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Strategy Implementation through a VBM Control System

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1.0 Introduction

Over the past decades, companies and investors have shown increasing interest in Value Based Management - VBM practices. Furthermore, the International Federation of Accountants (1998) has pronounced VBM a fourth and cutting-edge evolutionary step in managerial accounting. Ittner and Larcker (1998) argue that value-maximizing performance measures should be prioritized as one of three main areas of research for future management accounting research, a viewpoint they have substantiated in literature reviews of management accounting research in a VBM perspective (Ittner & Larcker, 2001, 2009). Motivated by Ittner and Larcker's work, Malmi and Ikäheimo (2003) and Jönsson (2006) have examined how VBM, in Finnish and Swedish contexts, has been adopted across companies. Both studies identify large differences in the design and use of VBM, and the studied practices are also found to deviate from recommendations found in normative VBM literature. The main differences include variations of VBM implementation depth across organizations. Other observations showed that control systems included other key performance indicators and decision criteria than those recommended by VBM, and that VBM was used to pursue different types of strategies. Finally, performance-based compensation seems less important in practice than in normative VBM literature recommendations.

Malmi and Ikäheimo (2003) have no explanation why these implementations deviate and why companies continue to use other performance measures than those directly linked to the adoption of VBM and recommended in normative VBM literature. In addition, Malmi and Ikäheimo (2003, p. 249) conclude: *"we could not detect any contextual reason for VBM adoption based on the interviews. Hence, although contextual reasons for adopting VBM varied, based on this study, we are not able to detect any systematic impact of these reasons on determining the type of adoption."*

For contingency factors to be the explanation of the variety in implementation and use of VBM across firms there has to be an interaction between the contingency factors and the design and implementation of VBM (Otley, 1980). Cross-sectional research designs used by Malmi and Ikäheimo (2003) and Jönsson (2006) do not seem adequate to capture such interactions, as the method does not provide insight into the process of VBM design and implementation. Both Malmi (2003) and Jönsson (2006) point out that their studies are not based on a deeper understanding of individual companies, but rather focus on differences between companies. According to Otley (1980) and Yin (2009), such interaction is best examined through a longitudinal study; otherwise it will be difficult to obtain a sufficiently deep understanding of cause-and-effect relationships between contingency factors and VBM system design over time. Berry et al. (1991) and Otley and Berry (1994) point out that in-depth case studies can be used to seek explanations of empirical observations and inform refinements of theory. Woods (2009) have for comparable reasons recently performed an in-depth case study with a contingency perspective on a risk management control system. In line with Malmi and Granlund (2009), we have therefore chosen a longitudinal explorative in-depth case study of a VBM system, and we use contingency theory to identify the circumstances where our findings may be useful. We specifically target the company's practical use (and design) of the VBM system when selecting and implementing a manufacturing strategy. This way we seek to explain why VBM implementations in practice seem so different, and why companies continue to use different performance measures than those recommended by VBM literature.

This research agenda is in line with previous recommendations. Thus, in their call for more VBM research, Ittner and Larcker (2001) recommend that future studies focus on the relative importance of different value drivers in relation to variation in companies' contingency conditions. In that study, as well as in a later study (Ittner & Larcker, 2009), they also point out that it would be interesting to investigate how contingency factors affect the comparative relevance of different value drivers, and if or how value drivers are used in practice as an explicit causal link between strategy selection and control system design. Hansen *et al.* (2003) call for research that examines the link between corporate design and use of budgets, and how the choice of budget technique depends on contingencies. In this respect, Bescos *et al.* (2003) find that environmental uncertainty is the primary driver of dissatisfaction with budget information; this supports a contingency explanation of the different versions of companies' VBM implementation like those identified in Malmi and Ikäheimo (2003) and Jönsson (2006). Bhimani and Langfield-Smith (2007) call for longitudinal research to gain qualitative insights on the manner in which companies develop approaches such as budgets to dealing with decisions regarded as strategic. Ittner and Larcker (2009) also refer to a number of studies (e.g. reviews: Lang Field-Smith 1997, 2005 / operational studies: e.g. Abernethy and Lillis, 1995; Banker et al, 1993; Ittner and Larcker 1995, 1997 / product development studies: e.g. Bushman et al, 1996; Said et al, 2003 / regulated industry studies: e.g. Bushman et al, 1996; Ittner et al, 1997; Said et al, 2003 / financial measures studies: e.g. Ittner et al, 1997; Moers, 2007) that support the view that adoption and design of VBM, including implementation, depend on contingencies. Furthermore, Donaldson (1998) argues that a contingency explanation does not conflict with any institutional, population ecology, organizational, or political threat-rigidity-based explanation of organizational control package design, which is why a contingency explanation in itself should be sufficient to account for variations in VBM practices.

2.0 Literature Review

2.1 Our theoretical framework

This section will specifically examine how contingency theory can be used to explain the discrepancy between the recommendations found in normative VBM literature and the corporate VBM practices pointed out by Malmi and Ikäheimo (2003) and Jönsson (2006).

Ittner and Larcker (2001) present a practice-oriented, normative VBM framework to assess the scope of normative VBM literature in general (Figure 1, left). Malmi and Ikäheimo (2003) investigate if VBM companies operate in compliance with Ittner and Larcker's framework, but find, that this is not the case in practice. In order to obtain theoretical cumulative research contribution, we have thus chosen to analyze the case company's work through this framework to ascertain whether the framework can be adjusted using contingency theory. Thus within the control package (Malmi and Brown, 2008) our focus is on the combined use of planning controls, cybernetic controls and administrative controls as Malmi and Ikäheimo (2003) find this relationship to be the key element differentiating VBM from other management approaches.

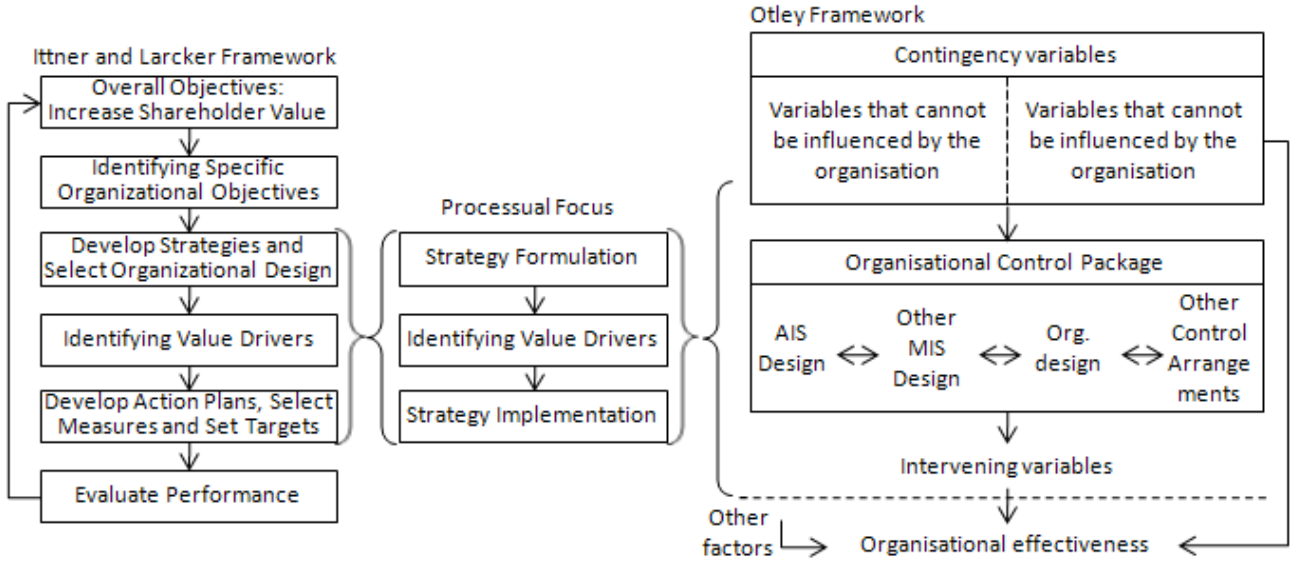

Figure 1: The focus of this study derived from Ittner and Larcker's Value-based management framework and Otley's Contingency framework. Otley generally focuses on accounting information systems - AIS, whereas this study focuses on a VBM system. Therefore, in this article, Otley's AIS system in Figure 1 represents the context of the VBM system, while other AIS systems are considered part of the company´s management information systems.

Ittner and Larcker (2001) point out that their framework mainly includes relevant contingency factors. However, they do not explain how normative VBM literature specifically addresses VBM dependencies on contingencies. Several different contingency frameworks with such explanatory qualities can be mentioned, including one in which Ittner and Larcker (2001) argue a close interaction between Otley's (1980) contingency framework and their own VBM framework. As a result, we have chosen Otley's framework for our analysis (Figure 1, right). Otley (1980) distinguishes between three types of contingency factors: Production technology related factors, Organizational structure related factors, and environmental (contextual) contingency factors.

Otley (1980) recommends that researchers adopt a combined management and process perspective to ensure that all phases of the control process are evaluated for control system design dependency on contingency factors. Otley (1980, p.423): *Otley & Berry (1980) have identified four characteristics of controlled processes that are necessary for effective organizational control. These are:*

(a) The specification of an objective;
(b) A measure of the degree of attainment of that objective;
(c) A predictive model of the likely outcomes of control actions;
(d) The ability and motivation to act

Use of this model helps to ensure that all stages of the control process are considered.

Viewed in this process perspective, the empirical results obtained by Malmi and Ikäheimo (2003) and Jönsson (2006) indicate consistency between the normative VBM literature recommendations for setting objectives and strategies (a), and companies' objectives in practice. A discrepancy between the normative VBM theory and business practices occurs in the two subsequent steps when formulated strategies must be "operationalized" and implemented in the organization, which is why this study specifically focuses on this part of the VBM process. Consequently, the process management focus of this study is on steps (b), (c) and (d), while process management

issues related to step (a) are regarded as being outside the scope of this study. Thus alike Bhimani and Langfield-Smith (2007) we focus on strategy development and strategy implementation. The following section seeks to clarify how normative VBM literature and contingency theory relate through the process perspective defined above.

2.2 Normative VBM Theory and Contingency Factors

The strategic approach described in normative VBM literature is analytical (Copeland et al, 1996; Ehrbar, 1998; Jönsson, 2006; Mc Taggert et al. 1994; Rappaport, 1998). Rappaport (1998, p. 59) notes: *It is essential to distinguish between two activities in the strategic analysis of any business: formulating business strategies and valuing business strategies. Strategy formulation typically entails analyzing the attractiveness of the industry and the position of the business vis-à-vis its competitors. In contrast, valuation strategy involves an estimation of the shareholder value added (SVA) by alternative strategies. Successful planning requires sound analysis for both formulating business strategies as well as for valuing strategies.*

Jönsson (2006) concludes that the above approach generally represents the understanding expressed in normative VBM literature of how strategies should be developed, and that the strategic understanding in VBM literature has been developed on the basis of Porter (1980, 1985, 2008) or associated strategic approaches. Mintzberg *et al.* (1998) assign this strategic understanding exclusively to the prescriptive strategic positioning school. Mintzberg *et al.* (1998, p. 114-115) note on this strategic approach: *The strategists are supposed to deal in abstractions on paper, detached from the tangible world of making products and closing sales. …Overall, much of the problem may stem from a bias in this school toward the external conditions, especially of industry and competition, at the expense of internal capabilities.*

Contingency theory sees strategy as the process through which a company adapts to contingencies. Viewed through the lens of contingency theory, strategy analysis based on positioning school theory may explain how a company's position, or its ideal position, depends on contingency factors, but it cannot explain how the company achieves this position, as the positioning literature does not analyze how managers should manage and organize factors under the company's control. From a contingency theory perspective, the normative VBM literature thus identifies a misfit in market positioning, but it does not offer recommendations or explanations of how the organization may reestablish a new and better contingency fit.

Only few of the normative VBM contributors seem to be aware of this lack of anchoring of the strategy development in organizations' control packages. Rappaport (1998) recommends the following "five-step guideline" to establish such causality. As expressed in the above Rappaport quotation, the first step is to quantify the formulated strategy, while the next step is to link the valuation to value drivers (Rappaport 1998, p.171):

Business value depends on the seven financial value drivers that have been emphasized throughout this book: sales growth, operating profit margin, incremental fixed capital investment, incremental working capital investment, cash tax rate, cost of capital and value growth duration. While these drivers are critical in determining the value of any business, they are too broad to be useful for many operating decisions. To be useful, operating managers must establish for each business the micro value drivers that influence the seven financial or macro value drivers. ... . An assessment of these micro value drivers at the business unit level allows management to focus on those activities that maximize value ....

Consequently, the causal link between the value drivers of the valuation and the implementation activities that operationalizes the strategy into action lies in identifying the micro value drivers that can be explicitly linked to the company's operational activities and operational decision-making. Among normative VBM literature contributors, Rappaport is apparently alone in suggesting an approach to the identification of these micro value drivers. Rappaport (1998, p. 171-175):

• *The first step is to develop a value driver "map" of the business. This involves identifying the micro value drivers that impact sales growth, operating profit margins, and investment requirements.*
• *Armed with a better understanding of micro value driver relationships, the next step is to identify the drivers that have the greatest impact on value.*
• *The third step in the assessment of the value drivers is to isolate drivers that management can influence.*

Apparently, Rappaport's recommendations are the nearest approximations in VBM literature to guidelines that may help companies identify the operational value drivers that drive the development of action plans and control systems, including performance measures and target setting. In this connection, Malmi and Ikäheimo (2003) emphasize that the development of action plans, selection of measures and setting of targets tied directly to value drivers or value creation is the key element differentiating VBM from other management approaches.

Thus, the consequence of missing micro value drivers is that VBM is not implemented. In this context, contingency theory addresses a theoretical problem inherent in VBM. It is recommended in VBM literature that all firms should maximize value and thus follow the VBM management philosophy (Rappaport, 1998). However, existing contingency research argues that it is not possible to identify value drivers in all circumstances, which renders a VBM implementation impossible. The contingency argument may be presented as follows:
According to Otley (1980), corporate control systems (including management accounting control systems and VBM systems) are designed to fit contingencies such as environmental, organizational, and technological factors. These contingency factors determine the optimal choice of organizational structure and strategy as demonstrated in numerous empirical studies. Burns and Stalker (1961), Lawrence and Lorsch (1967) and Khandwalla (1972) find evidence of environment dependency, Baumler (1971) of organizational dependency, and Perrow (1967), Thompson (1967), and Woodward (1958, 1965) of technological dependency. Haka (1987) finds such contingencies to influence the optimal choice of capital budgeting technique. Donaldson (1998, p.18-21) demonstrates that these contingency factors impact organizations' strategies, structures and control packages only because they determine the level of task uncertainty in companies' activities. In congruence Verbeeten (2006) finds uncertainty to be the primary driver of the sophistication of budgeting techniques applied in practice. Thus differences in the level of task uncertainty (in tasks that can be aggregated in activities) cause differences in companies' strategies, structures and control systems. Fredrickson (1984, p. 447) has the following comments on the relationship between contextual contingencies and task uncertainty:

Uncertainty is the difference between the information needed to perform a task and the information available (Galbraith, 1973) Therefore, Thompson (1967) has argued that because organizations are expected to act rationally, the environment is a major source of uncertainty and

is a threat to rationality. With regard to organization decision making, several authors suggest that the environment becomes a problem if critical decision variables are not apparent or, more importantly, when it is difficult to develop an understanding of cause and relationships among those variables. Therefore, though environments have been characterized on a variety of dimensions, the degree of stability is the one most often identified as affecting organization decision making (Duncan, 1972).

A similar argumentation can be applied to the other contingency factors mentioned by Otley (1980). What variables should be considered critical depend on the objective of decision-making. In a VBM company, the purpose of any decision is to maximize the company's shareholder value. The critical decision variables in VBM companies thus coincide with the value drivers of normative VBM literature. Fredrickson (1984) finds empirical evidence that these decision variables cannot be identified in settings with high task uncertainty. As mentioned above, VBM cannot, according to Malmi and Ikäheimo (2003), be implemented if these value drivers cannot be identified, which means that VBM cannot be implemented in settings with high task uncertainty. This study thus focuses on the relationship between task uncertainty and identification of value drivers (Donaldson, 1998), as we expect the discrepancy between Malmi and Ikäheimo's (2003) and Jönsson's (2006) results versus normative VBM literature recommendations to be rooted in this interrelation.

3.0 Research Approach

As mentioned in the introduction, neither Malmi and Ikäheimo (2003) nor Jönsson (2006) reach sufficient depth in their interview-based case studies to identify the reasons behind corporate VBM system design. Longitudinal case studies are well suited to gain deep understanding (Otley and Berry, 1994; Woods, 2009). According to Yin (2009), the choice of case and method is ideally made on the basis of the research question, and while conducting his research the researcher has to work consciously with the construct validity, internal validity, external validity and reliability of the study.

To build cumulative knowledge, which is recommended for VBM research (Lukka and Mouritsen, 2002), we have chosen a successful Scandinavian, publicly declared VBM company similar to the companies studied by Malmi and Ikäheimo (2003) and Jönsson (2006). Through this deliberate choice of case we seek to follow Yin's (2009) recommendations on external validity, as similarity between case companies increases the transferability of answers found in one study to questions asked in other studies. While conducting our research, the above studies were also used to ensure external validity through comparison of organizational characteristics. Here it is worth mentioning that the same decoupling between theory and practice as in the two previous studies was identified, but due to the longitudinal research design we have been able to explain what caused this decoupling. Through analyzing and theorizing the case setting we also seek to ensure theoretical transferability of the results.

The case company was identified through a large study of how strategic planning in Danish companies affects corporate performance. In this study, McIllquham-Schmidt (2005) found that one VBM business outperformed all other Danish listed companies by being the only company having delivered positive stock returns every year through a 15-year period. The company was also traded on NYSE and was a global leader in two of its three product markets, selling its products in six continents and having manufacturing sites located in three. Based on this information, we contacted the case company, which agreed to participate in the present research project. Preliminary interviews with company managers revealed that the company had written

VBM policy guidelines, offered VBM training, and a top management and board of directors that strongly supported VBM as a management model. In an interview with an economic profit manager, we were shown an educational brochure and internal presentation material, given an introduction to general working templates and shown a study of the correlation between Economic Value Added - EVA and the company's share price. Overall, this information convinced us that the case company was the appropriate context to examine our research question. However, as the interrelations that we intended to study in "VBM theory" in practice could be expected to branch off into different parts of the organization, our limited resources required us to delimit our investigation to a well-defined organizational context within the company. Given that the normative VBM framework is based on logical as well as chronological causality between the individual steps in the framework, and since in this study we want to examine how contingency factors affect this causality, it is analytically recommended to examine the development of causal relations over time (Yin, 2009). When the possibility arose, we therefore decided to follow the development and the implementation of the company´s manufacturing strategy. As will be described later, we had identified the manufacturing strategy as having been initiated as a result of contextual and organizational changes. Consequently, this setting served as a unique context for investigating our research question from a methodological point of view.
In addition, the production management stated that production was strongly affected by VBM, and because of the extent of the manufacturing strategy project, it was expected to have a significant impact on the company's creation of shareholder value. The focus on production is also consistent with the results of Ittner and Larcker's survey study (2001), which indicate that performance measurement systems across functional areas are best implemented in manufacturing functions. Based on the information from production management combined with the developed VBM theory and earlier empirical studies it was thus assumed that if any development of causal interactive business modeling[1] would take place it could be expected in this specific context, which meant that "pattern matching[2]" could serve as an appropriate application to the analysis of this setting. In this connection, Otley (1980) recommends the following method to obtain satisfactory understanding of causal effects between contingency factors and accounting systems Otley (1980, p. 424): *... to unravel a complex pattern of inter-action, the researcher must have a closer involvement and develop hypotheses as to likely relationships as he explores the organization he is investigating. In addition, as causal relationships are of much greater interest than associations, longitudinal studies, where the interaction of variables over time may be observed, are of more value than cross-sectional studies. Longitudinal studies are also able to illuminate the processes by which an accounting system develops and is changed in response to organizational pressures.*
When properly implemented, pattern matching can be used to ensure a study's internal validity (Yin, 2009). Inspired by Miles and Huberman (1994), concurrent pattern matching was applied throughout the study by mapping observed practices against the theoretically identified causal

[1] By causal business models we understand practices that identify and explicit take value driver relations into account (Ittner and Larcker, 2001). Furthermore VBM business models should be aligned with the definition of VBM as given by Malmi and Ikäheimo (2003; p.251):
1. aim to create shareholder value;
2. identify the value drivers;
3. connect performance measurement, target setting and rewards to value creation or value drivers;
4. connect decision making and action planning, both strategic and operational, to value creation or value drivers.
[2] Pattern matching is an attempt to link two patterns where one is a suggested theoretical pattern and the other is an observed or operational one. Thus, to compare patterns a setting where the suggested theoretical pattern is expected to take place has to be identified.

propositions and hypotheses.

The actual conduct of the study involved three longer stays in the organization and several visits over a period of three and a half years. The periods of absence from the organization were intended to allow a continuously developing understanding of the observed practices and through this understanding recalibrate the framework used to observe and interpret the "patterns" identified in the organization and in theory. The time and length of the stays in the organization were aligned to ensure that we were present when theoretical causalities were expected to take place. The initial phase of the research was conducted over a 3-month period from August to October 2005. During this period one of the researchers joined an extensive company induction program for new employees. Through the program, the researcher was introduced to control systems and production plants and had personal meetings with employees and managers. The purpose of this phase was to get familiar with the organizational context of the research project and to relate it to the normative VBM theory, as it would otherwise be difficult to understand interactions.

The strategy formulation phase took place from January through June 2006. In this period one researcher was located full-time in the company, observing steering group meetings, data collection, VBM modeling and project group work throughout the strategy formulation phase. The final stay at the company took place during the implementation and execution phase in the period April through September 2007. In this period the researcher was located in the department that coordinated the implementation of the strategy. Two shorter follow-up visits were made in 2008.

Because the project strategy was considered critical to the company's competitiveness and the strategy led to significant layoffs, the strategy work was strictly confidential, and only a very few people knew the strategy plan to its full extent. One example of the project's confidentiality level is the collection of data required for the strategy work: a cover story was made up to avoid revealing the strategy work to the organization's employees. For the same reasons it was not possible for us to interview employees as part of our research process. Instead, we were given the opportunity to facilitate and monitor the company's strategy work throughout the entire process, which meant that we had to balance the construct validity towards the internal and external validity, since we could not find a similar setting for this study neither in nor outside the company. According to Yin (2009), a major step in single case studies is to find a relevant case to examine, which is why we weighted internal and external validity higher than the opportunity to interview. The inability to interview increased our focus on data triangulation between these observations and other data sources used to ensure construct validity. This was based partly on information from the initial induction phase and partly on data gathered from different types of documentary and archival information through company briefings, training workshops and database access provided to access and read corporate guidelines, corporate processes, and standardized operating procedures and to understand cost systems, control systems, and KPI's. Similarly, evidence of causality was identified through physical documents, information systems extractions, and meeting documents describing strategy papers, appraisals, action plans, performance measures, and targets.
These were compared with clearly defined construct elements expected to occur if the company applied VBM as recommended in normative VBM literature. Evidence of the impact of the strategy was also collected in terms of recording factories closed / new plants opened, relocation of machinery, staff laid off / hired, changes to transportation routes, impact on the accounts, etc., and whether these actions occurred as defined elements of the strategy. As a last effort to ensure

construct validity, a case study report was submitted for review by the employees who had contributed significantly in various phases of the strategy and implementation work.

Reliability was continuously validated in the research group as the observing researcher placed in the company reported and discussed his observations with the two other members of the research group on a regular basis. In addition, reliability was validated externally through continued research reporting to colleagues outside the company, describing the theoretical and practical purpose, the conduct of the study, and the timetable for the different stages of the study. A research protocol was developed on the basis of a research application, which in turn was based on a literature review that identified a number of relevant research questions regarding VBM in practice. After the first stay in the organization, the literature review underlying the research application was adjusted to reflect newly gained knowledge about the organizational context and the hypotheses that could be investigated in this context. The revised assumptions were presented and discussed at a research seminar, and the resulting hypotheses formed the basis of the observation of the company. Preliminary results were presented at the MAR Conference in Trento in 2007, and inputs from colleagues have been used to increase the focus of the research.

4.0 Case – The Strategic and Control Package Context

For an initial comparison with other case studies (e.g. Jönsson, 2006; Malmi & Ikäheimo Appendix A, 2003), the following case company characteristics should be noted:

• the company adopted VBM due to the high correlation between the firm's share price and the periodic target economic profit,
• the company uses VBM for external communication, bonus payment, merger and acquisition activities, strategy development, transfer pricing, and portfolio management,
• VBM is applied at all hierarchical levels, but other metrics are also used
• economic profit is used with only a few or no corrections,
• target setting is partly based on peer benchmarks, partly based on strategy development, and partly done by investors or through alignment with investors,
• economic profit is estimated for divisions, subsidiaries, product groups, and single products.

The company's characteristics can be seen as a mix of the attributes of the case companies studied by Jönsson (2006) and Malmi and Ikäheimo (2003). Based on this comparison, the company can be expected to be a VBM company.

4.1 Contingency Factors Incorporated in the Strategy Formulation and Organizational Design

At the time of strategy implementation, most of the case company's manufacturing facilities were located in the parent company country. During the preceding few years, the production management group had wanted an assessment of the benefits of a possible relocation of production activities. Thus, to gain experience, small scale production facilities had been set up in Eastern Europe and Asia. To exploit the potential benefits of these experiences, production management had formulated a relocation (internal sourcing) strategy for the production plants. Four strategic scenarios were developed as to how the company could use global resource acquisition opportunities to match manufacturing competences needed with the supply of appropriate competences.

• A base case suggesting business as usual without changing the company's business patterns.
• A scenario suggesting sourcing entirely to own factories in European countries.

• A scenario suggesting sourcing entirely to own factories in Asian countries.
• A scenario suggesting some parts of the business sourced to own factories in European countries and other parts to own factories in Asian countries.

The company's practice of observing market-based changes in its context is consistent with the fit theory described in contingency literature (Donaldson, 1998), which suggests that over time, a company will go from fit to misfit while evaluating its ability to return to fit. As mentioned earlier, several studies find that contextual contingency factors influence the design of corporate control systems. Thus, the change in location of production activities identified above must be seen as a response to changing contextual conditions, which should have an effect on the design of enterprise control (Burns and stalker, 1961, Hage, 1965; Khandwalla, 1972; Lawrence and Lorsch, 1967).

As an implementation of the strategy required significant changes in the organization of activities, top management decided to restructure the company to prepare the organization for the implementation of the future sourcing strategy. For decades the company had been organized in strategic business units grouped around main product groups. Instead, the organizational structure now had to be function-based. The new organizational units of the company were sales and marketing, production, and R&D. When the company was organized into SBU's, manufacturing activities had been divided between many small, independent and autonomous factories, each with their own procurement staff, logistics staff, controllers, machinists, pilot and ramp up staff, and quality assurance staff. As part of the new functional structure, these activities were centralized in corporate staff units, thus changing the manufacturing plants from self-controlled manufacturing units into centralized HQ- controlled manufacturing units consisting only of operators, packing staff, warehouse workers, blacksmiths, technical personnel, and site management. Before implementation of the sourcing strategy, the manufacturing function consisted of:

- 9 manufacturing sites located in three continents and five different countries
- Three continental distribution centers
- Five corporate staff functions, namely Controlling, Supply Chain Management - SCM, Quality and Business Improvement - QBI, New Product Introduction – NPI, and Contract Manufacturing - CM.

As a result of the organizational change, decision-making and authority was centralized to corporate staff functions, as were a number of key employees. Contact between manufacturing units and sales subsidiaries were centralized to SCM, while the interface between operations and R&D was centralized to NPI. Through this centralization, the autonomy and independence of the manufacturing sites from the rest of the organization decreased significantly. Contingency research points out that a decreased autonomy of the manufacturing sites and an increase of their dependency on the rest of the organization should lead to increased use of control systems in the organization (Baulmer, 1971; Otley, 1980). As a result, it can be expected that the organizational change will have an impact on the design of the company's control systems, including the company's VBM system.

The centralization of planning and support activities enabled a competence-driven organization, where the manufacturing sites were grouped by technological competence rather than by product capabilities. Based on this resource view, the production management divided manufacturing tasks into three categories depending on the skills required:

• New product manufacturing (pilot and early ramp-up) that require specific skills in order to meet federal quality guidelines, achieve a stable production level, meet target cost, etc., in small-batch production. As such production tasks are associated with the generation of new products and they are closely related to R&D activities. The main activity is to develop and document knowledge on manufacturing the product with respect to operating procedures, methods, machines, and tools, and it typically involves testing of different raw materials and related technologies. Obtaining product quality is crucial.
• Mass production ramp-up focuses on scale-related technologies such as batch size, setup, automation, and flexibility. These competences are critical not only to attain profitable growth but also to meet market demand with no supply problems or quality problems, as pilot manufacturing rarely holds sufficient capacity to meet market demand through global product launches. Competences needed are the ability to control production processes under high-pressure global product launches as well as knowledge on how to scale up production from stable but cost inferior small-batch production to efficient mass production. Obtaining perfect order fulfillment is crucial to gain market share.
• Stable growth or declining product manufacturing focus on adapting capacity to demand in order to maximize profit margins and return on invested capital, and retain market share. Competences required are the ability to keep manufacturing stable, to expand the lifetime of machinery and workforce flexibility to facilitate product phase-out. Cutting costs and minimizing investments are crucial.

The grouping of manufacturing activities according to required competences and different technologies is consistent with Woodward's (1965) categorization of production technologies and different adoption of control systems based on differences in production technologies (Otley, 1980). The grouping of manufacturing activities also fits a subdivision of production activities by associated degree of task uncertainty, since pilot production is likely to have a higher task uncertainty than ramp-up, and similarly for ramp-up and mass production. According to contingency theory, this change in manufacturing activities grouping should lead to a change in the design of the company's VBM system (Otley, 1980). However, it should be noted that the organizational change is not a change of the used technologies but rather a change in the organizational grouping of technologies, which is why we should not expect a change of control systems as a result of technological changes. However, as a second-order effect it remains likely that the control systems will be adjusted to fit the new organization based on a grouping of activities by production technology.

Based on the experience with test production in Eastern Europe and Asia, production management assessed that the new product manufacturing was too experimental, too complicated, and too closely linked to development activities to be transferred to other locations than R&D. Thus, the ongoing manufacturing strategy development only concerned the latter two types of manufacturing activities. This distinction is consistent with contingency theory as it states that management of activities depends on the level of task uncertainty, which is why activities with different levels of task uncertainty should be handled strategically different (Fredrickson, 1984) as well as organized and controlled differently (Burns and talker, 1961).

Since the case company's formulated strategic scenarios are based on a change of resources, have their starting-point in a change of the organizational structure, and are initiated on the basis of a change in the grouping by production technology, the changes to the VBM system can be

expected to be triggered by organizational and contextual changes and only to a lesser extent by technological contingency factors.
Similarly, based on contingency theory, the strategic change can be expected to reveal a misfit between the organization's actual position and its desired position in the market place. Furthermore, the organizational change process can be seen as the first step in a change process that will bring the organization out of fit with the old strategy, while it is the first step in an attempt to bring the company into fit with changed contextual conditions through a new manufacturing strategy. According to Control System theory (Otley, 1999), Contingency theory (Donaldson, 1998: Otley, 1980) and VBM theory (Ittner and Larcker, 2001; Malmi and Ikäheimo, 2003), the natural next steps in the development process will be the selection of a strategic scenario for implementation, an adaptation of the organizational controls to the strategy, and finally strategy implementation through the adapted control systems. Thus, this provides a unique setting within the case company for the investigation of our research question, which is presented in the following section.

5.0 Results - Identification of Value Drivers during the Process.

The results obtained from following the case company's VBM / strategy process are summarized in the table below.

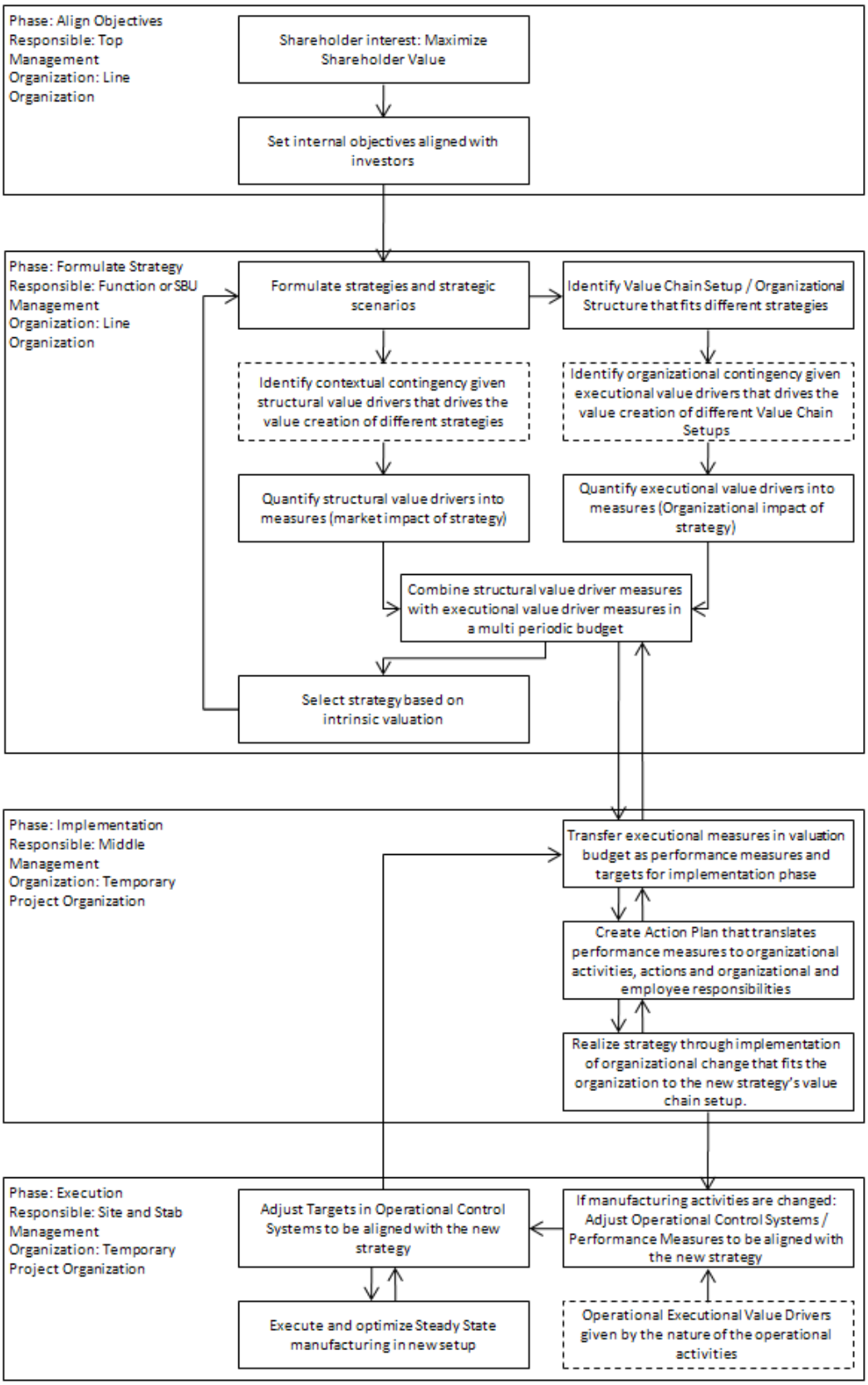

Figure 2: The case company's VBM / Strategy process. "- - -" Means it is a contingency factor that cannot be controlled by the company. Instead it influences the choices made by the organization.

5.1 From Strategy Formulation through Valuation

As specified in the defined strategic scenarios, the variable that is changed across the scenarios is location of production activities. Transferring production facilities from one country to another

causes changes in a number of manufacturing resources and activities. While commodity prices for many of the raw materials used by the case company are determined by world markets, the cost of labor and equipment varies considerably between countries and continents. Moreover, the costs of labor and production premises are settled in local currency, and different currencies are associated with different volatility, exchange rates, inflation and risk, which again leads to different financial and operational hedges. Also tax rates differ between countries.

Relocating production also changes the freight routes, which results in changes in shipping times and market response times, which in turn gives rise to a reevaluation of manufacturing and supply chain planning, changing suppliers, strategic partners, stock levels, distribution network, and type of carrier inbound and outbound. Even more importantly, increasing freight costs and decreasing manufacturing costs change the case company's cost structure. While freight costs primarily depend on the development of market-determined freight rates, manufacturing costs are to a wide extent caused by operational excellence in manufacturing activities. Thus, the sourcing strategy significantly changes the cost structure and thus the nature of the costs that have to be managed.

The mentioned cost drivers are primarily price-dependent, but the scenarios settled in different markets with different regulations and different skill levels can also be expected to affect product costs, as different levels of competences generally can be expected to lead to different efficiency levels in production. In the selection process, however, the manufacturing activities included in the strategy were carefully matched with national competence levels based on past manufacturing experience and global competence studies prepared by an engineering consultancy.

The above illustrates how production management's choice of relocation strategy, combined with a focus on low complexity manufacturing activities, shaped the relevance of different types of value drivers. Focusing on alternative locations and thus alternative capacities and resources makes countries' price levels an important value driver as prices varies between different locations. On the contrary, despite the fact that a base level of work force competence was required to perform the manufacturing activities, competence level was eliminated as value driver (e.g. scale, efficiency, automatization), because the strategy was based on more simple manufacturing activities, and only countries with sufficiently high competence levels were chosen as possible relocation scenarios. These strategic priorities also shaped the assumptions of the valuation of scenarios as the strategic priorities made it realistic to assume constant operating efficiency, order fulfillment, and product quality across scenarios. Pricing of resource acquisition, inflation, exchange rates, and their variance were assumed externally given through the different scenarios' respective foundation in different countries.
Based on these assumptions, the scenario valuations were driven by a sales forecast, as illustrated in Figure 3. The financial drivers depended on a relocation driver that multi-periodically measured a given scenario's costs, investments and volatility relationship against the expected development of the base case. Compared to the traditional budgeting techniques described in normative VBM literature, the only exception from the case company's practice seems to be the injected relocation driver.

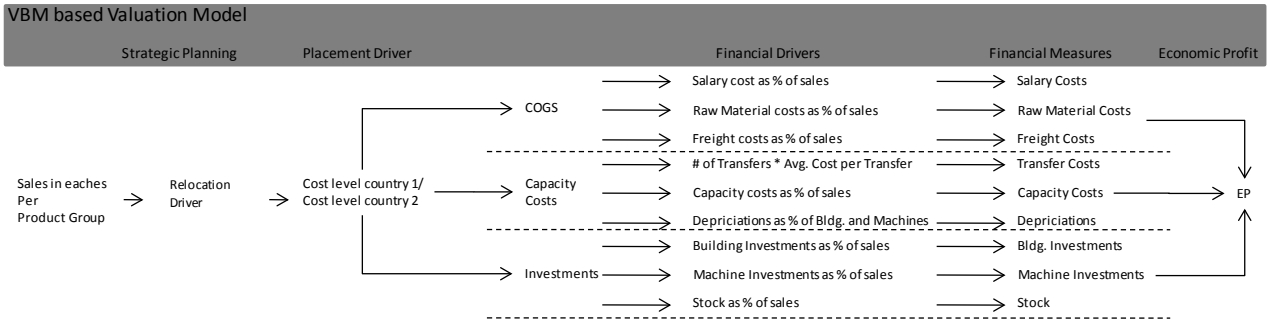

Figure 3: Intrinsic valuation based on traditional financial driven sales growth forecast (in alignment with the recommendations of the normative VBM literature)[3].

The scenarios were then compared to identify the most value creating strategy in terms of economic profit, and a sensitivity analysis was conducted for each scenario. The result of the strategy work, which had been carried out by a working group chosen by the production management, was then presented to a steering committee consisting of factory managers, two controllers, and a representative from corporate finance. At the meeting the steering committee strongly opposed the valuation. The main concern was voiced by a former factory manager and current middle manager, who called for coherence between estimated sales and use of resources. The middle manager pointed out that the recommended strategic scenario was non-transparent in terms of implementation, as the strategic analysis and the valuation provided no information about the link between activities and resource requirements, nor on how the financial objectives of the strategy depended on this relationship. Thus, he wanted explicit indications of cause-and-effect relationships between the economic profit estimates as outcome of the valuation and the strategic scenarios anchored in organizational change as input. Moreover, he expressed that the strategy recommendation as a minimum should throw light on the following relationships between the valuation of scenarios and the implementation activities related to each scenario:

• How often, how many and when would the plants get new or phase out production tasks?
• How often, how many and when would the plants get new or lay off existing staff?

The middle manager pointed out that without this information it would not be possible to assess whether:

• adequate resources were available to manage the transfer and validation of manufacturing processes;
• there was time to build the security stock required to meet demand while the production was shut down due to equipment relocation ;
• competent new staff could realistically be recruited and trained at the pace the production was moved, to avoid shutdown due to lack of skilled labor;
• factories and existing staff could realistically be redeployed to new activities or phased out at the pace activities were transferred so that the budgeted savings could be realized;

[3] Normative VBM literature does not discuss budgeting directly, but all examples we are aware of quoted in the literature (e.g. Copeland et al, 2000; Martin and Petty, 2000; Morin and Jarrell, 2001; Rappaport, 1998) use a financial driven approach, where the revenue drives investments and similar costs are estimated as percentages of forecasted sales

• there was a clear relationship between budgeted costs and investments towards capacity acquisition and maintenance on the one hand and forecasted revenue and the resulting activity level on the other.

The middle manager thus fundamentally questioned the validity of using the traditional budgeting approach in this context. As a result of the middle manager's criticism it was decided that the working group should work out a new business model that explicitly linked the strategic scenarios with economic profit estimates, market conditions, and the underlying operational activities required to realize the strategy.

The new business model was developed (Figure 3) based on resource network mapping relationships between activities and resources.

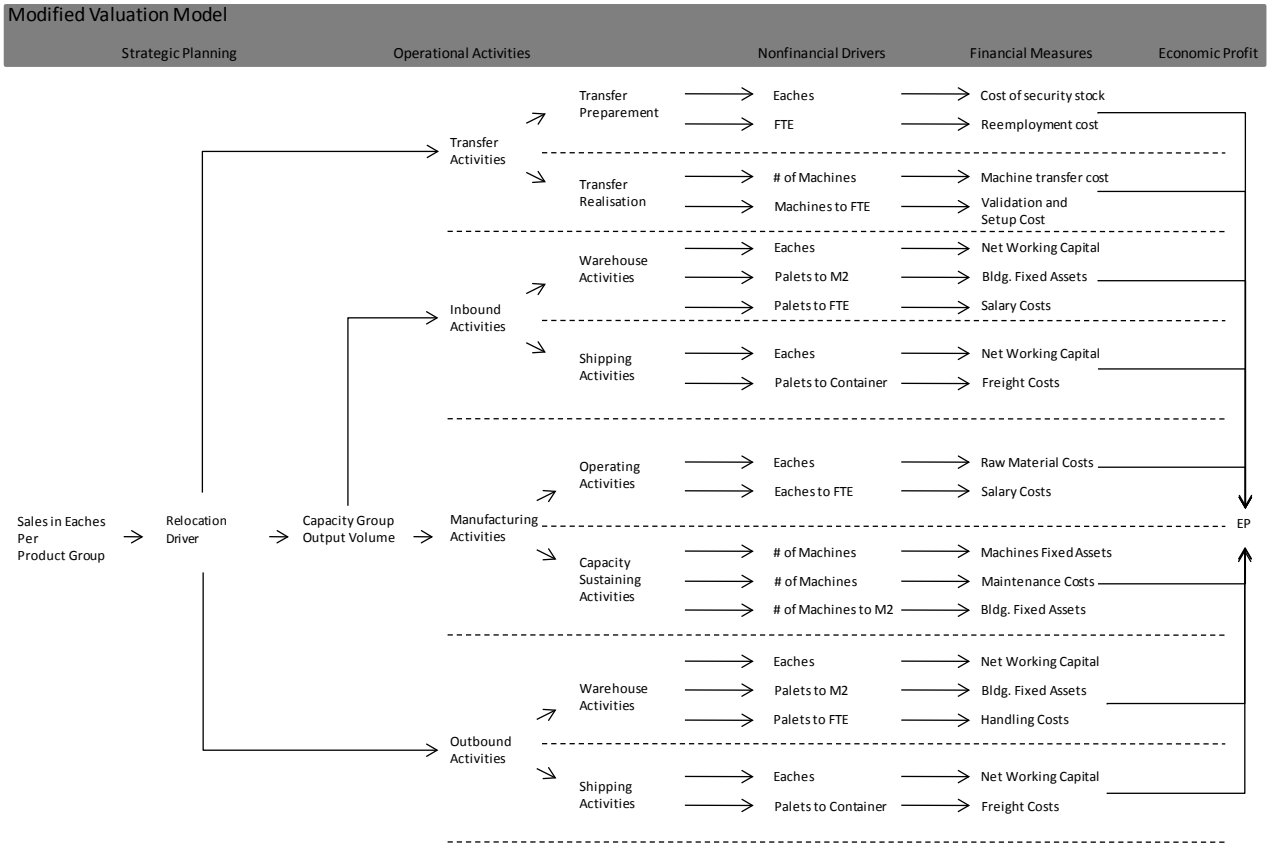

Figure 4: Intrinsic valuation based on network capacity driven sales growth forecast.

To explain how the strategy would affect the organization, the identified resource network was used to insert a layer of organizational and operational measures into the budget. However, a number of causal relationships had to be estimated to model this relationship. In order to build a causal business model the work group collected historical data from interviews and information systems. The first causal link was tracked using the company's sales and operations planning system, in which the relationship between sales, finished goods, semi-manufactured goods, and raw materials were traced to underlying primary or secondary capacity groups. Primary capacity groups were defined as capacity groups predisposed for specific product groups and secondary capacity groups as machinery serving many different product families. Secondly, work center information was gathered to trace relationships between capacity groups, manufacturing activities, and workforce involvement in the form of toolmakers, operators, etc. Financial budgets

were used to track or estimate maintenance costs, machine investments, salaries, electricity consumption etc. for capacity groups. Finally, factory blueprints, site visits, and interviews were used to track production plant area, warehouse space and offices for work centers or machinery and through these to capacity groups. By means of these links, the new business model combined expected demand, capacities, operational activities, activities' resource consumption, resource acquisition, and estimated value creation in one causal business model.

The business model estimated the quarterly development in economic profit and number of transfers, and for each site the quarterly trends in number of transfers were reflected in the output level, number of capacity groups, staffing plans, inventory levels, and production areas. The causality in the model meant that a change in one of these input values resulted in a causal loop of changes, altering the valuation of a given scenario. The business model gave plant managers a tool to simulate the value creation potential of each scenario depending on the organizational performance of their production plants.

Based on the new business model, the Steering Group approved the strategy recommendation, and it was then submitted for approval by the production management group. The production management group selected scenario four of the scenarios, which was then subjected to further analysis and iteration into still more detailed scenarios by means of the business model. This subsequently led to the choice of a final scenario for implementation. As a result, the following information about the implementation of the selected scenario was given through the business model:

- What, where and when capacity groups should be transferred
- Non-financial: The output of each capacity group, required operating hours, number of machines in the capacity group, number and type of m^2 of production area / hallways and offices / warehouse, electricity consumption, number and type of employees required on a shift / for maintenance / for planning, and required inventory levels associated with each capacity group.
- Based on the non-financial information the following activities could be planned: Construction of new plants, closing down or redeployment of old plants, recruitment and layoffs, and transfer activities.
- Financial: Transfer costs, distribution costs, production costs, maintenance costs, inventory investments, capital costs, building and capacity investments and depreciation. In addition to the non-financial estimates, the financial budgets also depended on price level-, inflation- and exchange rate- estimates, which was why the financial budgets depended on both executional and structural value drivers.
- Quarterly estimated economic profit creation if estimated targets were met and if price-levels, exchange rates, and inflation progressed as forecasted.

Based on our research questions it is noteworthy that in the new model, value drivers are divided into non-financial, organizationally anchored drivers and financial market anchored drivers which combined form the basis of an estimate of the strategy's intrinsic value contribution. As shown in Figure 3, this connection is not made in the first business model, which was rejected by middle managers. From the middle managers' reluctance towards the first model and their acceptance of the second model, the lack of explicit causality between executional operational drivers and market-based structural drivers and the financial budget appear to be the explanation why the traditional VBM budgeting method was rejected. It is also noteworthy that the rejection of the traditional VBM budgeting method was triggered by a lack of operational guidance in the budget.

Operational understanding is reestablished in the new business model due to the quarter-by-quarter transfer plan, which explicitly shows how the strategy identifies an organizational misfit of current executional and structural drivers, while the transfer plan gives an action-oriented operational description of how the organization brings itself in fit with the new strategy and current structural conditions.

The case company thus uses the organizational data incorporated in the budget to identify an operational misfit. The misfit is the difference in targets in organizational measures between the current setup and the chosen scenario. However, the budget from the selected scenario also identifies how the organization and its control systems must change in order to bring the organization in fit with the new strategy and thus with market conditions.

This organizational connection is effected by means of the relocation plan, which uses a Gant chart to identify the incremental development of the restoration of fit over time, and by means of the non-financial measures and targets that identify the capacity and resource changes to be implemented in various stages of the relocation process. Similarly, expected periodic value contributions are estimated based on the budget. Finally, it is worth mentioning that the strategy formulation process seems to determine the selection and identification of value drivers included in the budget, and it also seems to influence how a causal link is established between value drivers.

5.2 From Valuation to Implementation

Implementation planning (action plan) was initiated through the standardization of transfer activities. The standardized process is shown in Figure 5. The process organizes the activities into work stages separated by decision points. Each activity is divided into tasks, and one organizational unit is appointed as responsible for each task. Moreover, it is described what standard work should be carried out to complete the task. Similarly, one project manager is in charge of each transfer project at each stage and serves as transfer manager with the overall responsibility of coordinating activities and keeping the specific transfer on time by completing the activities included in the stage. Accordingly, the transfer manager has to bring the project from one decision point to another, and at each decision point the production management group decides whether or not the project can go on to the next stage.

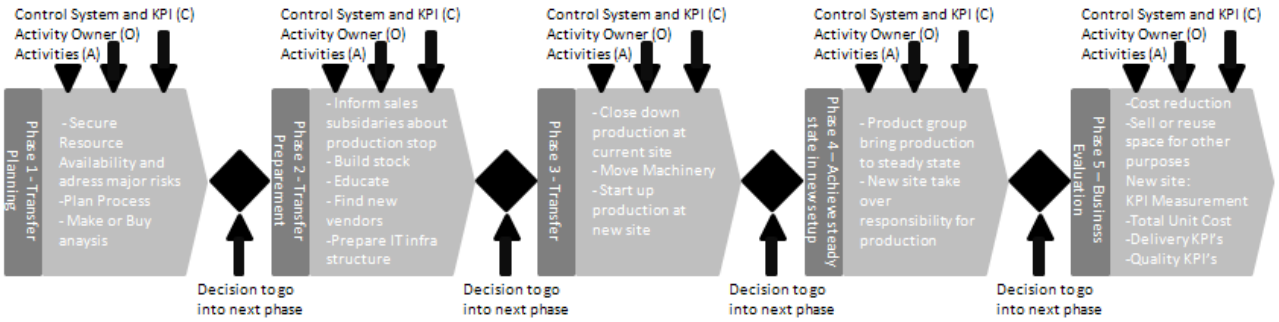

Figure 5: Standardized process. For each stage the main activities are mentioned. For each activity it is described who is responsible for performing the activity and the systems and metrics to be used to implement the activity.

Through this process, the standardization of activities enabled production management to allocate resources and monitor the relocation of machine groups through the standardized stages of mechanical dismantling until the machine was again operating at steady state in the new

production plant. By measuring the flow times of transfer projects moving through the standardized stages, the management group was able to follow, plan and coordinate the portfolio of transfer projects and allocate resources between stages or projects according to the quarter-by-quarter transfer plan originating from the valuation of the strategy.

By comparing the realization of the strategy with the targets budgeted in the valuation such as progress in output, staffing, number of machines, and number of square meters of production, management was able to monitor, measure and re-estimate the value creation as the organization implemented the strategy. In total, more than 150 capacity groups consisting of several machines were to be relocated, which meant that full implementation was expected to take approximately five years.

Through this practice the organization used the non-financial value drivers from the valuation as performance measures and targets to control the implementation. The division of value drivers into non-financial, organizationally anchored drivers and financial market-anchored drivers gave the management an insight into whether deviations in value creation were caused by changing market conditions or by lack of organizational performance. If deviations occurred between the planned strategy and the ongoing implementation, new forecasts could easily be made and incorporated either as changes to the non-financial budgetary forecasts, or as different time estimates for the planned relocation, changing the leading non-financial performance targets of the implementation as well as financial expectations. Thus, expectations were constantly changed throughout the ongoing strategy implementation due to the knowledge gained through the implementation. Conclusively, through the non-financial measures, the standardized implementation process was combined with the valuation; this combination formed a dynamic interactive business model that was used to control the strategy implementation through organizational change, as illustrated in figure 2. Thus the combined business model translated strategic and financial value drivers into executional performance measures and targets and vice versa, and the measures were used interactively to plan and allocate resources in the implementation and execution of the strategy. Through the business model it was specified:

• What staff and production activities were to be performed to move a machine from a current production setup and make it operational again in a similar production setup at a new factory;
• What tasks and standard work were associated with these activities;
• Who was responsible for carrying out various activities, and what employee groups would take part in carrying out the activities;
• What organizational structure and what control and information systems should be used to communicate during the implementation activities;
• What, when and how activities were to be implemented in order to realize the potential value inherent in the strategy.

The handover of manufacturing activities from the implementing project organization to the line organizations' autonomous production centers at the new production plants was facilitated by combining the standardized implementation process (the business model) with the company's existing operational control and information systems.

During the transfer, SCM used their systems to control and build emergency stocks and reestablish distribution and production planning routines at the new sites. New employees were trained to use the company's existing reporting systems that had also been used at the closed-down sites.

When a steady state of manufacturing activities had been achieved at the new site, and responsibility for manufacturing had been handed over to the new line organization, the SCM systems were used to ensure ongoing capacity, while target stock levels and production output targets were adjusted to the new distribution pattern. Thus production batches were recalibrated towards stock levels, distribution mix (airfreight versus sea freight versus land freight), and distribution layout optimizing output targets, target stock, and freight split targets. These targets where then compared with the estimated targets in the strategy plan.

QBI used their quality measurement system to validate the new manufacturing setup. The database contained a history of satisfactory quality levels and description of the standardized production processes and controls that in the old setup had led to market approved stable outputs. Like the SCM systems, the quality measurement system was also re-used to standardize quality reporting and quality control in the new setup.

Controlling monitored product costs and estimated transfer prices based on their existing ABC system, which was updated for each capacity group as part of the transfer. These target costs were then compared with the estimated targets in the strategy plan.

Throughout the strategy implementation, SCM controlled delivery performance through their systems, QBI controlled the approved product and process quality through their system, and Controlling monitored the value creation of the strategy implementation, but also total unit cost levels for each product. Thus, the staff organizations' different control objectives were compared to the value potential of speeding up the transfer process. Furthermore, performance evaluations for each of these criteria were presented at each gate meeting for the production management. As mentioned earlier, the production management used the gate meeting to check that the transfer projects were on track, as they would otherwise not be approved for entering the next stage of the standardized strategy implementation process. As a result, through the implementation process' gate meetings, production management was able to control the pace of each single transfer project towards the other performance criteria.
Thus, the combination of the stage-gate meeting structure and the use of staff function control systems ensured that the strategy implementation process would not be completed on the basis of reduced product quality or delivery performance causing loss of recognition in the market.

By controlling the transfer of responsibility for the reestablished manufacturing activities from a project organization to a line organization through the existing line organization's controls, coordination between the staff and the new production plants were built upon the old organization's routines. This way the executional control of the strategy was rooted in the communication channels, organizational structures, and control systems already known to the employees. The strategy was thus anchored in the executional drivers, and employees were accustomed to using them in their day-to-day tasks. As a result, it was made clear to existing staff:

- What tasks the employee was accountable for, and to which activities the employee contributed;
- How the employee's tasks were linked with other implementation tasks and subsequent operational tasks in the new line organization;
- What standard work was to be carried out as part of the individual tasks;
- In what databases and control systems the employee could find the information regarding standardized processes and target levels required to perform the required standard work;

• A description of how the employee should deal with any deviations from targets in terms of output, delivery, quality, and unit costs.

Besides approving the manufacturing strategy, top management also verified and validated the strategic plan with stockholders through the quarterly report. This was done based on the strategy's quarterly estimated economic profit contributions, and these contributions were, as stated above, estimated on the basis of the quarterly estimated nonfinancial operational targets. As a result, an explicit causal linkage existed between the forecasted economic profit contributions and the operational targets and standardized activities that employees sought to fulfill. Thus the company's internal performance expectations and capital market performance forecasts were aligned and continually adjusted based on the causal business model. Throughout the implementation phase, production forecasts and resulting financial forecasts were recalibrated based on the ongoing implementation. The recalibration could be triggered top down or bottom up. It was triggered bottom up if differences occurred between expected and realized performance, while it was triggered top down if management adjusted the strategy, reallocated resources or modified the implementation process.

In summary, the causal compliance between production activities, internal operational measures, and economic profit measures communicated to the stock market led to a standardized implementation process where all employees at all organizational levels:

• Were measured against targets that were action oriented and embedded in the organization;
• Were measured against targets that were directly linked to strategy implementation and value creation;
• Were measured against targets which they could influence through the activities and resources they were responsible for. Production workers and staff employees were held accountable for on-time task fulfillment, teams for output levels, staffs for delivery performance, quality and cost control, middle managers and teams for on-time fulfillment of activities and activity resource consumption, and finally the production management was held accountable for financial performance;
• Were managed through a priori known performance measures and tasks that were aggregated and coordinated through a standardized implementation process that explained the aggregation of tasks into new, not a priori known activities and changed performance targets. The reuse of task descriptions and performance measures made it easy for employees to communicate, understand and respond to the strategy. Thus the case company managed strategic and organizational change through stability in its KPI's and control systems.

6.0 Discussion

Although VBM recommendations are apparently not followed in the operational management of the companies studied by Malmi and Ikäheimo (2003), in a company with similar unchanged operational control systems we find that despite strategic and organizational change there is a clear causal link between the strategy, its implementation and operational control systems. Observations show that neither performance measures nor existing control systems are changed, whereas performance measure targets are changed to be in line with the new strategy. This alignment is done through an operational loop in the valuation of the strategy, and the control systems are aligned with implementation activities through a new standardized implementation process describing how the control systems should be used to monitor and execute implementation activities. Consequently, VBM seems to be implemented despite the operational

control systems being intact, as the use of the systems has been aligned with the new strategy.

6.1 On Task Uncertainty – Identifying Applicative Circumstances of VBM Adoption

It can be observed that as a contingency factor, task uncertainty[4] has a significant impact on how the case company chooses to establish causal relationships in the design of its control mechanisms (control package). This relationship can be observed in the initial strategy formulation by production management, where based on manufacturing complexity they categorize manufacturing activities into pilot, ramp-up and steady-state manufacturing. Based on this categorization it is determined that the strategy mandate only applies to the latter two categories. In line with the observed practice, contingency theory predicts that strategically these manufacturing activities have to be separated, as decisions with different task uncertainty have to be treated differently (Fredrickson, 1984).

As task uncertainty is the difference between information needed to perform a task and available information, task uncertainty can also be seen as the degree of understanding. We observe that ABB-inspired budgeting is preferred to traditional budgeting, which is abandoned with the argument that middle managers need a better understanding of the strategy than can be obtained through traditional budgeting. On interpretation of traditional budget information versus ABB information, Hansen et al (2003, p. 100) states:

Lower-level managers and employees can more easily understand and communicate budgeting information in operational rather than financial terms. Similarly by providing an understanding of how resources and activities are related, activity-based budgets help managers understand how to perform their jobs.

Consequently, the fact that the case company abandoned the traditional budgeting approach recommended in normative VBM literature in favor of ABB can be interpreted as an effort to reduce task uncertainty and thereby increase organizational understanding. Normative VBM literature does not discuss budgeting directly, but as earlier mentioned a financial driven approach is recommended, where the revenue drives investments and similar costs are estimated as percentages of forecasted sales. The quantified percentages used to generate the budget are the normative VBM literature's disaggregation of what Rappaport (1998) defines as the seven financial value drivers (Copeland et al, 2000; Morin and Jarrell, 2001). As these value drivers are tied directly to a revenue forecast, they are justified through the drivers of revenue rather than being rooted in the operational activities in which costs and investments are consumed. Where revenues are based on environmental contingencies and marketing efforts, operational activity is based on output, and operational activity determines the need for resources, which gives rise to investments and costs (Worre, 1973). Because the budgeting approach used in normative VBM literature fails to notice the importance of operational activities in the explicit estimation of costs and investments, a circular reference is created from costs and investments back to the contingency-given drivers of revenue. Normative VBM literature thus contradicts itself, as on the one hand it requires explicit causality in the identification and modeling of value drivers upon which the organization can act, and on the other it uses a budgeting technique that does not explicitly incorporate operational value drivers. This decouples the valuation of the strategy and its financial targets from an explicit organizational anchoring in a value driver map as recommended by Rappaport (1998). As a result, middle managers are left with no guidance to the relationship

[4] Recall Galbraith's (1973) definition: *Uncertainty is the difference between the information needed to perform a task and the information available.*

between the strategy, the implementation of which they are held accountable for, and how they should set their operational controls to manage the implementation of the strategy. As a result, this budgeting approach does not create an operational understanding of the strategy, and thus it does not lower task uncertainty.

A study by Bescos et al (2003) also investigated the relationship between satisfaction with budgets and contingencies and found environmental uncertainty to be the primary driver of dissatisfaction with corporate budgets. Our study fills the gap between Hansen et al's (2003) reflections and Bescos et al's (2003) empirical study, as we observe that traditional budgeting is abandoned because it does not translate strategies and budgets into operational measures that can be used to implement strategic and organizational change. Contrary to this, the ABB-inspired budget is accepted because it explains the strategy through operational measures and thus reduces task uncertainty.
Finally, task uncertainty can be observed as a contingency factor influencing the integration of the budget and the standardized implementation process. On budget information and activity flow, Hansen et al (2003, p. 100) report:

An improved model of resource and activity flow also can lead to improved performance evaluations by specifying in more detail who is accountable for specific activities that cross departmental borders. In addition, the expanded set of options for adjusting outcomes enriches the managers' ability to respond to contingencies and also improves performance measurement, evaluation, and decision making.

Using this statement to interpret the company's practice, the company achieved reduced task uncertainty and increased ability to react to contingency changes as the established business model integrated organizational coordination vertically and horizontally with budgeted targets. Vertical coordination was improved through the ABB-inspired budget as it translated the strategy and its expected value contribution into operational measures that were directly linked to the operational decisions and activities for which middle managers were responsible. Horizontal coordination was improved through integration of the ABB-inspired budget and the standardized implementation process, because the integration made it explicit how the achievement of budgeted targets depended on the fulfillment of standardized, cross-departmental activities and pointed out who were responsible and accountable for the implementation of these activities. Furthermore, activities were disaggregated into tasks that demonstrated to employees how their task fulfillment impacted on performance and fitted into the strategy.
Hansen et al (2003) call for empirical field studies of the Scandinavian type that research the benefits of planning and budgeting dependency on organizational stability. In the case company, the increased operational understanding gained from the shift to the ABB inspired budget triggers the middle managers' acceptance of the strategy, and through the integration of the budget with a standardized process the strategy is made operational to employees. These observations indicate that in other stable settings, similar to that of the company's manufacturing strategy, companies will benefit from causal business models as they reduce task uncertainty and increase the ability to react on contingency change, leading the strategy to be implemented more effectively and ultimately creating shareholder value. The contextual setting of the company's VBM business model can be considered stable as: 1) the strategy was kept apart from the most complex manufacturing activities; 2) targets for operating efficiency, delivery performance and product quality were kept constant throughout strategy implementation; and 3) operational control

systems remained unchanged throughout the implementation of the new strategy and organizational change.

Consequently, the explanation of the company's control practice that can be extracted from contingency theory is that because critical decision variables (value drivers) can be identified in a stable setting (Fredrickson, 1984), the company benefits from the use of control systems that identify and causally link value drivers. On the other hand, numerous contingency studies have found that critical decision variables cannot be identified (Aldrich, 1979; Fredrickson, 1984; Nutt, 1976; Thompson, 1967) if they are rooted in unstable settings. Combined, these results indicate that VBM business models and control systems in general can only be anchored in critical decision variables and causally designed in stable settings, and on the other hand they cannot be anchored in critical decision variables and causally designed in unstable settings. However, as defined by Malmi and Ikäheimo (2003) it is the identification of value drivers and the causal modeling that separate VBM from other management disciplines, which is why the above findings indicate that VBM cannot be implemented in unstable settings. Based on this finding, a comprehensive control system in an unstable setting can be expected to create inconsistencies between the control system and the organization's decision-making, which leads to dissatisfaction with the control systems, as found being the case of budgets by Bescos et al's (2003). Thus we expect the design and implementation of VBM systems to vary with the degree of task uncertainty, as the degree of task uncertainty determines the extent to which value drivers and cause and effect linkages can be identified. Furthermore, this study also demonstrates that ABB budgeting is appropriate in a stable setting, as the extra information it provides through the organizational loop reduces task uncertainty, as hypothesized by Hansen et al (2003). But as identified earlier, the incorporated operational loop in the company's budget is rooted in the stable contextual setting of the VBM system; thus the budgeting procedure cannot be expected to be reliable in an unstable environment. This is also supported in the observed delimitation of the strategy, through which the use of the budgeting procedure is delimited from being applied to pilot production activities with higher task uncertainty. If production management had not made this distinction between easy and complex manufacturing activities, operational efficiency could not have been assumed to be constant, and as a result operational efficiency targets would not have been transferable between the old organizational setup and the organizational setup of the new strategy. In this case, the causal modeling of value drivers dependent on organizational stability as operational targets was estimated using existing control systems reflecting activity in the old setup. This understanding is consistent with the views of Shank and Govindarajan (1993), who state that ABC and ABB reflect existing strategies and thus current activity. This means that the modeling in ABC and ABB is locked to operational stability, and further to this, Banker and Johnston (2007) argue that ABC and ABB can only be used for operational decision-making, as strategy is based on organizational change and thus changes operational work flows. If contingencies change, the strategy will be changed to fit the contingency change (Anderson and Paine, 1975; Mintzberg, 1973; Nutt, 1976), which will lead to changes in activities to fit the new strategy. Consequently, ABC and ABB cannot be used strategically (Banker and Johnston, 2007; Shank and Govindarajan, 1993).

Contrary to this, the present study indicates that through careful selection of activities and resources that fit into the strategy, companies can maintain operational work flows, allowing existing control systems to still be valid after the implementation of the new strategy. Also Malmi and Ikäheimo (2003) and Jönsson (2006) find that companies continue to use existing control systems after having adopted VBM. Consequently, this study suggests that operational work flows can be maintained through strategic change in stable environments, meaning that under these circumstances ABB and ABC can be used strategically. As a result, the appropriateness of ABB does

not seem to depend on whether the purpose of the decision is operational or strategic. Rather, this study indicates that the appropriateness of ABB as a budgeting method depends on task uncertainty and work flow stability. This is in line with Noreen (1991), who analytically showed that ABC is based on assumptions about homogeneity, linearity and divisibility. Furthermore, in a hospital environment characterized by high task uncertainty and thus instability, Noreen and Soderstrom (1994, 1997) researched the appropriateness of the use of ABC and ABB, and they found empirical evidence that the assumption of homogeneity failed. Thus Noreen and Soderstrom's (1994, 1997) results also indicate that the appropriateness of ABC and ABB depend on stability and task uncertainty rather than purpose of decision. To the best of our knowledge it has not been researched whether or not the assumptions hold true in the long term in a stable setting. As no empirical evidence suggests that the assumptions will fail in the long run in a stable setting, it cannot be concluded, as it is done by Shank and Govindarajan (1993) and Banker and Johnston (2007), that ABC and ABB cannot be used strategically. Another argument supporting their claim could be that all strategies are developed in unstable settings; however, this is empirically contradicted by Fredrickson (1984). Future studies could produce additional knowledge about the relationship between the assumptions of ABC and ABB, work flow stability and strategy.

Principal-agent models and contingency theory argue that the choice of performance measures depends on how informative performance measures are (Ittner and Larcker, 2009). A VBM performance measure should be understandable, should explain value creation, and be in alignment with corporate objectives. As previously mentioned, empirical results in organizational and strategic research indicate that causal interactions cannot be expected to be established between performance measures and value drivers in unstable settings, as value drivers cannot be identified (e.g. Fredrickson, 1984). One effect of this might be frustration over irrelevant budgets as found by Bescos et al (2003), because due to the uncertainty, the budgets have a low informational value. Moreover, in a principal-agent study Dye (2004) shows that managers change performance measures often when it is difficult to identify value drivers. Consequently, firms may use other control mechanisms than performance measures in practice, such as meeting structures and standardized processes. This is supported by the findings of Burns and Stalker (1961) for organic organizations in unstable settings. The case company standardized their relocation activities through a stage-gate management process in order to control relocation projects, and this standardization made it possible to compare and benchmark the projects. Without the comparability provided by standardization, it is unlikely that the relocation activities would have run homogenously. Thus, the forecasted economic profit distributions through the ABB-inspired budget depended heavily on the relocation activity standardization, and the standardization depended on the stability of the relocation activities. This serves as an example of how the use of one control mechanism (standardized processes) enables the use of another control mechanism (ABB) in a stable setting. Further studies on the combination of control mechanisms would appear relevant. Particularly in unstable settings it seems relevant to investigate how companies adjust their control mechanisms to high task uncertainty. In addition, it is relevant to examine how budgets are used as part of the control package in unstable settings. Whereas we doubt budgets can be used to identify causal relations between strategic and operational drivers in unstable and complex settings, the budget may still be relevant as a portfolio management tool. Finally, to verify the difference between control package designs it seems relevant to examine whether firms in unstable complex settings explore still better models, leading the models to change more frequently than models used in stable, less complex settings. The present study indicates that control systems and budgets should be less interrelated in unstable than in stable settings. Examples of budgeting techniques with a lower degree of causality between financial budgeting

and the organization are: financial driven budgeting as described by Copeland et al (2000) and Rappaport (1998), real options-based decision models as described in Morin and Jarrell (2001), and beyond budgeting with rolling forecast as described by Hope and Fraser (1997). This study also suggests that budgets cannot be used as a vertical control mechanism in an unstable setting. If this finding can be verified further, it will be interesting to explore how companies alternatively establish causality in the vertical control. Normative VBM literature recommends the use of incentive-based compensation to align operational decision-making with strategic decision-making (Martin and Petty, 2000; Stewart, 1990). However, in a Finnish context Malmi and Ikäheimo (2003) find contradictory evidence of how compensation is applied in practice. On the other hand, Malmi and Ikäheimo's (2003) findings may be driven by a Scandinavian culture and tradition where incentive-based compensation is not as widely applied as in North America, from where VBM originates.

6.2 On the Type of Value Drivers and Causality – Is Causality Simultaneous or Sequential?

Ittner and Larcker (2001) call for studies examining the link between value drivers, causality and contingency factors. In addition, they recommend future studies to focus on the relative importance of different value drivers depending on the variation in contingency conditions, and they repeat this call in Ittner and Larcker (2009). The association between task uncertainty, causality and value drivers has been discussed above, whereas the type of value drivers identified by the company has not. Regarding value driver taxonomy, Strategic Management Accounting literature and ABC literature are rooted in individual taxonomies and frameworks of value driver classification, which is why Management Accounting literature does not have a unified, agreed-upon value driver framework (Banker and Johnston, 2007, p.550). Consequently, we will use both taxonomies in the discussion of our results.

It can be observed that the case company focuses on different value drivers in different phases of the strategy process and at different hierarchical levels. When they selected their new strategy, production management focused on the fit between globally supplied resources and the company's manufacturing activities. However, in their analysis of the ideal match between manufacturing activities and globally supplied resources, they assumed that important executional drivers such as delivery performance, quality, time to market and manufacturing setup (Riley, 1987) were constant, and these constraints could only be applied realistically, as the strategy had been delimited to include only stable activities of low complexity. Secondly, the strategic scenarios were restricted to only include countries with a higher, overall competence level than needed to perform stable activities of low complexity, so delivery performance, quality and time to market could be kept at the assumed level. Hereby, executional drivers were delimited from being drivers of the strategy. Thus, the only executional driver subject to change through the strategy was the cost structure. Consequently, in their selection of strategy, production management focused on quantified structural drivers such as price levels, inflation, exchange rates, political and social stability, that were related to the cost structure of having manufacturing operations in different countries. This practice is in line with Porter (1980, 1985, 2008), who argues that selection of strategy should be based on quantified structural drivers of value creation. Nevertheless, the model used for strategy selection also included executional drivers as suggested by Shank and Govindarajan (1993), as middle managers otherwise did not understand how to implement the strategy, but these drivers were assumed to be constant across strategic scenarios. Cost structure as executional driver was incorporated in the model through a two-stage cost allocation and budgeting model similar to ABC and ABB, where activity cost pools were linked with activity cost drivers. These drivers were linked to cost objects, and the cost of an object was estimated on the basis of the scenario's structural conditions. The operational loop of the budget was used to

identify targets and target levels for managing the implementation phase. These measures were thus used to translate the strategy into operational terms that could easily be understood and communicated in the organization, as they were linked to operational activities via the standardized implementation plan. While meeting these targets, the organization used other control systems to monitor quality and delivery capacity, and thus attempts were made to implement the cost structure change without affecting performance on these executional drivers. Instead, these drivers had been improved through other strategies at a different time, and thus the attempt to keep quality and delivery performance constant was aimed at balancing the current cost structure strategy with already implemented strategies of quality and delivery performance. Consequently, the companys' approach to strategy and VBM was sequentially changing performance/positioning on executional drivers one at a time. In short, structural drivers were used to select environmental position in the executional driver cost structure, other executional drivers were used to monitor that the cost structure change was implemented without changing the positioning in other executional drivers, while operational two-stage cost allocation drivers, aligned with standardized implementation activities, were used to manage and control the implementation of the cost structure strategy. Thus, the company's performance measurement choice can be seen as a stage of a strategic process in accordance with the argument given in other operations management studies (Carnegie Mellon, 1994; Hayes et al., 1988; Ittner and Larcker, 2009; Ittner et al., 2001).

The practice of the case company is sequential. In contrast, earlier studies have assumed that companies model causalities simultaneously. Earlier survey studies have therefore been cross-sectional studies, focusing on simultaneous causal modeling, meaning that it is possible that companies like the case company have been classified as companies without causal business models.

Several studies have shown that companies often change or replace their performance measures (Bol and Moes, 2006; HassabElnaby, 2005; Malina and Selto, 2001), which makes it difficult to establish and test simultaneous causal interactions (Ittner and Larcker, 2009). Furthermore, Carnegie Mellon (1994), Hayes et al. (1988), and Ittner et al. (2001) argue that companies establish causal models as a function of a procedural work phase. Finally, empirical evidence indicates that companies rarely produce simultaneous causal business models (Gates, 1999; Ittner and Larcker, 2003; Ittner et al., 2003). One possible reason that companies often change their performance measures is that performance measures change sequentially as the focus of strategy work changes. Such practices would be consistent with the practice of the case company, as the company focuses on one value driver at a time. Combined with the results of this study, these results indicate that simultaneous changes in executional drivers lead to high task complexity, which makes it difficult to identify causal interrelations, which means they cannot be modeled simultaneously. As a next step it seems obvious to investigate whether other companies also build causal business models sequentially, as we do not know of any previous studies that make this distinction. Similarly, we find it relevant to test the link between causal business modeling practices and task uncertainty.

Another interesting question is: when is an interaction or a business model causal? Is it necessary to continuously understand the causality of all competitive parameters and value drivers at all levels in the entire organization over time? Or will a discrete, sequential understanding of causality do the job? According to the definition of VBM given by Malmi and Ikäheimo's (2003) sequential causality meets the definition of VBM. Furthermore, as discussed earlier, substantial empirical evidence exists that companies do not execute simultaneous causality modeling. Thus it could be interesting to investigate whether other companies than the case company uses sequential causal business models.

6.3 On the VBM framework and Recommendations for Further Research

In the present longitudinal case study of a VBM company's manufacturing strategy process, we have examined the link between the VBM company's control system design with a focus on causal business modeling and the contingency factors that initiated the strategy. In a stable setting we found that to minimize task uncertainty in a manufacturing strategy process, the case company established a sequential causal business model that explicitly linked operational non-financial and financial measures with environmental and organizational contingencies. The implications of the company`s observed VBM practice have been discussed above, and through earlier research, we have also discussed our expected findings for settings with high task uncertainty. The framework below is an attempt at extracting and illustrating the research contribution and its implications for VBM research.

A Contingency Theory of VBM		Low Task Uncertainty	High Task Uncertainty	Observations of This Study	Other Studies Supporting the Framework
VBM System Setting	**Objectives**	Aligned with stockholders	Aligned with stockholders	Aligned with stockholders	Jönsson, 2006;Malmi and Ikäheimo, 2003.
	Strategies	Prescreptive approach	Emergent approach	Prescreptive approach	Fredrickson, 1984; Mintzberg et al, 1998
	Organizational Structure	Mechanistic/Bureaucratich Stable activities with low complexity	Organic Unstable activities with high complexity	Bureaucratich organization with large centralized stabs and mass production. Strategy were limited to stable manufacturing activities of low complexity which during the change process were further stabelized through standardization.	Burns and Stalcker, 1961; Khandwalla, 1972; Lawrence and Lorch 1967; Otley, 1980; Woodward, 1958, 1965;
VBM System and its use in practice	**Value Drivers**	Can be identified: Structural drivers: Can due to stablility be quantified into measures such as market size, growth, price levels, exchange rates, inflation, volatility etc. Executional drivers: Stability combined with low complexity makes its possible to identify executional drivers that can be sequential causal linked with structural drivers. Simultanious linkages seem to complex. Financial drivers: Estimated upon sequential causal modelled interrelations between structural and executional value drivers.	Cannot be identified: Structural drivers: May be observable but not quatifiable due to high environmental uncertainty that changes expectations and thereby quantifications continiously. Executional drivers: Unstable highly complexactivities makes it difficult to model cost structures. Financial drivers: Because of high uncertainty and complexity in unstable activities can executional drivers not be causal linked to structural drivers, why financial drivers cannot be causally modelled. Instead they may either be linked in structural drivers or executional drivers seperatly.	Can be identified in a stable setting. See Figure 3 and 4	Bescos, 2003; Fredrickson, 1984; Galbraith, 1979; Haka, 1987; Hansen, 2003
	Performance Measures	Over time sequential causal linked control systems and performance measures. Performance are either permanent or are rarely changed. They can easily be adapted to slow contingency changes and thereby minor changes in structural value drivers.	Seperated control systems and performance measures. Performance measures are subject to change in search for performance measures better aligned with value drivers. Due to high uncertainty difficult to adapt performance measures to continously changing value drivers.	See Figure 2, 4 and 5. Business model as illustrated in figure 3 is abandoned because it is not sequential causal and thus cannot be linked to the action plan in figure 5. The model is sequential causal as the company strategic changes one macro value driver (quality, delivery performance, time to market, cost structure) at a time.	Malmi and Ikäheimo, 2003; Jönsson, 2006.
	Targets	Subject to change through performance evaluation or strategic change. Are seen as important goals that have to be achieved to create shareholder value.	Are seen as important to achieve current operational goals, but not necessarily to create shareholder value as performance measures and targets may not be aligned with value creation.	Modified to obtain sharehoolder value. See Figure 2	
	Action Plans	Used to standardize activities and thereby further decrease complexity and increase stability, which increases the organizational understanding of the strategy and its value creation. This improves the modelled causality and thereby the reliability of the VBM system. Consequently, can vertical and horizontal alignment be controlled through control systems.	As the VBM system are not reliable meeting and structures are used to establish causality in activities through aligning tasks horizontally. As performance measures and targets are not causal interrelated they are not reliable and cannot be trusted, why budgets and measures are seen as discussion tools at meetings rather than communication and goal setting tools. It is continiously nescessary to assess the reliability of performance measures and targets.	Used to standardize activities. See Figure 5	Burns and Stalcker, 1961; Bescos et al 2003
VBM System Evaluation	**Performance Evaluation**	Causal top down and bottom up performance evaluation where by targets are recalibrated and changed causally	Continously trial and error search for better performance measures	Causal top-down and bottom-up process. See Figure 2	Dye 2004

Figure 6: Summarizing the discussion of results and implications for normative VBM literature and further VBM research.

The framework is a step towards designing a generally applicable, contingency-based theory that explains when various accounting techniques provide value for practice. The framework determines that the organization and its VBM system must fit with its strategy. In a VBM perspective it goes deeper than other Management Accounting contingency frameworks, as it identifies the fit between contingencies, value drivers and the design of VBM systems. This concerns both stable (low task uncertainty) and unstable (high task uncertainty) settings. Accordingly, the framework does not only distinguish between different types of companies, but through task uncertainty it also distinguishes between different decision-making situations within companies. Furthermore, the framework is suitable for research since a number of links has been identified between hypotheses, theories and observable company characteristics. Thus, the strength of the framework is that its propositions can be empirically tested. In addition to the framework can be modified and further developed as our knowledge accumulates.

1) Effect studies can test the validity of the suggested horizontal and vertical interrelations. Accumulating these test results will enable us to develop knowledge about the interrelations between levels of decision-making, value drivers and control systems.
2) Survey studies can test the hypothesis that vertical causality is established through budgets in stable settings, while we do not expect it is possible to establish causality in unstable settings.
3) It can be tested through which parts of the control package causality is (or can be) established depending on the level of task uncertainty.
4) It can be tested whether companies establish causality in their business models sequentially or simultaneously.
5) It can be investigated whether or not there is organizational congruence in understanding causality and in use of business models. This can be researched horizontally and vertically in various locations within organizations.
6) The framework can be expanded to include several other contingency factors such as size, technology, and task interdependence.

In conclusion, it is our hope that through this framework we have inspired our colleagues to test, modify and develop these proportions in future studies. We realize that we have only identified practice in a single situation in a single company, and that our results are only indicative. On the other hand, our study has elucidated some longitudinal relationships that have not been examined before. Consequently, there is a long way to go before we have a validated framework, as practices must be explored and explained first and tested afterwards.

References:

Abernethy, M., Lillis, A., 1995. The impact of manufacturing flexibility on management control system design. Accounting, Organizations and Society 20, 241–258.

Aldrich, H. E. *Organizations and environments.* Englewood CUffs, N.J.: Prentice-HaU, 1979.

Anderson, C. R., & Paine, F. T. Managerial perceptions and strategic behavior. *Academy of Management Journal,* 1975, 18, 811-823.

Banker, R. D. and Johnston H. H., 2007. Cost and Profit Driver Research. Handbook of Management Accounting Research (Ed. Chapman, C., Hopwood, A. G. and Shields, M. D). Elsevier.

Banker, R., Potter, G. and Schroeder, R., 1993. Reporting manufacturing performance measures to workers: an empirical study. Journal of Management Accounting Research, 5, 35-55.

Baumler, J. V., 1971. Defined Criteria of Performance and Organisational Control, *Administrative Science Quarterly* (September, 1971), pp. 340-349.

Berry, A., Loughton, E., Otley, D., 1991. Control in a financial services company (RIF): a case study. Management Accounting Research 2,
109–139.

Bescos, P. L., E. Cauvin, P. Langevin, and C. Mendoza. 2003. Criticisms of budgeting: A contingent approach. *Proceedings of the 26th European Accounting Association Conference*, Seville, Spain, April 2–4, 2003.

Bhimani, A. and Langfield-Smith, K., 2007. Structure, formality and the importance of financial and non-financial information in strategy development and implementation. Management Accounting Research, 18, 3–31.

Bol, J. and Moers, F., 2006. The cost-benefit trade-off in adopting performance-based incentives: early vs. late adopters. Working paper. IESE Business School and Maastricht University.

Bums, T., Stalker, G.M., 1961. The Management of Innovation. Tavistock, London.

Bushman, R., Indejejikian, R., Smith, A., 1996. CEO compensation: the role of individual performance evaluation. Journal of Accounting and Economics 21, 161–193.

Carnegie Mellon, 1994. Capability Maturity Model: Guidelines for improving the software process. Carnegie Mellon University Software Engineering Institute.

Copeland, T., Koller, T., Murrin, J., 1996. Valuation: Measuring and Managing the Value of Companies. Wiley, New York.

Copeland, T., Koller, T., Murrin, J., 2000. Valuation: Measuring and Managing the Value of Companies. Wiley, New York.

Donaldson, L., 1998. The Contingency Theory of Organizations. Sage, London.

Duncan, R., 1972. Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly*, 17, 313-327.

Dye, R., 2004. Strategy selection and performance measurement choice when profit drivers are unknown. Management Science, 50, 1624-1637.

Ehrbar, A., 1998. EVA: The Real Key to Creating Value. New York, John Wiley & Sons.

Fredrickson J. W., 1984 The Comprehensiveness of Strategic Decision Processes: Extension, Observations, Future Directions. *Academy of Management Journal,* Vol. 27, No. 3. 445-466.

Galbraith, J. R., 1973. *Designing complex organizations.* Reading, Mass.: Addison-Wesley.

Gates, S., 1999. Aligning Strategic Performance Measures and Results. New York, NY: The Conference Board.

Hage, J., 1965. An Axiomatic Theory of Organizations. Administrative Science Quarterly, 10, 289-320.

Haka, S.F., 1987. Capital Budgeting Techniques and Firm Specific Contingencies: A Correlational Analysis, *Accounting*, Organizations and Society 12 (1), 31–48.

Hansen, S., Otley, D., Van der Stede, W., 2003. Practice developments in budgeting: an overview and research perspective. Journal of Management Accounting Research 15, 95–116.

HassabElnaby,H., Said, A. and Wier, B., 2005. The retention of nonfinancial performance measures in compensation contracts. Journal of Management Accounting Research, 17, 23-42.

Hayes, R., Wheelwright, S. and Clark, K., 1988. Dynamic Manufacturing: Creating the Learning Organization. New York, NY: The Free Press.

Hope, J., and R. Fraser. 1997. Beyond budgeting: Breaking through the barrier to ''The Third Wave.'' *Management Accounting* (December): 20–26.

International Federation of Accountants, 1998. International Management Accounting Practice Statement: Management Accounting Concepts. International Federation of Accountants, New York.

Ittner, C.D., Larcker, D.F., 1998. Innovations in performance measurement: trends and research implications. Manage. Acc. Res. 10 (1), 205–238.

Ittner, C.D., Larcker, D.F., 2001. Assessing empirical research in managerial accounting: a value based management perspective. J. Acc. Econ. 32, 349–410.

Ittner, C.D., Larcker, D.F., 2003. Coming up short on nonfinancial performance measurement. Harvard Business Review, 81 (11), 88-95.

Ittner, C. D. and Larcker, D. F., 2009. Extending the Boundaries: Nonfinancial Performance Measures. Handbook of Management Accounting Research (Ed. Chapman, C., Hopwood, A. and Shields, M.), 1235-1251.

Ittner, C., Nagar, V. and Rajan, M., 2001. An empirical exanimation of dynamic quality-based learning models. Management Science, 47, 563-578.

Ittner C., Larcker D. & Randall T. (2003). "Performance implications of strategic performance measurement in financial service firms." *Accounting, Organizations and Society vol. 28, 715-741.*
Jönsson, P., 2006. Value-based management - positioning of claimed merits and analysis of application. PhD-thesis, Lund University.

Khandwalla, P. N., 1972. The Effect of Different Types of Competition on the Use of Management Controls, *Journal of Accounting Research* (Autumn, 1972), pp. 275-285.

Langfield-Smith, K., 1997. Management control systems and strategy: a critical review. Accounting, Organization and Society, 22, 207-232.

Langfield-Smith, K., 2005. What do we know about management control systems and strategy? In: C. Chapman (Ed.), Controlling Strategy. Oxford, UK: Oxford University Press, pp. 62-85.

Lawrence, P.R., Lorsch, J.W., 1967. Organization and Environment. Harvard University Press, Boston.

Malina, M. and Selto, F., 2001. Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard. Journal of Management Accounting Research, 13, 47-90.

Malmi, T., and Brown, D. A., 2008. Management control systems as a package—Opportunities, challenges and research directions. Management Accounting Research, 19, 287–300.

Malmi, T. and Granlund, M., 2009. **European Accounting Review,**18, 597-620.

Martin, J.D., Petty, J.W., 2000. Value Based Management: The Corporate Response to the Shareholder Revolution. Harvard Business School Press, Boston.

Malmi T. & Ikäheimo S. (2003). "Value Based Management practices – some evidence from the field." *Management Accounting Research vol.14, 235-254.*
McTaggert, J.M, Kontes, P.W., Mankins, M., 1994. The Value Imperative. Free Press, New York.

McIlquham-Schmidt, A. (2005): *Strategic Planning and Corporate Performance. An integrative research review and a meta-analysis of the strategic planning and corporate performance literature from 1956 to 2003.* PhD thesis, Copenhagen Business School, Samfundslitteratur, Copenhagen.

Miles, M. B. and Huberman, M. A., 1994. Qualitative Data Analysis: An Expanded Sourcebook. Sage, London.

Mintzberg, H., 1973. Strategy-making in three modes. *California Management Review,* 16(2), 44-53.

Mintzberg, H., Ahlstrand, B. and Lampel, J., 1998. Strategy Safari: the complete guide through the wilds of strategic management. Free Press, New York.

Morin, R.A. and Jarrell, S.L., 2001. Driving Shareholder Value: Value-Building Techniques for Creating Shareholder Wealth. McGraw-Hill, New York.

Noreen, E. 1991. Conditions under which activity-based costing systems provide relevant costs. *Journal of Management Accounting Research* 3 (Fall): 159–168.

Noreen, E. and Soderstrom, N., 1994. Are overhead costs strictly proportional to activity? Evidence from hospital service departments. Journal of Accounting and Economics, 17, 255-278.

Noreen, E. and Soderstrom, N., 1997. The accuracy of proportional cost models: evidence from hospital service departments. Review of Accounting Studies, 2, 89-114.

Nutt, P. C., 1976. Models for decision-making in organizations and some contextual variables which stipulate optimal use. *Academy of Management Review,* 1(2), 84-98.

Otley, D., 1980. The contingency theory of management accounting: achievement and prognosis. Accounting Organizations and Society 5 (4), 413–428.

Otley, D., 1999. Performance management: a framework for management control systems research. Management Accounting Research 10, 363–382.

Otley, D., Berry, A., 1980. Control, organization and accounting. Accounting, Organizations and Society 5 (2), 231–244.

Otley, D.T., Berry, A., 1994. Case study research in management accounting and control. Management Accounting Research 5, 45–65.

Perrow, C., 1967. A Framework for the Comparative Analysis of Organizations. American Sociological Review, 32, 194-208.

Porter, M., 1980. Competitive Strategy. Free Press.

Porter, M., 1985. Competitive Advantage: Creating and Sustaining Superior Performance. Free Press, New York.

Porter, M., 2008. The Five Competitive Forces that Shape Strategy. Harvard Business Review, January 2008, 78-93.

Rappaport, A., 1998. Creating Shareholder Value, second ed. Free Press.

Riley, D., 1987. Competitive Cost-Based Investment Strategies for Industrial Companies. Manufacturing Issues, Booz. Allen and Hamilton, New York.

Said, A., HassabElnaby,H. and Wier, B., 2003. An empirical investigation of the performance consequences of nonfinancial measures. Journal of Management Accounting Research, 15, 193-223.

Shank, J. K. and Govindarajan, V., 1993. Strategic cost management: the new tool for competitive advantage. New York, NY: The Free Press.

Stewart G. (1990). "The Quest for Value – The Eva™ Management Guide". *HarperBusiness.*
Thompson, J. D., 1967. *Organizations in action.* New York: McGraw-Hill.

Verbeeten, F. H. M., 2006. Do organizations adopt sophisticated capital budgeting practices to deal with uncertainty in the investment decision? A research note. Management Accounting Research 17, 106–120

Woods M., 2009. A contingency theory perspective on the risk management control system within Birmingham City Council. Management Accounting Research 20 69–81.

Woodward, J., 1958. Management and Technology. London H.M.S.O.

Woodward, J., 1965. Industrial Organization: Theory and Practice. Oxford University Press, USA.

Worre, Z., 1973. Grundlæggende virksomhedsøkonomi. Regnskab & Virksomhedsøkonomi bind 2. Samfundlitteratur.

Yin, R., 2009. Case Study Research: Design and methods. Sage, London.