Multiple Integrated Performance Management Systems: IC and BSC in a Software Company

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Abstract

Both intellectual capital reports and balanced scorecards relate corporate strategy and integrated performance management systems, and they both expand reporting beyond the financial view with categories of customers, processes, and employees. This paper discusses their differences and complementarities based on an analysis of their use in one mid-sized Danish software company, Systematic Software Engineering. It has published intellectual capital statements for two years and recently implemented a balanced scorecard. The intellectual capital report communicates externally as well as internally about the firm's knowledge management activities, and the balanced scorecard creates accountability in software projects. It is suggested the two types of extended reporting are different and yet complementary when applied in this firm. This includes a marked difference in use of indicators.

Introduction

The postulated fallacy of traditional accounting has led several firms to expand their performance measurement system with non-financial indicators, and in the past decade several management systems have arisen as tools for identifying and systematising the relevant measures (see for example, Brennan & Connell, 2000; Johanson, 1999). It has been suggested that non-financial indicators should be linked to the strategy of firm (Bontis et al, 1999, p 398; Kaplan & Norton, 1996) for example, by visualising corporate strategy as in the case of intellectual capital statements (refer to Mouritsen et al 2001a) or by mapping it as suggested by balanced scorecard (Kaplan & Norton, 2001). The question is whether even if these models may be different in principle (see Mouritsen et al 2001c), are they also different when applied in a particular corporate context? Or, can they exist simultaneously in a firm?

In the discourse of intellectual capital, it is suggested that intellectual capital is the driver of future wealth creation and that intangibles are the key to understanding value creation (Stewart, 1997; Edvinsson & Malone, 1997). Similarly, Kaplan & Norton (2001, p 2) argue that value creation is increasingly dependent on the organisation's intangible assets[1].

Numerous examples of companies working with balanced scorecard are published (e.g. Kaplan & Norton 1996; 2001, Olve et al, 1997) and an increasing amount of companies have designed and published intellectual capital statements that allow intellectual capital to be made visible in some form (Johanson et al, 2001a; Bukh et al, 2001; Mouritsen et al, 2001a).

It has been suggested that balanced scorecards may be one way to manage and report intellectual capital (Lövingsson et al, 2000, Johanson et al, 2001a; 2001b, Bontis et al, 1999, de Grooijer 2000, Becker et al 2001). A well-known example is Skandia, the Swedish insurance company that sees its intellectual capital statements as an externally published balanced scorecard (for example, Kaplan & Norton, 1996, pp 210-212). One likely reason for this is that at first glance, the balanced scorecard and the intellectual capital report appear to share characteristics so that they may be similar or that the models are an either-or choice of which one to work with (see for example, Ahn, 2001). It can be argued, however (refer to Mouritsen et al, 2001c), that the models are only similar if a very limited exposition of the two ideas is performed.

This paper explores the use of intellectual capital statements and balanced scorecard in Systematic Software Engineering, a Danish software company that has issued two intellectual capital statements and recently developed a balanced scorecard. The question is how do they differ? How is it possible to have both at the same time? To answer such questions the paper draws on the experiences of Systematic that has experimented with both intellectual capital statements and a balanced scorecard. By comparing the structure and content of these two integrated management systems the paper provides insight into how the intellectual capital is related to the management of knowledge resources in the firm. In Systematic, the purpose of the balanced scorecard is different. It is related to project management activities.

Systematic Software Engineering

Systematic Software Engineering (Systematic) is a Danish software house that develops and sells technical system solutions, products and support primarily to ministries of defence but also increasingly to industry, as well as transport and service companies. Systematic was founded in 1985 with its first contract being a support and maintenance job for the Danish Navy, but soon it got other defence contracts and in the beginning of 1990, the first non-defence contract was won. In the last two years the company has grown rapidly from 130 employees in 1999 to 225 in 2001 including the subsidiaries in the United Kingdom and United States. In 2000/01 the annual sales amounted DKK 110 million. It is the stated aim of Systematic to develop its core business areas from primarily being a supplier of defence systems to increasingly becoming a supplier also to civilian markets. In recent years there has in fact been a steady increase in the proportion of civil contracts with Electronic Patient Journals and electronic trade and security systems being the core business areas.

Systematic and the Intellectual Capital Report

The steps taken in 1998 towards developing an intellectual capital statement were seen as an obvious step in the light of emergent initiatives to introduce knowledge management to Systematic. At the same time as the development of the intellectual capital

statement, efforts were also made towards process improvements in software development. Systematic was already certified according to ISO 9001 and had also been approved according to corresponding standards for defence suppliers. Furthermore, the company has declared its intention to be ranked among the top 10 per cent of the software companies according to the Capability Maturity Model (CMM)—an American model developed to systematically improve software development processes—and the European BOOTSTRAP.

Systematic sees itself as a knowledge-based company and uses the *bon-mot* "The IT-knowledge company" to describe themselves. Here, knowledge resources such as highly skilled employees, project organisation, processes, customer loyalty, product rights, etc. in contrast to tangible resources are presented as crucial to the value of the company and its ability to function as a company. In the first intellectual capital report it is said that:

> The company is based, first and foremost, on the knowledge and competency of our employees (human capital), but also the knowledge and experience of our customers, processes and technologies (structural capital)

According to the intellectual capital statement,

> ... the purpose of an intellectual capital statement is to make the company's knowledge resources visible and to shed light on management's efforts to develop these resources

Here, Systematic offers a way to read the statement that is said to be concerned with management's efforts to influence the structure of the firm's knowledge resources. It is clearly not about the value in monetary terms of the firm's intellectual capital, but more about its management's efforts to develop knowledge resources. Systematic management sees the intellectual capital statement as an alternative to the traditional annual report, and most symbolically at the end of the intellectual capital statement, the reader will find a two-page version of the annual financial statement. In this way the financial statement is presented as a supplement to the intellectual capital statement, and compared with the financial statement, the intellectual capital statement is a colourful and an expressive form of communication.

Today, Systematic has published two intellectual capital statements[2]. In the second intellectual capital statement (Intellectual Capital Report, 2000) the text is cut across by pictures of employees stating not only their formal positions in the firm but also their leisure-time interests. The statement illuminates through indicators as well as corresponding text and illustrations certain aspects of customer-relations, employee development, and customer- and employee-satisfaction, the effectiveness of processes, and certain form of innovation in areas of product development and process improvement. It also has a set of quite extraordinary yet very symbolic indicators—the Coca-Cola index, the carrot index, and the cycle index. These show an ironic distance to the traditional accounting rigour, and demonstrate commitment to playfulness and to an acceptance of the extraordinary.

The text is filled not only with statements on preferred working methods, procedures and objectives, whose implementation is documented by an array of indicators, but also with illustrations of the Systematic models of competency development and knowledge management activities. In this way, the statement is a collage of stories about the life of Systematic; a set of numbers showing some aspects of the development of this life; and a

whole array of pictures and humorous indicators. Together these make the whole presentation a bit informal and ironic compared with the traditional accounting framework, even if the whole publication ends in formality with the financial statement.

The intellectual capital statement is an external report presenting the activities activated in the light of knowledge management. Around key components in the statement, which are the knowledge narrative, the management challenges, and the indicators a story is communicated of how the management team intends to attract, develop and retain resources to create value-to-the-user. The narrative of achievement makes it possible to define what type of capabilities that the firm has to have in place: intellectual capital and corporate capabilities.

The intellectual capital statement is structured according to a slightly adapted Business Excellence model. It presents a management approach to intellectual capital as it shows in a form of 'causal model' how results are constructed on the basis of inputs and transformations. Here, the ultimate results are the financial ones, but also results related to customers, employees, innovation and the environment are specified explicitly. Regarding the Business Excellence model as a presentation of the firm's intellectual capital flow; the management in Systematic acknowledges that the Business Excellence does not in fact describe current management activities in the area of intellectual capital. The model is used for its communication potential. This is a potential problem, because the intellectual capital statement increasingly speaks internally to the firm, and employees could be asking how it can be that priorities are not resolved along the prescription offered by the Business Excellence model. Here, Systematic's use of the model parallels the characteristics of some of the models found in the literature generally (Bontis et al, 1999; McAdams & McCready, 1999). The models presents a nice and clean view of the components to manage as well as the relationships between them–but reality does not live up to its stipulated simplicity, thus leaving inconsistencies unresolved. This makes the model somewhat problematical, just like the presence–if different–of problems inherent in many known intellectual capital frameworks. Systematic says:

> ... the problem is that ... [the model] is not implemented in the company. We do not use it internally as a management model. We have decided to integrate the balanced scorecard model as an internal management tool.... We see both the balanced scorecard and the intellectual capital statement as playing a role for us.

Systematic and the Balanced Scorecard

The Business Excellence model was found difficult to implement as a management model because it did not directly link to strategic priorities and because it did not fit Systematic's need for a reporting model that supported project management according to existing initiatives around the software process improvement initiatives according to the CMM. Nor was the intellectual capital statement seen as easy to implement in the project management system since it was mostly focussed on reporting company-wide initiatives and many of the indicators were either irrelevant on a project level or only measurable on an annual basis for example.

In order to support the overall aims described in the intellectual capital statement as well as providing a breakdown of strategic goals with respect to profitability, growth, etc,

Systematic decided to develop an internal management model using the balanced scorecard principles. The logic of the strategy map was seen by Systematic as consistent with the logic of intellectual capital as a 'causal model' in the business excellence model, but focusing more on the strategic key success factors. Further the possibility of creating a drill-down of strategy to project level was seen as an appealing approach consistent with the aim to create visibility and accountability around projects, which are the main organisational form through which the firm's business is executed. In relation to the choice of the balanced scorecard an important factor was that Systematic already was familiar with the use non-financial performance measures such as process improvement, time consumption compared with estimated, achieved milestone was addressed in the context of an on-going software development improvement initiative.

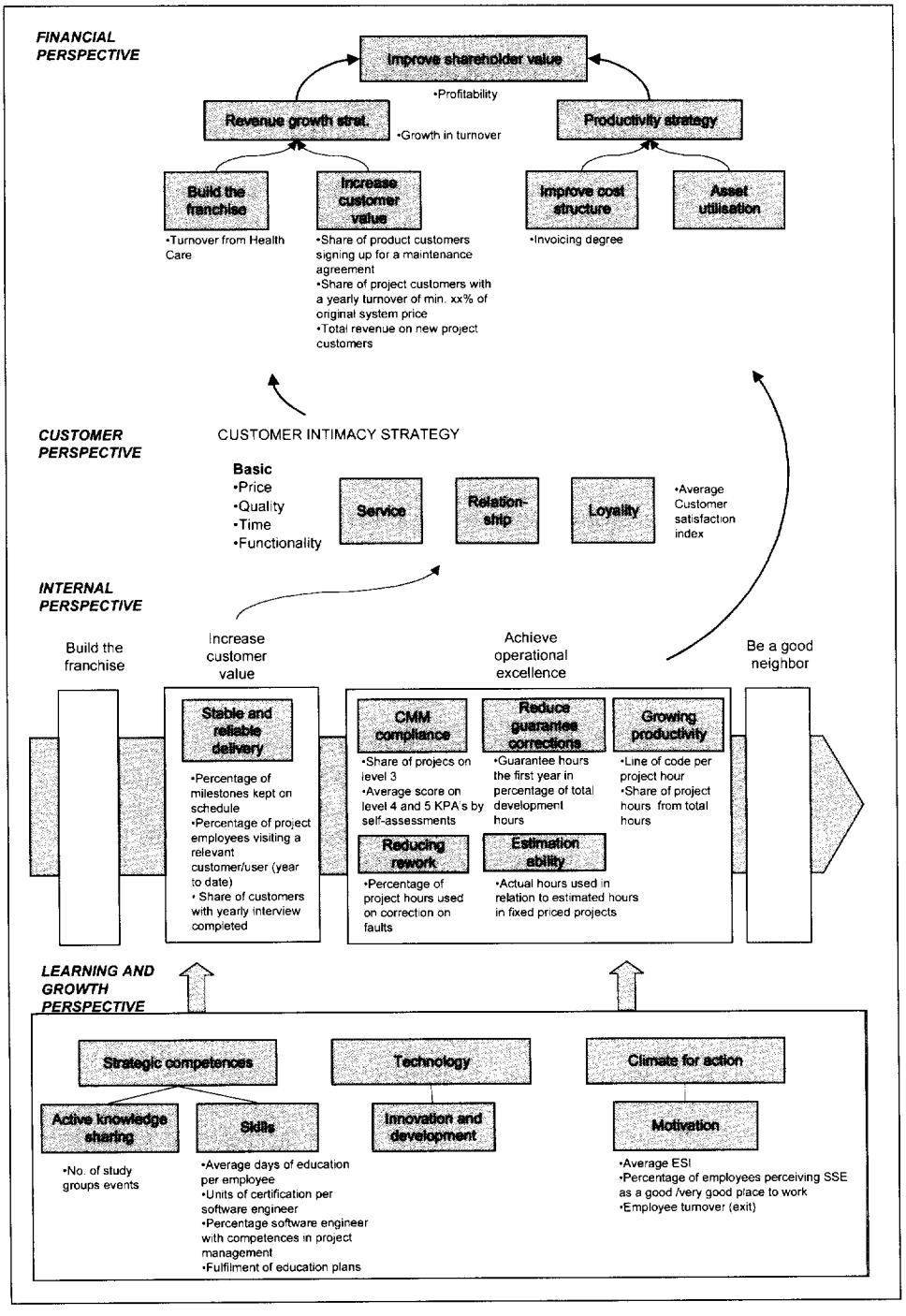
When Systematic initiates new projects each one has its specific conditions and characteristics making it impossible to construct a universal scorecard for every project. But, after having tried to develop a balanced scorecard at the project level directly, it was realised that in order to anchor the project management in the overall strategies it was necessary first to develop a balanced scorecard at a corporate level. The corporate level scorecard is here more seen as a strategic management tool while the project level scorecard is more thought of as a management control instrument. When the balanced scorecard was first developed on company level, the strategy would be more visible and concrete to the project managers. Then, the project relevant measures from the company scorecard could be interpreted and measured at project level and each project could identify a specific set of relevant indicators, which through the balanced scorecard are aligned with corporate strategy, or as it is stated by Systematic:

> ... BSC creates visibility about the project's and the employees' contribution towards the fulfilment of Systematic's overall strategies.

The management group developed the company level scorecard during a two-day strategy workshop. Organising the indicators in a strategy map[3] the strategic story is visualised as in Figure 1. In the financial perspective the weight is on the revenue growth strategy and thus on the growth in new strategic important customers in the Health Care sector and on the revenue from present customers. These results are to be achieved by a customer intimacy strategy. Every project customer involve a new kind of task and the ability to build user-friendly and tailor-made solutions require knowledge of the environment and business area of the customer and a tight and long-term relationship with the customer. Frequent contact and corporation with the customer is needed to build a satisfying solution. In the customer perspective Systematic has only pointed out one indicator, the customer satisfaction index. Relatively few measures in this perspective are also seen in the various examples of balanced scorecards shown by Kaplan & Norton (2001).

In the balanced scorecard framework the customer strategy is closely linked to the process perspective since the process perspective points out the important activities to be taken to achieve the financial and customer outcomes. The strategy map in Figure 1 shows the four possible strategic themes and their stipulated relationships to the business process themes according to Kaplan & Norton. The focus in the Systematic strategy map emphasises two processes: The customer management process and the operational excellence process, and the latter has clearly most attention, which–in a case–makes the scorecard 'skewed'

Figure 1: The Systematic Strategy Map



here. It directs attention to the issues facing the operations of the firm and looks towards improvement of internal processes.

One could argue that this doesn't align very well with the customer value proposition–the intimacy strategy—which calls for more attention to the customer management process in order to excel and point out the importance of this process. There could be various reasons for this focus on operational excellence. First, due to the firm's historical trajectory working with process improvement the company has a tradition of measuring these kinds of things and therefore is biased towards these measures when pointing out the indicators. Second and hereto related, process improvement may simply be the most important strategic issue facing the firm because of an ongoing problematisation of this in the firm. This is partly clear from its attention to getting certification in this area in the form of CMM ratings. The processes involved in the software process improvements and the CMM evaluations are also extended into the customer relationship, and therefore in a sense, the customer perspective is also part of the internal process perspective. The importance of this is augmented by both the customer and employee satisfaction surveys which both include items of project management and internal processes. When the balanced scorecard was developed, there simply was enormous focus on process improvement in software development and then management use the company level scorecard to stress and communicate to project managers the importance of this development activity. A third reason could be related to the type of business–a software company. It is perceived as a fundamental prerequisite for aiming at a customer intimacy strategy at all, to be excellent in the operational process, that is, delivery on time, on budget and on functionality and quality. This is in accordance with Kaplan & Norton (2001, p 90), who state that all processes are important and must be performed well in the organisation. But one is primary—in the Systematic case the customer management strategy—and the others are supportive—here especially the operational excellence.

Finally, the learning and growth perspective in Systematic is primarily about competence development, employee satisfaction and motivation. Even though the firm hires highly educated people it constantly needs to develop and gain certifications of skills. This, too, Systematic experienced, has a positive impact on both the recruiting and the retention issue. Also, the firm included at first a measure about investment in innovation and development, but it was withdrawn when realised by management, that this measure was not suitable for controlling projects or monitoring company strategy. It was a discretionary investment decided upon by management.

In Systematic, the balanced scorecard emphasises the internal processes. The three other perspectives—financial, customer and learning and growth—are appendices to the internal process perspective. The financial perspective is oriented towards growth in revenue but not principally towards profitability. The customer perspective is concerned with a 'customer intimacy strategy' meaning very close interactions with customers on their particular requirements. The translation from such a strategy to internal processes is not very difficult in Systematic because large parts of the initiative on software process improvement are about organising for the customer.

In outline, the balanced scorecard is an expression of current issues of project management that face the firm. In this sense, the balanced scorecard is a mean to draw out a concretised and prioritised list of issues to be performed well in the project context,

which is the firm's main mode of delivering its services and products. The issues regarding the customers/markets are important as well, but they are more easily surveyed as entry into a new market segment is a commonly accepted and clear objective, just as it appears clear how it is to be achieved. There is no need for further elaboration of this perspective. Likewise the learning and growth perspective has been rehearsed liberally in the firm's intellectual capital statement and therefore in a sense, learning and growth is no 'new thing' and it is not presently problematised. The intellectual capital statement has already been able to accomplish recruitment of employees in particular and customers to a certain degree. Last, because the firm's management is also its owners, there may be but little attention to the details of the financial perspective.

Thus, in Systematic, the scorecard is more an expression of priorities than of mapping the firm in its entirety. It is deliberately not balanced; it is skewed in order to focus on issues pertaining to project management concerns.

Balanced Scorecard and Intellectual Capital Statement at Systematic

This section explores the differences between the two performance management models in Systematic. Especially, it is looked upon if there are differences in the three dimensions, strategy, organisation and management, and indicators, as these dimensions are fundamental differences in the theoretical representation of the models (Mouritsen et al, 2001c). The most fundamental difference between the balanced scorecard and intellectual capital statements is the notion of *strategy* where balanced scorecard takes competitive advantage strategy (Porter, 1980; 1985) as a point of departure while intellectual capital statements are based on competence strategy (cf. Grant, 1996; Hamel & Pralahad, 1994). This indicates differences in the perspectives on value construction, where the competitive advantage approach heralds markets, customer and rivals as primary elements of value production, while the competence perspective focuses on the internally generated, historically forged competencies and capabilities that have long time horizon.

It shows that the differences from theory are present in practice, too, and that they give a opportunity to use both models as complimentary systems to address different management issues.

The Strategy Concept in the ICS and the BSC

When looking at IC and BSC in Systematic, how does each of them carve out its space? As stated by Systematic, the intellectual capital statement is concerned with management's efforts to influence the structure of the firm's knowledge resources. This is directed towards recruiting people, building stronger relationships with employees and customers and strengthening attention towards the firm's main strategic challenges. This relation between knowledge management and the intellectual capital statement was singled out in both of Systematic's intellectual capital statements and given special emphasise in the second where knowledge management is treated as a separate theme. Thus, the externally published intellectual capital statement is an important part of the firm's 'internal' knowledge management activities. It allows external parties to gain insight into the aspirations and practices of developing the firm's resources (von Krogh et al, 2001). This insight was

deemed by internal and external parties to be relevant in their understanding of the firm and indeed in decisions about their relations to and engagement in the firm.

The point of departure of the balanced scorecard in Systematic is more distinct. Attention to the issues of project management and the complexities of internal processes drove attention to the formulation of a more precise and accountability and control tool. The growth strategy suggested in the balanced scorecard contextualised the work to develop internal processes, but this growth strategy was an add-on to the issues of processes through which serving the customers would be possible and enhanced attention to productivity and financial performance would ensue.

Organisation and Management

As an external report, the intellectual capital statement only makes sense to communicate at a company level, in that value-to-the-user is created through motivation of different and complementary resources (employees, customers, processes, and technology) to act in a combination—a network—towards the user. The intellectual capital generally presents the firm externally and internally in order to achieve direction for the activities undertaken. Systematic says:

> .... The intellectual capital statement has primary become the external presentation model. The way we profile the company. We use it internally, too, but we do not use it daily or in the frequent reporting. We use the intellectual capital statement to increase attention at different issues, to tell this is what we want and what are the activities initiated to gain the desired results.

This control process of intangibles (cf. Johanson et al, 2001a) is executed by the management issues by issue reported in the statement. Customer and employee satisfaction survey is discussed, evaluated and acted upon if necessary. The company continuously develop their software processes, educate the employees in project management and technical skills, recruit the best people, organise and follow the success or failure of the knowledge management initiatives etc.

The use of the balanced scorecard in Systematic is executed at project level where activities are performed, customers are served, and software is developed. The project relevant indicators such as numbers of milestones performed on schedule, contact with customers, and line of code per hour are used as mechanisms to establish accountability and learning about the process of delivery. They are used by the project manager to monitor progress and enable corrective actions when necessary, and at the same time assure that the customer intimacy strategy is integrated in the project processes.

The difference between balanced scorecard and intellectual capital in Systematic is that the range of activities that pertain to the intellectual capital report do not have one locus. They are distributed across the firm in time and space and come together primarily because they are collected in the intellectual capital report. In contrast, the balanced scorecard has a very manifest organisational locus. Projects managers are made responsible in new ways, and through the balanced scorecard, new types of accountability relationships are put in place. These are primarily connected to the delegation of authority and responsibility and to setting more distinct and varied types of goals and objectives.

The Indicators in the Models

Comparing the indicators in the scorecard of Systematic (Figure 1) and the intellectual capital statement (www.systematic.dk) reveals that they do not report the same indicators. The intellectual capital statement offers insights into the firm's management challenges to enhance organisational capabilities, and the numbers mobilised here monitor and document this work. The indicators in the statement of Systematic are numerous and report on dimensions as customers, processes and employee competences and development (see Mouritsen et al, 2001b for further detail and a listing of all indicators).

It is argued by Systematic that the balanced scorecard differs according to the content of indicators and the relationship between the indicators (Systematic, 2001, p 8). The intellectual capital statement is produced with the purpose of external communication and therefore it cannot contain sensitive data and measures according to strategy and competition. On the contrary, the balanced scorecard is developed with the purpose of internal management of projects and is never intended to be published externally, which makes it possible to include sensitive issues and measures in the model. Systematic says:

The nakedness we are going to show in our balanced scorecard, I do not think we should expose to our surroundings. Or let me put in another way: When making the balanced scorecard, I think it is essential that you do not have to take into consideration that it has to be shown externally. It becomes more frank.

Comparing the indicators of the balanced scorecard with the indicators of the intellectual capital statement it shows that first of all that there are less indicators in the balanced scorecard, and that they are different from those in the intellectual capital statement. Only very few indicators such as customer and employee satisfaction, average days of education, and employee turnover are present in both systems, with the highest degree of overlap in the employee perspective. The indicators in the balanced scorecard focus on processes related to the execution and delivery of the software products, and measure the progress of software projects. In addition, there is a 'sub-story' about this firm seeking growth through expansion in a new customer segment and by creating value for present customers. It has measures such as turnover from new customers in the new target segment and revenue created by add-on sale. It does not, however, show initiatives to build company competences.

An essential difference in literature between balanced scorecard and intellectual capital statement is the cause-and-effect relationships in the balanced scorecard constituting the hypothesis of the strategy (Kaplan & Norton, 2001, p 69). As seen in the strategy map (Figure 1) these relations are apparent at Systematic, too. On the contrary the intellectual capital statement present the indicators related to the dimensions of the presentation model. There is no cause-and-effect between the indicators taking into consideration, the indicators document and monitor the initiatives to develop knowledge resources as a connected whole.

Concluding Remarks

The intellectual capital statement and the balanced scorecard in Systematic both report on issues beyond the financial on customers, processes, and employees, but they do this differently. Using two integrated performance management systems does not seem to be difficult for Systematic. The intellectual capital statement is used primarily as a means to develop and survey the firm's corporate competencies, and the balanced scorecard is used

primarily as a mechanism to monitor the progress of projects. In Systematic these models are complementary.

The difference in indicators is a consequence of the different purposes of the models. In the intellectual capital statement the indicators create a language—internally as well as externally—about the company's activities to develop resources. The intellectual capital is here a strong tool for communicating about the knowledge resources and the knowledge management activities in the firm. It is a tool communicating with 'the world' which is both inside and outside the firm—it creates action. People get employed and customers engage in a dialogue about the development of company. The intellectual capital statement is thus an active part of knowledge management, because it creates new networks and 'catches' the interest of valued resources such as prospective employees and customer. The 'external' is thus directly 'internal'. The 'external' statement does not only reflect existing knowledge resources; it co-produces knowledge resources.

The indicators in the balanced scorecard represent a more detailed language about the management of projects. The scorecard creates a framework for the evaluating and acting upon the progress of projects and at the same time taking the results of these efforts on customer and financial performance into consideration. It is a tool for communicating to project managers and their project members how they as internal parties can contribute to the future development of the firm.

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End Notes

[1] Another new and potent technology of managing which help firms enhance value creation is EVA. (Copeland et al, 1994; Stewart, 1991, 1994). Both EVA, balanced scorecard and intellectual capital statements share a commitment to crafting a technology of managing which can point out relevant assets to be managed, and they are all concerned to somehow attach the prospects of the future of firms, directly to the management of the firm. However since Systematic do not use EVA we have excluded a more detailed discussion of this. See Mouritsen (1998) for a more detailed comparison of EVA and intellectual capital.

[2] See Mouritsen et al (2001b) for a more elaborate analysis of the IC statements, which can be downloaded from www.systematic.dk

[3] The indicators were decided on according to the strategy map shown in Figure 1, but later presented in the traditional for perspectives: customers, financial, internal processes and employees. For the purpose of clarification we have reinserted the indicators in the strategy map and afterwards Systematic have confirmed this interpretation.