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The causality of strategic control: three-level construction of causality

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Causality is currently a topic which permeates literature on all three conventional control levels, i.e. strategy, management, and operations. The purpose of this paper is to explore causality models on these three levels, and to discuss the links and interplay between the levels. It is revealed how strategy-level models are searching for common themes which drive the configuration and profitability of organizations, and that this search may be informed by the operations-level approach. The causality models on the operational level deconstruct organizations into numerous heterogeneous, concrete, and unidimensional parts, and the models and themes on the strategic level represent superstructures which integrate and assign meaning to the operational level. Management-level models represent logics which mediate between the two other levels.

1. Introduction

Corporations may be viewed as causality machines with an inherent set of dimensions and cause-and-effect relationships (Morgan, 1986). In recent years, this perspective has been accentuated in literature on strategic control (Ittner and Larcker, 2001). A number of different methods have emerged, all based on the fundamental idea that models should be created to describe the strategically important dimensions and relationships within companies (Kaplan and Norton, 1992, 2001, Fitzgerald et al., 1991, Laitinen, 2002, Lynch and Cross, 1991). Consequently, these methods view companies, implicitly or explicitly, as multi-dimensional instruments to be used for generating desirable actions and consequences.

There is a plethora of control methods which embody different views on the nature of causality, and it appears that their differences are related to the hierarchic level at which they are targeted. For example, many operations-level methods are concerned with the profitability effects of specific dimensions inherent in quality of design, quality of conformance, and time (Juran, 1988a, Monden and Hamada, 1991, Feigenbaum, 1991, Hum and Sim, 1996). On the managerial level, systems like balanced scorecard have been applying the concept of causality with reference to corporate logic (Nørreklit, 2000), whereas the strategic level has tended to focus on clusters of strategic attributes in an effort to understand the drivers behind corporate profitability (Miller, 1996, Miller and Friesen, 1977, Hambrick, 1983a).

This paper adopts the idea that corporations may be perceived as causality machines, and will seek to provide further insight into the perception and control of businesses by exploring the causality relationships of selected methods on the three conventional hierarchic control levels (Anthony et al., 1989, Otley, 1999), and by discussing the

links and interplay between the levels. With respect to the strategy level, we will focus on the models developed by Porter (1980, 1985) and Miles and Snow (1978), while balanced scorecard (Kaplan and Norton, 1992) and performance measurement in service businesses (Fitzgerald et al., 1991) will be used as exponents of management-level methods. With respect to the operational level, we will be looking at a set of models which concentrate on three prevailing control dimensions, i.e. quality of design, quality of conformance, and time (Ansari et al., 1997, Stalk and Hout, 1990, Kotha and Orne, 1989, Bolden et al., 1997).

Exploring the models on the strategic, managerial and operational levels will enable us to identify and describe three different approaches to causality: the holistic, the logical, and the deconstructive. This reflects the fact that the three levels focus on different causes for cost and revenue variations: the company's overall configuration, the interaction between multiple dimensions, and specific dimensions. It also reflects the need to apply a number of different approaches in order to understand all three types of causality relationships. The discussion on interplay between the three levels shows how the overall understanding of companies as causality machines emerges from simultaneous application of, and interaction between, the three approaches. In conclusion, the paper will use the three-level framework to discuss recent research (e.g. the distinction between structural and executional drivers, see Shank and Govindarajan, 1992) and thereby demonstrate that this framework may well prompt a change in our understanding of research on organizational causality.

2. Causality on the strategy level

With respect to the strategy level, this paper will focus on the typologies of Miles and Snow (1978) and Porter (1980, 1985), both of which provide insight into work carried out on a strategic level, i.e. work undertaken to shape the interaction between a company and its environments (Hofer and Schendel, 1978, Dent, 1990). Also, they provide good opportunities for learning about inherent strategy-level causality, in that they are explicitly concerned with strategically important dimensions and relationships (table 1). Additionally, there is ample theoretical and empirical knowledge available about both typologies (see e.g. Zahra and Pearce, 1990, Conant et al., 1990, Miller and Dess, 1993, Hambrick, 1983b, Hawes and Crittenden, 1984, Kotha and Vadlamani, 1995, Miller, 1988, Dess and Davis, 1984, White, 1986).

	Miles and Snow	Porter
Environments		Competitive forces -Rivalry -New competitors -Substitutes -Customers -Suppliers
Innovative process	Entrepreneurial -Product-market -Success posture -Surveillance -Growth	
Operations	Engineering/technology -Goal -Breadth -Buffers	Primary activities -Inbound logistics -Operations -Outbound logistics -Marketing/sales -Service
Administration/support	Administration -Coalition -Planning -Structure -Control	Support activities -Firm infrastructure -HRM -Technology development -Procurement
Causality of profitability	The configuration -Prospectors -Defenders -Analyzers -Reactors	Revenue/cost drivers -Differentiation -Cost leadership -Focus

Table I The dimensions and causalities of Miles and Snow's (1978) and Porter's (1980, 1985) typologies.

Miles and Snow (1978) were concerned with how organizations align themselves with their environments. Based on Child's (1972) strategic-choice approach they argued that this can be described by means of the adaptive cycle, including the entrepreneurial problem, which centres on the definition of the product-market domain; the engineering problem, focusing on the development of technologies and processes necessary for production and distribution; and the administrative problem, involving the rationalization of organizations by means of structures and processes. Each of these problems is multidimensional and complex, and a comprehensive analysis (Conant et al., 1990) of Miles and Snow's book (1978) revealed that the entrepreneurial problem, in addition to product-market, embraces dimensions like success posture, surveillance and growth. It was also revealed that the technological goal, breadth and buffers are important aspects of the engineering problem, and that

the administrative problem was described in terms of dominating coalition, planning, structure and control.

In his first book, Porter (1980) structured the competitive environments of companies by means of five competitive forces which determine the profitability of industries. He also discussed competitive positioning, and described a set of dimensions which usually capture how companies compete. However, it was not until his second book (1985) that he studied this topic in some depth. In this analysis, company activities were structured by means of the value chain, and Porter discussed how a competitive advantage may be based on internal connections between different activities in the value chain, on external connections, and on finding the right scope of products, customers, geography and industry. In his later works, Porter (1996) accentuates the holistic aspects of the value chain, and argues that sustainable competitive positions must be based on unique configurations of activities.

The causality of profitability which is inherent in the models of Table I have attracted much attention, particularly Porter's (1980, 1985) models. He described how the value chain incorporates one set of value drivers and one set of cost drivers, and argued that work to reduce costs and increase revenues was to some degree incompatible, and that businesses would therefore have to choose between differentiation and cost leadership (possibly restricting the competitive scope). Using microeconomic theory, Hill (1988) revealed that differentiation may cause cost leadership if the volume is increased while unit costs are being reduced (due to learning effects, economies of scale, or economies of scope). Several studies provide empirical support for a view that companies should strive for differentiation and cost leadership at the same time (see for instance Hall, 1980, White, 1986, Miller, 1988), but there are also studies that support Porter's view (see for instance Dess and Davis, 1984, Hambrick, 1983b). In sum, it seems as if the gap between revenue and cost, and consequently the profit, may be maximized at extreme values (i.e. cost leadership or differentiation) as well as over the intermediate range (Ghemawat, 1999).

Miles and Snow's model does not focus explicitly on the causality of profitability, but describes four different strategic logics in the adaptive cycle, of which three may be profitable. The underlying dimension for all four types is the willingness to alter products and markets (Hambrick, 1983b:690). The prospectors emphasize entrepreneurial activities, monitoring the market and stressing product development and changes. The defenders represent the opposite type. They have a narrow product-market domain, with stable technology and operations, and they emphasize engineering tasks and improvements in efficiency. The analysts are in the middle, exhibiting characteristics of both prospectors and defenders. Reactors have no conscious strategy and represent a dysfunctional organizational type.

Three of the types in Miles and Snow's model are described as effective. These types represent ideals which identify the configurations of organizational components that

maximize fit, which results in effectiveness (Doty and Glick, 1994). The relationships between different-type components are reciprocal and mutually reinforcing, and it can be argued that this is precisely the quality that makes the types effective (Inkpen and Choudhury, 1995, Porter, 1996, Black and Boal, 1994). The causality of this model is thus related to the outcome of organizations as systems. This is also reflected in empirical work with the model: to the extent that this has focused on the causality of profitability, the studies have primarily been concerned with the degree to which reactors are outperformed by the other three types (Zahara and Pearce, 1990).

The common subject in the causality of Porter's and Miles and Snow's typologies is the search for underlying themes which should drive the configuration of organizations. Miles and Snow argue that the willingness to change products and markets is the crucial factor, and that this should make up the foundation for the construction and development of organizations. Porter's original position was that the decisive factors are uniqueness and cost level, and that companies must choose either to compose a system that gives customers unique products, or to configure a cost-conscious business. Today, Porter is focusing more on the configuration itself, and he attaches less importance to differentiation and cost focus as underlying drivers (Porter, 1996). Porter and Miles and Snow thus seem to agree that configurations are the essence of strategy (Miller, 1996), but much work still remains to be done to find which underlying themes should drive the configurations to develop profitable organizations.

To sum up, the strategic level uses a holistic approach in which causality is viewed as a property of the system. The question is not how the individual parts of the value chain - such as innovation, production or service - contribute to the profitability of a company, or how factors such as time and quality impact on profitability in isolation. Rather, it is about the way in which corporate profitability is driven by the combined whole; by the simultaneous interplay between all corporate components and dimensions. Understanding the system causality demands a holistic perspective on the innumerable details and dimensions embodied in companies and environments. The challenge is to abstract the underlying themes which are of crucial importance to the companies' long-term success, - e.g. uniqueness, cost awareness or a willingness to change – themes which can be used to orchestrate the reciprocal components and activities which constitute a company.

3. Causality on the operational level

Operations represent the roots of the art of developing profitable companies, and traditionally the focus has been on manufacturing efficiency and cost minimization (Wren, 1979, Skinner, 1969). In recent years the connection between operations and strategy has been stressed, and operations are currently regarded as a set of strategic,

complex and diverse variables that are decisive to current and future profitability (Spina, 1998, Anderson et al., 1989, Langfield-Smith, 1997, Bolden et al., 1997, Miller and Roth, 1994, Kotha and Orne, 1989, Zahra et al., 1994, Adam and Swamidass, 1989).

Quality of design, quality of conformance, and time, are all operational-level dimensions which are often considered to be of strategic importance (see e.g. Ansari et al., 1997, Stalk and Hout, 1990, Kotha and Orne, 1989, Bolden et al., 1997). Table II describes some key theoretical models which focus on these dimensions and which have received much empirical attention. In particular, the table focuses on the models' causality and lists their most significant cost and revenue drivers.

Dimension	Models	Cost drivers	Revenue drivers
Quality of design	QFD, FCA, TC	Attributes/functions Physical design	Attributes/functions
Quality of conformance	PCM, PAF, QLF	Prevention Appraisal Failure	 Failure
Time	TOC	Speed Punctuality	Speed Punctuality

Table II Dimensions, models and causalities on the operational level.

Quality of design is often described as an important strategic weapon (Akao, 1990, Juran, 1988b, Ansari et al., 1997, Cooper and Slagmulder, 1997), and several methods for developing products to match the customers' needs are widespread in practice (Kato, 1993, Tani et al., 1994). Also, these methods have become increasingly important in the literature, and tools like quality function deployment (QFD), functional cost analysis (FCA) and target costing (TC) are currently well established in conventional wisdom (Monden, 1995, Ansari et al., 1997, Cooper and Slagmulder, 1997, Horngren, Foster and Datar, 2000, Kaplan and Atkinson, 1998) and research literature (some examples are Monden and Hamada, 1991, Carr and Ng, 1995, Kato, 1993, Tani et al., 1994, Yoshikawa et al., 1995).

QFD, FCA and TC describe how to develop and specify products which match customer needs, while modelling the economics of product design[1]. The tools describe how to mediate between customer needs and product design by defining functions; or "attributes" in Lancaster's (1966) terminology. The mediation usually involves surveys and dissections of customer requirements, and analyses of the

[1] FCA and TC are most acutely concerned with the modelling of the economics of product design, but analyses of the economic effects of product design also integral to QFD (e.g. see Juran, 1988b).

relationships between the different needs and functions. This process involves modelling how customer needs drive costs and revenues via the functions (Juran, 1988b, Ishikawa, 1985, Yoshikawa et al., 1995, Monden, 1995, Hauser and Clausing, 1988, Cooper and Slagmulder, 1997). The tools also describe the development of physical design, and the development and specification of production, distribution and service procedures, which embodies simultaneous engineering of physical processes and costs (Juran, 1988a, Taguchi and Clausing, 1990, Ansari et al., 1997, Monden, 1995)[2].

The quality of conformance is all about operating the specifications developed in the quality of design process (Crosby, 1979, Juran, 1988a). This work may also be of importance to a company's strategic positioning (Yasin et al., 1999, Ito, 1995, Shank and Govindarajan, 1994), and there is a set of tools which is often used in practise (Ernst & Young and American Quality Foundation, 1992, ISO 9000 News, no. 6, 1996). The toolbox includes quality systems (Feigenbaum, 1991, Juran, 1988a), the ISO 9000 being a distinctive example, several statistical tools (Ishikawa, 1986), the Plan-Do-Study-Act cycle (Deming, 1986), and methods which may be used to structure and sort management tasks (Brassard, 1989).

The descriptions of the financial impact of conformance quality depend on the operationalization of the concept. In the process cost model (PCM) the variable is dichotomized, and costs are accordingly classified as either cost of conformance or cost of nonconformance (British Standard 6143, 1992). The former represents the costs necessary to operate the specifications in the quality of design, while the second group of costs are incurred through inefficiency and quality failure. The prevention, appraisal, and failure model (PAF) can be interpreted as a refinement of the PCM, dividing the cost of conformance into basic process cost, prevention cost and appraisal cost, while failure cost is used in the same sense as cost of nonconformance (British Standard 6143, 1992)[3].

The PCM and PAF are both simple and complex. The simplicity arises from the fact that the models focus on the conformance quality which drives quality-related costs (Juran, 1951, Feigenbaum, 1956)[4]. The complexity lies in the myriad of details, the dynamics and the inherent logic of the models. The details are indicated in one of the best-selling textbooks on PAF (Campanella, 1990), which lists 92 different elements of prevention, appraisal and failure costs. Accumulating these diverse elements into three homogeneous cost pools is a problematic task (Conti, 1993, Dale and Plunkett, 1995). The dynamics can be illustrated by the traditional iterative use of the PAF

[2]Physical design may also be an important revenue driver (Norman, 1988), but is primarily considered a cost driver.

[3] In literature, costs of nonconformance is often used about all the cost pools in the PAF model (see e.g. Kaplan and Atkinson, 1989:380), not only failure costs. This means that the concept includes both the resources required to control the quality of conformance, and the resources required to deal with nonconformance (Feigenbaum, 1991). It may be argued that this is counter intuitive.

[4] Some also include the effects on sales income (see e.g. Campanella, 1990).

model: identify the largest failure costs, attack these by prevention, reduce appraisal cost according to the results achieved, and start again (Campanella, 1990). This process means that the three cost pools interact and move continuously. The inherent logic of the models should reflect the fact that a certain level of conformance can be achieved in several and complex ways, which means that the normal assumption that each level of conformance represents a unique combination of conformance cost (in terms of prevention and appraisal cost) and failure cost (Atkinson et al., 1994, Morse et al., 1987) is a huge simplification (Bowbrick, 1992). Despite all this, the models have received much empirical support (for a survey, see for instance Abed and Dale, 1987, Dale and Plunkett, 1995), and therefore provide a certain insight into the economics of conformance quality.

The PCM and PAF models use a dichotomized quality variable which drives quality-related costs. This may be criticized on the basis that many companies strive to continually reduce variation, that customers often appreciate less variation, and that the cost of a product often rises with increasing variation (Deming, 1986, Ishikawa, 1986). This can be illustrated by using the theories advocated by Taguchi (1993), who argues that quality of conformance should be operationalized as the deviation from a target value, and that the social cost of quality may be estimated by using the Quality Loss Function (QLF). The basic message of this formula is that costs increase exponential with deviation from target value (Taguchi and Clausing, 1990). The formula is a tool for approximating the cost of quality in the widest sense. For example, losses relating to time spent by management and staff are included, as are losses caused by stock, dissatisfied customers and lost market shares (Albright and Roth, 1994, Kim and Liao, 1994). The model consequently includes revenue lost due to quality failures, which is often not included in the PCM and PAF model (Juran, 1988a, Conti, 1993).

The last dimension listed in Table II, time, is often regarded as a fundamental driver of profitability (Stalk and Hout, 1990, Hum and Sim, 1996). This dimension embraces factors like speed from idea to market (Datar et al., 1997, Cohen et al., 1996), speed from order receipt to order delivery (Goldratt, 1990, Tersine and Hummingbird, 1995), and punctuality (Gehani, 1995, Schonberger, 1986), and has the potential for reducing resources spent on R&D, increasing efficiency of production and service, increasing responsiveness and punctuality in relation to customers, and thus to reduce costs and increase revenues (Balakrishnan et al., 1996, Schonberger, 1986).

There are a host of different models which aim to optimize various aspects of time consumption and to minimize costs (for a listing, see Hum and Sim, 1996), but when it comes to the total financial effect of time (including revenues), the conventional procedure is to use a programming tool to calculate the opportunity cost of factors that are scarce. Time management is then reduced to a question of maximizing the contribution from the flow of products going through the system that a company

represents. This is achieved by maximizing the contribution per time unit for the factors of which there is a scarcity (Goldratt, 1990). Consequently, the economic value of time equals the change in the system's contribution which is brought about through a change in the use of or access to time. This means that the economics of time is in a state of flux, depending on factors like demand, supply of inputs, and the situation in the different parts of a company (Bender et al., 1992, Gass, 1985).

The theory of constraints (TOC), which builds on the ideas of the programming tools (Umble and Umble, 1998), models the economics of time as the variations in throughput contribution (defined as revenue minus direct material cost) due to time changes in bottlenecks (Goldratt and Cox, 1986). In its simplest form, this model embodies an extremely short-term perspective, but it is possible to use a more long-term and strategic perspective by defining more factors as being variable (Kaplan and Atkinson, 1989). If you use an extremely long-term perspective, you may argue that all is variable (Johnson and Kaplan, 1987), which means that the focus of time management has moved from the financial effects of time exploitation in existing equipment to the profitability of alternative system designs (Yahya-Zadeh, 1999).

The thread which links the various tools described above, - irrespective of whether they focus on time, quality of conformance, or quality of design, - is their propensity to deconstruct organizations. The underlying purpose of these devices is to find and manipulate factors that strengthen the competitive position, e.g. product functions, the physical constituents of a product, the causes of various types of quality failures, and time-constraining factors. This deconstruction process represents a search for concrete and unidimensional dimensions which impact unambiguously on important strategic factors. The nature of this deconstruction process is dynamic, and the continual search for and manipulation of factors such as customer need, product functions, quality, and time capacity, means that a specific dissection, with its subsequent actions, will change the circumstances under which the next dissection is made.

4. Causality on the managerial level

Causality has become an increasingly important topic in managerial-level literature in recent years, and there are currently a number of models that explain which dimensions and relationships management should focus on in order to understand the causality behind a company's profitability. Well-known examples are balanced scorecard (Kaplan and Norton, 1992, 1993, 1996a, 1996b, 1996c, 2001), performance measurement in service industries (Fitzgerald et al., 1991, Brignall and Ballantine, 1996), tableau de bord (Lebas, 1994), the performance pyramid (Lynch and Cross, 1991), the service profit chain (Heskett et al., 1997), and the EFQM model (EFQM, 1999).

In this paper, the causality on the management level will be investigated by means of balanced scorecard (BSC) and performance measurement in service industries (PM). Both models have an empirical foundation and have received much attention in the literature. Also, the fact that PM is rooted in service industries while BSC accentuates dimensions and relationships that are typical of manufacturing industries, adds a certain contextual range. It may also be argued that there is a certain similarity with other models, such as tableu de bord (Epstein and Manzoni, 1997) and the performance pyramid (see for instance Lynch and Cross, 1991, chapter 5), and that the review of the two models consequently captures many of the ideas incorporated in other relevant models.

Model	Dimensions	Causality of profitability
Balanced scorecard	Financial Customer Internal business process Learning and growth	Chain
PM in service industries	Results -Financial performance -Competitiveness Determinants -Resource utilization -Quality of service -Innovation -Flexibility	Determinants drive results

Table III Dimensions and causality of BSC and PM.

A BSC is intended to visualize a company's strategic logic on all levels (Kaplan and Norton, 1992, 1996b). On an overall level, four perspectives or dimensions make up a causality chain in which learning and growth constitute the organizational infrastructure required for long-term success, while the internal processes are decisive to the customer dimension and costs, which in turn drive profitability (Kaplan and Norton, 1996b). On a lower level, each of these dimensions incorporates different variables and causality chains. For instance, one postulate within the customer dimension is that customer satisfaction drives customer retention and acquisition, and that these two variables together drive the market share, but the dimension may include many other variables and causality chains as well (Kaplan and Norton, 1996c).

The structure and philosophy of BSC mean that the four overall dimensions work as logical umbrellas which may include a range of different variables and relationships

(Nørreklit, 2000). For example, a BSC has a potential for incorporating both the prospector's logic of surveillance and change, and the defender's philosophy of exploiting existing technology and operations on a narrow product-market domain, as well as the variables and relationships which are inherent in these two logics. The core of BSC is thus not a specific strategic logic, set of variables or causality, but a structure for thinking about and portraying a company's profitability, which may be used to construct various causality models containing variables and relationships that influence profitability on different levels.

Based on case study research into eleven service companies in the UK, the PM argues that the causality underlying a company's profitability will vary according to the context, e.g. strategic logic, but that the generic model outlined in Table III constitutes a framework which is suitable for identifying and structuring important variables and relationships (Fitzgerald et al., 1991). The framework includes two dimensions of results driven by four dimensions called determinants, and the founders of PM describe a number of diverse and specific measurements which may be used to describe each of these six dimensions.

Like BSC, PM is an umbrella that may incorporate many different types of causality, and there are other similarities between the two models as well. What in PM are called determinants, are typical factors used to characterize what in BSC are called internal business processes, and the competitiveness dimension in PM embraces factors typically found in the customer dimension in BSC, for instance market share, sales growth and customer base (Kaplan and Norton, 1996b). Furthermore, the financial dimension is important in both models. Thus it seems as if the founders of these two models were all looking for structures in the value added processes of companies, and that they have ended up with two general sets of logic which resemble one another, and which may serve as umbrellas for a number of different dimensions and relationships.

5. The interplay between the strategic, managerial and operational levels

The strategic, managerial and operational levels accommodate causalities with different qualities and meanings, and so far this paper has highlighted the characteristics of each of these levels (as summarized in Table IV).

	Approach	Level	Stability	Dimensions	Relationships
Strat.	Holistic	Abstract	Static	Themes	Reciprocal
Man.	Logic	Intermediate	Mediating	Multi-dimensional	Chain
Oper.	Decon-structive	Concrete	Dynamic	Uni-dimensional	Unidirectional

Table IV The three-level construction of causality.

The strategic level is characterized by a search for unifying themes which capture the organization-driving forces, and which may be used to orchestrate the multitude of reciprocal elements that make up an organization. On this level, the main challenge is to understand the organization and its environment as a whole, and to abstract the themes that may function as configurating drivers of organizations.

While strategy-level models focus on the identification of themes for shaping organizations as a whole, models on the operational level focus on the deconstruction of companies into concrete dimensions and relationships. The centre of attention thus shifts from the holistic and relatively stable logic in the interaction between a company and its environment, to a continual and dynamic identification and manipulation of factors embedded in the company and its environment.

There is interplay between the strategic and operational levels in that the operational level informs the strategic level. Miles and Snow's prospector strategy can be used to demonstrate this point, as it involves continuous exploration of new markets and products, and changing the internal processes accordingly. The operations-level models provide structures which may guide the prospectors' search for and analyses of new opportunities. The models can, for instance, be used to explore and analyse the content and financial consequences of alternative and innovative product designs, which may involve dissecting the customers' needs, the product's functionalities and its physical design. In this way, the operational level helps fill the strategy-level models with a more concrete and analytic content.

The strategic level represents a superstructure which confers meaning to the operations-level models, an example of which would be the discord between the two alternative views on the economics of conformance quality, often referred to respectively as traditional and modern. The conflict has centred on the progress of prevention and appraisal costs, and thus whether a certain failure rate is optimal (Juran, 1988a: 4.19, Fine, 1986). The fact that two different meanings are assigned to the PAF model may be caused by dissimilarities in the underlying strategic theme. It is for example difficult to envisage that a company to which quality of conformance is an all-important strategic theme, would operate with an optimal failure rate, just as it

would be inconceivable for a company which considers quality of conformance to be strategically unimportant, to be postulating the reduction of its failure rate to zero as its objective. In other words, the deconstruction of companies, and the meanings assigned to different models, are influenced by the underlying strategic theme.

The managerial level mediates between the strategic and operational levels. This mediation involves two simultaneous processes: strategically allocating meaning to the operational level, and informing the strategic level by means of operational tools. This task requires flexibility and a range of options, which is reflected in the managerial-level models. These are logical models with a capacity to reflect the abstract strategy-level themes while also providing scope for incorporating the concrete dimensions and relationships which are inherent in corporate operations. The logical models used on the managerial level thus represent options which are charged with meaning as required in the mediation between the dynamic operations and the more static strategic themes.

6. Conclusions and directions for future research

This paper has attempted to expound on the idea that corporations may be perceived as causality machines (cf. table IV). The causality concept has been developed as a hierarchical construct, and we have seen that its interpretation depends on which level of strategic control is concerned. On a strategic level, causality refers to the holistic approach which is appropriate for understanding the effects of a configuration or system as a whole. On an operational level causality concerns a deconstructive approach which provides insight into the effects of specific dimensions, whereas causality on a managerial level refers to logics which are capable of reflecting a company's operational activities at the same time as its strategies, and which may be used to understand the interplay between multiple dimensions. This paper also describes how the perceptions of causality on different levels of strategic control do in fact depend on, and complement, each other. It has been demonstrated how causality perceptions on the strategic level assign meaning to causality perceptions on the operational level, how causality perceptions on the operational level inform the strategic level, and how the logical models on the managerial level mediate between the strategic and operational levels.

In this paper, causality is described as a three-level construct in which the interaction between levels determines the overall interpretation of the concept, and in which the causality insight on individual levels requires application of different methods with dissimilar qualities (cf. table IV). This conclusion means, inter alia, that the logics inherent in strategic control tools, such as balanced scorecard, represent an approach to causality which, in combination with other approaches, provides an overall understanding of corporate profitability drivers. This paper thus argues that we should study how balanced scorecard, in interaction with other methods, may provide insight

into the causalitities on which a company's profitability is based, rather than focusing on the types of causality insight which balanced scorecard cannot provide (cf. Nørreklit, 2000, who criticises the balanced scorecard approach to causality on the basis of other approaches).

The three-level causality construct represents a challenge for those working to identify important cost and revenue drivers. This identification effort has constituted an important topic in the research literature (Ittner and Larcker, 2001). For example, Shank and Govindarajan (1992) have listed a number of cost drivers they argue are important, and they have assigned these drivers to a structural category (e.g. scale, scope etc.) and an executional category (e.g. workforce involvement, TQM etc.). One of the problems involved with this effort, is that the drivers and their categorisations appear to be seen as objective qualities of a given reality, thus ignoring the fact that the identification and categorisation of cost drivers is a process of construction. For example, TQM may be a stabilising, cost-reducing method just as much as a change-oriented, revenue-increasing method, and it may be considered a structural quality just as much as an executional quality (Sitkin et al., 1994, Reed et al., 1996, Spencer, 1994). Consequently, TQM is not an objective dimension that may be used to describe companies, and which lends itself to be classified as either a structural or an executional cost driver. Rather, TQM is a construct whose meaning is assigned by its managerial and strategic context.

The three-level framework in table IV is a tool for understanding the process of assigning meaning to the causality concept, and this construction of causality is significant for our identification and perception of different cost and revenue drivers (cf. the discussion on Shank and Govindarajan's work), and for our views on which tools should be used to help us identify and control causality relationships (see e.g. the criticism of balanced scorecard in Nørreklit, 2000). The construction of causality should thus form an important part of future studies on cost and revenue variations, and of studies on the various tools used to shape corporate causality relationships. Hopefully, this will boost our ability to understand and influence this most complex of phenomena - the corporation.

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