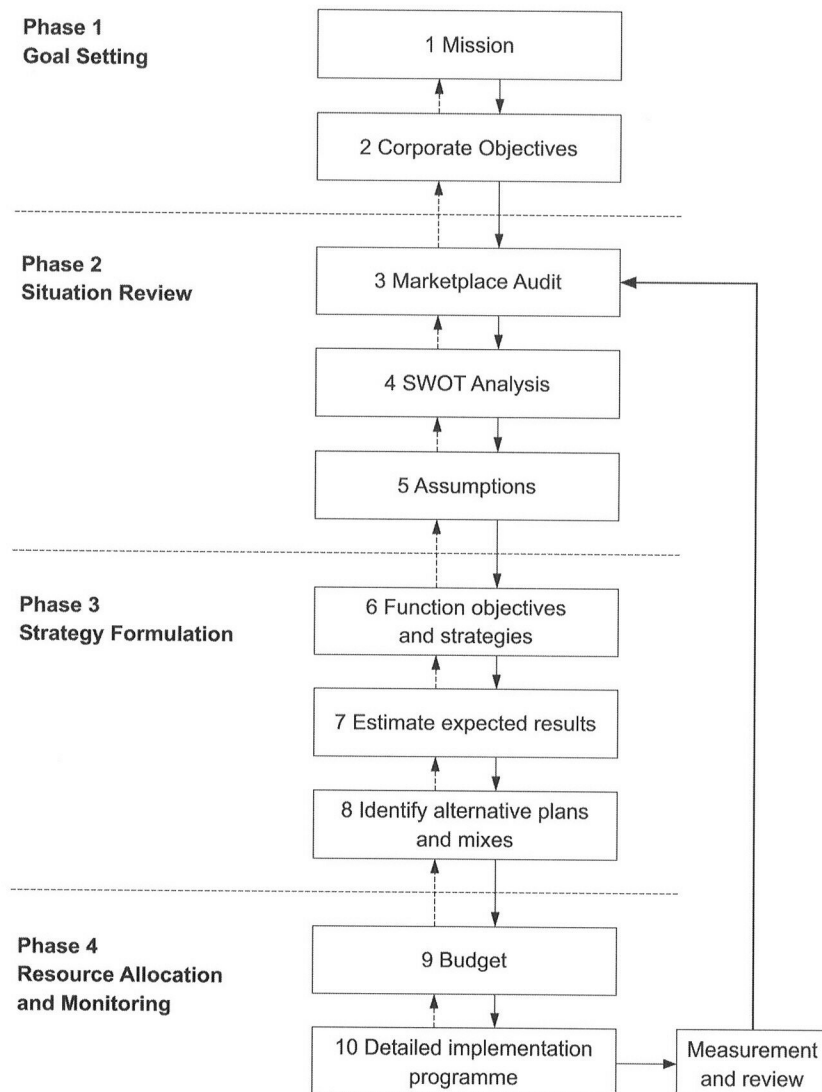


Figure 2.
Typical strategic planning
process

Source: Adapted from McDonald (1996)

Phase 2 is a review of the business relative to its environment and Figure 3 summarises all the factors that make up an organisation's environment.

An important tool in Phase 2 is environmental analysis, which Dobb *et al.* (1994) define as: "the process of assessing and interpreting information about the forces in the

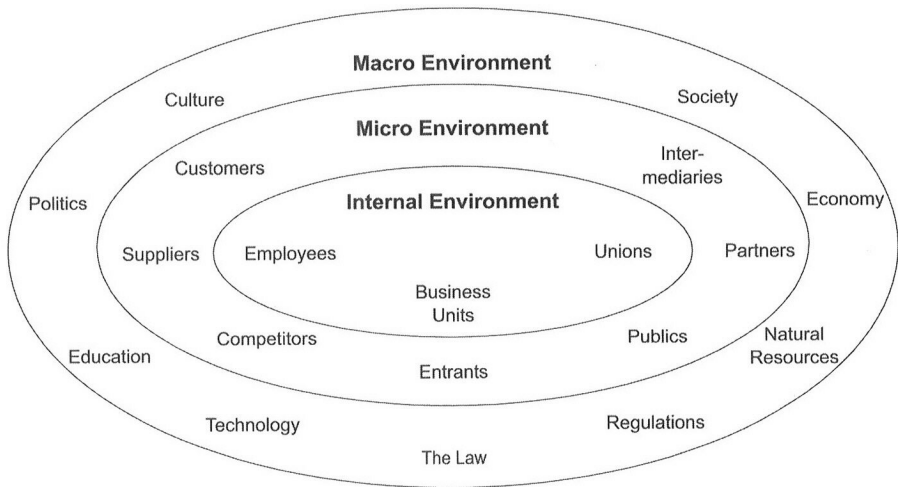


Figure 3.
The environment of an
organisation

Source: Brownlie (1991)

environment, gathered through environmental scanning". Brownlie (1991) recommends the following:

- Monitor a wide range of sources fairly superficially (e.g. the organisation management information system (MIS), published magazine articles, and contacts with suppliers).
- Identify significant changes. To help decide, the concept of strategic market uncertainty (SMU) is employed, which is a function of the change's perceived importance to the firm, its complexity and its rate of change.
- Evaluate the impact of these changes on the firm.
- Forecast potential trends and re-evaluate their impact. The purpose during this phase is to project current changes into the future. Sanderson and Luffman (1988) recommend considering the probability of future events, and concentrating resources on the most probable.

Customer segmentation/portfolio analysis is another tool, in which customers are divided into categories for analysis so that the requirements and profitability of particular groups can be analysed in more detail, allowing product and service variants to be targeted more successfully (Hunger and Wheelan, 1993). While product costing is a further tool, where each product is analysed for the way it contributes to business costs to determine the profitability of each type of product and requires ideas from traditional accounting, activity based costing (ABC) and throughput accounting.

SWOT (strengths, weaknesses, opportunities and threats) analysis is a management support tool for the comparison of the internal characteristics against environmental factors of an organization. It simply involves writing down in a structured grid the main strengths and weaknesses of the organisation, alongside its opportunities and threats in the external environment (see Figure 4). The aim is to

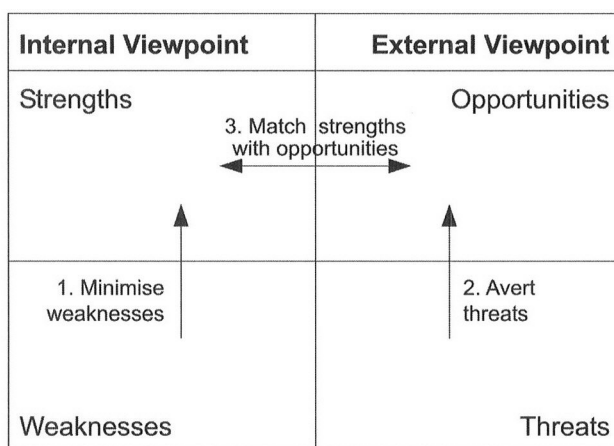


Figure 4.
SWOT analysis

Source: Adapted from Piercy and Giles (1989)

minimise weaknesses, avert threats and use strengths to take advantage of opportunities (Piercy and Giles, 1989).

Strategy formulation takes place in Phase 3 and uses the findings from Phase 2 to cascade corporate objectives into business and function objectives. Managers then come up with plans for achieving the objectives and decide which ones to pursue.

In Phase 4 the plans identified in Phase 3 are converted into detailed budgets and programmes and rolled out through the company. Once in place plans should be monitored using a set of performance measures. Findings from these measurements are then fed back to the Phase 2 for future strategy formulation. The double arrows drawn between each of the stages in Figure 2 emphasise the iterative nature of strategic planning and control.

Another influential planning process, aimed mainly at manufacturing strategy, is proposed by Hill (1993) and is summarised in Table II.

Step 1 Corporate objectives	Step 2 Marketing strategy	Step 3 How do products or services win orders?	Step 4 Process choice	Step 5 Manufacturing strategy Infrastructure
Growth rates	Product/service markets and	Price	Process	Functional support
Profitability	segments	Quality	technology	Operations planning
Return on net assets	Range of products/ services	Delivery speed	Trade-offs embodied in process	and control systems
Cash flow	Mix of specifications	Delivery dependability	Role of inventory	Work structuring
Financial gearing	Volumes	Product/service range	Capacity, size, timing, location	Payment systems
	Standardisation or customisation	Product/service design		Organisational structure
	Rate of innovation	Brand image		
		Supporting services		

Source: Hill (1993)

Table II.
The Hill methodology of
manufacturing strategy
formulation

Step one involves understanding the long-term corporate objectives of the organisation so that the eventual manufacturing strategy can be seen in terms of its contribution to these corporate objectives. Step two involves identifying product/service markets and characteristics, such as range or volume, which the manufacturing operation will need to provide to meet the objectives. Step three translates the marketing strategy into "competitive factors", which are regarded by customers as key reasons for purchasing the product or service. Steps four and five define the implementation of the company's overall strategy in its operations, by means of two levers: structure, or process choice (i.e. physical resources) and infrastructure (aspects of organisation and control). Once again, this process is meant to be iterative, with managers cycling between an understanding of long-term strategic requirements and the supporting resources. In this iterative process, Step 3 is critical because it matches what the strategy requires with what the operation needs to provide (Slack *et al.*, 1998).

Some common elements of traditional strategic planning approaches are that they:

- seek to link strategic objectives for the whole organisation to the implementation of specific resources;
- emphasise the iterative nature of planning activities;
- provide a means to compare the performance of competitors against that of the company;
- aim to compare market requirements for products/services with internal capabilities.

4. The balanced scorecard and more recent approaches

The balanced scorecard (BSC) (Kaplan and Norton, 1992) prescribes a range of key performance indicators (e.g. cycle times, quality ratings, customer satisfaction, market share), which aim to give a balanced view of the business. These include leading and lagging indicators and measures both inside and outside the firm. Around four measures are chosen in each of four different perspectives:

- (1) financial;
- (2) customer;
- (3) internal business process; and
- (4) learning and growth (Neely *et al.*, 1996).

The financial perspective covers traditional accounting measures (e.g. profitability and return on capital employed); the customer perspective refers to product, market and customer related measures (e.g. market share); the internal business process perspective covers measures such as quality, delivery speed or product costs; while the learning and growth perspective relates to continuous improvement and training (e.g. percentage of jobs covered by more than one person).

Building a balanced scorecard requires the following steps (Bontis *et al.*, 1999):

- (1) Articulate a long-term vision for the business through the lenses of the four perspectives.
- (2) Identify key success factors (KSFs) for each perspective, which will move the business towards its goals. This is a critical step, because BSC should be more

than just a collection of measures. They should all be linked through a cause and effect chain to the corporate objectives.

- (3) Based on the identified success factors, define the critical measures and set stretching, achievable targets for each.

The balanced scorecard has three main benefits: it provides a link between the phases of strategy formulation and resource allocation and monitoring (see Figure 2), it rationalises the number of performance measures and it provides a systematic framework for managers to keep track of many business dimensions. However, the technique does harbour a number of weaknesses. First, the perspectives are very rigid, so that KSFs, which do not fall neatly into a single category, can easily be missed. Furthermore, the four perspectives are not comprehensive. For example, the only external perspective, customer, omits suppliers, competitors and other stakeholders. Bontis *et al.* (1999) assert that people are an organisation's most important and complex asset, with unique contributions and managerial difficulties, and should have their own perspective, whereas they are almost an afterthought in the BSC structure.

The previous section presented traditional processes and techniques for strategy management. The underlying basis for these methodologies are a MOST structure, which recommends a cascade of outputs: mission, objectives, strategy and tactics. This unfortunately suggests that strategy can be developed in a linear fashion. In fact, once the purpose or mission of the organisation has been set, the other three stages are inextricably linked together (Campbell and Alexander, 1997). For example, it makes no sense to set an objective without coming up with a strategy to make it achievable. Figure 5 illustrates this point.

Campbell and Alexander (1997) point out that the only firm foundations in strategy formulation are purpose and insight. Purpose is the clear and detailed definition of what a firm is about, while insight is the creative element, which allows objectives, strategy and tactics to be combined effectively. To these two elements should be added knowledge, which comes from a combination of information plus analysis. Without knowledge, the strategy will not be tailored towards the specific circumstances of the company.

Recently, attempts have been made to address some of these deficiencies. Double loop strategic management is an extension to the balanced scorecard (Kaplan and Norton, 2000) in which BSC is a link between strategy development and implementation, as presented in Figure 6.

The purpose of the upper loop is to monitor and adapt the organisation's strategy to changing environments. This is achieved by testing whether the implemented strategy is working as planned through comparing management reports against the balanced

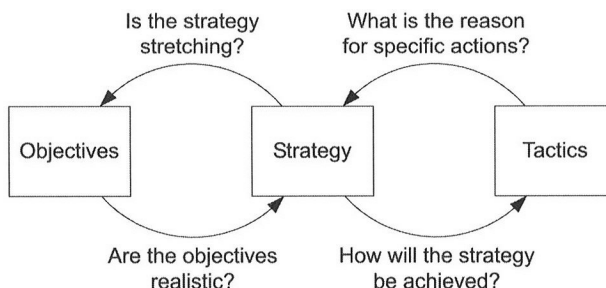


Figure 5.
Strategic planning links
between objectives,
strategy and tactics

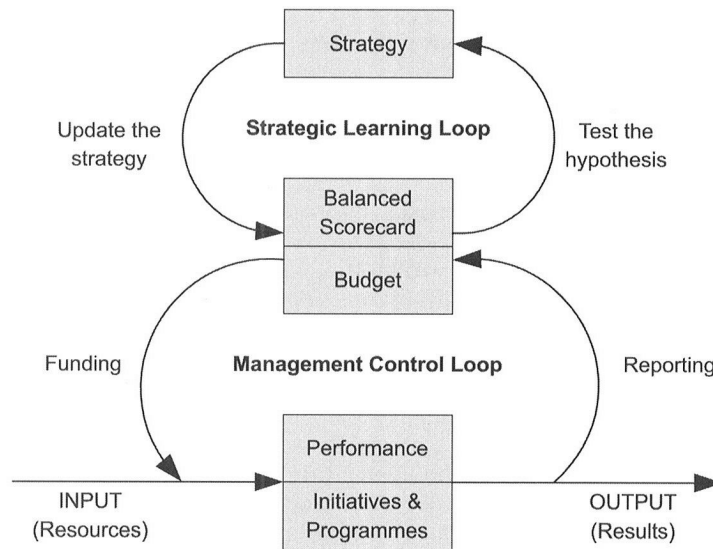


Figure 6.
Double loop strategic
management

Source: Kaplan and Norton (2000)

scorecard and updating the strategy and cascading the new key success factors back into the balanced scorecard. The purpose of the lower loop is to implement the strategy by providing funding and resources for initiatives and programs. The results of these interventions are measured and compared against budgets and the balanced scorecard (Kaplan and Norton, 2000). It is recommended that senior management spend the larger proportion of their time on the strategic learning loop, rather than the traditional approach of spending most time reviewing financial results.

The main contribution of double loop strategic management is that it introduces a form of continuous improvement loop into strategic management. This means that at its best, the technique combines the consistency of deliberate strategic management with the flexibility of emergent strategy (although at its worse, it can be seen as little more than the formalisation of a type of emergent strategy). It also provides a structured method for integrating BSC into traditional business budgeting processes. However, because the balanced scorecard is central to the method, it necessarily inherits its weaknesses, outlined in the previous section. Furthermore, this structure really only monitors strategy implementation and provides feedback to the strategy formulation process; it does not actually provide any useful tools for strategy content formulation.

"Strategic architecture" is defined by Hamel and Prahalad (1996) as a specific type of strategy, namely:

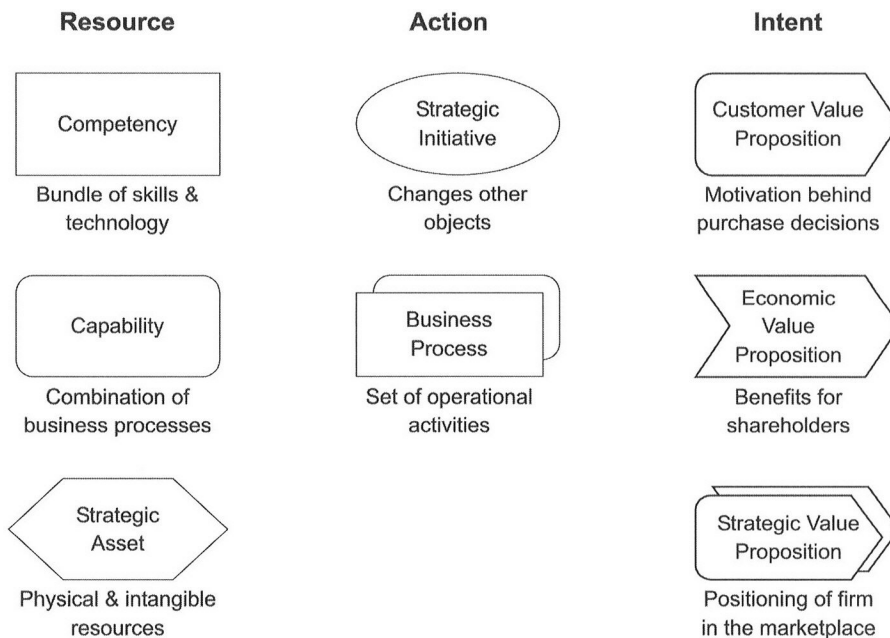
... strategic architecture is not what we must do to maximise our revenues or share in an existing product market, but what we must do today, in terms of competence acquisition, to prepare ourselves to capture a significant share of the future revenues in an emerging opportunity arena.

In other words, it is a roadmap of the organisation's progress towards its long-term competitive ambitions. This is exactly the area where BSC does not provide much

support. Littler *et al.* (2000) noticed this gap and developed a strategic architecture mapping (SAM) technique for formulating and communicating strategy. The building blocks of this technique are shown in Figure 7. The role of resource objects is to provide an organisation with the ability to operate in a strategic manner; action objects are deliberate moves made by management to realise strategy; and intent objects represent the desired outcomes of an organisation's strategy.

Littler *et al.* (2000) show how SAM can be combined with the BSC. The first step is to formulate the strategy using SAM. The second step is to list all the strategy objects in the map, identify their BSC perspectives and define a critical success factor (CSF) for each and the final step is to create the balanced scorecard. The main contribution from SAM is that it provides a good tool for the creative activities of formulating and communicating strategy (i.e. it can complete the strategic learning loop (upper loop) in the double loop management structure outlined in Figure 6. The main limitation of SAM is that it is a niche tool, focused on generating strategy, so it does not contain any components for strategy evaluation (e.g. estimating costs and benefits). Furthermore, it suggests a uniquely top-down strategy formulation process. However, this is redressed slightly by the fact that BSC provides bottom-up feedback during the implementation phase but not during the all-important formulation phase.

It should also be recognised that the processes and techniques outlined above all emphasise the analytical side of strategy. There is little mention of methods for stimulating creativity and insights, perhaps this aspect is taken for granted. Furthermore, strategy formulation can be seen as a type of design process (Ulrich and Eppinger, 1995), where instead of a tangible product, the desired end is a high quality strategy. Yet none of



Source: Littler *et al.* (2000)

Figure 7.
Objects for strategic
architecture modelling

the methods make reference to general techniques aimed at improving design processes. Pritchard (2001) appeal to the total quality management (TQM) arena and integrate continuous improvement cycle – plan do check analyse (PDCA) – cycle or Deming wheel with the concept of creative problem solving (Fox, 2000) and propose the concept of continuous creative strategic management (CCSM), shown in Figure 8.

CCSM is based on a stripped-down PDMA (plan, do, measure, analyse) continuous improvement loop, with particular emphasis on the planning phase. This phase makes use of divergent and convergent thinking to help create and test strategy from high level down to operational issues. Figure 8 shows that divergent and convergent thinking must be applied at every level from specification to concept to detail. Within each of these levels there may well be several stages of divergent and convergent thinking. For example, the diagram shows that during the concept phase many ideas will be generated and value judgments must first be made to narrow the field to a manageable number. Then creative thinking must be used to investigate each of the best ideas in more detail (Thompson, 1999). Designers need to move up and down the levels until specifications, concepts and detail are all matched. Although performance measurement techniques such as the balanced scorecard and budgets are shown in the “Measure” phase of this structure, their strength lies in the ability to also take part in

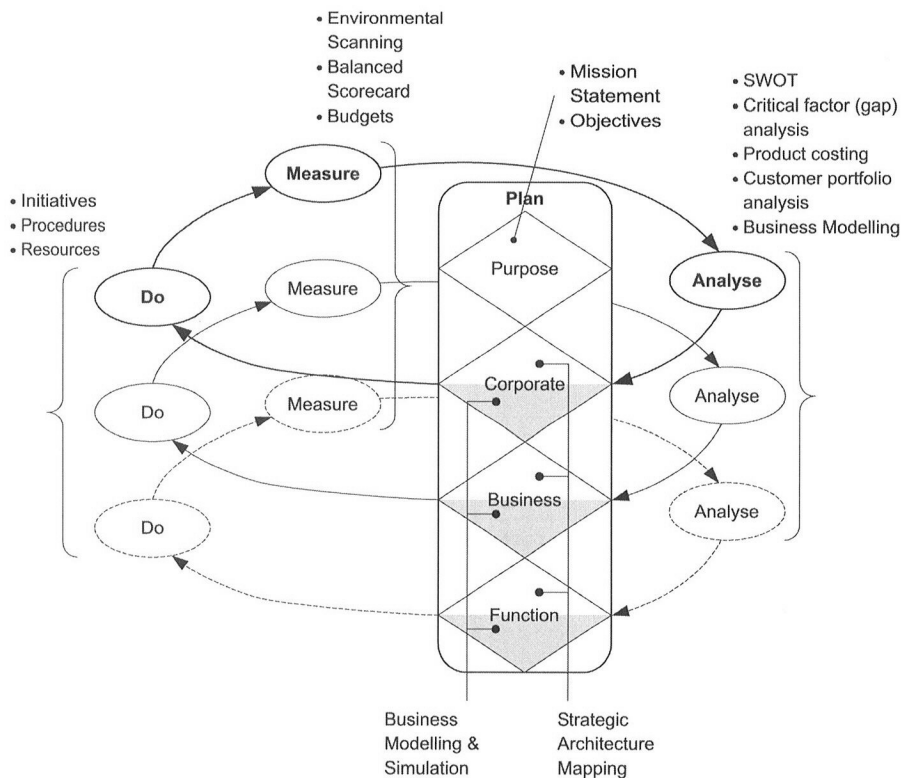


Figure 8.
The CCSM structure and
relationship to strategy
techniques

Source: Pritchard *et al.* (2003)

the “Do” phase. Targets should be built in to provide managers with the interface between the “Plan” and “Do” phases. This corresponds to the management control loop in double loop management theory. Figure 9 shows the same process, but this time laid out in a linear format, to show activities in more detail.

5. Modelling the strategy process

From the review of the literature presented in the previous sections we observe that strategy is a planned process for achieving organisational success that integrates decision-making activities; involves organisational goals, policies, and action sequences; involves different management levels throughout the whole functional structure of the business with decisions based on characteristics of the competitive environment and internal capabilities of the organisation. The main stages of the strategy process are:

- (1) establishing main strategic objectives and performance targets;
- (2) formulating the strategy:
 - analysis of the organisation’s environment;
 - analysis of the internal capabilities; and
 - selection of an adequate strategy;
- (3) implementing the strategy; and
- (4) establishing strategic control and evaluation (strategic feedback).

Furthermore, we observe that the strategy process is static because the activities do not change in form over time and it is only the values of strategic indicators that can change depending on decisions taken in different activities. Consequently a static process modelling approach could be employed.

Static process modelling methodologies originated from systems analysis to provide a graphical description of business activities. The value of process modelling is well documented, noted for illustrating the big picture, and as a vehicle for development and communication, (Williams, 1994). Several different structured approaches for processes modelling have been identified (Wainwright, 1993), see for example (Colquhoun *et al.*, 1993) and (Wu, 1994), including: structured analysis design technique (SADT), (Ross and Schoman, 1977); ICAM Definition (IDEF), (USAF, 1981); structured system analysis design methodology (SSADM), (Longworth and Nicholls, 1986); Jackson Systems Design (JSD), (Jackson, 1983); structured systems analysis (SSA), (Gane and Sarson, 1979); Group de Recherche en Automatisation Integreere (GRAI), (Domeingts, 1985); soft system methodology (SSM), (Checkland, 1984); data flow diagrams (DFD), (DeMarco, 1979); concept mapping (CM), (Neely and Byrne, 1992); unified modelling language (UML), (Fowler and Scott, 1997); and architecture for integrated information systems (ARIS), (Scheer, 1998).

Despite the large number of methodologies available, almost any one of which could have been chosen (Barber *et al.*, 2000; Dewhurst *et al.*, 2001). Indeed Wainwright and Ridgway (1994) report an attempt to model the manufacturing strategy process using GRAI. In this work IDEF0 was selected because the authors have experience in using IDEF0 and for the following reasons:

- The hierarchical nature makes it suitable for the representation of strategy as a hierarchical process and thereby supports the development of the strategy document to a significant level of detail despite starting at a very high (abstract) level.

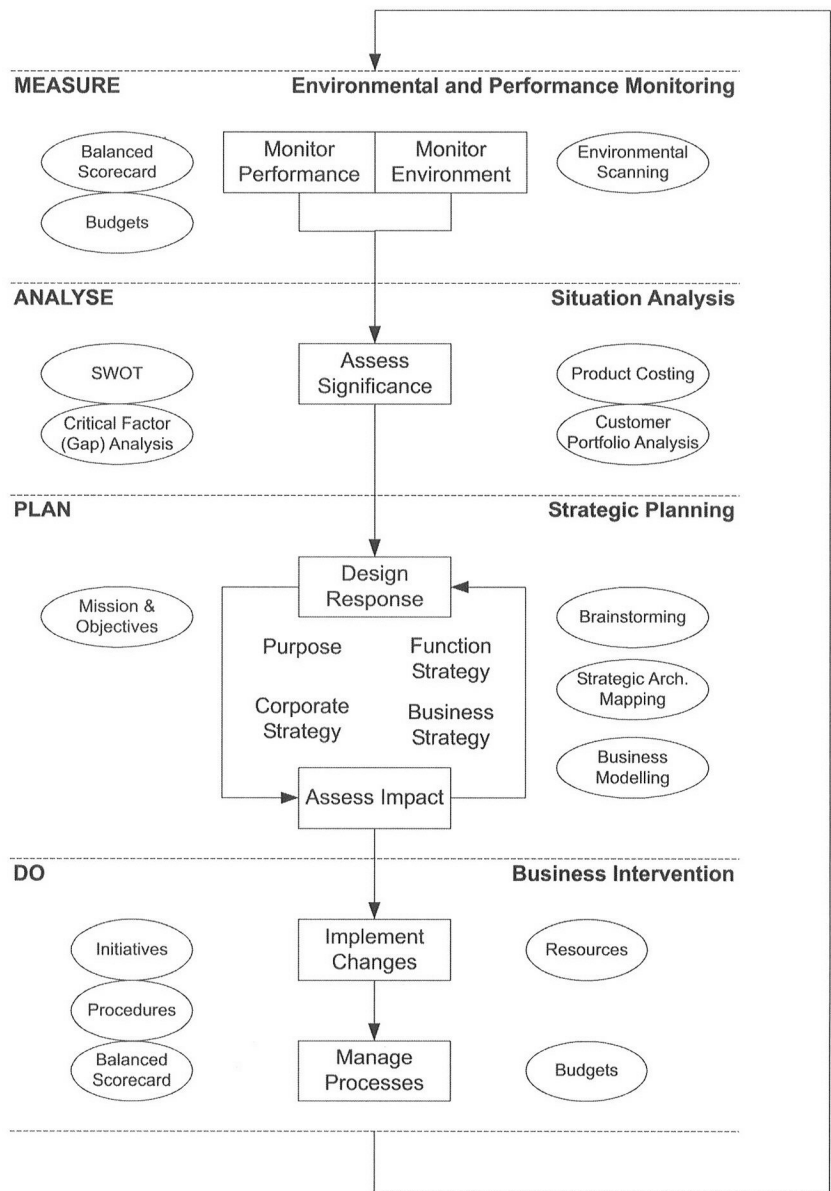


Figure 9.
Linear representation of
CCSM

Source: Pritchard *et al.* (2003)

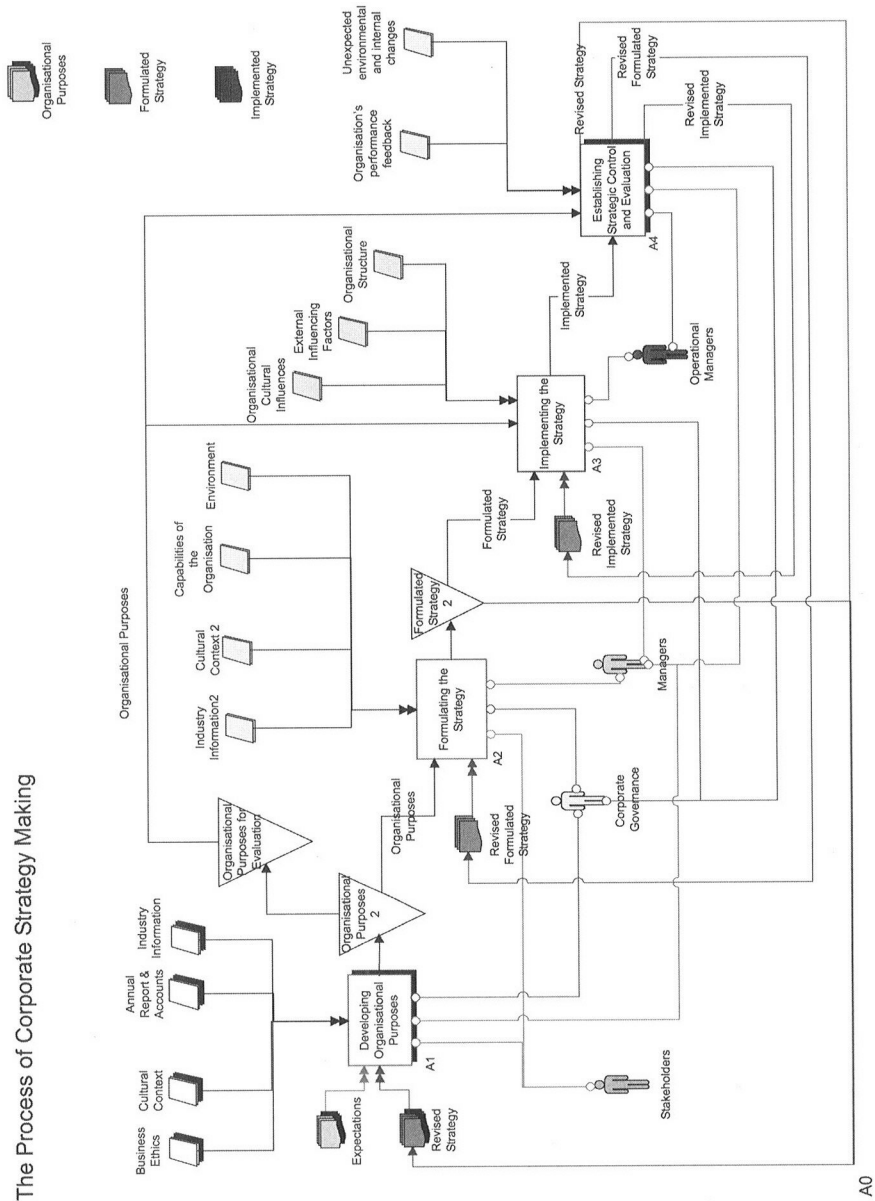
- Text files and hyperlinks can be attached to activity boxes in the IDEF0 diagram to provide instructions and data to the decision makers. In many cases pro formas for the strategy document itself can be attached.
- There is always visibility in the process as each activity is directly informed by activities directly above or below it in the hierarchy so the rational is always available to the decision makers.
- At lower levels other modelling techniques such as system dynamics or discrete event modelling can be used to inform and validate the strategy process.
- It is a coherent and simple language that provides a rigorous and precise expression to represent processes, and it also promotes consistency of usage and interpretation.
- The use of an established methodology allows the application of standard software modelling tools

Generally, the IDEF series, particularly IDEF0, are more frequently encountered in well-structured manufacturing environments and although not a perfect methodology IFEF0 is now a widely accepted standard for process modelling. This was considered to be a particular advantage because strategy development and deployment should be viewed as a standard process. The mechanisms applied to each activity may vary but the process should not. The review of the literature in the strategy arena highlighted the need to bring clarity and accountability to strategy formulation and deployment. Although other modelling techniques could have been employed, e.g. for other perspectives of the process, IDEF0 was considered to be the most appropriate in this work.

Consequently a model of the theoretical corporate strategy process was built initially applying a combination of IDEF0 notation and computer-aided software engineering (CASE) (Fisher, 1991) tool notation. During the model construction phase three companies were asked to comment on the appropriateness of the representation of the process to their specific organisations and the model was revised accordingly. The final model consists of 134 activities on five levels of sub-models, two of which are illustrated in Figures 10 and 11.

Figure 10 shows the top level IFEF0 diagram of the strategy process model while Figure 11 shows some lower level diagrams and their relationships. Process Model™ software was chosen because it combines Micrographics Flowcharter™ with a powerful simulation engine, which could prove useful later when detailed simulations may be required. Although Process Model™ was not designed to be 100 per cent compatible with IDEF0, the IDEF0 methodology is flexible enough to be adapted provided that the basic rules of model construction are not breached. The storage symbols used in these models are not normally associated with IDEF0 but they have been used to divert flows to different entities and to allow a temporal dimension to be included in later models if advantageous. The storage can prevent the flow of the strategy document through the model unless all information for further processing is present.

To develop a strategy, managers must work their way through each activity contained within the process model, from the high level abstract elements through to the detailed operational analysis to support the strategy statements. At each stage, users can be guided by the model with respect to the inputs, controls, mechanisms and the detailed nature of the outputs required through the use of supporting documents and pro formas. Each element of the model can be supported by online documentation in the



A0

Source: Munive *et al.* (2002)

Figure 10.
The top-level process
diagram for strategy
management

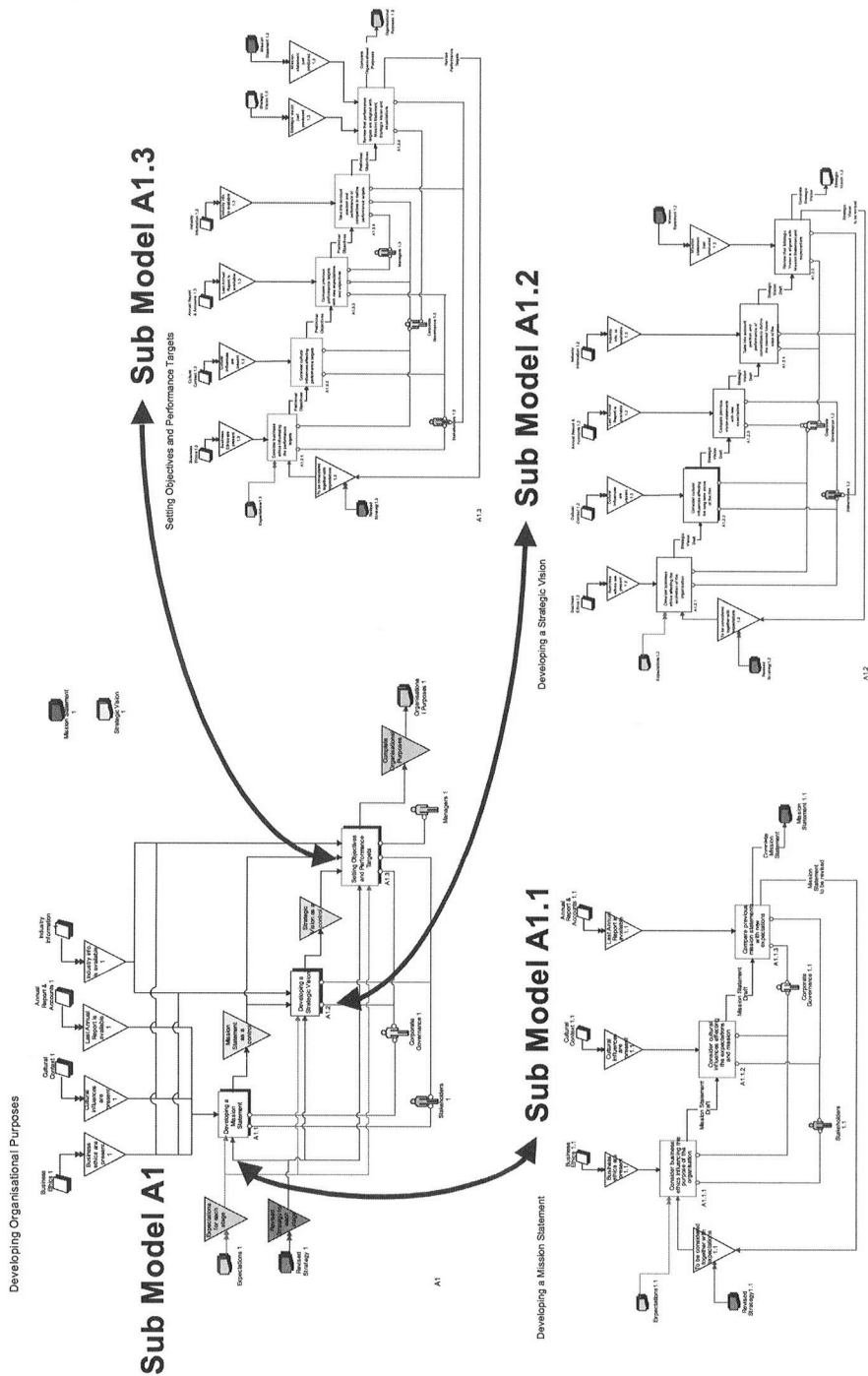


Figure 11.
An illustration of
sub-models in the strategy
process

form of word files, spreadsheets or hot links to documentation on an intranet. A set of standard documents must be completed and stored in the model at each stage so that a complete strategy document is automatically assembled by the process. Using the model ensures that no element of the process is missed and all appropriate sources of input are used, however each company will impose its own culture on the strategy process and the final strategy document. Using such a process model should lead to greater consistency within and between companies irrespective of their size or culture.

6. Conclusions, further research and development

Rigby (2001) reports in Bain & Company's survey that the two most popular senior management tools are strategic planning and mission, and vision statements, used by 76 per cent and 70 per cent of CEOs respectively. However, Kaplan (2002), citing several articles in *Fortune Magazine*, reported that there was vagueness in the concept of strategy and more importantly considerable failure in implementing strategies.

In this paper we reviewed the wealth of literature to identify the key features and issues of strategy and the approaches available for establishing objectives and performance targets, formulating, implementing, controlling and evaluating strategy. We concluded from this review that the strategy process and therefore the construction of a strategy document can be viewed as a static business process and consequently modelled using one of the many static process modelling methodologies available.

A comprehensive model for defining a corporate strategy, constructing a strategy document and strategy implementation has been constructed by applying a combination of IFEFO and case tool notation in collaboration with three organisations. The resulting hierarchical model comprises 134 activities over five hierarchical levels (or sub-models) in which each activity can be supported by documentation in the form of word documents, pro formas, spreadsheets and hot links to a company intranet.

The next issue to address is how to assess the strategy in terms of resources and time-scales. To support this a range of linked sub-models are being developed that will model the company in the "as is" situation and can be used to assess the "to be" situation (i.e. a form of discrete simulation). These sub-models will reflect all the interactions of resources and activity in considerable detail and it is proposed that changes will be controlled by managers responsible for the resources no matter how remote they are from the strategy formulation process. This will provide a coherent assessment of the strategy, as all elements will be assessed for impact in any area and the impact in that area will automatically show in all other affected areas. A common method for this type of analysis is system dynamics. Small systems dynamics models could be incorporated into the overall model, but it is proposed that these will be primarily restricted to areas where the dynamics of cause-effect links are easily established and the environment is stable. However, it is considered unrealistic to establish genuine causal links between strategic level decisions and all the affected resources in all but the simplest of cases. For example, where a company is making strategic decisions to move into new areas of operation there is no evidence to support a systems dynamics approach. An additional and very important advantage of the proposed discrete simulation analysis is that although the overall system can be very complex with hundreds of sub-models and thousands of defined links the control of data is local so managers at all levels must take ownership of the data, and through that the commitment to the strategy itself. Any errors or unrealistic strategic decisions

become immediately apparent as their effects ripple through the model so that the top-down/bottom-up cycle of double loop strategic management (Kaplan and Norton, 2000) and CSSM (Pritchard, 2001) will exist.

Further validation of the full model will be required once a full set of lower level models have been developed and linked to the high level model.

In a subsequent paper a full model comprising linked sub-models will be presented together with a test case which has been used to validate and illustrate the model.

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