6. Balanced Scorecard and Hoshin Kanri: Why and how they might be used together

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SAMMENDRAG En viktig ledelsesutfordring er å sikre at kortsiktige mål og prioriteringer i den daglige driften bygger oppunder organisasjonenes langsiktige strategi. En rekke styringsverktøy i ulike grener av faglitteraturen har blitt foreslått for å sikre denne koblingen. I dette kapittelet undersøkes hvordan styringsverktøyet «Hoshin Kanri» kan benyttes sammen med «balansert målstyring» («The Balanced Scorecard», BSC) for å sikre at enhetenes kortsiktige mål bidrar til å realisere organisasjonens strategi. BSC er det mest velkjente og brukte styringsverktøyet. Styrken til BSC er hvordan en kan kommunisere organisasjonenes langsiktige mål på en balansert måte ved hjelp av de fire perspektivene: økonomi, kunder, interne prosesser og læring og vekst. Hoshin Kanri (HK), som opprinnelig kommer fra Japan, er betydelig mindre kjent. Det er et helhetlig styringssystem innen kvalitetsledelse og har blitt mer populært de siste årene sammen med ledelseskonseptet «Lean». Styrken til HK er hvordan det involverer ledere og ansatte i utrulling av strategien igjennom en iterativ prosess hvor de i felleskap prioriterer kortsiktige mål som bygger oppunder den langsiktige strategien.

Eksisterende litteratur diskuterer på teoretisk grunnlag hvordan HK og BSC kan utfylle hverandre, men det er utført svært lite empirisk forskning på samspillet mellom verktøyene. I dette kapittelet bidrar jeg med en casestudie fra en norsk vareproduserende organisasjon. Her viser jeg konkret hvilke roller BSC og HK har i et kombinert styringssystem, og hvordan de er koblet sammen. HK inkluderer teknikker som kan øke engasjementet blant ansatte og bidra til å forankre strategien. Ved hjelp av en målmatrise kalt «X-matrix» tydeliggjør HK koblingen mellom organisasjonens langsiktige strategiske mål og kortsiktige mål på lavere nivå i organisasjonen. I casen viser det seg at de som har jobbet systematisk med å implementere et kombinert styringssystem, opplever en bedre strategisk kobling til den daglige driften og økt engasjement blant ansatte. I diskusjonen identifiserer jeg noen ledelsesfaktorer som har bidratt til å øke den strategiske koblingen og identifiserer behovet for videre forskning. Til slutt tilbyr jeg en konklusjon hvor jeg anbefaler ledere å utforske og vurdere HK som et styringsverktøy da det er mer fleksibelt enn BSC.

ABSTRACT   Aligning day-to-day operations with the company's long-term strategy is a challenging managerial task. This paper explores how Hoshin Kanri (HK), from Total Quality Management, can complement the Balanced Scorecard (BSC), from strategic management, to increase the company's strategic alignment. Previous studies have discussed this combination of management tools theoretically, but they are sparse on empirical evidence. The contribution of this paper is to demonstrate empirically how HK can complement the BSC, so that lower levels of the organization can link their short-term goals and improvement initiatives to the organization's strategy. Based on the findings, I recommend managers to learn and adopt the HK as a complement to the BSC. I specify the roles of the two tools and discuss what is required to make the combination work. In the end, I also suggest future research opportunities.

MERKNADER

6.1 INTRODUCTION

A key managerial task is to align the organization's day-to-day operations with the long-term strategy. Literature on strategic management, management accounting, and quality management have suggested a plethora of management tools to aid this alignment, yet there is no consensus on a coherent approach (Neely, 2005). Among these tools, Balance Scorecard (BSC), originating from the strategic-management literature, is probably the most commonly known and widely used (Atkinson, Kaplan, Matsumura, & Young, 2012; Hoque, 2014; Kaplan & Norton, 2008). The strength of BSC is to clarify and communicate the organization's long-term strategic goals. Less known is Hoshin Kanri (HK), originally developed as a holistic framework for Total Quality Management (Asan & Tanyaş, 2007; Melander, Löfving, Andersson, Elgh, & Thulin, 2016; Witcher & Butterworth, 1999). The strength of HK is the deployment of strategic goals through cycles of planning, execution and feedback (Asan & Tanyaş, 2007; Chiarini, 2016; Witcher & Sum Chau, 2007; Yang & Yeh, 2009).

A number of studies have proposed that organizations may achieve superior strategic alignment by adopting BSC and HK simultaneously (Asan & Tanyaş, 2007; Chiarini, 2016; Witcher & Sum Chau, 2007). By using the tools in a complementary fashion, it should be possible to capitalize on the strengths of both. Yet, these ideas remain theoretically deduced, and very few studies (Asan & Tanyaş, 2007; Chiarini, 2016) have explored what such a combination would look like in practice, and whether it would be favorable to using a single tool. As summarized by Chiarini (2016, p. 372–373), "it is not clear how and if an organization that uses BSC as a system for the design and cascading of organizational objectives […] could integrate the [HK] system into the BSC architecture".

Responding to Chiarini's (2016) challenge, this paper explores how HK can complement BSC in use. Building on a case study of a Norwegian manufacturer, I show how some units manage to use the tools synergistically. Furthermore, I find that employees reported superior strategic alignment in the units using both tools, compared to the units using only BSC.

For managers, the findings imply that HK should be considered a complementary tool to the BSC, offering a flexible approach for operational units to link their short-term goals to the organization's strategy. However, to make it work, prolonged learning, substantial employee involvement, and contextual adaptations of the tools are required.

6.2 LITERATURE REVIEW

According to Kathuria, Joshi and Porth (2007, p. 504) "[strategic] alignment requires a shared understanding of organizational goals and objectives by managers at various levels and within various units of the organizational hierarchy". The question of how to achieve strategic alignment has been discussed in the literature for decades (Malmi & Brown, 2008; Otley, 2016). Different sub-disciplines of management studies approach the question from different perspectives, using different concepts (Neely, 2005). This literature review introduces the concepts "management models" and "management tools", before explaining the BSC and HK and how the tools emerged within different disciplines and in different geographical and historical contexts. It reviews previous findings on how the tools are related and can be complementary in use.

6.2.1 MANAGEMENT MODELS AND MANAGEMENT TOOLS

In organization theory, managements models can be defined as "distinct bodies of ideas that offers organizational managers precepts of how best to fulfil their technical and social tasks" (Bodrožić & Adler, 2018, p. 86–87). Models inform the overall management approach. Examples are strategy-and-structure (Chandler, 1962) and quality management (Evans, 2011). Management concepts, for example Total Quality Management (TQM) (Evans, 2011) or Lean Production (Rolfsen, 2014; Womack, Jones, & Roos, 1990), offer more specific prescriptions. A management model can include multiple management concepts. Concepts, in turn, include multiple tools and techniques. For example, Lean Production includes just-in-time inventory management (Rolfsen, 2014), while TQM includes HK (Tennant & Roberts 2001).

In the management accounting literature, the approach to manage an organization is defined as a management control system (MCS) (Chenhall, 2003; Kennedy & Widener, 2008; Langfield-Smith, 1997; Malmi & Brown, 2008; Otley, 1999, 2016; Simons, 1995). A MCS can be seen as an over-arching system that focuses on influencing employee behavior and holding employees accountable for decision-making. Malmi and Brown (2008) argue that a MCS is a "package" of different controls: cultural, planning, cybernetic, reward and compensation, and administrative controls. These controls interact and influence each other. Cultural control includes a belief system with common values (Simons, 1995) and how groups of people socialize and create common norms and standards. Planning control is the process of setting long-term goals and developing strategy (Kaplan & Norton, 2008). Cybernetic control includes financial, non-financial or hybrid measurement systems and budgets, and is similar to performance measurement systems (Kaplan & Norton, 2008) or diagnostic control systems (Simons, 1995). Reward and compensation systems focus on motivation and the performance of individuals or groups. Administrative control is the combination of governance structures, organizational structures, policies and procedures (Malmi & Brown, 2008). Within management accounting, BSC and HK are identified as systems for both planning and cybernetic control. This paper, however, follows conventions of organization theory, and refer to BSC and HK as management tools.

6.2.2 THE BALANCE SCORECARD

The BSC is discussed extensively in the strategic management literature (Neely, 2005), and is probably the most widely used management tool for strategy deploy-

ment and performance management (Atkinson et al., 2012; Hoque, 2014; Kaplan & Norton, 2008).

When introduced in 1992, the BSC was a management innovation. BSC, together with activity based costing (ABC), responded to the ongoing discussion on how organizations' performance could be measured more broadly than solely by financial measures to become more relevant to management decisions (Atkinson et al., 2012; Johnson & Kaplan, 1987). It was also in line with the contemporary focus on productivity and operations (Womack, Jones, & Roos, 1990). The BSC has been developed together with practitioners to become a holistic framework for strategic management (Andersen, Lawrie, & Savič, 2004; Kaplan & Norton, 2008). Closely associated with the BSC is the "measurement matrix", containing key performance indicators within four perspectives; financial, customer, internal processes, and learning and growth (Kaplan & Norton, 1992, 2004, 2006, 2008). An important contribution to strategic management is how the so called "strategy map" (illustrated in figure 6.1) articulates and visualizes the strategy with cause-and-effect relationships between the perspectives, and how the organization creates long-term value for its stakeholders (Atkinson et al., 2012; Bititci, Cocca, & Ates, 2016; Kaplan & Norton, 2004).

According to Kaplan and Norton (2004), the strategy map contributes with a framework and a language for executives and managers to discuss the direction of their organization in four ways. Firstly, it balances the contradiction between long-term revenue growth by investing in intangible assets and the short-term financial performance by cutting costs. Secondly, it focuses on how the organization differentiates offerings to create customer value, through product or service attributes and customer relationships. Thirdly, it links the financial and customer outputs to the performance of critical internal processes, where it identifies strategic improvements and balances the focus between operations management, customer management, innovation, and regulatory and social processes. Finally, the strategy map aligns the development of the intangible assets in the learning and growth perspective, including developing employees, managing information systems and technology infrastructure, and developing the organizational culture and knowledge (Kaplan & Norton, 2004). The strategy map is core to understanding the BSC, and the way the strategy is communicated. Next, the four perspectives of the strategy map are briefly outlined (Atkinson et al., 2012; Kaplan & Norton, 2004):
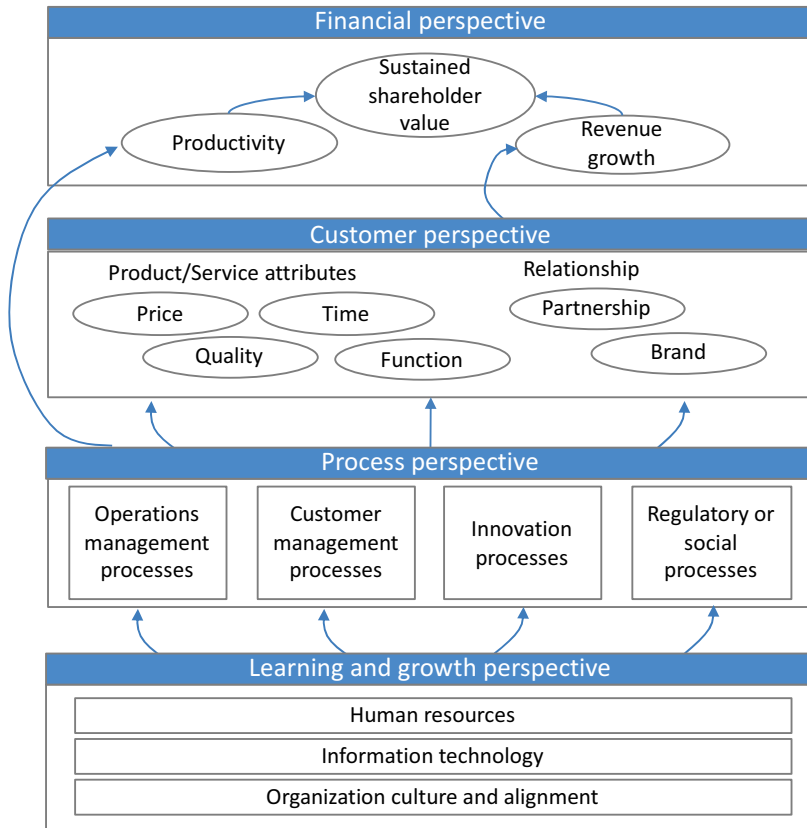
FIGURE 6.1 Illustration of Kaplan and Norton's (2004) strategy map, with the cause-and-effect relationships between the four perspectives. Source: Atkinson et al., 2012, p. 50; Kaplan & Norton, 2004.

The financial perspective expresses how the company looks to its stakeholders. It consists of lagging indicators, as a result of the underlying perspectives. It links to the internal process perspective through a productivity strategy, by cutting costs or to increasing efficiency. It links to the customer perspective through a growth strategy, by expanding the revenue streams from existing or new customer segments (Kaplan & Norton, 2004).

   The customer perspective defines what creates value for target customers and sets the context for how internal processes create value. For example, if the company serve price sensitive customers, their attention should be on keeping low prices and consistent quality. Core to a strategy is to define and select customer segments and express the attributes that are important to them. These can be

divided into product/service attributes: price, quality, time or functions, or relationships in the form of partnerships or brands (Kaplan & Norton, 2004).

The process perspective defines how operational processes meet the objectives of both financial and customer perspectives. It also defines what is essential for customer management, innovation, and regulatory and social processes to satisfy the customer perspective in the long term. The lead-time between the decision, the action and when the effect can be measured is a challenge for managers. Operational activities are managed from day-to-day, while the accumulated performance is measured in six to 12 months. Innovation processes can have a lead-time of two to four years before achieving measurable results (Kaplan & Norton, 2004).

The learning and growth perspective can be divided into three categories of intangible assets. Human resources focus on developing the employees' skills, talents and knowledge. Information technology includes sufficient infrastructure and data supporting the value creation. Organization development is to build a culture for adapting to a changing environment and conforming to the organization's strategy. There is a long lead-time from investments in human resources, information infrastructure and organization development to tangible effects that can be measured (Kaplan & Norton, 2004).

6.2.3 HOSHIN KANRI

HK is an overall framework for TQM, developed in Japan in the 1960s (Liker & Convis, 2012; Shimokawa & Fujimoto, 2009; Witcher & Butterworth, 1999; Womack et al., 1990). HK aided corporate managers in coordinating strategy deployment across functions and hierarchies (Witcher & Sum Chau, 2007). Central to TQM is the Plan-Do-Check-Act (PDCA) cycle for improvement (Evans, 2011; Witcher & Sum Chau, 2007). Witcher and Butterworth (1999) operationalize the strategy process as a PDCA-cycle called FAIR, based on the first letters of "Focus", "Alignment", "Integration" and "Review". Focus is the process of setting strategic priorities, representing "act". Alignment of the strategy represents "plan". Integration of the plans into daily management represents "do". Review and control through self-assessment represent "check". Taken together, the FAIR framework prescribes iterative loops of goal-setting, actions, reporting and control (Witcher & Butterworth, 1999).

HK assumes that the organization's overall vision, mission and strategy are well defined. The top management decides on a "vital-few" strategic themes for the organization to prioritize in the upcoming year. A defining element of HK is how

the strategic themes are communicated and how each operational entity decides how it can contribute to the strategic goals. This is done in an iterative process known as "catchball" (Asan & Tanyaş, 2007; Witcher & Butterworth, 1999). Catchball is a metaphor from a children's game, where the players throw the ball back and forth between one another. In the catchball process, executives and managers or managers and employees engage in a two-way dialogue where they discuss, create ideas and challenge each other on how they can improve and contribute to achieving the strategy (Witcher & Butterworth, 1999). It requires the managers to have insight into operations and the subordinates to challenge their superiors. The goal of the process is to agree upon the targets, activities and strategic projects for the upcoming period (Chiarini, 2016; Liker & Convis, 2012). The results of this process for each unit is documented in a matrix, called the X-matrix (Jackson, 2006), shown in figure 6.2.

Correlation		Correlation/contribution	Accountability
Correlation or interrelationship between strategic goals and short term goals	Organization units own short term goals or tactics for the next six to 18 month	Correlation or interrelationship between goals and process improvements	Relationship between goals, improvement and person, team, or supplier
	Short term goals		**Organization**
Company wide long term strategic goals or vital few strategic themes for the next two to three years	Strategic goals Hoshin kanri X-matrix Process improvement	Priority of improvements on processes to meet the short term goals	Person, team, or supplier who need to be aligned to achieve the short term goal
	Result impact		
Correlation or interrelationship between results and strategic goals	Estimated financial and none financial impact	Correlation or interrelationship between process improvements and results	
Correlation		Correlation/contribution	

FIGURE 6.2 Illustration of the X-matrix. The matrix visualizes the relationships between strategic goals, short-term goals, process improvements and results. The figure is inspired by Jackson (2006, p. 7).

The X-matrix visualizes both local short-term goals and how these goals are linked to the organization's strategy. Strategic goals, at the left side of the matrix, are the "vital few objectives" for the current period and the next two to three years. At the top of the matrix, the department documents how it chooses to operationalize the strategy into short-term goals. The short-term goals are then explicitly

linked to projects or improvement initiatives for the next six to 18 months, at the right side of the matrix. At the bottom of the matrix, the expected impact from the projects or initiatives is documented. This can be done in terms of both financial and non-financial performance indicators. In each corner of the matrix, the inter-relationships or correlations between the strategy and the entity's own short-term goals, improvement projects and result indicators are illustrated, connecting the operational activity to the strategy. At the far-right side of the matrix, it is stated explicitly who is responsible for process improvements and/or achieving the short-term goals.

6.2.4 RELATED AND COMPLEMENTARY TOOLS

Although the BSC and HK emerged from two different disciplines, they both address the managerial challenge of aligning a departments' activities with the organization's strategy (Asan & Tanyaş, 2007; Chiarini, 2016; Kaplan & Norton, 2008; Nørreklit, 2000; Witcher & Sum Chau, 2007; Yang & Yeh, 2009). The tools also originated in different geographical and historical contexts. The BSC is a western or American approach which focuses on driving change (Witcher & Butterworth, 1999). It is presented as an easy-to-implement solution to improve business results, which is probably the reason for its widespread diffusion and popularity (Kaplan & Norton, 2008). HK is a Japanese approach, focusing on developing organizational capabilities, and puts more emphasis on long-term value creation (Witcher & Butterworth, 1999). It only recently received attention in the West, as a component of the widely popular management concept, lean (Netland & Powell, 2016; Witcher & Sum Chau, 2007). Compared to HK, BSC can be described as performance and target oriented, with a top-down conceptual framework. HK is more process and means oriented, striving for consensus across departments and managerial layers (Asan & Tanyaş, 2007).

In the literature, there are some relevant contributions on how BSC and HK can complement each other (Asan & Tanyaş, 2007; Chiarini, 2016; Witcher & Sum Chau, 2007; Yang & Yeh, 2009). They all suggest a combined model where the BSC visualizes and communicates the strategy, with the link to the organization's vision and mission. HK's role is to facilitate strategy deployment and implementation. Witcher and Sum Chau (2007) and Asan and Tanyaş (2007) emphasize the strength of HK for facilitating an iterative process for goal setting, reporting and control. Yang and Yeh (2009) suggest a combination where the BSC is used to define the long-term development and strategic goals, while HK is used to deploy the strategy and aid performance management in daily operations. Chiarini (2016)

compared using BSC and HK for implementing a corporate social responsibility strategy. He found HK to be the more flexible compared to the BSC. The X-matrix (Jackson, 2006) in HK is more flexible since it has no predefined dimensions, compared to the strategy map in the BSC where the strategic goals need to fit within the four predefined perspectives. However, Chiarini's (2016) findings are limited to specific cases and he concludes that "it is not clear how and if an organization that uses BSC as a system for the design and cascading of organizational objectives … could integrate the [HK] system into the BSC architecture" (p. 372–373). This paper responds to Chiarini's (2016) challenge. Considering the limited empirical research and lack of practical guidelines for combining the tools, I ask:

How can Hoshin Kanri complement balanced scorecard in use?

6.3 RESEARCH DESIGN AND CONTEXT: THE CASE OF NM

The empirical findings in this paper are based on a qualitative case study of a single company using both the BSC and HK. A qualitative approach is appropriate for gaining in-depth insights in novel, previously unexplored phenomena (Eisenhardt, 1989). A single case study is suitable when asking "how", and where the phenomenon of interest is difficult to distinguish from its context (Yin, 2009).

The case company, anonymized as "Norwegian manufacturer" (NM), was purposely sampled, as the organization is using multiple management tools, including the BSC and HK. NM in its current form is a relatively young company, but its traditions go back more than a century. It is a high-technology company, designing and manufacturing both high-volume and low-volume products based on customer requirements. During the last 20 years, the company has expanded worldwide. The case study is limited to the Norwegian branch of the company.

NM is structured as a matrix organization. Product divisions with customer contact are the dominant business units. Support functions and factories are hosted by one product division but serve multiple divisions. This means that a single manager can have two roles, both as head of a division and head of a factory that serves several divisions. The Norwegian location reflects this complexity with a number of functions and factories serving several divisions.

I gathered data through an ethnographic approach (Cresswell, 2012). The interviews and observations, supported by informal conversations, were performed in parallel with the literature review. To anchor the research and identify relevant informants, I had two formal meetings with NM managers. In addition, I visited two manufacturing sites and had informal conversations with NM employees. To prepare for the interviews, I read all relevant information published on NM's web-

site and archival data from local newspapers. Eleven semi-structured interviews were conducted from June 2017 to April 2018. The informants were middle managers of the Norwegian branch, including the CFO, the COO, two product-division managers, one quality manager, one logistics manager, the head of contract management and the quality-assurance manager. The interviews were based on an interview guide with open-ended questions, formed as a check list, to cover key topics such as organization structure, reporting structure and the use of BSC and HK and other management tools. Two of the interviews where recorded and transcribed, whereas detailed notes were taken during the other interviews.

I observed one full-day management meeting in the one business unit, participated in two management workshops, participated in one research workshop hosted by the organization, and observed a four-day quality audit by an external auditor. To observe how the management tools were used on the factory floor, I visited production sites four times. Detailed field notes were taken during and right after the visits. I also spent 17 days at the head office, which allowed me to observe and have informal conversations in between the formal meetings. I have also gathered and analyzed copies of their internal scorecards, HK-matrices and management reports.

For data analysis, I categorized the empirical material into three main clusters. The first cluster consists of interviews and observations from NM units, which actively use only the BSC. The second cluster is material from units, which use both the BSC and HK. Units in the third cluster did not actively use the BSC nor HK, and were therefore excluded from further analysis. The first and second clusters were then systematically compared as cases within the case (Eisenhardt, 1989). The two clusters where analyzed with respect to how the tools were used, processes of strategy deployment, and employees' perceived level of strategic alignment, along with emergent themes (such as the relationship to Lean management). Hence, I could systemically investigate how the tools were combined (cluster 2) and whether this combination was perceived to be superior to using solely the BSC (cluster 1 vs. cluster 2). To validate my interpretation of the data, the results were presented and discussed with the key informants who validated the findings.

6.4 RESEARCH RESULTS

Table 6.1 shows how I clustered the data in two categories: 1) units, which use only the BSC actively, and 2) units, which use both the BSC and HK actively in combination, along with the key findings.

TABLE 6.1 Overview of the two relevant data clusters and key findings

Management tools	Data sources (number of times in brackets)	Key findings
BSC (Cluster 1)	◗ Interview with CFO (2) and finance function ◗ Interview with head of production division 2 (1) ◗ Interview with head of logistics, support function (1) ◗ Strategy map document ◗ Management reports ◗ Observations of quality audit	◗ Yearly business review and strategy process, bottom-up and top-down ◗ Monthly reporting to top-management, high-level summary ◗ Scorecard as a "once a year exercise" ◗ Difficult to link strategy to day-to-day actions ◗ Limited knowledge and ownership among employees
BSC and HK (Cluster 2)	◗ Interview with COO (2), and head of all factories ◗ Interview with head of product division 1, and head of one factory (1) ◗ HK X-matrix document ◗ Observations in workshop with factory management ◗ Visits to production sites (4) ◗ Observations of quality audit	◗ HK fits with lean/continuous improvement focus ◗ No quick-fix. Three years of experience, and still developing ◗ BSC top-down vs HK iterative and bottom-up ◗ Have invested in knowledge and learning the catchball process ◗ Engaged employees ◗ Superior strategic alignment

The next sections elaborate on the key findings in table 6.1. First, I describe how NM uses the BSC and the strategy map. Second, I describe how some units successfully use HK to complement the BSC. Finally, I compare perceived outcomes in the units that use only the BSC with the units that combine BSC with HK.

6.4.1 THE USE OF THE BSC AND THE STRATEGY MAP

NM uses the BSC for two purposes: Firstly, to communicate the strategy for the next three years in a strategy map, and secondly, as a framework for monthly reporting to the top-management team.

The strategy map is updated once a year through a strategic review initiated by the CFO. The CFO conducts business reviews with each division's management, where the existing strategy and the business outlook for the next one to three years are discussed. The outputs from the business reviews are accumulated and consolidated into an overall strategy, described in the strategy map.

The strategy map at NM has similarities with the strategy map described by Kaplan and Norton (2004), illustrated in figure 6.1. It states the overall strategic goals and financial performance targets for each of the four perspectives financial, customer, internal business processes, and learning and growth. For example, in the learning and growth perspective, the financial performance target is "10 % R&D of sales". For each of the four perspectives, four critical success factors are defined as non-financial achievements necessary to meet the strategic goals. For example, a critical success factor for the internal business process perspective is "Lean and effective business organization enabling NM to reach strategic goals". The content of the strategy map should be valid for all business units. The cause-and-effects relationship between the four perspectives in NM's strategy map is implicit in the relationship between the critical success factors and the strategic goals. The strategy map is communicated to the managers of the divisions and the business units, including factories and functions, as a top-down process through a strategy seminar.

The BSC format with the four perspectives is used for monthly reporting. It is a combination of recorded financial data from the ERP-system (including accounting data) and written monthly reports from the divisions. The input is coordinated and edited by the CFO and a controller before it is presented and dis-cussed in a management meeting. My analysis of the reports show that the finan-cial figures are most thoroughly explained. The other three perspectives are sum-marized more briefly.

> "I get standard reports based on Balance Scorecard from all entities and edit this to a management summary. Much of the details are then left out." (CFO)

Although the BSC format is mandatory when reporting to the management group, the managers choose which tools to apply within their own areas of responsibility. A few units use the BSC on a business unit level. Despite their intentions of using the BSC to focus the units toward the strategy, they find it challenging for several reasons. Two out of three find it difficult either to define or measure key perfor-mance indicators (KPI) for operations, as the functions' day-to-day activities do not fit into the BSC format or it is difficult to gather relevant performance data. Their knowledge about NM's strategy and experience in using the BSC varies, and the company has offered little training in this respect. Therefore, the departmental scorecard is not seen as a "living document", but rather as "an exercise, done once a year". Another common challenge is that other forms of reporting, concerning budgets, health-environment-safety (HES) and quality have a longer tradition

within NM with IT-system support, and are important to comply with the external audits.

6.4.2 THE USE OF HOSHIN KANRI IN COMBINATION WITH BSC

The COO together with his team of factory managers started using HK to reinforce the principles of Lean production on the factory floor. The management team under the COO chose HK because of its origin in the Toyota production system and Lean thinking (Liker & Convis, 2012; Netland & Powell, 2016). HK was implemented on their own initiative and had at the time of data collection been used for three years. As part of the process of identifying how they could use HK, managers collaborated with an external consultant, who explained the underlying theory and HK's relationship to other lean management principles and techniques.

HK receives most attention when the factory units start to develop the X-matrices right after top management decides on the strategy map, normally at the end of August or early September. The process combines top-down and bottom-up influences. The strategy map is perceived as a top-down communication of NM's strategic goals. Their own HK-process is bottom-up and iterative.

To kick off the development of next year's X-matrix, managers and employees meet for a one-day workshop on an off-site location. Even though they have used the HK for three years, they start the workshop with an external consultant to refresh their understanding of HK and Lean production. During the workshop, they achieve two important goals. Firstly, all participants achieve a common interpretation of the strategy map, last year's achievements and the gaps in their own performance. Secondly, they begin the catchball process to define short-term goals for the next year, prioritize improvement initiatives and define relevant measures. The short-term goals, improvements initiatives and measures are documented according to the X-matrix format (see figure 6.2).

The catchball process continues after the workshop. The managers align their ambitions and short-term goals with available resources and the budget. In the process, they also review the HES and quality requirement to achieve compliance. All the factory-level goals and priorities are in the end accumulated into an overall X-matrix for the management team.

> "The Hoshin Kanri [matrix] is not mine. It is the managers who develop this together and are depending on each other to deliver the agreed results." (COO)

On the shop floor, different teams use different whiteboards with productivity measures, HES-measures, data on sick leave and improvement activities. The X-

matrix is posed next to the productivity measures. In the factories, they have daily morning meetings for the teams, and weekly meetings between managers and teams. In those meetings, ongoing activities, relevant measures and improvements, as arranged in the X-matrix, are discussed.

> "In the morning meetings, the team goes through the board. My impression is that the measures get the attention since it's easy to report and explain deviations." (Product division manager 1)

The manager of product division 1 reported increased employee engagement. Use of the X-matrix focuses on activities to increase productivity, while also paying attention to employee participation and reduction of sick leave.

> "I can see the performance measures are improving, but the best part is that now employees come up to me with enthusiasm to tell me success stories about how they figured out how to improve their work." (Product division manager 1)

6.4.3 BSC VERSUS HOSHIN KANRI IN COMBINATION WITH BSC

When comparing the observations and interviews from the units who use only the BSC (cluster 1) to the units who use HK in combination with BSC (cluster 2) there are interesting differences. Units in cluster 2 experience superior strategic alignment with a closer link between the strategic goals and the day-to-day actions.

> "With Hoshin, employees express by themselves how they will contribute, and then they are measured on what they have said. Then some changes just happened, and we have gained momentum in our lean implementation. I believe Hoshin is one of the reasons for the success." (COO)

Units in cluster 2 also report that HK is used on the shop floor and in the morning meetings on a daily basis, compared to cluster 1 where BSC is a "once a year exercise". One of the reasons for the differences might be that the units in cluster 2 have invested time in increasing their knowledge about HK and the catchball process. In contrast, employees in cluster 1 do not report on any training in using the BSC.

> "Before each unit makes their own Hoshin, there is a one-day kick-off. There everyone is together, and we have some training before a half-day workshop. After that each unit gets a deadline to complete its X-matrix." (COO)

6.5 DISCUSSION

This paper contributes with empirical evidence on the BSC-HK relationship, whereas other studies have theoretically discussed how they could or should be combined (Asan & Tanyaş, 2007; Chiarini, 2016; Witcher & Sum Chau, 2007; Yang & Yeh, 2009). The case study demonstrates that HK indeed can complement the BSC in use, and shows how some units managed to use the tools synergistically. These units balanced the top-down approach of the BSC with the bottom-up approach of the HK in the process of strategy formulation and deployment. The role of the BSC with the strategy map, is to articulate and visualize the strategy and the cause-and-effect between the four perspectives; financial, customer, internal processes and learning and growth. This creates a more collective interpretation and understanding of the strategic goals. The role of HK is to facilitate the process between the organizational levels in the catchball process and document the agreed goals, process improvements and results indicators in an X-matrix. The X-matrix also illustrates the link between local goals and the strategy, and addresses who is responsible for each goal. The BSC and HK were explicitly linked by treating the BSC's "strategic goals" as HK's "vital few" strategic themes.

In the case of NM, units who use HK in combination with BSC report superior strategic alignment, increased employee engagement and improved performance, compared to those units using only the BSC. However, I will not claim that HK is the reason for these results. Four managerial factors seem to have influenced the successful adoption of HK.

Firstly, the management team was involved in choosing HK as a management tool that fitted their context, including the lean implementation. This ensures a strong connection between the management tool and the management concept they prefer.

Secondly, the units invested significant efforts in building knowledge on how to adopt HK. It offered a workable solution to linking strategic goals to short-term goals. This helped managers and employees to achieve a comprehensive understanding and a common language.

Thirdly, through the catchball process, they involved managers and employees on all levels in the strategy-deployment process. This created a coherent apprehension of the strategy, a link between the long-term and short-term goals, and increased the probability of employee commitment as they were involved in setting their own goals (Hope, Bunce & Röösli, 2011).

Finally, the flexibility of HK made it possible to differentiate the strategic focus and the short-term goals between the units. HK's flexibility also meant it could

incorporate additional requirements such as budget, HES, and quality, leading to a more coherent management approach at the unit level.

The first three aspects are likely to be generalizable to any management tool; any would even apply when the BSC is used in isolation. It is a managerial task to identify which management tool fits the context, build the organization's capability to use the tool, and engage employees. I cannot see any reason why a process similar to the catchball process would not work within the framework of BSC. Concerning the forth aspect, the interpretation of the BSC as a rigid target oriented top-down reporting system limited to the four perspectives is the main challenge (Asan & Tanyaş, 2007; Chiarini, 2016). Although these perspectives are highly relevant at the top-management level, at lower levels of the organization, there is a need for greater flexibility in how to set goals and follow up on measures.

This study demonstrates that the HK can complement BSC in offering a more flexible approach for lower levels units. However, this case study has some limitations and additional research is necessary. First, the evidence is based on a single case where only a few units use a combined model with the BSC and the HK. Additional cases are needed to validate the results from this study and see whether these can be generalized, either across organizations or between different departments within an organization. Secondly, this study is also limited to the specific management tools, the BSC and the HK. There are other management tools for strategic management from different traditions, for example the "Tableau de bord" developed in France in the 1930s (Bourguignon, A., Malleret, V. & Nørreklit, H., 2003; Lebas, M, 1994). Future research can compare different management tools from different traditions to identify their strength and to what extent they can be combined. In addition, future research can better understand the contribution from the management tool in respect to achieving superior strategic alignment. It is possible to identify managerial factors that exist across different management tools, or are independent of the management tool, which need to be in place for managers to successfully link the day-to-day operations to the long-term strategy.

6.6 CONCLUSION

This case study demonstrates that HK has the flexibility to meet the different contextual needs at lower levels of the organization (Chiarini, 2016). The BSC strength is to articulate and communicate the strategy. HK can complement the BSC to link an organization's day-to-day operations with the long-term strategy. I would highly recommend managers who experience difficulties in achieving strategic alignment, to learn and adopt the techniques of HK, even if they are currently

using the BSC. In particular, they should consider adopting the catchball process to engage employees and the X-matrix to link the short-term goals to the strategy. It is no quick fix though. Both managers and employees need training and experience to build their capabilities on how to use the tool within their organizational context.

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