



Controlling continuous improvement in financial control processes: A case study

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Abstract:

This thesis investigates how continuous improvement (CI) is controlled in financial control processes and how said controls are de facto used by management. The agile environment of a CI program is in stark contrast to the traditional management control system environment. This study's primary focus is to investigate the two different approaches' relationships and if CI could indeed be controlled by MCS. MCS, such as Malmi & Brown (2008), Simons (1995) and Tessier's & Otley's (2012) frameworks were used to analyze the case company's CI program. The secondary purpose of the study is to examine how management uses controls and performance measures (Malmi & Brown 2008; Kennedy & Widener 2008; Artz, Homburg & Rajab 2012). This study is conducted as a case study.

The findings describe the functions and purposes of control systems but also how controls could be applied to CI initiatives. The findings support Malmi & Brown's argument that cultural controls are the most important for establishing a CI culture although they are also the most complex to influence. Employee expectation, behavior and perception of CI could be influenced by active communication of beliefs and boundaries, defining operational and strategic targets. Although managerial intentions were to create an enabling tool for employees, it was suggested that the launch of the CI program could receive a mixed response from employees. Further, there were no direct cybernetic controls in the case company specifically tied to CI activities. Intrinsic rewards, such as acknowledgement and a sense of accomplishment, was suggested to be more relevant as opposed to extrinsic rewards, such as monetary, since CI activities were seen as part of employees jobs already and should not be performed to gain additional rewards. There was also a preference among participants to review data through an interactive approach because the background, context and situation of measurements was important to understand to be able to make informed decisions.

This thesis contributes with insights into the relationship between control systems and agile approaches to the collection of research into how continuous improvement in financial control processes could be controlled, studying the practical implications through applying control system frameworks to a CI program in a company. This thesis also offers many opportunities for further research, especially requiring further studies into the feasibility and value of controlling continuous improvement.

Keywords: Continuous improvement, management control systems, performance measurement systems

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ABBREVIATIONS

BSC - Balanced Scorecard

CBSC - Corporate Balanced Scorecard

CI - Continuous Improvement

FTE - Full Time Equivalent

JIT - Just-In-Time (Manufacturing)

LOC - Levers of Control (Framework by Simons, 1995)

MA - Management Accounting

MC - Management Control

MCS - Management Control System

PM - Performance Measurement

PMS - Performance Measurement System

PO - Process Owner

TQM - Total Quality Management

SBU - Strategic Business Unit

1 INTRODUCTION

This chapter will begin by providing background information about the topic, followed by a discussion about the problem, which will describe the problem area further. In addition, the purpose of this study will be presented, as well as the limitations of the research. Finally, the structure of the thesis will be presented.

1.1 Background

More than ever before, companies are realizing that quality and quality improvement is linked to profit and turnover. Therefore, businesses aim at quality improvement to positively influence the bottom line. A central methodology for quality improvement is continuous improvement (CI) which describes a culture and way of working that intends at improving organizational performance (Fryer, Antony & Douglas 2007). Companies introduce CI programs to increase efficiency and productivity as well as to eliminate waste to save costs in different operations and functions. CI is not only limited in software development, manufacturing or supply chain management, but can also be applied to finance and control operations (Grenzfurtner & Gronalt 2020). Organizations recognize the need for process performance development or CI through process optimization to eliminate waste, reduce costs, improve quality and increase efficiency of individuals and operations (Sower & Fair 2012, pp. 2-4). Previous research also suggests that continuous improvement programs do not only have economic benefits in organizations, but also support employee development (Marin-Garcia, Pardo del Val & Bonavía Martín 2008).

Continuous improvement can be regarded as a culture of organization-wide sustained improvement, aiming at cost efficiency and waste elimination through cooperation throughout the organization by utilizing different tools and techniques, rather than large capital investments. Research indicates that CI takes place within different levels of an organization. At management level, the CI concern is matching the organization strategy to the CI methodology. At group level, CI tackles solving tasks on a higher level. At the individual level, employees are solving day-to-day tasks that ultimately improve quality and enhance processes (Bhuiyan & Baghel 2005). CI can be implemented through different tools and methods, which should be aligned with the organization's business strategy. More

importantly, CI is not a single methodology but a combination of several tools, techniques, approaches and methodologies that enable constant performance improvement. The most commonly used and popular methodologies include lean management (also known as just-in-time or JIT, which utilizes Kanban), the balanced scorecard, Six Sigma and hybrids (Grenzfurtnner & Gronalt 2020).

When introducing CI programs, organizations are also indirectly presented with the issue of controlling the performance, impact and output of the programs. As this thesis will investigate if CI programs can be controlled through management control systems, such as Simons' (1995) Levers of Control framework, Malmi & Brown's (2008) MCS package framework or Tessier's & Otley's (2012) revised framework on Simons' LOC. Additionally, Malmi & Brown as well as Kennedy & Widener (2008) call for further studies to increase the understanding of management control systems and their use. Artz, Homburg & Rajab (2012) also suggest management preference and use of performance measures in decision-making should be additionally researched. This study will focus on determining the strategic and operational value of a continuous improvement program in a financial control organization of a Finnish, traditional manufacturing company. This study will attempt to determine the de facto value added to the organization by a continuous improvement program by examining how performance is measured and controlled in addition to how management uses the controls in practice. According to Maskell & Kennedy (2007), more research on the change process after the implementation of a CI program should also be studied further, which also supports the objective of the study.

1.2 Research problem

Management control systems (MCS) have a number of different academic definitions. Previously MCS has been described as a set of controls which managers use to guide the organization towards predetermined goals. However, cultural and behavioral controls in addition to manager intentions and employee perception of MCS have also been included in the MCS framework (Siska 2015). Chenhall (2003) describes management accounting (MA) as a combination of techniques, such as budgeting and product costing, while management accounting systems (MAS) is defined as a systematic use of MA to achieve targets. According to Chenhall, MCS is a more extensive term that includes MAS in addition to other controls, like action and organizational controls. Both MCS and performance measurement share the same objectives, that is achieving operational and strategic organizational targets,

which might create some confusion on the use of the terms. Siska's (2015) research suggests that the term management control system (MCS) is favored when describing the structure of a system, while performance measurement (PM) is preferred when emphasis is on the behavior of the system. Organizational controls have been referred to as controls built within activities and processes, such as just-in-time (JIT) management. Merchant and Otley (2006) also view control as a board term, which includes issues that are typically outside the limits of management accounting, such as strategic development and learning processes. Other researchers view management control as tools to develop and control employee behavior by completely separating strategic control from management control (Merchant & Van der Stede 2007, p. 8; Abernethy & Chua 1996). The terminology debate is relevant when considering how to classify and organize different systems and controls. In this thesis MCS is used to describe controls as recommended by Chenhall (2003) and Siska (2015), to illustrate the extensiveness and range of controls and their uses.

Malmi & Brown (2008) recognize the need for research on MCS operating as packages through a holistic approach, since MCS are usually interdependent. Malmi & Brown suggest only studying elements of MCS in isolation results in inaccurate results. To increase understanding of MCS and support MCS design, Malmi & Brown call for further research on other types of controls than accounting-based controls, such as administrative and cultural. In addition to Malmi & Brown's framework, this thesis will employ Simons' (1995) Lever of Control framework as well as Tessier's & Otley's (2012) revised framework of Simons' LOC to further investigate and analyze the objective and contributions of the controls. Simons' LOC framework is also a relevant framework for this study since it is suitable to analyze how managers use MCS, as opposed to strategy control, which supports the objective of this study (Sandelin 2008). This study will attempt at closing the gap between control and agile by investigating if and how agile ways of working can be controlled through MCS, demonstrating need for creativity and boundaries in order to develop processes. More specifically, this study will utilize the three aforementioned MCS frameworks to analyze a CI program, in order to increase understanding for the purpose of the CI program additionally to identifying possible dead angles in the CI program.

Financial control processes, such as asset accounting and inventory accounting, are subjected to control in order to eliminate waste in work processes and support fact-based decision-making. Further controlling these processes on a higher level (not daily operations) is integral for the quality, efficiency and general function of the process. Collecting data on operational

and strategic behavior in the process enables management's decision-making concerning the process. Further controlling processes continuous improvement approach could be implemented in existing MCS or controlled through separate systems, although controlling the general process function and CI approach of the process have the same objective to improve and develop operations. The collection of different levels of controls in the process apply to Chenhall's (2003) definition of a management control system (MCS), which is what controlling of the operations described will furthermore be referred to as.

Furthermore, Kennedy & Widener (2008) note how the implementation of a control system (Cartesian or Configuration fit) can affect its success as well as the positive effect of standardization through standard operating procedures (i.e. social and technical controls) influence on control systems when applying lean manufacturing initiatives. Moreover, Kennedy & Widener's research found that control systems, such as performance measurement systems (PMS), are supported by management accounting systems (MAS), such as lean accounting. Kennedy & Widener call for additional research on the implementation process of lean accounting to increase the understanding of control systems.

Maskell & Kennedy's (2007) research suggests that there is a considerable relationship between implementation of a JIT strategy (which has also been referred to as lean management, world-class manufacturing or total enterprise manufacturing) and acceptance of non-traditional performance measurement and incentive systems within the management accounting system, which support JIT's continuous improvement goals. The research recognizes a need for further studies to the extent to which companies change their internal performance measurement and incentive systems following the JIT implementation and what management accountants' roles are in the change process. Additionally, the research implies that a more extensive degree of JIT implementation (both breadth and depth) has greater benefits for the organization. This study will attempt to investigate the perceptions towards implementation of a CI program and the accountant's role in the change process.

Previous research has established that accounting information plays a vital part in strategic decision-making. In addition, accounting information is seen as validation for organizational decisions and actions. Artz, Homburg & Rajab (2012) consider the relationship between accounting information and decision-making to be function specific. Moreover, the authors call for more research in understanding why some performance measures are used to validate decisions more than others. Thus, further research would benefit the understanding of how performance measures are de facto used by management. This research will investigate if in

fact Arts, Homburg & Rajab's theory on the relationship between accounting figures and decision-making is valid in this case study and if so, why figures are function specific.

1.3 Purpose of the study

Although plenty of research has been conducted on management control systems (Malmi & Brown 2008; Simons 1995; Tessier & Otley 2012) and continuous improvement (Singh & Singh 2015; Albright & Lam 2006; Tersine 2004), relatively little research has been conducted concerning MCS relationship to agile methodologies and ways of working. Since there is no commonly accepted methodology to practice continuous improvement, how to account for output and impact has remained an ambiguous topic (Tersine 2004). Previous research on continuous improvement has focused more on the ways of working and neglected controlling of efforts and outputs (Savolainen 1999; Marin-Garcia, Pardo del Val and Bonavía Martín 2008).

This study will attempt to close the gap between control and agile theories. Control and agile are very much opposite approaches, which makes investigating their relationship even more interesting and relevant. MCS will be investigated through a more unconventional approach, through an agile initiative, which will examine the applicability and feasibility of MCS in an agile environment. This approach of MCS research will further research on how traditional MCS could be applied in an agile environment and what the added value of using MCS in the context is.

Baldvinsdottir, Mitchell and Nørreklit (2010) have highlighted that academic research on management accounting is a balancing act between the socio-technical nature of the field. A lack of management accounting research that combines the social and technical perspectives, has led to research not giving a thorough picture of management accounting in practice. Therefore, this study will attempt to close the gap between academic research and reality by considering both social and technical aspects of management accounting as well as considering the practical implications in the case company.

1.4 Research questions

This study intends to answer the following research questions:

RQ1: How is continuous improvement controlled in financial control processes?

and

RQ2: How does management use management control systems?

The two research questions are related to each other, with the first question providing context and background for the second question. To provide understanding of the control and performance measurement of a CI program, this thesis will research both questions.

1.5 Structure of the thesis

In the following chapter continuous improvement theory is reviewed, followed by a review of performance measurement and control systems in the literature review chapter. In chapter four, methodologies applied to this study are reviewed in addition to the process of the case study research. Chapter five introduces the results of the study, followed by the analysis and discussion in chapter six. The conclusion of the thesis is presented in chapter seven.

2 CONTINUOUS IMPROVEMENT

This chapter will review theories concerning the subjects of the research. Firstly, continuous improvement will be presented through its elements, functions and methodologies. Subsequently, the central methodologies of continuous improvement will be reviewed. Thereafter, organizational learning theories will be reviewed through the DMAIC model and the PDCA cycle, which are related to the implementation of continuous improvement initiatives. Finally, basic theories on continuous improvement implementation will be examined.

2.1 Continuous improvement methodologies

Continuous improvement (CI) originates from the Japanese term *kaizen*, which is a philosophy of gradual and continuous progress, increase of value, intensification and improvement. CI includes development within different organizational fields, for example total quality management (TQM) employee involvement programs, customer service initiatives and waste reduction campaigns. Although continuous improvement has traditionally been applied to manufacturing processes, organizations have also adopted CI into finance and accounting process performance development (Singh & Singh 2015).

Continuous improvement initiatives, such as lean thinking, JIT and Kanban, were developed due to Japanese companies having limited access to capital after the Second World War. World War II devastated much of Japan's industry, leading to manufacturer's inability to afford carrying large amounts of inventory. Instead, companies started producing for demand, which cut down manufacturing lead time as well as investments in work-in-process and finished goods inventories. Furthermore, Japanese manufacturers found that increasing quality was another effective way of reducing costs, by identifying manufacturing problems and eliminating re-work (Albright & Lam 2006).

Traditionally, quality improvement methodologies have included well-known initiatives such as lean management, Six Sigma, the balanced scorecard, total quality management (TQM) or just-in-time (JIT) (Albright & Lam 2006). CI methodologies have, however, evolved within organizations to meet the needs of particular processes and businesses, selecting and combining components from traditionally used CI concepts. Hybrid initiatives, such as lean

Six Sigma, have become popular in organizations due to their ad-hoc approach and applicability (Bhuiyan & Baghel 2005).

Continuous improvement methodologies described in this chapter are either relevant to the case study or have had a significant impact on the field of continuous process improvement, therefore influencing the theory of the case study.

2.1.1 Lean management

Lean thinking was developed by Toyota management in Japan in the 1950's. Key elements in lean thinking include concentrating on activities that create value and improve production flow, pulling products or services through the system (with Kanban cards) based on customer demand (producing Just-in-Time) and continuous process improvement (Kaizen). The Kanban system is considered lean thinking because it achieves more with less. Kanban is a signal card that identifies the product or service and quantity to be produced. When a task is completed, the product or service moves to the next workstation and the operator waits for the next Kanban to arrive. This means that systems and operators are active only when they have a Kanban signal, decreasing work-in-process inventory and related costs (Albright & Lam 2006).

Furthermore, Kaizen or continuous improvement is an integral pillar of lean thinking. Continuous improvement's most crucial purpose has been identified as waste reduction. Waste reduction is described as eliminating wasteful and time-consuming activities that do not add value to the product or service (Tersine 2004). However, before a process can be improved upon through waste elimination, the process itself must be understood (Albright & Lam 2006).

2.1.2 The balanced scorecard

The BSC was developed in the 1990's as a performance measurement system (Kraus & Lind 2010). The BSC realizes that an organization's success is not only tied to its financial performance. Non-financial measures are essential for achieving the organization's strategic objectives and can be either lagging (past performance) or leading (expected performance). The BSC's advantage is also demonstrated by its ability to combine common and unique measures. Through common and unique, financial and non-financial measures an organization's financial goals are met through the scorecard development process (Kaplan & Norton 1992). Generally, four perspectives are used to classify and organize the various

measures. The financial perspective reflects how the shareholders perceive the company, through for instance return on assets (ROA), cash flow, earnings per share (EPS) and sales growth. The customer perspective indicates how the company is seen by its customers through customer satisfaction and customer turnover. The internal process perspective suggests what the company should excel at, which could be for instance customer satisfaction. The learning and growth perspective addresses the question of how to meet the goals of financial, customer and internal process perspectives through, for example, training opportunities for employees. The performance measures are, therefore, dependent on the success of the other perspective's goals (Albright & Lam 2006).

Kaplan and Norton's (1993) research also highlights the importance of connecting performance measurements to strategy, noting that only measures that link to strategy should be included in the BSC. The BSC has generally been applied on a business unit level, through which the corporate-level scorecard has developed. The corporate BSC (CBSC) establishes a common framework and visions that should be implemented in scorecards developed at the individual strategic business units. Furthermore, the CBSC determines how the company adds value beyond the value created by the collection of SBUs operating as independent units. Therefore, the CBSC helps the corporate management apply and develop corporate strategy with a focus on the coordination of various SBUs. This suggests that CBSC strengthens relationships between top management and business unit managers, which differs from the objective of the BSC at business strategy development and implementation on the coordination of functional strategies with the goal of creating a competitive advantage for the corporation. However, research implies that CBSC has low impact on corporate control of business units because non-financial measures are seen as unreliable by the corporate level. Additionally, non-financial measures were not a practical tool for internal and external benchmarking at the corporate level. Instead, top managers focused on using a few common financial measures that were regarded as objective and accurate when measuring corporate control over business units (Kraus & Lind 2010).

2.1.3 Six Sigma

Six Sigma initially became globally recognized after Motorola Inc. developed a process improvement system in the 1980's as a response to the Japanese electronics industry competition (Linderman et al. 2003). The Six Sigma term is a data-driven approach that originates in statistics and has been used to evaluate process capability in statistical quality control. The Six Sigma methodology is a process improvement approach that has been

utilized in world-class organizations. The focus of Six Sigma is transforming abstract business scenarios into measurable, analyzable and attainable targets. By concentrating on customer expectations, Six Sigma supports management in fact-based decision making, which results in better business performance. Studies suggest that organizational learning is a vital part of a Six Sigma implementation, which affects CI implementation (Haikonen, Savolainen & Järvinen 2004).

It is assumed that processes operating with Six Sigma quality over the short term, produce long-term defect levels under 3.4 DPMO (defects-per-million-opportunities), which presumes a 1.5 sigma deviation (Tennant 2001, pp. 22-25). A process operating at a 3.4 DPMO level (equals 99.99966% process yield) requires very aggressive improvement efforts and is beyond normal quality levels. When applying Six Sigma, organizations should consider the process's strategic importance and the cost of the improvement in relation to the benefit. It is assumed that if a process is at the two or three sigma level, it will be relatively effortless and cost effective to reach the four sigma level. Reaching five or Six Sigma will however demand much more effort and advanced statistical tools, which reflects the rapid increase of effort and difficulty as the process sigma increases (Linderman et al. 2003). The management should, therefore, be responsible for prioritization of process improvements (Tennant 2001, pp. 22-25).

According to Haikonen, Savolainen and Järvinen (2004), management support in implementation of Six Sigma is vital, as more managerial commitment has proven to result in more successful initiatives. The elements of an effective management of improvement projects include a clearly defined strategy and goals of the improvement efforts, selection of the right projects and people, communication of direction, benefits and results to everyone involved, clear allocation of resources and finally targeted improvement behaviors need to be acknowledged and reinforced. Regular reviews between management and improvement teams in addition to counseling, coaching and training also supports enforcing the complex methodology of Six Sigma. Further, a Six Sigma leadership system contains principles such as genuine customer focus, data- and fact-driven management, process focus, proactive management, border free cooperation and seeking perfection but tolerating failures. The last principle embodies the implementation of a Six Sigma methodology, since increasing performance to the highest level prepares organizations to manage occasional setbacks.

Although academically Six Sigma lacks an agreed upon definition to some extent, it can be described as an organized and systematic structure to decrease customer-defined defects in

organizational processes through improvement specialists, statistical methods and performance measures with the intent of accomplishing strategic objectives (Hahn et al. 1999; Linderman et al. 2003). Schroeder et al. (2008) suggest that both implementing structural control and structural exploration increases performance levels. The underlying theory is supported by the elements that define Six Sigma:

1. parallel-meso structure;
2. improvement specialists;
3. structured method and;
4. performance metrics.

The first element of Six Sigma is parallel-meso structure, which coexists with the organizational hierarchy. This is to say that Six Sigma has a hierarchy and life of its own, outside of the organization's central operations. In the Six Sigma organization leaders (champions) initiate, support and review key improvement projects, while black belts act as project leaders to green belts, who serve as problem solvers. Meso theory reflects the micro- and macro-levels of analysis, i.e. the individual and group influence in the organization and vice versa. The parallel-meso structure supports strategic project selection and management engagement (Schroeder et al. 2008).

The second element of Six Sigma, improvement specialists (black belts, usually have four weeks of training), contribute to the Six Sigma structure with technical and leadership skills. In addition, organizations might want to train individuals as green belts (usually two weeks of training) or master black belts (extensive training beyond black belt level), of which the latter act as instructors. Black belts create a link between senior management and project improvement teams, reporting to higher level management as well as securing resources and ensuring communication between the two levels. Black belts (also referred to as heavyweight project managers, continuous improvement specialists or coaches) also ensure that vision and discipline is maintained as the team explores the problem (Schroeder et al. 2008).

The third element uses a structured method for process improvement. Typically, the DMAIC (define, measure, analyze, improve and control) method or the PDCA (plan, do, check and act) cycle are applied, which both identify the root of the problem through systematic use of the method. The Six Sigma methodology utilizes standard quality tools like FMEA (failure modes and effect analysis), cause-effect chart and statistical process control. Since the

structured method is related to the theory of organizational routines, the Six Sigma method could be described as a metaroutine, i.e. a routine for changing established routines or for inventing new routines. When using metaroutines, it is suggested that problems can be solved after predictable steps (e.g. PDCA cycle or DMAIC model). Beyond promoting rational decision-making, the Six Sigma metaroutine provides a common language throughout the organization as well as helps establish role clarity. However, in order to gain from a common organizational language, the metaroutine has to be standardized across the organization first (Schroeder et al. 2008).

The fourth element of Six Sigma, performance metrics, can be applied throughout the organization to service, administrative and manufacturing processes. Generally, metrics are classified as customer-oriented measures or financial measures. Determining customer requirements is an integral part of the Six Sigma process and desired process sigma measures are, therefore, relative to customer requirements. Customer requirements support establishing project improvement goals and direct improvement efforts of Six Sigma teams.

Consequently, financial return can be tracked by for example a financial analyst or cost-of-quality measures, in order to justify improvement efforts and establish a link between improvement projects and financial performance. The measure-oriented approach promotes fact-based decision-making as well as provides a basis for establishing improvement goals. Improvement goals can be established through targets based on defects-per-million-opportunities (DPMO, where defect opportunities suggest a critical customer process failure) or process sigma metrics. Specific, challenging targets are implied to lead to higher levels of performance than vague, nonquantitative targets, such as do-best goals. It is suggested that clear goals improve team alignment, benefits measurement and provides a basis for performance feedback (Schroeder et al. 2008).

2.1.3.1 The DMAIC model

Six Sigma's improvement procedure is as important as the structure and metrics it provides. The improvement procedure is known under the acronym DMAIC, standing for define opportunities, measure performance, analyze opportunities, improve performance and control performance (Singh & Singh 2015). DMAIC is an essential metaroutine for the implementation of Six Sigma, applied when designing new routines or changing established routines as a stepwise guide. The improvement procedure has also been defined as a problem solving method by De Mast & Lokkerbol (2012). By breaking down a problem into subtasks and deliverables, De Mast & Lokkerbol suggest that the DMAIC makes problems more

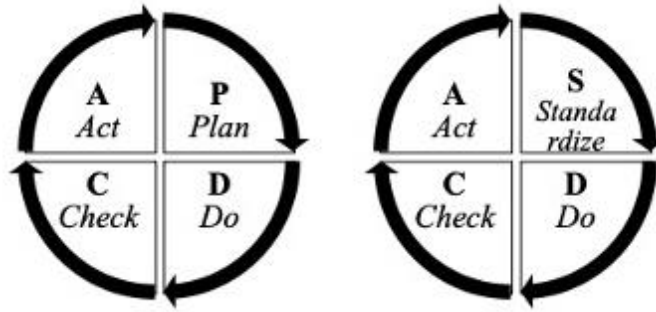
structured, allowing the user to find a strategy for analysis and solving the problem. The DMAIC model aims at detecting the failure's root causes of the improvement project through concentrating on process failures that are causing the most variation (Haikonen, Savolainen, & Järvinen 2004). Although Six Sigma's DMAIC model is a rather generic method, De Mast & Lokkerbol argue that it can be used to solve well- and semi-structured empirical problems but not ill-structured problems. Therefore, problem definition should be focused on selecting a matching template, since problem analysis can follow the template's steps. It would also be advisable for companies that apply six sigma through DMAIC to store documentation in an internal database, since solutions for routine and generic problems could reduce rework for another user.

2.1.3.2 The PDCA cycle

Since kaizen strategy focuses on improving results through human efforts, organizing initiatives according to process improvements is required. A process-oriented improvement approach can follow the "plan-do-check-act" (PDCA) cycle. Although the PDCA cycle's theory has its roots in the enlightenment ideas of the 16th century, the modern cycle version is based on statistics expert Shewart's teachings on quality control in the 1920's. The PDCA cycle was popularized by Deming in the 1950's, whereafter it has also been referred to as the Deming cycle (Pietrzak & Paliszkievicz 2015).

In the PDCA cycle, plan refers to determining a target for improvement; do concerns implementing the plan; check represents the overseeing for effective performance of the plan; and act stands for standardizing the new, improved process and establishing targets for the next improvement cycle. Following each improvement cycle, work processes become unstable due to the nature of change. Therefore, a stabilizing cycle is required. The second cycle is referred to as the standardizing cycle or "standardize-do-check-act" (SDCA) cycle. The main purpose of the standardizing cycle is to eliminate flaws and harmonize tasks in the work process before moving on to a new improvement cycle. So while the improvement cycle aims at improving current work, the standardizing cycle maintains achieved improvements. The PDCA and SDCA cycles should rotate continuously to spread a culture of continuous improvement as a standard practice within an organization instead of settling for status quo (Singh & Singh 2015).

Figure 1: The PDCA cycle and the SDCA cycle



Source: Singh & Singh 2015, 88

Argyris and Schön (1978) propose that process improvement is dependent on single- and double-loop learning, which the PDCA and SDCA cycles support. In single-loop learning, actions are adjusted by individuals, groups and organizations according to the difference between expected and achieved results. In double-loop learning, values, assumptions and policies of the first cycle are questioned before further action is taken. The goal of double-loop learning is to learn from possible earlier mistakes and take action, to not repeat the mistakes in the next cycle (Pietrzak & Paliszkievicz 2015). Since the single- and double-loop learning models describe the planning and standardizing phases of the PDCA and SDCA cycles, it could be suggested that said phases are essential for learning and eventual improvement. The PDCA cycle is also closely linked to the DMAIC model, both of which aim at over time forming a continuum of development activities, building a structure for dynamic continuous improvement development (Haikonen, Savolainen, & Järvinen 2004).

2.1.4 Hybrid: Lean Six Sigma

Laureani and Antony (2012) establish that Lean Six Sigma (LSS) is a business improvement methodology, aimed at maximizing shareholder value by improving quality, speed, customer satisfaction and costs. By merging tools and principles from both Lean management and Six Sigma, shareholder value increase is achieved. Dixon and Fargen (2017) identify that Lean management recognizes cost and resource utilization within processes, for example by benchmarking key processes, such as invoice payments. Six Sigma aims at reducing variation for the benefit of customer requirements. This element identifies issues within processes, such as timeliness, accuracy and resubmission of invoice payments. Benchmarking and measurement is vital for finding and eventually addressing concerns within processes. Laureani and Antony (2012) note that Lean Six Sigma has been used widely in manufacturing and service industries. Successful implementations in famous organizations

such as GE and Motorola have popularized the methodology in many other organizations (Laureani & Antony 2012).

Knapp (2015) indicates that top management involvement and support is a key component when implementing Lean Six Sigma. Top management can contribute to Six Sigma's success or failure by making decisions or taking actions that are in line with the quality improvement initiative and through open communication regarding the process (Beer 2003). In addition, Knapp's research suggests that organizational culture also has a strong influence on Lean Six Sigma implementation. Additionally, statistical and graphical analysis (i.e. process and value stream maps, Pareto charts, histograms, box plots and control charts) of processes supports Lean Six Sigma implementation. A reflection of measurable results is a useful tool in achieving financial return for a Lean Six Sigma initiative. A third component that affects the success or failure of Lean Six Sigma are the leads with different functions and responsibilities in the implementation. Knapp suggests that a mix of employees extensively trained in Lean Six Sigma methods or lead improvement projects and managers overseeing improvement projects can benefit a Lean Six Sigma initiative. When all three components are effective, they have a positive effect on the success of Six Sigma (Knapp 2015).

Dixon and Fargen's (2017) research indicates that not only does Lean Six Sigma help map out processes connected with condition and material weaknesses, but Lean Six Sigma projects also support reviewing of operational efficiency and effectiveness within processes. Through Lean Six Sigma projects, material weaknesses and underlying conditions can be remedied and operating expenses within processes can be reduced. Implementing a culture of continuous improvement requires several key strategies, including leadership support and executive sponsorship, program infrastructure (training and tools), maintenance and reporting (the control environment) as well as reaching out and listening to stakeholders. Once again, the importance of leadership support and executive sponsorship for successive implementation of Lean Six Sigma is highlighted by Dixon and Fargen.

Dixon and Fargen (2017) also suggest that the control environment should aim at meeting strategic and tactical objectives. Lean Six Sigma projects could be addressed during meetings and briefings to ensure that projects are moving in the right direction. The briefings also demonstrate process owners level of ownership and allocated resources. Lean Six Sigma projects should also have performance metrics, which are tracked and reviewed through a commonly used tool. Reporting is incremental for displaying and communicating continuous process improvement success on all organizational levels. In addition, reviewing performance

with external and internal stakeholders can help discover possible areas of improvement, which can result in new processes and initiatives.

2.1.5 Just-In-Time manufacturing

Just-In-Time (JIT) manufacturing, also known as JIT, shares the same core principles as lean management. The JIT strategy was first implemented by Toyota Motor Company in Japan during the 1970's, eventually spreading domestically and internationally (Upton 1998). While both lean management and JIT practices were developed due to resource restrictions, JIT often focuses on manufacturing rather than services or processes in academic literature, due to the nature of the system. Mia (2000) describes the aim of JIT as a system in which goods in the production-sales chain are finished right before moving on to the next stage, focusing on eliminating resources and services that do not add value to the product.

Management accounting systems' role in Just-In-Time is providing information, usually comparing actual performance against target or budget. Managers in JIT environments are very dependent on MASs to identify complications that would affect the subsequent tasks quality or schedule, to be able to make corrections and maintain the production flow. Mia (2000) implies that managers have even greater responsibility and authority in JIT organizations than in organizations that have not adopted JIT. The interdependency between production tasks also indicates the relevant role MAS serves in a JIT organization. This also highlights MAS role as a coordinator, communicator and controller, in addition to simply providing accounting information. Additionally, Mia's research suggests that MAS information on performance can promote organizational profitability in a JIT environment, highlighting the importance of improvement initiative performance measurement. Upton (1998) notes that the performance measures used to indicate JIT performance are of significance. Using traditional measures (as opposed to non-traditional performance measures, such as non-financial measures that correlate with the JIT philosophy) that contradict the JIT philosophy could misrepresent and undermine the JIT manufacturing efforts. Thus, Upton highlights the importance of implementing management accounting changes to support the JIT environment.

The benefits of JIT have in addition to reduction of slack, which is a rather ambiguous concept, been identified as improved flexibility, quality, productivity, lead-times, customer responsiveness and inventory holdings in previous research. From an organizational profitability perspective, the reduction of slack typically relates to lower operating costs and costs of capital. However, initial implementation of JIT can cause problems, such as

resistance from workers to learn new skills as well as friction between workers and management. Higher stress levels among line workers have also been linked to JIT, resulting in low productivity, high absenteeism in addition to poor decisions and morale. Constant search for improvement opportunities has also been suggested to be related to employee burnout, high employee turnover and high recruitment and training costs (Mia 2000).

2.1.6 Total Quality Management

Like many of the aforementioned strategies, total quality management (TQM) aims at continuous improvement, finding new opportunities to increase customer satisfaction and do the right thing the first time. Referred to as a *fashionable management innovation* in the 1980's, TQM was developed in the US to meet a perceived lack of competitiveness compared to their Japanese competition (Kober, Subraamanniam & Watson 2012). TQM practices include measuring actual manufacturing performance against strict quality standards but practices can also be applied to a company's other operations. Chong and Rundus (2004) summarize TQM's core values are primarily customer focus in addition to product design. Customer focus is motivated through both the operational and strategic objective of the organization, which is delivering goods or services to a satisfied customer. The second element, product design, suggests that employees should adapt to the established product specifications or resulting changes continuously. Previous research highlights that TQM's strategy at doing something right the first time is relevant for reduction of waste, rework and costs in the long-term.

Chenhall (1997) claims traditional financial indicators are inappropriate performance measures in a total quality management environment. Instead, TQM relies on for instance precise manufacturing performance measures (MPM) to evaluate performance, which links TQM to performance. Respectively, research indicates that a lack of attention to MPM development can be linked to TQM initiative failure. An essential MPM element is also feedback between manufacturing processes (that need to be considered for improvement in TQM) and management. Chenhall further suggests TQM performance evaluation has focused on for example sustainably improving profitability. In this case measuring profit growth and product quality would be appropriate performance measures.

Although Kober, Subraamanniam & Watson (2012) indicate that total quality management practices positively affect quality performance by reducing rework and waste, academics have questioned the relationship between implementing TQM practices and improved

financial performance in organizations. Improving operational performance should translate to improved financial performance through cost reductions and customer satisfaction but research has lacked in proving this through objective data, i.e. reported profit figures. Studying the effects of TQM practices on financial performance through subjective data, i.e. self-reported rating scales, which reflects respondents' perceptions of financial performance compared to previous years or competitors, implies that there is a positive relationship. Such research might however be affected by respondent bias by managers, who see the operational benefits of TQM practices (e.g. less faulty products), which do not necessarily translate to generally improved financial performance. Kober, Subraamanniam & Watson's (2012) research on whether implementing TQM practices had a positive relation to the firm's financial performance, no evidence was found after controlling company age, size, industry or risk. A limitation of the study was that the level or time of TQM implementation was not known. The research speculates if the companies used for objective data were truly committed to implementing TQM practices, since TQM measures were adapted due to external pressures, rather than as a strategic decision to reduce waste and costs (i.e. a distress purchase). In this case, the organization's perception influences how TQM practices will be adopted, for example if and how resources are allocated towards the improvement initiative. Another reason for the lack of evidence of TQM practices and positive financial performance could be that TQM is only adopted by companies with poorer financial performance, that through TQM practices aim at improving their financial performance.

2.1.7 Scrum

Scrum is a renowned agile development methodology framework, within which people can focus on complex problems, while productively and creatively delivering the highest possible quality products. Scrum is founded on lean thinking as well as empirical process control, or empiricism, which proclaims that knowledge comes from experience and making decisions based on what is known. Further, the scrum framework emphasizes repetitive and incremental development, which is illustrated through sprints. The scrum team is responsible for development projects and consists of people with different roles, although there are no hierarchies. Scrum teams are cross-functional, consisting of people with different skills required to complete a sprint. The product owner represents the customer, the development team is responsible for the implementation and the scrum master assures that development follows the scrum principles. It has been indicated that smaller scrum teams communicate better and are more productive. Larger scrum teams should reconsider reorganizing into

multiple scrum teams, each focusing on the same product. Work is organized in sprints, a set amount of time (usually 4 weeks or less), during which a “done”, usable and potentially releasable product increment is created. (Sutherland & Schwaber 2016)

In practice, scrum is an environment where the product owner orders the work for a complex problem into a product backlog. Next, the scrum team turns a piece of the work into an increment of value during a sprint. Then the scrum team and its stakeholders inspect the results and make necessary adjustments for the next sprint. The following step is repeating the cycle over again. (Sutherland & Schwaber 2016)

Scrumban is a combination of Kanban and scrum practices used for software development management in different project situations. Scrumban is used when scrum practices are inappropriate and appropriate Kanban practices are adopted, utilizing the best of both worlds. There are no specific practices to scrumban although agile teams need to understand which scrum and Kanban practices add value and choose them appropriately. Team members acquainted with scrum and Kanban are more likely to benefit from scrumban, since they know which practices to combine for their benefit. (Alqudah & Razali 2018)

2.2 Continuous improvement implementation

Research indicates that there is not one perfect approach to implement continuous improvement (Savolainen 1999; Marin-Garcia, Pardo del Val and Bonavía Martín 2008). Instead, Tersine (2004) suggests starting with easily achievable tasks and steadily moving towards more complex tasks. The easy and quick benefits also build up momentum needed to overcome initial sluggishness. Performance improvement is more likely to occur when there is momentum, transparency and minimized irregularity. Continuous improvement can be compared to a fire; once it is started, its continuity is dependent on fuel and oxygen. Management should provide the fuel, i.e. resources, and the workers or teams should provide the oxygen, i.e. ideas. The fire will be easy to start but sustaining it will be the challenge (Tersine 2004). In addition, correcting flaws and repeatedly contributing new elements helps maintain the continuous improvement program (Marin-Garcia, Pardo del Val and Bonavía Martín 2008).

Continuous improvement can be implemented through different strategies, described either as a company-wide process or continuous incremental innovation. Incremental adjustment processes imply gradual changes through many small steps, which vastly differs from a radical turnaround approach. CI also represents organizational renewal, which is achieved by

bringing new learnings or capacities into the organization. It is suggested that organizational renewal or changes requires procedural planning (formal change), visionary leadership and inductive learning (emergent, organization-wide change). Savolainen's (1999) research found that the process of CI implementation is a gradual, non-straightforward and cyclical learning process. The cyclical learning process is identified by organizational changes, counter forces (from e.g. middle management), focus or a methodology of CI implementation and the length of the period of implementation. The success of CI implementation is however not solely the management's responsibility. Non-managerial, entrepreneurial employees support a more stable and long-term CI implementation. Research has proven CI implementation requires a driven and focused organizational culture that can produce a unique competitive advantage for the organization.

Bessant and Francis (1999) suggest that continuous improvement has strategic advantages, which is defined through continuous improvement capability. Continuous improvement capability is a component of dynamic capability, providing mechanisms for organizations to be involved in the learning processes. CI capability is expressed through five levels, ranging from level 0 (no CI activity) to full CI capability at level 5 (the learning organization), reflecting CI input through performance and practices. Level 0 implies no CI activity while an organization on level 5 can be defined as a learning organization, where CI is a dominant way of life in all processes. In between, level 1 is essentially an *ad hoc* approach, level 2 is a structured and systematic approach, level 3 occurs through a strategic approach and at level 4 CI innovation is autonomous. Further, the research contributes with characteristics that support using CI for strategic advantage.

According to Haikonen, Savolainen and Järvinen's (2004) research, issues concerning measurement and data collection, use of methodology, leadership and utilization of results may appear during implementation of Six Sigma. Issues relating to measurement and data collection could be measurement systems and reporting systems not being designed and integrated to produce detailed process measurement into information presentable to top management. The difficulty and slow data collection methods as well as complex measures could also affect the measurement and data collection negatively. In addition, data gathering and analysis producing facts should be reported in process and financial performance reports, which should be supported by the accounting system. The absence of customer, accounting department and process development expert commitment, as well as numeral evidence and routine shortage affect use of methodology. A lack of leadership roles, such as champions,

black belts and master black belts, leads to an absence of Six Sigma methodology communication and knowledge. Additionally, a lack of internalization and commitment to the CI methodology from the top management is an implementation issue. The employee's time constraints are identified as an issue concerning utilization of results. Finally, unsystematic selection of improvement projects is a suggested challenge with CI implementation.

For a culture of continuous improvement to thrive within an organization, the leader needs to be empowering and innovating. The leader is the embodiment of a sustainable continuous process improvement (CPI) through open-minded and welcoming dialogue across the organization. The leader is often challenged with resource restrictions, which creates conflicts about which project to undertake. Therefore, project proposals should be made after thorough consideration. One approach is to combine projects initiated by a committee and proposed by employees and supervisors. The committee could also be in charge of assigning resources as well as judging feasibility and priority. Continuous improvement program infrastructure is achieved through training, coaching and continuous education. In addition to training, practical tools should be available, such as coaching through feedback and advice. (Dixon & Fargen 2017)

Unzueta, Esnaola and Eguren's (2020) research establishes that applying a continuous improvement process (CIP) forms improvement routines and reinforces key elements of a continuous improvement model (CIM). A CI system within an organization also requires a promoter team, led by a CI lead, with defined roles and rules. A continuous improvement process assessment system (CIPAS) serves to measure the continuous improvement model in an organization, by assessing the level of maturity on the Bessant scale, evolution of improvement routines and identifying necessary key elements of the continuous improvement model. A challenge with implementing the continuous improvement process assessment system was convincing management, especially the promoter team, that measuring the evolution of the continuous improvement process was necessary.

Marin-Garcia, Pardo del Val and Bonavía Martín's (2008) research suggests that there are factors that support re-launching a CI program. Managerial communication, communicating the economic valuations of CI proposals to employees, new ways of working (such as CI teams) as well as offering training in CI tools, is suggested to improve employee participation and acceptance of the CI program. A lack of employee participation implied a shortage in CI proposals, which increases the risk of stagnation in the CI program. It is also indicated that a

reward system proved problematic and did not necessarily improve employee participation or acceptance.

3 LITERATURE REVIEW

This chapter will provide insight into previous research within performance measurement and control topics. Firstly, prior studies on performance measurement will be discussed. Then a further analysis on control systems will be reviewed, including Simons levers of control framework.

3.1 Performance measurement

Performance measures or indicators are used to control and support managers' actions and decisions (Jordan & Messner 2012). Bond's (1999) research suggests that improvement can occur as small, incremental changes (kaizen) or innovative step change (process re-engineering). Since the two approaches share the same philosophy of improvement, they do not exclude one another and can work complementing each other. Kaizen is characterized by bottom-up and low cost change initiatives. Since improvement is not a management initiative, management acts mostly in a supporting role. The risks with this approach is inconsistency and lack of unity and standardization. Bond's research suggests that regardless of the CI approach, performance measures are used at four different stages:

1. maintaining process status quo;
2. process involvement;
3. process re-engineering;
4. achieving process stability.

Phase one includes establishing a stable operating environment. Once the first phase is complete, the focus should be on maintaining a day-to-day routine focused on producing reliable output concerning quality and timing. Bond suggests a combination of the Kanban system to control material flows and the statistical control of quality as a performance measurement system. After routines are established, the process life cycle has reached its mature phase, during which kaizen topics such as efficiency and effectiveness should be continuously reviewed. Senior management can only use the performance measurement system as a guiding and testing instrument, not as an indicator on how to improve a process.

Therefore the responsibility of initiating and implementing improvement suggestions is on the operating team, since they have the expertise of the process mechanism (Bond 1999).

Goretzki et al. (2018) examine what makes accounting figures persuasive in the evaluation of performance by exploring why certain numbers are used and accepted. From an interactional framing perspective, where key actors stand in a hierarchical relationship to each other (e.g. supervisor and subordinate), Goretzki et al. suggest that accounting figures are used as “framing tools”, that are used to categorize one’s performance. The legitimacy of a figure is essential for the usefulness of the figure. The legitimacy is affected by the actor's perspective, which influences the view on whether the figure is salient, i.e. noticeable or meaningful. Further, the legitimacy of a figure in the context of performance evaluation for a particular situation is negotiated at the spot between superior and subordinate in the context of a performance evaluation meeting. The study also found that a number is considered legitimate and salient when it is complemented by another number and other numbers meant to act as arguments for the actors ‘operational reality’. Persuasiveness, which results from legitimacy and salience, is therefore a situational accomplishment.

3.2 Control systems

Jordan and Messner (2012) examine how performance indicators are utilized by managers. Firstly, it is suggested that managers do not solely rely on performance indicators, but aim at contextualizing and complementing the accounting information through different informal arrangements. Secondly, previous research has found that perfectly complete, accurate or precise accounting information is not perceived to be a priority by managers, implying that the representational quality of performance indicators are approached in a pragmatic and flexible way when complemented by other operational business information.

Stormi, Laine & Korhonen (2019) define performance measurement systems (PMSs) as a set of metrics that a company uses to quantify both the efficiency and the effectiveness of actions. A PMS is a multidimensional system, including financial and nonfinancial, external and internal, as well as backward and forward-looking measures to influence its operating environment. Usually, a company might want to use key performance indicators (KPI’s) related to measuring financial performance, customer satisfaction, operational efficiency in addition to adaptability to internal and external changes. The BSC by Kaplan & Norton is an example of a famous PMS framework. Even though structural PMS frameworks can be useful tools for managers, merely using one hardly leads to success. For instance the

development and implementation of the PMS is significant for its future success or failure. Stormi, Laine & Korhonen also suggest that agile PMS development is guided by being constantly informed by the upcoming PMS users. An agile PMS development project could result in a practice of using the PMS in a reflective way, including reflecting on the performance measures relating to a current managerial task.

Islam, Adler and Northcott (2018) support Jordan and Messner's (2012) findings, adding that incompleteness of performance measurement systems (i.e. poor design quality) does not necessarily suggest poor firm performance. Instead, the research finds that improved design qualities of the PMS are positively linked to firm performance. Further, the research found that management perception (problematic or non-problematic) of PMS depends on its role in implementation of an organization's strategy. When a PMS is used to instigate improvement activities around strategic goals, management considers the incompleteness of a PMS non-problematic as long as sufficient improvement activities exist. The findings also suggest that management does not strive to adjust existing or add new metrics although they have the direct authority to do so. It is suggested that incomplete PMS did not misdirect management efforts away from strategic organizational objectives, which explains managerial tolerance.

Jordan and Messner (2012) and Islam, Adler and Northcott's (2018) studies stand in contrast to normative literature, which suggests that incompleteness of performance measurement systems can prevent strategy implementation and lead management to pursue inappropriate targets and activities, also relating to decrease of organizational value (Ittner & Larcker 2003).

Further, the research found that both high and low performance indicator goals can lead to slack and flexibility (Davila & Wouters 2005). Jordan and Messner (2012) also observed that when building a new performance measurement system upon existing issues, the relation between action and performance indicator should be considered, to challenge the purpose of existing performance indicators as well as provide access to new concerns. Instead, issues with incompleteness can be eliminated by manager involvement in design and development of a control system and through experimentation before implementation (Wouters and Wilderom 2008).

The findings on how managers react to formal control systems are based on Adler and Borys' (1996) framework on enabling and coercive control. According to Adler and Borys, managers will welcome formal control systems positively if they feel that the systems enable them to

better carry out their work. However, if managers feel that formalization is a way for top management to coerce managers' work and compliance, formal control systems are inclined to be perceived negatively. Management control systems are also suggested to be especially prone to coercive use due to their hierarchical and performance-focused nature (Ahrens & Chapman 2004). Control system design as well as the design and implementation process are thought to influence whether the control systems will be perceived as enabling or coercive. Adler and Borys argue for four key design characteristics that contribute to an enabling control system. Firstly, permission and ability to repair the formal systems problems, which could be adjusting definitions or measurements of performance indicators. The second feature of an enabling system is internal transparency, which should provide managers with an understanding of the logic used in the system. In an output control system, target values for performance should be communicated to managers (Ahrens & Chapman 2004). Thirdly, global transparency represents the degree to which managers understand the up- and downstream implications of their work. In the budgeting process context, global transparency is accomplished when the process advances the managers' understanding of the company's operations and strategy (Chapman & Kihn 2009). Lastly, flexibility in how formal systems are used enable managers to perform better by allowing for adjustments to suit specific cases. Adler and Borys also note control systems that are developed through user involvement rather than solely by external experts are made to fit the organization instead of the other way around (Wouters & Wilderom 2008).

Malmi & Brown (2008) highlight the importance of studying management control systems as a package instead of studying MCS as an isolated phenomena. Management control systems can be considered packages when there is a subtle link between the control elements (Abernethy & Chua 1996), although researchers have called for further investigation on the issue (Sandelin 2008). It is crucial to consider the environment in which MCS operates as well as how they relate to other MCS in order to not make incorrect conclusions. Also studying specific MCS elements in isolation is suggested to present errors in the model. Additionally, a newly developed MCS element needs to be considered against the existing extensive MCS package, which could consist of budget, measurement systems and other traditional accounting controls as well as cultural and administrative controls. It should be acknowledged how a MCS could impact other types of controls that are not accounting-based or formal controls, such as cultural or administrative controls, and how they complement each other in different contexts. Considering and studying these variables are vital and should be kept in mind when developing the MCS (Malmi & Brown 2008).

Further, Malmi & Brown (2008) suggest a new MCS package conceptual framework that includes five types of controls; planning, cybernetic, reward and compensation, administrative and cultural controls. Planning is considered a control that occurs before the event and includes long range and action planning. Long range planning supports strategy while action planning refers to tactical planning during the next 12 months. Planning sets targets for the organization, thereby guiding effort and behavior, as well as standards, which clearly communicates the expected effort and behavior. Cybernetic control includes measures that enable quantification of an underlying phenomenon, activity or system as well as standards of performance or targets to be met. Additionally, there is a feedback process that enables comparison of the outcome with the standard and variance analysis. The cybernetic control also enables the ability to modify the system's behavior or underlying activities. Reward and compensation control can motivate and increase the performance of individuals and groups by connecting rewards to control effort direction, effort duration and effort intensity. Administrative controls consist of directing employee behavior through organization of individuals, monitoring of behavior and who employees are accountable to for their behavior as well as specifying tasks or behaviors that should be performed or not performed. Culture controls include the values, social norms and beliefs an organization established to influence employees behavior.

The categorization of controls in Figure 6 also serve a descriptive purpose. Cultural controls are assumed to be broad, subtle and slow to change, thus providing a contextual frame for other controls. Planning, cybernetic and reward and compensation controls are assumed to be connected to each other in many contemporary organizations and are presented in a temporal order from left to right. Administrative controls on the bottom create the structure in which planning, cybernetic in addition to reward and compensation controls can be applied. While Malmi & Brown (2008) acknowledge that Figure 6 is not a complete framework, its purpose is to explore and acknowledge the potential links between controls.

Figure 2: Management control systems package

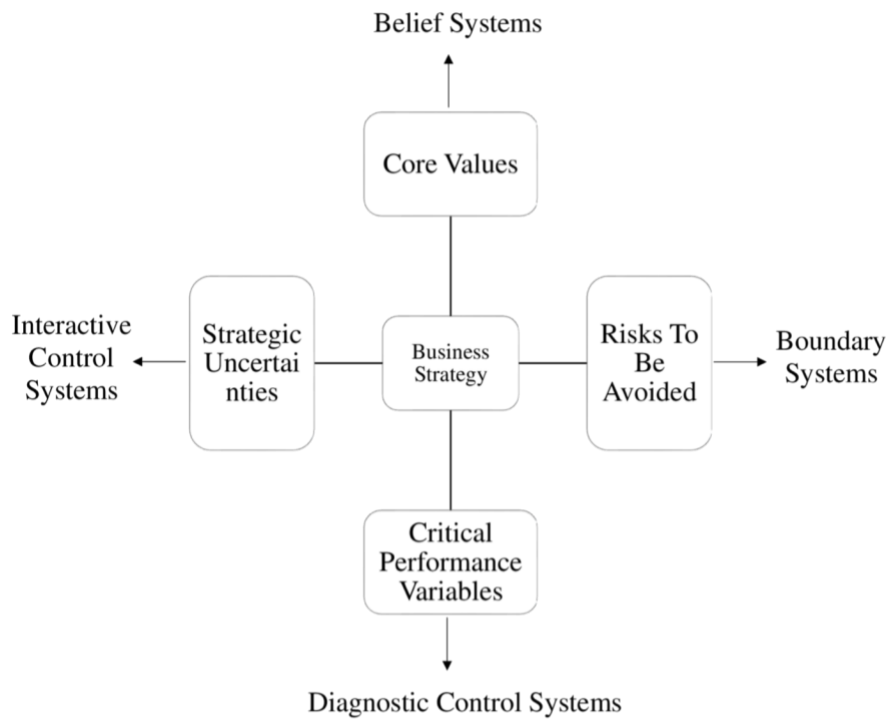
Cultural Controls						
Clans		Values			Symbols	
Planning		Cybernetic Controls				Reward and Compensation
Long range planning	Action planning	Budgets	Financial Measurement Systems	Non Financial Measurement Systems	Hybrid Measurement Systems	
Administrative Controls						
Governance Structure		Organisation Structure			Policies and Procedures	

Source: Malmi & Brown 2008, 291

3.2.1 Simons' Levers of Control framework

During the 1990's, Simons (1995) proposed a framework for managing creativity and control in an organization. The four levers of control are intended to renew strategy in a controlled way through belief systems, boundary systems, diagnostic control systems and interactive control systems. Diagnostic control systems assure managers important goals are met efficiently and effectively. Belief systems are intended to encourage individuals to identify new opportunities. An element of belief systems is also communicating core values and motivating all employees to commit to the organization's purpose. Boundary systems are intended to establish game rules as well as inform employees about pitfalls and activities that should be avoided. Interactive control systems are used by top-level management in order to determine strategic uncertainties, which includes gaining understanding of opportunities and risks in the changing competitive environment in addition to responding proactively. While belief systems and boundary systems could be viewed as contradictory, Simons argues that a tension between commitment and punishment acts as yin and yang, creating a safe direction for both management and employee behavior. Sandelin (2008) observes that Simons' Levers of Control are a formal, information-based control practice that is more suitable to research how managers use MCS, instead of MCS design as a means to control strategy.

Figure 3: Renew strategy with the four Levers of Control



Source: Simons 1995, 85

Diagnostic control systems act as indicators of critical performance variables, which can track individual, department or business progress towards strategically important goals. Management is interested in monitoring goals and profitability through these systems, reflecting progress towards revenue growth and market share. For context and motivation, outputs should be compared against standards of performance or forecasts. However, Simons (1995) argues that diagnostic control systems can lead to pressures, which can ultimately result in control failures. For instance, providing employees with the right counterbalancing controls is necessary to support achieving set performance goals. While rewards and punishments motivate individuals to increase their performance, performance pressures can create a risk of manipulation of financial data. One of the main functions of diagnostic control systems is also to remove constant monitoring by management, which in practice involves organizational downsizing and internal control resource reduction. According to Simon, these measures have been linked to decreases of internal control, even leading to errors and fraud.

Belief systems main function is to communicate values and direction to employees through inspirational and concise principles, for example the level of performance the organization could be aiming for (e.g. “Strive for Excellence”). The belief systems are usually broad enough to apply to all employees throughout the organization while promoting the

organization's core values. There is a risk of repeating buzzwords and fads in belief systems, which are typically met by cynicism. Instead, treating belief systems as operational guidelines has pushed organizations through unpredictable circumstances or even times of crises, as credible guidance towards solutions. In addition to reflecting complex businesses, belief systems meet expectations for meaningful careers, which has increased along education levels. Another of the belief systems purposes is to motivate employees to find new ways of creating value. By communicating the company's core values and mission, management can meet people's natural need to contribute time and energy. But for employees to feel empowered enough to contribute with new ideas and competitive advantage, they need to understand the company's purpose (Simons 1995).

According to Simons (1995), boundary systems are based on a management principle he refers to as the "power of negative thinking". Simons argues that adhering to standard operating procedures and guidelines discourages innovation and creativity, while letting employees know what not to do encourages creativity within clearly defined limitations. Boundaries act as the organization's brakes and are embedded in codes of conduct and standards of ethical behavior as off-limits activities. Boundary systems can be particularly important for businesses where trust is a key competitive asset, like for example banks. A bank that values trust but loses its reputation can have a hard time gaining back trust as opposed to capital and employees. Consultancy firms are also known to guard their integrity by forbidding their consultants to disclose the names of their clients to anyone not employed by the firm. While some companies apply boundary systems a little too late, for instance due to a scandal or an internal investigation, effective management understands the pressures and temptations within their organization. Clear violations of strategic or ethical boundaries can have severe punishments, such as firings. But boundary punishments also serve as warnings to employees and managers alike, that violating strategic or ethical protocol creates a serious liability for the company.

Interactive control systems are replacements for meetings where employees and management informally share information about arising opportunities and threats. Simons (1995) compares interactive control systems to the ground stations of the meteorological institute, monitoring weather conditions to recognize patterns of change. Management uses the data to constantly involve themselves personally in their subordinates' decisions while gaining insight into key strategic issues. Interactive control systems differ from diagnostic control systems by focusing on regularly changing information that has been identified as possibly

strategic by top-level management and being significant enough to require constant attention of operational management at all levels in the organization. Interactive control system's generated data is also best discussed face-to-face and generally acts as a source for underlying assumptions and action plans. The purpose is simply to track undermining uncertainties or unexpected successes that keeps managers up at night, which might be technological, government regulation or industry competition changes. An investment into interactive control systems, i.e. face-to-face discussions and analyses about new information, also signal organizational priorities and support strategy development.

Figure 4: Harness employees' creativity with the four Levers of Control

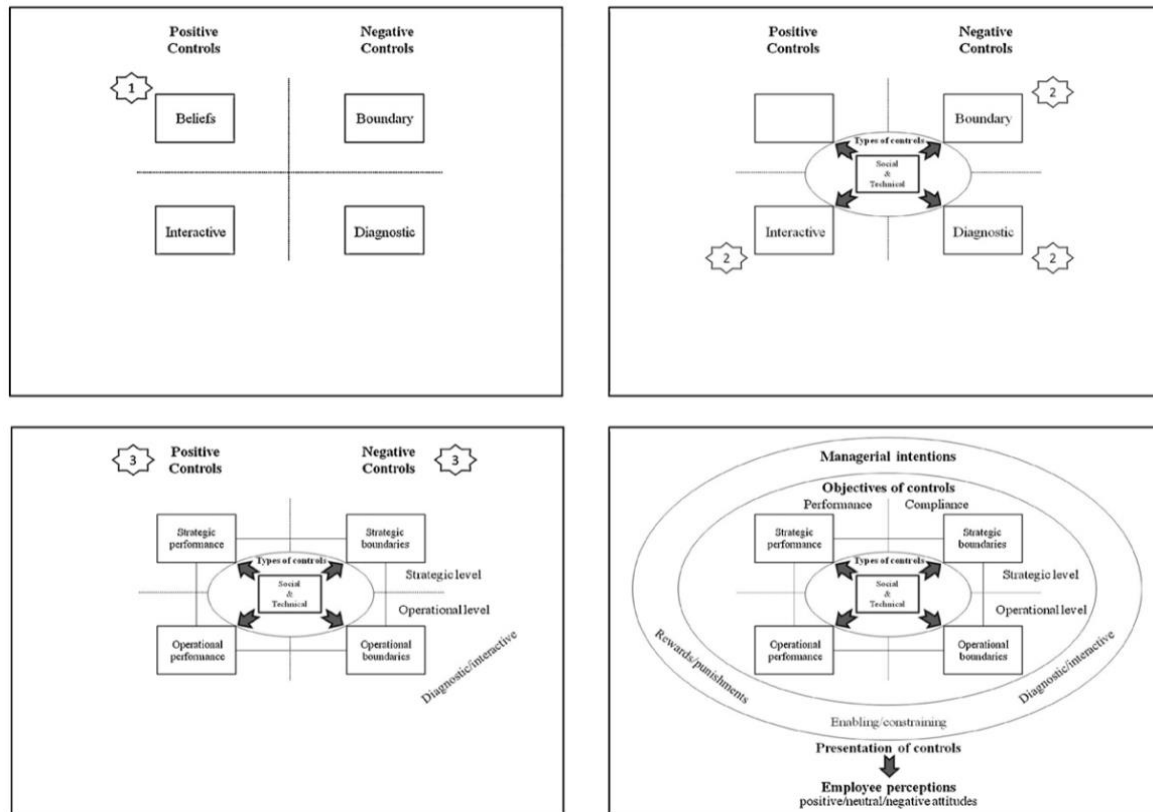
Potential	Organizational Blocks	Managerial Solution	Control Lever
To contribute	Uncertainty about purpose	Communicate core values and mission	Belief systems
To do right	Pressure or temptation	Specify and enforce rules of the game	Boundary systems
To achieve	Lack of focus or of resources	Build and support clear targets	Diagnostic control systems
To create	Lack of opportunity or fear of risk	Open organizational dialogue to encourage learning	Interactive control systems

Source: Simons 1995, 83

Simons' levers of control definitions have been criticized for being too vague and unclear by researchers. Tessier & Otley (2012) develop Simon's framework further. Firstly, the authors argue that enabling and coercive control have in literature been confused as "bad controls" and "good controls", encouraged by Simons' categorization of belief control systems and interactive control systems as positive while boundary control systems and diagnostic control systems are defined as negative. Instead, Tessier & Otley determine that control systems' dual roles (enabling and coercive, positive and negative) are complementary, with both being useful. Further, the framework adds the distinction between managerial intentions and employee perception. It is suggested that knowing someone else will be reviewing one's work encourages more diligent performance but it is also implied that implementing controls

in an organization that already has many procedural controls will be perceived more positively than in organizations that have less procedural controls. Employee perception is also influenced by how the control system is presented to employees. The advanced framework also acknowledges that employees will have an emotional reaction to the control system, which could be positive, neutral or negative.

Figure 5: Evolution of Simons' LOC framework to the revised framework by Tessier & Otley



Source: Tessier & Otley 2012, 183

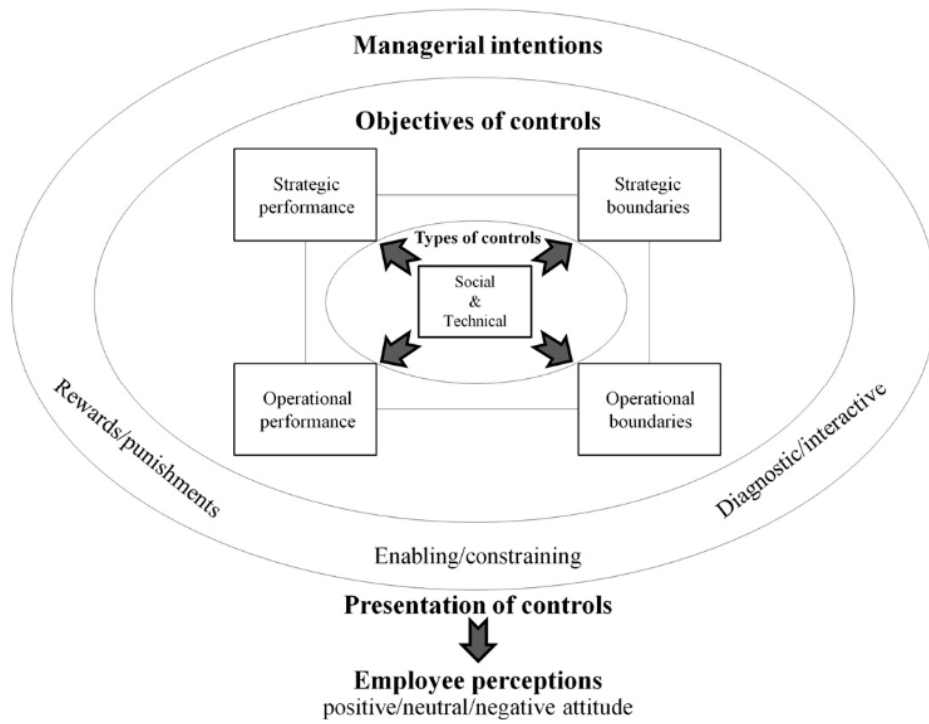
While Tessier & Otley (2012) label emotional responses to controls as positive and negative, they highlight that the dual roles of enabling and coercive controls are not restricted to the quality of controls (good or bad). Additionally, performance and compliance labels are added to the framework. The research extends that the objectives of control might be achieving organizational goals and creating value, which Tessier & Otley define as performance, or following rules and protecting value, defined as compliance. The developed framework extends the categorizations by objectives of control, performance and compliance, as well as organizational levels, operational and strategic. Tessier & Otley also note that while Simons maintains that performance is rewarded and non-performance and -compliance is punished,

compliance is not rewarded according to the framework. According to case studies this is not entirely true, with organizations de facto rewarding compliance.

Additionally, the revised framework does not recognize diagnostic and interactive controls as control systems per se, but instead descriptions of how control systems are used. Tessier and Otley (2012) suggest that interactive use of control systems includes intensive discussions during meetings between managers and employees, focusing on learning from incremental changes in the external environment and including employees strategy development and implementation. When using control systems diagnostically, controls are reviewed in meetings only when relevant changes in the external environment are identified.

Tessier's & Otley's (2012) research also argues that belief and boundary systems do not require the same level of analysis. While belief systems control can be used to regulate performance and compliance, boundary controls are of a different type (social and technical) to manage compliance. Social controls are usually defined as value and norms while technical controls are characterized as procedures and rules. Therefore Tessier & Otley suggest incorporating four types of control systems, operational boundary, strategic boundary, operational performance and strategic performance systems. This categorization further details the characteristics of control (type and objective). The research notes that the controls are however overlapping, i.e. a specific control could have more than one objective, i.e. performance and compliance, and may be used at different organizational levels, i.e. operational and strategic.

Figure 6: Tessier's & Otley's revised version of Simons' LOC framework



Source: Tessier & Otley 2012, 173

4 METHODOLOGY

In this chapter, the methods and motivations for the methods selected for the study are presented. Additionally, other basic methodologies are reviewed, followed by a presentation of the research design of the study.

4.1 Research design

To fulfill the purpose of the study, qualitative research will be conducted. A qualitative research aims at increasing understanding in the studied context, which in this case is the measurement of a continuous improvement program (Patton 1987, pp. 19-20). Although qualitative research can be presented with or without quantitative data, evaluation of the different research methods should be noted. While qualitative data is evaluated through words and actions, quantitative data is measured through statistical metrics. The goal of quantitative research is typically to generalize and summarize, whilst the purpose of qualitative research usually is to increase comprehension for a particular phenomenon (Patton 1987, pp. 9-10). As mentioned earlier, the research data is to be gathered through interviews in the case company's continuous improvement program with the financial control organization. In total, 11 individuals with central management roles will be interviewed for the purpose of the thesis.

Qualitative methods consist of open-ended interviews, direct observation and written documents, such as surveys or questionnaires. This research will approach its topic through open-ended interviews. The open-ended interviews are expected to provide in-depth knowledge and details about continuous improvement, how performance is measured and how the measures are used by management as well as the financial control processes. The research data will be organized according to theme and case example through content analysis. Further, this research intends to provide a detailed description of CI implementation as well as an analysis of the CI process. In addition, observations of the CI implementation and process will be included (Patton 1987, pp. 7-12).

Yin (1981) suggests that the challenge with conducting case studies is unorganized research. Organizing and integrating case study data around the research topic are problems typically associated with qualitative data collected from case studies. One technique of overcoming these risks is to ask respondents to provide context with the answer, which makes the data more efficient to integrate with the research topic. Another technique for conducting a

systematic case study and avoiding the typical pitfalls is using a clear framework for the research.

4.2 Case company

The case company was not chosen for this particular study but instead facilitated the environment in which this study takes place. In qualitative research, close contact and access to the organization is vital for the method although it is also one of its challenges (Eriksson & Kovalainen 2015, 33). In this research, close contact and access to the organization was established by employment in the company. The topic of research was also familiar to the author through previous responsibilities within the area at the company.

The case company is a large, multinational manufacturing company that consists of different types of business areas. The case company is a publicly listed company industry leader with over 10,000 employees. With many decades of experience, the case company is well established although continuous improvement methods have been introduced more recently in the financial control organization. Continuous improvement had been introduced to the case company's financial organization circa five years before this research. However, the organization was not ready for a structured way to implement continuous improvement and efforts gradually decreased. Eventually, with the transition to a process focused organization, a more structured way of implementing continuous improvement was feasible and continuous improvement efforts were reorganized and relaunched during 2020-2021. The case company will henceforward be referenced to as ABC Corp.

4.3 Interview participants

Since qualitative research does not intend to at statistical generalizations, identifying research participants was purposeful rather than representative and random. Thus, appropriateness of the data and accessibility were key to the research. The selection of the interview participants was to access rich data, which enabled in-depth analysis and learning more of the research topics during the study (Eriksson & Kovalainen 2015, 53). Accessibility to research participants was a non-issue, since the author worked in the organization at the time of conducting the research.

The interview participants were chosen from the financial operations organization from the case company. The selection of interviewees was primarily motivated by the study's aim at understanding management's involvement in continuous improvement. Therefore, the

selection of participants was vital for the research design itself, supported by for example Jordan & Messner (2012), Marin-Garcia, Pardo del Val and Bonavía Martín (2008) and Wouters and Wilderom (2008). The individuals were selected for their roles, responsibilities and vantagepoint in the continuous improvement project in the organization. The interviewees will also represent different levels of management and ownership of the continuous improvement processes. A total of eleven interviews were conducted to research relevant topics for the study, seven of whom were managers, two of whom were directors and three of whom were experts in the case company. The interviewees also held different levels of ownership of the CI process, with nine of the interviewees holding ownership of their sub-processes, while two of the interviewees held a higher level ownership or lead roles in the process.

4.4 Interviews and interview questions

Data was collected mainly through eleven semi-structured interviews as well as through action research. The interview participants had different roles and responsibilities in the continuous improvement program. Due to the current Covid-19 pandemic as well as some interview participants working globally, the collection of data was done via Microsoft Teams, where the interviews were recorded with the participant's consent. An interview guide (appendix 1) as well as an accompanying letter (appendix 2) was sent to the participants in advance through email. This gave participants one to three week's time to prepare for the interviews. The interviews were conducted individually with the interview duration ranging from 25 minutes to one hour and ten minutes. Interview anonymity was agreed with all participants with only the participants position and experience at the company to be publicized due to the relevance to the research. Collection of data was done with good secrecy practice in mind and the recorded interviews were only used for the purpose of the study.

The interview guide is divided into three parts, which serve different purposes. The first part aims at establishing the interviewees connection and position in the organization and the continuous improvement program. Establishing the interviewee is relevant for the research itself as not all participants have the same positions and connections to the studied continuous improvement topic, possibly even explaining the differences in perception and opinion. Questions six through eight purpose is also to set the context for further questions, i.e. increase the understanding for the process and its environment for continuous improvement. Although these questions could have been included in the first part of the interview guide,

they eventually lead to the questions of controlling said processes, therefore fitting naturally into the second part of the interview guide. The second part addresses the current control systems in place in the process, which the interviewee is connected to. Moreover, the second part aims at establishing the level of continuous improvement implementation in the process. The third part focuses on managerial perception of continuous improvement and control systems, as well as managerial tasks related to ownership of the processes.

The interview questions were developed from relevant literature to the research. One of the central theories for interview question development was Simon's Levers of Control (1995) as well as Tessier's & Otley's revised framework (2012). Questions inspired by Simon and Tessier & Otley concerning control, compliance as well as social and technical controls were adjusted according to the processes implementation and the interviewees perception of them. To increase the understanding for how continuous improvement de facto is implemented, it was relevant to discover the managers and management accountants role in the change process (Maskell & Kennedy 2007). Furthermore, discovering the financial and non-financial measures used in controlling processes was partly inspired by the Balanced Scorecard by Kaplan & Norton (1992), which are renowned methods for evaluating both strategic and economic development. The legitimacy or saliency of accounting figures could have been included in the third part of the interview guide, since it is concerned with perception of numbers. Nonetheless, the perception of accounting figures is an interesting topic highly connected to the relevancy of control systems (Goretzki et al. 2018). The aim of the question is to understand what makes performance measure figures or KPI's meaningful to its users.

The third part of the interview guide discovers the participants perception and attitudes towards control systems as well as continuous improvement. In the interview guide, the term performance measures is used synonymously to control systems. Tessier & Otley (2012), Siska 2015 and Islam, Adler and Northcott (2018) all note that managerial perception as well as employee perception are vital factors in the success or failure of an agile improvement program. Perception was determined through determining participants' attitudes towards control systems (Adler and Borys 1996) as well as reward and antireward systems (Marin-Garcia, Pardo del Val and Bonavía Martín 2008; Simons 1995). Simons' Levers of Control (1995) was also the main influence for the third part of the interview guide, providing insight into the practicalities of working with control systems and continuous improvement with development reviewing methods. Communication of development in continuous improvement within the company has been noted as an important aspect of managerial tasks

(Beer 2003; Marin-Garcia, Pardo del Val and Bonavía Martín 2008), which is also linked to employee perception.

4.5 Data collection and analysis

In addition to eleven semi-structured interviews, primary data was also collected through participant observation on the topic of continuous improvement in a case company. Data collected through participant observation, or action research, was gathered through internal documents and systems as well as discussions and meetings. One of the goals of action research is to develop strategies to improve management and so determine its usefulness, as was the objective of this study. Action research can include a single or multiple cases and in this research one case study was conducted to achieve an intense, in-depth study of a single organization's experiences at a single point in time (Kaplan 1998). Jönsson & Lukka (2007) add that action research provides the opportunity to offer a practical hypothesis that is connected to the theory which has been used to analyze the findings. Additionally, further relevant research material was obtained through the interviews, which was used to achieve a higher degree of triangulation and richer data for the research. The empirical part was performed in cooperation with the organization so that the collected data was relevant to the study. Each interviewee was interviewed once, with one interview stretching over the reserved time. In this case, the interview was continued at a later time. All eleven interviews were conducted in English through Microsoft Teams. All interviews were recorded with the participants permission, enabling for further analysis. The average interview time was 41 minutes.

To enable a thorough analysis of the interviewee's answers, each interview recording was transcribed. Analysis of the transcribed interviews was done through content analysis, which is an approach that aims at quantifying the contents of the analysis systematically, through predetermined categories (Bryman & Bell 2015, p. 298). The interview answers were coded into categories, firstly according to the three interview themes and then according to question. The answers were further complemented with data collected through participatory observation and internal documents of the case company.

5 RESULTS

In this chapter, the research results will be presented in addition to how continuous improvement is applied to financial control processes. The chapter will also anonymously present case company ABC Corp to give context to the following process and result descriptions

5.1 ABC Corp

ABC Corp is a Finnish-established, traditional manufacturing corporate group. Since the case company and research participants will be anonymous, it is appropriate to not include a detailed company presentation. The name ABC Corp is fictitious and used in order to guarantee case company anonymity.

5.2 Continuous improvement in ABC Corp's financial control processes

A company might want to achieve a more transparent, efficient and harmonized way of working in finance processes. These goals could be attained through continuous improvement methods, such as lean or scrum methods. Continuous improvement of ABC Corp's finance processes can be considered inadequate, since it is neither structured nor systematic on an organizational level. Another consideration is that continuous improvement (CI) was first introduced to the finance organization at ABC Corp five years ago. However, the methods were not sustainable due to reasons that will be discussed in the following chapter and a relaunch was planned and implemented. The relaunch also introduces new characteristics, for instance reorganizing the continuous improvement program from a business area organization to a process matrix organization. Another new aspect is also the global scale of the CI relaunch. The process matrix follows a process taxonomy, which is structured from lowest to highest levels of finance processes across different organizations. The end-to-end process is a series of cross-functional processes, which create a value stream delivering an outcome defined and expected by the customer of a process. An end-to-end process belongs to a process taxonomy, which is a list of key processes performed in an organization, grouped hierarchically to visualize how they are connected to each other. Financial processes might be divided into three high-level processes, source-to-pay, record-to-report and lead-to-cash, which include all financial activities a multi-national company might need to be profitable and compliant.

This study will focus on continuous improvement in record-to-report (R2R) activities, which will also be referred to as financial control activities. The record-to-report activities are responsible for collecting, processing and delivering relevant, timely and accurate information used for providing strategic, financial and operational feedback to several stakeholders, who evaluate business performance. Record-to-report activities could include sub-processes such as finance master data, budgeting, management reporting and inventory accounting. Each activity could represent a sub-process, under which day-to-day tasks are continuously improved and organized.

Financial control process performance development, which will be used synonymously to continuous improvement in financial control processes, aims at recognizing, classifying, documenting, measuring, managing and eventually, enhancing said processes owned partly or entirely by the financial control department. Although all values ultimately share a goal of excellent quality output, improvement of processes in financial control intend to:

1. improve end to end process understanding and communication;
2. increase control and consistency;
3. improve operational efficiency and automation;
4. align operations with business strategy.

5.3 Interview results

5.3.1 Interviewee's role in CI

In the first part of the interview, the interviewee's relationship to financial control activities and role in the continuous improvement program were determined. The interview participants represent different levels of experts and managers as well as higher-level directors. Most of the interviewees have full or part ownership of a financial control sub-process. This means that the interviewee's day-to-day work consists of financial control activities as well as continuously improving processes in these activities.

The variance of the amount of time participants had been working for the company was large, ranging from one year to 29 years. Among the participants, the average years at the company was ten while the median was nine. Some participants had had other positions within the company before their current role while some were in the same role they started at. However, most who had had other roles within the company before their current role had previous experience from other finance related fields within the company. The variance of the amount

of time participants had worked in their current role was significantly less than years at the company. Participants' years in current roles ranged from zero to six years. Three out of the eleven participants had worked in their current roles for only a few months, expressed as zero years. The total average of participants' time in their current role was two years while the median was one year.

One of the challenges with continuously improving financial control sub-processes in a structured and systematic way is the variance of tasks record-to-report activities include. While for instance inventory accounting is largely affected by the physical part of the business, other processes such as tax accounting and reporting are mostly influenced by local tax regulation. Although the nature of the tasks might be different, it is essential to identify and at some level understand the objects of continuous improvement.

The inventory accounting sub-process includes valuation and reporting of inventory for accounting purposes. In this sub-process, clearer boundaries between for example business areas and processes will be necessary to determine when the organization moves from a business area focused organization to a process matrix organization. The daily tasks in inventory accounting are a balancing act between accounting and the physical business activities taking place on the floor.

Validating and reconciling data is a sub-process tasked with maintaining company-wide principles, rules, templates and guidelines for approving accounting data. The closing and consolidating sub-process represents the most critical time in the accounting departments monthly reporting, the closing and consolidating of the books. All month-end closing related activities fall under the sub-process, in which up-stream deficiencies will be revealed during the closing days.

The group level accounting and reporting process (which in this case is outside of the financial control process scope) includes external and internal reports such as annual accounts, interim accounts as well as group level management reports. Group financial and management reporting is a function supporting the business in significant transactions and agreements as well as analyzing business contracts that impact the finance of the organization. Additionally, group level accounting and reporting may be responsible for company-wide accounting principles and guidelines, since company level accounting also needs to comply with group level accounting at a higher level. The process might also be tasked with overseeing the internal control environment as well as working with internal and

external partners, such as the audit committee and tax and mergers and acquisitions departments.

The fixed assets and leases sub-process is responsible for true and fair accounting of and efficient processing of fixed assets and leases. The core purpose of the sub-process is for the assets will show correctly on the balance sheet. Both the fixed asset and lease recording procedures are complicated processes, involving a cycle of registering, adjustment, transfer, depreciation and disposal of the asset as well as complying with local accounting standard regulation.

The finance master data sub-process is responsible for profit centers, cost centers and general ledger (GL) accounts, where maintaining the data quality is a priority. The role of master data management has significantly increased in finance organizations during the past decades, since ensuring data flow in all systems is a prerequisite for all accounting and analysis activities involving larger quantities of data.

The statutory and tax reporting sub-process is responsible for corporate income tax processes domestically and for coordination of corporate income tax processes globally together with the outsourcing partner. Daily work consists of activities related to income tax reporting. The statutory and tax reporting team is also tasked with following up on country specific tax laws, in order to assure that the company is compliant in addition to paying, posting and reporting the taxes, which requires communication and cooperation. The statutory and tax reporting sub-process also includes transfer pricing among global sales companies, which as a process includes activities such as documentation, supporting tax audits and auditors.

Beyond the sub-processes subject for continuous improvement, all described activities fall under the financial control function. The higher level financial control process, which includes all the aforementioned sub-processes, also needs to be controlled in order to estimate the utilization of resources and funding of process development. Controlling the entire financial control process could affect for example the purchasing of new tools and software as well as the recruitment of new employees, depending on the need and development of the process.

5.3.2 Continuous improvement performance measures

While the areas of performance are important to measure or track in the subsequent processes and sub-processes, the end goal for most seems to be to save time, eliminate waste and

improve quality. In the inventory accounting sub-process, saving time during month end, the quality of work as well as the transparency and accuracy of the processes are crucial areas to measure. In addition, developing process focus, defining responsibilities and ownership would improve the accuracy of the process. It should be noted that no common metrics among the financial control sub-processes are in use, although they could improve process comparability and harmonization. In the record transactions, sub-process basic key performance indicators (KPI's) focused on the outsourced team's performance would reflect sub-process efficiency. For instance, on-time delivery of financial reports and data on time would indicate compliance to closing calendar deadlines and quality metrics based on feedback from stakeholders and auditors would reveal errors in posted documents. For the validate & reconcile data sub-process as well as the close & consolidate sub-process, controlling quality as well as compliance to guidelines and deadlines are important to track for the sub-processes performance. In the fixed assets and lease accounting sub-process, measuring the performance is connected to the timely accounting of newly purchased assets as well as month end closing is compliant to guidelines and deadlines. Quality should also be monitored. In the finance master data sub-process, two main things are important to measure. Firstly that the process itself, i.e. that the delivering of data, is running effectively and efficiently. The second important measurable is data quality.

For the statutory and tax reporting sub-process, the essential areas of performance are quality, compliance and effectiveness. Effectiveness in this case would be spending less hours on routine tasks in the future in order to release hours for analysis work, which is more value adding work. These improvements would lead to increased reliability, which is something the sub-process aims to enhance. Increased reliability from the authorities and tax auditors would for example impact the amount of tax audits. How effectiveness and reliability should be measured is however unclear in the sub-process at the moment. In addition, performance development should also be measured, since transformation from the way things are done now and automation should be considered and utilized daily. Moreover, the nature of taxes are dependent on complying to deadlines, which might be set by external stakeholders. In these cases, failure to comply with deadlines could lead to financial penalties. In transfer pricing, harmonization (e.g. accounts and document layout) should be measured, since it is beneficial to the auditors. The issue with harmonization however concerns both measurability as well as the value it would bring.

On group level accounting and reporting, eliminating routine and other non-value adding tasks in addition to transitioning employees to subject experts within the organization are value adding changes to the process, and subsequently also the organization. Controlling a sub-process can also occur through contacts, cooperation and requests. In this case, the cooperation feedback is a vital indication of the process's performance. On a technical level, following reporting requirements also implies how the process is performing. Transforming a manual and high-risk task process through an automated system enhances quality improvement and automation, which are key to eliminating wasteful resources. In this specific process, adapting a continuous improvement culture and mindset has been essential for performance development.

Going upstream from the sub-processes, the continuous improvement program could also be controlled through process specific measurements or on an employee level, e.g. how well employees have adapted CI and if they use it as a tool in their daily work. When controlling the entire financial control process, the overall performance is measured through resource management and allocation (FTE, or full-time equivalent, indicates the workload of an employed person expressed in a comparable manner) as well as reporting quality (transparency into problematic areas, i.e. using resources to remove overtime, manual steps and such from month end closing).

Since the relaunch of continuous improvement during 2020, most of the participants had not reviewed how CI could be measured in their processes and sub-processes. In fact, the development of the measurements were underway during the interviews and some of the respondents were participating in the governance model development and renewal of the model. Due to the measurement and control systems still being developed, none of the participants had had the opportunity to make any adjustments to the performance measures yet.

Participants generally agreed that process owners (PO) and process experts have different responsibilities when it comes to their roles in the performance measurement development and change process, as expressed by interviewee 5:

Employees are tasked with the operational work since they know the process best. The PO's role is to give a framework on how to assess or be able to see how the process works and measure, give vision to process development, provide a operational and theoretical roadmap. (Interviewee 5)

Process experts could however have more of a participatory role in the planning and brainstorming with the managers, since they are the correct people to eventually implement the performance measures. The PO have ownership and more responsibility in the development of performance measures according to the participants. Giving the process team a clear framework and visualization of the process development will support the process expert's work when they need to effortlessly present improvement ideas. However, the process development governance model should also be reviewed, for example annually to ensure that the framework is adding value to the organization and that set goals are met. The PO's are tasked with translating strategic level needs to operational level needs and assuring that finance teams are serving their customers by linking targets and implementing strategy in practice. Aligning targets and strategy is on a higher level also a major point of interest and responsibility for the directors. In the continuous improvement environment, the PO is responsible for coaching, helping and sparring ownership teams and process experts, as well as checking that process activity is moving in the right direction on a global scale. In addition, supporting internal communication and forums as well as connecting different people are some of the tasks of the POs in the CI environment. In their own ownership teams, the POs are also assigned with defining areas of improvement and initiating improvement items (through e.g. weekly evaluations and prioritizations), as well as setting guidelines and that communication is working within the team as well. Finally, the metrics PO's set serve as a common language in the process among people in different locations and with different backgrounds, e.g. expectation setting.

The financial and non-financial measures that could be used to monitor processes and sub-processes are firstly affected by who they are aimed at. On a director level headcount measures, cost of one headcount versus finance turnover (i.e. resources per employee), feedback survey in addition to sanctions and penalties supports directors control their departments and subsequent processes. Interview participants also suggested that although both financial and non-financial measures are valid, for example indicating the saved hours, which department has been working on the issue as well as the number of errors, they should be reviewed effortlessly through a system. This supports directors in managing their departments' behavior and scouting for competences. However, measuring should not be controlled but done in a continuous manner as part of daily work to reflect the continuous improvement environment. Clear communication of ownership in a team also helps the team leader understand what is going on in the team and process.

On a PO level, managers and experts want to know if targets have been reached. Financial measures that increase profit and loss statement understanding as well as closing and consolidating metrics could increase the understanding of the financial impact of the process. Other participants noted that hours saved (i.e. hours gained for the business and value adding work) for example during the year, deviations between budget and actuals or previous years, monitoring errors such as correction costs and penalties. External service provider costs and performance could also be tracked to maintain efficient external partners. Some PO's also utilized FTE measures to understand the distribution of work in teams. There were however some doubts if these types of financial metrics truly are value adding to the organization, as opposed to non-financial metrics indicating how well the process is supporting the business. Another observation was the impact of automation, which directly affects the costs of a process by decreasing license fees and such.

On the other hand, PO's might want non-financial measures to indicate quality (e.g. how cases are progressing and flagging problematic cases) and compliance (e.g. compliance to guidelines and deadlines) as well as process efficiency. A measure for efficiency could be the response time to business needs or lead time measures. In supporting sub-processes, measuring the amounts and types of requests could be beneficial for increasing the understanding of how quickly and accurately the process is operating. In sub-processes that work closely with outsourcing partners, measuring the partners' performance is also of interest since it has a direct impact on the process itself. Much like on a director level, PO's are also interested in feedback, especially for the month end closing. Not only do these measures express how well the process is working but there is also a need to understand how well the financial processes are supporting the business. Many participants referred to an existing close & consolidate process dashboard as the framework for process performance measurement, which will be discussed further in the action research results chapter.

While measuring performance could be done through for example financial and non-financial measures, it was noted that compliance could be controlled through monitoring sanctions and other financial fines, which could be a result of non-compliance to deadlines or errors. Compliance is also a measure of quality because it determines if all legal requirements have been met. When transitioning from a business area organization to a process matrix organization, it is expected by some participants that compliance development challenges will arise due to more than one business area being involved in one issue. Guaranteeing fair and correct communication flow could also prove to be a new type of challenge. However,

compliance can also be adhering to the materiality limits, which are critical especially during the month end closing. Interviewee 7 had the following comments on compliance:

Compliance is everything. What is important and material? Compliance is finding the right balance and doing the right thing. Performance on the other hand is about using the resources to be efficient and add value. (Interviewee 7)

Controlling compliance is partly done through internal controls. Measurements such as the number of audits or the nature of the adjustment or reassessment could reflect the process's compliance to guidelines and deadlines.

Social controls are visible through monitoring errors in the process instead of tracking people. Employees are educated about the company's and organization's social norms and values through training in the code of conduct. The code of conduct can be monitored through for example internal controls and a compliance violation could lead to sanctions. From a continuous improvement perspective, being able to see the active users of the common system, e.g. how many people and logins have occurred during a specific time, could indicate activity, ownership and implementation of CI culture. Activity could also be judged by the engagement in internal communication channels, e.g. comments and questions. Even a feeling index (e.g. positive, neutral or negative) for change agents or team leaders could indicate attitudes towards the CI culture and change process. From a process aspect, escalation channels could serve as a channel of communication and if there are no signs of violations, it could be assumed that the team is complying to rules and guidelines. Feedback on the other hand could be a sign of a process deficiency, even on a social or behavioral level. By setting guidelines and rules for the processes, the organization aims at having the social aspect of CI being an inherent part of behavior while performing different tasks. Some participants also note that in the teams, social controls are enforced through company and team culture, that let employees know what kind of behavior is acceptable. Adhering to the guidelines and organizational rules should be as natural as adhering to the social aspect of CI. However, measuring the social commitment to organizational rules and guidelines as well as CI culture is more difficult. Interviewee 4 highlighted an issue with social controls:

Social controls can probably be measured from a higher perspective. Would it be well received? It would be down to how behavior and such is measured. Previously process errors could be pinpointed to a single person, which was not well received by employees and discontinued. (Interviewee 4)

The general consensus was that technical controls were more measurable than the social aspect of continuous improvement. Procedures can be measured through for example

checking access rights. Additionally, processes are developing process guidelines or standard operating procedures, which might include contact lists, measurement standards for the process, systems used in the process, outputs and deadlines. When new people enter the team, standard operating procedures are a practical way of not only introducing the new employee to the tasks and rules but also to the way things are done. When tasks also have clearly defined steps, it is more effortless to find at which point and why an error might have happened. The preexisting close & consolidate process dashboard as well as sanctions would also highlight if there were any rule or procedure violations. Introducing new systems with increased internal controls is also a tool for monitoring processes. In another process a person with monitoring responsibilities checks that tasks have been completed. This monitoring could be expanded to also check the quality (i.e. correctness) and timing (i.e. compliance to deadlines) of tasks in the process.

In controlling continuous improvement in the processes, obtaining figures that are comparable increases transparency to the process. It was suggested that obtaining figures on saved time is more tangible and easily comparable than quality measures. Quality improvements require discussions to define the actual impact, which could require additional information, like a summary or review could increase understanding. The additional information would need to be efficient and effectively available. However, interpreting recording quality improvements does not necessarily translate in the intended way. If quality improvements are recorded in a quantifiable manner, one improvement item could be labeled with either one or four quality improvements, which is not very descriptive. Concerning continuous improvement measurement figures, simplicity and the lack of mathematical formulas is motivating to report to the end-users.

However, is accounting information in itself salient? According to participants, accounting information's basic assumptions affect the legitimacy of figures. Accounting information typically requires some type of background or context, as explained by interviewee 6:

Background on figures and measures is necessary. For example an ERP migration could result in higher materiality violations. When the situation has normalized, issues can try to be eliminated. Complementary information on measures is more of a rule than an exception, because I do not want to give feedback on figures alone. (Interviewee 6)

The reason the participants would require additional information was primarily that they would not want to give feedback on figures alone without understanding the context. Therefore, a discussion with process experts would be necessary for understanding the cause

of the error and eventually eliminating it. The participant's general assumption is also that a figure without variation needs to be reviewed if the metrics are working. However, when there is variation, investigating the source of the issue is necessary. Another aspect is trusting that the master data process is working accordingly and counting on that the process's instructions are developed and accurately applied.

On the topic of what could be improved on in the continuous improvement program, increasing the understanding what quality output and improvements are was a common observation from participants. Understanding the quality improvement measure in the CI context or developing new, more descriptive measures could enhance understanding for the processes themselves. Another aspect of improvement was efficiency, which could be measured through how many systems are used, how many steps a task requires (e.g. the less steps, the easier the task), the number of needed reports (standardized and simple reporting would be preferred) and time used for different types of tasks. Measuring not only employee efficiency but also system efficiency could help detect waste in the processes. Adding transparency also reflects efficiency as well as quality so developing measures such as lead time and processing time could indicate the complexity of the tasks. Improvement was also requested regarding roles and responsibilities, which should also be communicated in the organization. It was noted by a participant that the agile way to work is easier for the manager in a situation where they can have an open improvement task list from where team members can pick the items they will work on. Further, team involvement was also a mentioned area of improvement. Not only should there be a system with real-time view of key performance indicators but they should also be available for the teams, although the feasibility of it could prove difficult. Tracking accuracy and correctness were also top priorities for some processes. There were also aspirations for a cross-process comparable control system. This is however challenging due to the nature of the processes. Challenges include processes being at different stages of development, processes using different types of control systems, lack of time, skill or ownership as well as the low prioritization of the matter.

As aforementioned, continuous improvement was originally implemented in the case company circa five years earlier. However, the program did not entirely catch on and did not deliver the desired results. Interviewee 1 shared learning points from the first launch that have been considered for the relaunch of the CI program:

The organization was not ready to adapt a structured way to implement CI. The concept is new in the relaunch. Also the perception of CI of being boring and

tricky has stuck. The new CI launch is also global. In the previous CI, people were not excited. Measuring and reporting was complicated and a lot of overhead reporting will be skipped this launch and a process focus could be more relevant. (Interviewee 1)

Back during the first launch, methodologies such as scrum were quite heavily applied. The scrum sprint did not fit the finance team's schedules considering the closing period. The perception of continuous improvement being dull and complicated might also have affected the first launch negatively and will be a challenge during the relaunch as well. More organizations have joined relaunch as opposed to the first launch and are eager to implement the continuous improvement culture. The relaunch also presented a new hierarchy approach in the case company, transitioning from a business area organization to a process matrix organization. The process approach has added areas of performance to the continuous improvement scope. This change is also expected to provide a better platform for working on the right things, i.e. the value adding items. In the process approach, asking why something is done supports finding the value in the improvement initiative. Furthermore, as opposed to the first launch, employees should be more involved, as the agile method supports low hierarchy team environments. By further involving employees, continuously improving processes and daily work, it could be claimed that employees would not see improvement activities as a separate part of their work. Continuous improvement was in the past only implemented locally and will now apply to teams globally. The measuring and controlling of continuous improvement should also be reviewed, as it was complicated during the first launch. The tracking tool was also not used by all employees previously and should be applied more for measuring and controlling purposes.

5.3.3 Use of performance measurements by management

Applying controls and measures provides an overview of how well the process is coping and how well the process is responding to the business needs or the changing environment. Controls and measures therefore enable action in the process when business needs are not met. Controls and measures therefore add transparency and increase understanding of problem areas. Transparency is not only vital in understanding the process but also in managing the process, through e.g. resource allocation and prioritization of activities. As a leadership tool, controls and measures are concerned with influencing and employee engagement, in order to make sure that employees are doing what they are supposed to and that they feel empowered performing their tasks. When the "machine" (or operations) is moving in the right direction, controls and measures also act as confirmation and validation

of the done work. Conversely, controls and measures are also used for follow-up and digging to the root of the problem when performance is poor. In other words, controls provide the facts of the situation, i.e. what is happening and what the current trends are so the correct action can be taken. The presentation of controls and measures is also an important part of their objective, namely the visualization of de facto information and data as well as acting as a common language for everyone in the organization. The controls and measures could also reflect if the right things are being improved upon from a continuous improvement perspective. On the other hand, controls and measures give insight into how employees are developing and how company strategy goals are realized. Interviewee 11 shared the following thoughts on why performance measures are used:

Well you get what you measure. Transparency and understanding of problem areas are topics we are interested in. The question is are the right things measures?
(Interviewee 11)

Controls and measures were in practice used by participants mainly for reviewing purposes, which in turn would support their decision making. Reviewing employee, process and improvement item development through performance measures were areas of interest for management. In practice continuous improvement measure review consist of for example item, status and impact review as well as communication, feedback and guiding. In this context, targets versus actuals were relevant for the measurements. Sharing visibility with employees is also an essential to empower the employees and show them the value and impact of their work. CI measures should also be used daily within the organization to support decision-making and prioritization. Participants also used controls and measures to review the effectiveness of the process, control that employees understand the end-to-end process, their responsibilities to other teams and ensure a good communication flow. Interviewee 2 elaborated:

With PM's, I get transparency into processes and employees, which is needed in order to be able to lead the process. As a leadership tool PM's are about influencing and getting engagement from people, that they are doing what they are supposed to be doing and that they feel like this is their thing. They also support finding a common language, by showcasing and communicating a good level of performance. PM's also support identifying resource needs in the process and team so the PM data is good background for those types of negotiations.
(Interviewee 2)

In the process and organization environment, discussions and feedback were also commonly used as leadership tools.

Most of the participants thought that performance measures support their decision making in the managerial environment by revealing if resources should be allocated to other areas, i.e. if resources are used efficiently. Employee workload is also part of the resource allocation, where adjustments can be made accordingly when managers have transparency into the team and their activities, as described by interviewee 8:

It will help me to prioritize, assign resource allocation, discuss with my managers about process and team needs. It helps with different kinds of discussions with different stakeholders because many times I cannot do decisions on my own, they need to be done with other people. (Interviewee 8)

It should however be noted that performance measures should be available real-time to support decision making and be value adding to the organization, i.e. agile management is to some degree dependent on automation.

The participants were motivated to use controls and measures when they added process and team transparency and efficiency as well as strategic alignment, which reflects how the manager is performing at their job. The managers and team leaders are evaluated on how well they are performing partly on how well they are able to guide their process or team, which includes for instance resource allocation. Additionally, participants thought that measures help increase the understanding for their own process, also through employees' eyes. Participants also appreciate measurement's feature of highlighting bottlenecks, which eases the job in finding the root of the problem, which in turn could prove to be an area of improvement. Of course measurements also monitor employees, which is of interest to managers and team leaders to see employee development and if the employee should for example take on more responsibility or move to a new role. Performance measures are not only important for management but also for employees. They can bring people closer together to each other's work and encourage employees to perform well, since they know they are being tracked. However, not all participants agreed with this statement and in fact thought the opposite, which will be discovered later in this chapter.

When discussing if the participants experienced controlling the processes as enabling, coercive or both, the majority thought it either was or would in the future be enabling. For instance the transparency provided by the continuous improvement reporting tool, arguments for resources and maintaining the evolving process were some of the enabling features of controlling the processes and the continuous improvement work in them. Interviewee 2 shared the following thoughts:

I experience it as enabling because the speed of the processes, amount of data and changes support maintain the many moving parts of the work in the process. 10 years ago I would have answered differently because automation was not on the same level as today and social controls were stronger back then. The same controls just wouldn't have been useful back then. (Interviewee 2)

Some however saw controlling the process as both enabling and coercive at the time of the interview due to the amount of time that was being put towards developing a control system for continuous improvement, which was distracting from daily work.

On the topic of rewarding and anti-rewarding, participants had many differing thoughts. Firstly, continuous improvement work should be rewarded and anti-rewarded as usual work and not split into a performance or compliance category of its own. Secondly, most thought that verbal acknowledgement was the most appropriate reward for good performance relating to continuous performance work. It was also noted that performance should be acknowledged regularly, for example monthly or quarterly. This was motivated by the fact that although improvement is transparent to managers, it might not be known to employees. Therefore improvement needs to be communicated and verbally acknowledged so employees realize how they are accomplishing the company's strategic goals, which is a reward itself. Many of the participants thought that solving an issue in a sustainable way was a reward itself as a professional accomplishment. To gain more insight into how CI is applied, how employees are achieving their targets should be tracked likewise. Some participants also suggested outstanding performance should be rewarded with monetary rewards, which could be included in employee, team or process evaluations. To summarize, some type of encouragement from top management is important for employee motivation and feeling of purpose. On a practical level, rewarding or anti-rewarding could happen through feedback, development discussions, face-to-face meetings and mentioning good performance in meetings or internal channels. On the other hand, some participants thought good performance in continuous improvement should not be rewarded at all because it is part of all employee's job descriptions. However, process improvement should not be motivated by monetary rewards but as part of one's role, which is how monetary rewards should be treated according to participants.

Poor performance or compliance violations however should be corrected, for instance verbally through employee development discussions. In instances of problems, the root causes should be investigated instead of punished. Most participants thought further anti-rewards or punishments in cases of poor performance or compliance violations were

unnecessary. Participants did note that as managers and team leaders it is their responsibility to remind teams of the rules and guidelines but also trust that employees have the best intentions.

Most participants agreed that reviewing CI performance is most efficient when done as a combination of both interactive and diagnostic methods. While the method of reviewing depends on the topic, i.e. the more people are linked to the topic, the more relevant interactive reviewing by constructive feedback, discussions and interviews is. Many of the participants also shared that face-to-face, one-to-one meetings are some of the most typical interactive reviewing methods in the organization. The meetings are important to recognize employees strengths and understand the direction they could be going. Additionally, interactive reviewing serves as an internal marketing tool for material and achievements to be presented to for instance top management. The down side of interactive reviewing is the amount of time that needs to be assigned to it as well as growing team sizes. It was suggested that reviewing with employees about continuous improvement topics could be done monthly or quarterly. However, participants recognized the importance of diagnostic review as well, which supports reaching set targets. Merely reviewing figures also gives an overview of the situation but to understand the underlying reasons, interactive review is often necessary. Diagnostic review also gives the opportunity for benchmarking. It was also suggested that managers and team leaders do not necessarily need to highlight that they are doing diagnostic review of the process's performance to the employees, as it might give employees a feeling that their actions are monitored. To achieve the anticipated value, communication and choice of words is important when it concerns control systems. Therefore, a combination of numbers and context is needed for the manager to understand the circumstances. Interactive reviewing can answer the question "Why?", which is essential for instance for understanding how the process is supporting the business and where there is need for improvement the process, which is not something diagnostic review can identify. Therefore, interactive reviewing directly supports the process's resource allocation.

A process's operational performance can support company strategy in many ways. First and foremost, processes are created with the sole purpose to enable and support the business, so on some level their whole existence is dependent on how they are contributing to company operation and strategy. By working in transparent, efficient and effective ways, a process can promote company values. Renewal is also attained through continuous innovation of tasks and processes. Processes also relate to company strategy by being compliant as well as trying

to reach goals in innovative and sustainable ways. Processes can reach these targets by for instance utilizing company expertise and automating tasks. It can also be important to discuss how continuous improvement items relate to strategic goals and add value. Managers should also inspire and coach employees to work in more agile ways, which supports the organization's strategy. In addition, discussions with employees would reflect how they think their work fulfills company strategy. At company level, continuous improvement work supports strategy by instead of being satisfied with the quality of work, continually striving to improve daily tasks and work. The link between the processes operations and company or organization strategy is in some areas still however being developed.

As aforementioned, communication of how processes and continuous improvement is controlled is essential for understanding of tasks but also attitudes and perceptions. Internal communication about process development and continuous improvement occurs on different levels, e.g. company, organization, process, team and employee level. Participants thought that marketing continuous improvement as an enabling tool for work instead of additional work for employees, should be advanced:

Communication is a tool for changing the mindset of people and changing CI from a list to an agile way of working. People react very differently so managing or "selling" CI is relevant. Speed and therefore trust are also elements to keep in mind when managing CI communication. (Interviewee 7)

Due to the current lack of performance measures and control systems for continuous improvement work in the processes, the internal communication is still under development. However, participants thought that when measures and controls are in place, regular, intensive and inclusive communication should be a priority. In addition, employees should have the opportunity to give feedback as another way to include the whole organization and support the continuous improvement culture, which was not included in the first continuous improvement launch:

Communication about developments from CI should be focused on. In the previous CI program, people did not give feedback. Now people should be made aware where they are making an impact. Communication gives energy and makes the work more relevant, which gets people more engaged. (Interviewee 1)

Internal communication is also aligned with the company's process matrix focus as well as company strategy and highlights topics, processes and activities instead of specific employees. Employee specific communication comes through the managers. Process specific performance system dashboards and internal controls are communicated quite frequently

throughout the organization. Some participants also suggested a common communication platform for all financial control processes. The platform could inform about processes, share recent accomplishments and promote the continuous improvement reporting tool.

Additionally, participants thought there should be a SharePoint work page with contact lists and process maps, to add transparency between processes and teams. Developing this however also requires further defining of process ownership, which is not entirely in place yet at the time of the interview. Common channels or platforms would also enable employees to connect with other employees that are working on similar issues. Some participants also noted the risks of oversharing information through for example emails and direct messages relating to continuous improvement, which might confuse prioritization and have a negative effect on attitudes on some employees.

Participants believed employees' perception of management intention relating to process controls is mostly a mixture of positive and negative views. Employees' perception could be influenced by communicating and promoting the process development as enabling for both the organization and employees instead of focusing on the control aspect. For employees to have a positive view of continuous improvement, employees should also be included in development and discussion, to encourage employee engagement and encourage continuous improvement culture. One participant notes that employees should understand that continuous improvement is a team effort instead of something you can do on your own. Continuous improvement is also not a punishment but a new way of working to be excited about, since it can challenge one to grow professionally. Employees as well as management and the rest of the company are all in the same boat, going in the same direction and working towards the same goals. Although there might be a lot of opinions, everyone's opinion should be valued and will be something management will have to keep in mind when developing the continuous improvement program.

Positive attitudes could be linked to more structured ways of working, which supports daily tasks and solving issues. It is important for employee's work motivation that they understand the strategic value their work contributes to the company, which should be clearly communicated. Process workshops, where employees gained an understanding of how the process adds value to the organization, generated positive employee feedback. Management intention and the result of controlling processes, i.e. resource allocation, also enables employees to perform their tasks better, which is something employees might not be aware of or take for granted. Employee workload has also been taken into account in the continuous

improvement program, where ownership has and is continuously defined. This will also hopefully encourage employee engagement and continuous improvement culture. Having visibility into previous achievements and receiving recognition could also have a motivating effect on teams and employees. There was also an assumption among participants that newer employees would have a more positive attitude towards continuous improvement work, partly because they have been using the methods and tools since the start.

Although no one in the company is against continuous improvement as a concept, employees might have doubts, which is natural. One big challenge on many levels in the organization might be putting ideas to paper, i.e. substantializing big ideas, as well as utilizing tools so they add value to the organization. Negative or skeptical attitudes could be linked to assumptions that developing the process through task and activity improvement as well as using new systems could be time consuming:

If CI is approached as a separate topic or additional work, perception could be negative. When employees understand the strategic value, perception could be positive. The way the message is brought affects employee perception but overall I would say perception is probably positive. (Interviewee 9)

As mentioned previously, if employees are not able to see how their work is supporting company values and targets, the perceptions might become neutral or negative:

I think work motivation increases when employees understand their work's strategic value to the company, which CI communicates. If employees understand this, I think the reaction will be positive. But if employees cannot link their tasks to the big picture, the reaction will be negative or neutral. (Interviewee 11)

There was also an assumption that employees experience anxiety or suspicion when they know they are being measured:

The perception seems more negative, overall people are afraid that when something is measured, names are linked to performance, which people perceive negatively. This could be a result of a lack of transparency, that should be built further. It should be known that actual work is not tracked but instead, tracked as enabling actions in order to achieve development. (Interviewee 4)

Employees might also be suspicious of why management is tracking their work, as they might assume that process monitoring is one of the process expert's duties. Also not understanding agile approaches or process focus could hinder employees from realizing the potential of continuous improvement, which participants associated with more experienced employees. Participants indicated that employees that were around for the first launch of

continuous improvement could have more negative attitudes towards the relaunch of continuous improvement. Additionally, some processes can not be measured in the same way most processes are measured due to their nature and if these types of processes are not paid enough attention to during measurement development, it could create some discontentment. Reasons for negative attitudes could also be practical, employees might not know what the scope and limits for recording improvement initiatives is.

5.4 Action research results

Firstly, continuous improvement in processes depends on ownership, which has been developed for the relaunch of the program. Ownership is achieved through responsible roles on different levels, i.e. process managers, subprocess coordinators and solution owners, who are tasked with validating and prioritizing the backlog. Additionally, there is a framework for prioritization of improvement items. The standard and medium categories are owned by process managers or subprocess managers, depending on the process, and are not the most complex issues. There should be a large number of standard and somewhat less of medium issues. The high category is owned by the solution owner and the issues belonging to this category are of the highest complexity, although there should only be a smaller volume of these types of issues. Additionally, there is a category saved for the continuous improvement lead person, which prioritizes issues not related to the processes case by case.

Instead of applying scrum theory literally and as a prerequisite for continuous improvement activities, the organization has chosen to have the framework available for employees and teams as support if and when needed. For this purpose the ownership and training of scrum theory has been taken into account and there is a person responsible for internal scrum training and coaching. The standard 30 day sprint has been proven to be challenging in the financial control environment, where the 30 day sprint is interrupted by the month end closing. However, the main principles of dividing tasks into smaller, more easily achievable undertakings as well as following up on improvement tasks are at the core of continuous improvement activities within the organization. On a practical level, there might be some challenges with the continuous improvement reporting tool, since it has been restructured according to the process taxonomy.

The close & consolidate process dashboard displays different measurements and key performance indicators related to the process. There is a strong emphasis on errors that can be further investigated, and compliance to guidelines and rules, which are essential to track in

the process. Compliance categories include for instance materiality limits and accounting system reopenings. Errors can be investigated further through filtering the data according to period, responsible team, company and so on. The timing and accuracy of the data is vital for the dashboard. Data is collected from different SAP softwares and the dashboard is automatically updated regularly.

6 ANALYSIS AND DISCUSSION

In this chapter, an analysis is presented in addition to a discussion of the results and their relation to the research questions, existing theory and literature.

6.1 Case analysis

6.1.1 CI capability

It could be argued that the case company is currently in a transitioning period, moving to the next level on Bessant and Francis's (1999) continuous improvement capability levels. The restructuring of the continuous improvement program aims at reviving continuous improvement activities through a structured program, which has required efforts and resources from the organization. While there was previously a somewhat structured and systematic way of conducting continuous improvement in the organization, the program was not long-term sustainable. Additionally, a strategic component has been added to the relaunch and a clear focus on understanding the causes and root problems for initiatives has been undertaken. Therefore, the case company could be claimed to be advancing from continuous improvement capability at level 1 or 2, depending on the process, to level 3 continuous improvement capability.

While some processes could be argued to be at a continuous improvement capacity level 1 at the time of the research, due to their *ad hoc* approach to process development, other processes have maintained a rather systematic and structured way of developing the process. The more structured approaches utilize tools such as the continuous improvement reporting tool or a process dashboard, which displays key performance indicators. Other processes also used less standardized tools for the agile teamwork, e.g. an excel sheet with improvement initiatives available for the team members to work on. Further, some employees have been trained in basic continuous improvement tools and techniques and the organization uses a system for managing the flow of ideas, i.e. the CI reporting tool, which identifies a level 2 CI capability. For CI programs at a level 2 CI capability, it is also usual to lose momentum, which has been the challenge at the case company. Transitioning to a level 3 CI capability involves not only a strategic focus but also extensive use of monitoring and measurement activities, which enables full control of the process. Development of the strategy focus as well as monitoring and measurement activities (process dashboard and continuous improvement reporting tool) can be recognized in the case company, further motivating the intention for a CI program at level 3 CI capability. Previous research suggests successful implementation of level 3 CI capability has led to quality improvement, lead time reduction and improved maintenance. A major challenge relating to level 3 CI capability is however maintaining momentum, which requires development of enabling mechanisms for policy

development and deployment as well as for monitoring and measuring behavior in the organization (Bessant & Francis 1999).

6.1.2 Management control systems use

This study confirms Goretzki et al. (2018) theory about how persuasiveness and legitimacy of accounting figures is related to complementary numbers as well as the actor's perspective. Although there was a general understanding from respondents that accounting figures are legitimate and should be accepted as they are, it was thought that the complementary numbers provide the legitimacy managers needed to understand the context of the figures. The legitimacy of an accounting figure was suggested to be highly situational, e.g. items in the balance sheet are accepted because employees know that the master data process is working well. However, a performance measure figure with a consistent lack of variation could have baseline related issues, which should be adjusted accordingly. Situational awareness also meant knowing the history of certain figures that are known to need manual adjustments.

Participants thought that a performance measure figure gives an insight into the current trends but understanding the data, context, comment or reason behind the figure adds value to the figure. On a practical level, participants could not accept figures without the background, since they would not want to give feedback without understanding the situation, leading to possible faulty feedback and misunderstandings. For performance measures, participants thought discussions were an efficient way to review figures to obtain the background necessary to understand the situation and therefore accept and regard the figures as legitimate. The use of obtaining information and material through different informal arrangements such as discussions is in addition to the use of performance indicators also advocated by Jordan & Messner (2012). Additional information relating to performance measurements should be effective and efficiently available. Moreover, comparability and lack of mathematical formulas were elements participants appreciated in performance measurement figures.

Although not all processes and continuous improvement had a harmonized performance measurement system in use at the time of the research, the close & consolidate process dashboard displays the classic elements of a PMS described by Stormi, Laine & Korhonen (2019). The close & consolidate process dashboard could be used for benchmarking and even a framework for other processes performance management systems. Managerial tolerance

should be recognized in PMS development, as Islam, Adler and Northcott (2018) and Jordan and Messner (2012) suggest, incomplete design quality does not prevent strategy implementation, nor will management be misled by it. Instead, the role PMS plays in implementing strategy in the organization will determine its value and sustainability.

While none of the participants thought of formal control systems for processes and continuous improvement as coercive, some did perceive the development phase of process control systems as both enabling and coercive at the same time. The reasons given for partially coercive perceptions were the time consumption and distraction of the development activities. However, the majority perceived formal control systems as enabling. The reasons for the enabling perception may relate to participants' ability and permission to adjust formal control system problems, the increased process and organizational transparency in addition to the flexibility they provide (Adler and Borys 1996; Ahrens & Chapman 2004; Chapman & Kihn 2009). Further, control systems that have been developed through user involvement tend to be more suitable for organizations than if they were developed by external experts (Wouters & Wilderom 2008). User involvement was by participants seen as a relevant aspect in the development of control systems, which also reflects the inclusive continuous improvement culture.

6.1.3 Management control systems package

Theory on MCS package conceptual framework by Malmi & Brown (2008) is applicable to the case company's environment. During the time of this research, the organization is still in the planning phase, which is considered a control occurring before the event. During planning of MCS relating to processes or CI, strategy and tactical short-term actions should be considered. However, planning also communicates effort and expected behavior, which sets the quality and tone for the subsequent controls. In addition to managerial responsibilities, determining ownership of tasks, including process experts and ensuring internal communication flow were some elements participants saw as part of the planning control. Participants also recognized a need for more intense communication related to process and CI topics, since these would convey the expected behavior and standards of performance. Further, participants expressed they would like communication to have a positive effect on attitudes towards agile working as well as a strategic alignment, i.e. focus on the right topics. Speed and trust should also be prioritized when managing communication according to participants.

Cybernetic controls are the second control suggested by Malmi & Brown's (2008) MCS package research. The close & consolidate process dashboard is linked to most of the financial control organization's processes and can therefore be regarded as a MCS package, although it does not have a clear connection to continuous improvement activities. The close & consolidate process dashboard includes quantification of underlying activity as well as standards of performance. There should also be a complementary feedback process to enable comparison and variance analysis. These elements enable investigation of variance and necessary adjustments, either behavioral or activity related, in the process. While there was no cybernetic control in place for continuous improvement activities at the time of the research, the CI reporting tool could be utilized in the development of a formal, accounting-based control system for continuous improvement activities.

A continuous improvement control system should be approached in a more agile way than for instance the close & consolidate process dashboard. Instead, a CI control system could apply the plan-do-check-act (PDCA) cycle, which is already partly documented in the CI reporting system. The plan stage is generally recorded in the CI reporting system as identifying an opportunity and planning the change. The do phase, defined as implementing the change on a small scale, is followed by the check stage, when data should be analyzed to the results and determine whether the change made a difference. While the do phase could be documented for its agile approach and guidance value, it would likely tell more of an employee's ways of working with CI. However, the check stage could be recorded as a follow-up for the initial plan of improvement for the issue. The check phase also embodies the core principle of not wasting resources, i.e. if the outcome of the implemented change did not work, the cycle should be started again. Finally, the act point should be implementation of change on a larger scale, if the check step was successful. Additionally, the results should be continuously reassessed. The final step of the PDCA cycle reflects both how agile work is implemented and if an improvement initiative was successful. Maintaining the improvement culture is also important for regular updating of the improvement issue. When the last phase is finished, the outcome of the improvement initiative should also be logged into the CI reporting tool. The achieved improvements could for example be automating a routine task, harmonizing a reporting package, increasing accuracy by removing a manual adjustment step, merge data for a more analytical approach or modifying a report to be more customer friendly. Although the outcome of these types of improvement might be motivating or interesting for the user and team to see, the outcome has value to management. The allocation of resources is partly dependent on the motivation, i.e. the need and benefit of the CI program. Therefore,

management needs to have information about how the program is progressing but also material for negotiating resource allocation. The documentation of the PDCA cycle could be done completely in the CI reporting tool or through a hybrid use of different tools, e.g. light, daily meetings. However, the summary of information into an efficient reporting package for CI activity would need development in the existing CI reporting tool. The analysis of qualitative data such as quality improvements and cultural controls are at the moment of the research not efficiently presented in the CI reporting tool. Further, another issue with working with the CI reporting tool is the excessive amount of data in the CI reporting tool, which should be cleared to enable a more flexible way of working with the tool. The large amount of data is also a time-consuming task for the process owner's to sort, which could also affect perceptions of CI activities generally. Alternatively, the define-measure-analyze-improve-control (DMAIC) model could also be used to implement but also control CI activities.

The third aspect of the MCS package is reward and compensation (Malmi & Brown 2008), which Marin-Garcia, Pardo del Val and Bonavía Martín (2008) suggested might not necessarily increase employee participation and acceptance, indicating that reward systems could be more problematic than previously thought. Nonetheless, Malmi & Brown noted previous research has largely focused on extrinsic rewards, i.e. tangible and visible rewards that usually have monetary value. The research also suggests that reward and compensation controls can impact the performance direction, duration and intensity. Linking reward and compensation controls is however more complicated in continuous improvement activities, as process development is part of the job description for employees in the case company, as participants highlighted. Therefore, many participants believed continuous improvement performance should be rewarded and compensated in the same way as their regular work. Participants mentioned that acknowledgement for example through feedback, development discussions or mentioning good performance during meetings was the most common reward system. Others also indicated that continuous improvement activities are self-serving, meaning employees directly benefit from solving problems in sustainable ways. Related to this is also the feeling of accomplishment, which is necessary to meet the expectation of a meaningful job or career. Extrinsic rewards for outstanding employee, team or process performance were also mentioned, although the majority of the participants did not think it was relevant to monetarily reward continuous improvement activities.

The administrative controls of Malmi & Brown's (2008) MCS package concern directing of employee behavior through organization of tasks, individuals and managers. While Malmi &

Brown's administrative control resembles a combination of Simons' (1995) social and technical controls, Malmi & Brown's research focuses more on organization design and structure, governance structure within the firm as well as procedures and policies. The internal organization structure, i.e. the shift to a process organization, is a major element of how continuous improvement activities are organized within the case company to meet strategic targets. With the transition to a process organization, defining ownership is one of the next steps. Standard operating procedures are continuously being developed within the company and usually include for example detailed rules and guidelines of systems, expected output, contact lists and deadlines. Employee tasks and behavior could further be controlled through access right check, in which case the manager would get a notification if a necessary system right was missing from an employee. Teams also use formal and informal task lists, from which other team members or management can check progress or if a task has been completed after the deadline. Accounting systems also include internal controls and one process has a monitor, who checks that tasks have been performed. However, participants mentioned that there are regular discussions if new internal controls should be adapted, for instance performance quality. Procedures and policies for continuous improvement are currently being developed through material and training, since the relaunch of CI aims at introducing a new, effective and exciting way of working. Since the rules and guidelines of the CI launch are redefined, old material from the first CI launch will no longer be used in the organization. Although continuous improvement, its theory and tools have been around for some years, it is to some extent applied differently in various processes. There was also a participant observation of new employees who have been trained and informed about CI during their orientation use the CI reporting tool more actively than older employees, which reflects different approaches to CI.

Figure 7: Management control systems package for case analysis

Cultural controls		
Corporate culture, shared norms and informal relationships	Code of Conduct	Visual expression of case company
Planning	Cybernetic Controls	Reward and Compensation: Not applicable in CI activities
Development of ways of working and targets	Budgeting through resource allocation, insufficient measurement systems	
Administrative Controls		
Management's dual role as process and CI leads	Process Organization	Standard Operating Procedures

Source: Malmi & Brown 2008, 291

Controlling behavior was a somewhat sensitive topic among participants, since controlling employee behavior can be misunderstood, although the aim is to focus on the right tasks and avoid errors. However, behavior control is by Malmi & Brown (2008) defined as a culture control that is accomplished through communicating and expressing the company's values, social norms and beliefs. The most efficient behavioral control appeared to be tracking the root cause of violations and errors for example in the close & consolidate dashboard. Focus on action instead of the employee was an essential part of the behavioral control, since violations may lead to sanctions. Employees should be aware of the right and wrong kind of behavior that leads to errors and violations through the company's training and education in codes of conduct, company and organizational rules, guidelines and values. Some participants mentioned that process rules and guidelines are being developed to maintain and support rules and guidelines being a natural part of behavior while others lacked documentation to support behavior. In the latter case it was mentioned that company and team culture give employees the sense of what the right kind of behavior is.

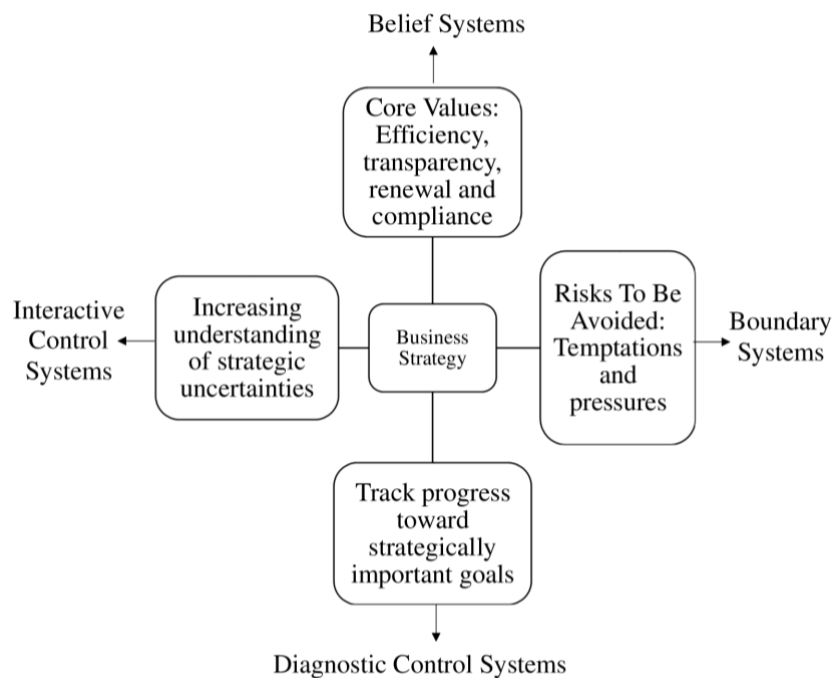
Influencing continuous improvement behavior could be done through employee perception surveys in internal communication channels or activity reports from the CI reporting tool, e.g. how many employees and logins occurred during a set amount of time. Further communication of rules, social norms and beliefs could be done through more active communication of CI information relating to for example improvement initiatives, accomplishments, the people involved, systems and less perhaps also about approaches

through internal channels. Participants realized the value of communication as an enabling tool for CI and most thought it still needed development, since communication on an organizational level was lacking at the time of the research.

6.1.4 Levers of Control

While it can be established that the belief and boundary controls for continuous improvement activities developed in the case company act to both enable and restrict performance and compliance, Simons (1995) as well as Tessier & Otley (2012) reminds us that although they might be seen as contradictory, they are in fact complementary controls. Participants saw clear links between the performance of their processes to company communication of its core values, i.e. company strategy. Values such as efficiency, transparency, renewal and compliance are qualities that the company communicates, which are also present in processes and in continuous improvement activities. The aim of belief systems is also to motivate employees to find new ways of creating value for the company, which can encourage employee's sense of a meaningful job. This aligns with the general objective of continuous improvement of value creation from employee initiative. A challenge for belief systems in this case could relate to the lacking or ambiguous communication of core values and mission, which can be overcome by clear and regular communication of expectations. However, as a participant noted, repeating buzzwords or oversharing should be avoided to prevent cynicism and other negative perceptions.

Figure 8: Renew strategy with the Four Levers of Control for case analysis



Source: Simons 1995, 85

As aforementioned, boundary systems act as belief systems counterweights, which together create a tension between creativity and control. Continuous improvement activities are diverse because they occur in different processes in a large organization, therefore setting boundary controls through limitations, guidelines and standard operating procedures is crucial for employees' understanding of the purpose of such activities. Management should be aware of pressures and temptations within the organization in order to set and enforce rules. While codes of conduct and standards of ethical behavior should educate employees on the ethical boundaries, communicating straightforward strategic protocol should give employees an understanding of what is expected of them in continuous improvement activities.

Tessier's & Otley's (2012) revised framework furthers the belief and boundary controls suggested by Simons (1995). Instead, the revised framework splits belief and boundary systems into operational boundary, strategic boundary, operational performance and strategic performance systems. This amendment is motivated by the control's different types and objectives, i.e. compliance (following rules and protecting value) and performance (achieving goals and creating value). It should be observed that the research does acknowledge that these controls could overlap and have more than one objective. Operational boundary and operational performance systems could include compliance and performance issues such as what defines an improvement initiative, e.g. should daily, *ad hoc* tasks be logged into the CI

reporting tool. Strategic boundary systems might include finding a link to company values in an improvement initiative.

Simons (1995) defined that diagnostic control systems should be developed to track employees, teams and processes progress toward strategically important goals relating to continuous improvement. While there is a strategic alignment in the continuous improvement program, strategic goals are still in development. As suggested by Schroeder et al. (2008), clear goals increase team alignment, supports measurement and provides a standard for feedback. Strategic goals should however neither be excessively high or low, as it may discourage employees (Davila & Wouters 2005). Through diagnostic control systems management should monitor progress of targets and profitability of continuous improvement, i.e. resource allocation. The risk with implementing diagnostic control systems is the added pressure, which could lead to control failure. To avoid control failure, employees should be equipped to deal with the pressure through necessary support, e.g. direction, clear targets, training or resources. The benefit of diagnostic control systems would be the removal of constant managerial monitoring of activities, which would reduce resources allocated to internal control efforts.

The fourth level, interactional control systems are according to Simons (1995) a replacement for meetings, where management and employees can easily share information about emerging opportunities and threats. The nature of the data collected by interactional control systems tends to be best discussed face-to-face since it concerns regularly changing information and understanding of other's decisions and reasoning, with the purpose of learning about unexpected uncertainties. Continuous improvement could be affected by unexpected circumstances such as changes in organizational structure or technological issues, which through lack of ownership and system failure could create an absence of opportunity or fear of risk. Simons suggests opening an organizational dialogue to encourage learning to further increase internal and external awareness.

Figure 9: Harness employees' creativity with the Four Levers of Control for case analysis

Potential	Organizational Blocks	Managerial Solution	Control Lever
To contribute	Lacking or ambiguous purpose	Clear and regular communication of core values and mission	Belief systems
To do right	Pressure or temptation	Setting and enforcing limitations, guidelines and standard operating procedures	Boundary systems
To achieve	Lack of managerial focus or resources, leading to pressure on employees	Define and support clear strategic targets	Diagnostic control systems
To create	Lack of opportunity or fear of risk arising from unexpected uncertainties	Encourage learning between individuals, teams and processes by creating an environment of open communication	Interactive control systems

Source: Simons 1995, 83

Simons' (1995) separation of diagnostic control and interactive control systems is contradicted by Tessier & Otley (2012), who maintain that these are rather descriptions of how control systems are used. While participants recognized the value of diagnostic review, it was pointed out that only reviewing changes when external variation occurs is complemented by interactive review for a deeper understanding of the situation. Although face-to-face meetings can be time consuming, all participants stressed the importance of interactive review of information with their subordinates, teams and departments. Meetings during information exchange are also opportunities for management to remind of priorities and increase employees' understanding of their work's strategic value. It was suggested that employees are more motivated when they understand their work's strategic value and vice versa, which should encourage management to ensure that their team is understanding their strategic effort.

Tessier's & Otley's (2012) revised framework of Simons' LOC framework includes additional elements, one being managerial intention and employee perception. Management utilized controls to ensure the flow of daily operations and that they are responding to business needs, how the company's strategic goals are met and how employees are developing. Additionally, management wants to understand problem areas, to better lead, prioritize and assign resources. In continuous improvement activities, management wants

transparency to see the targets and work done as well as knowing that CI initiatives are strategically aligned. Controls allow for identification of opportunities and errors, which improves overall efficiency. All aforementioned control functions support management's decision-making, suggesting the overall need for control in both processes and continuous improvement activities.

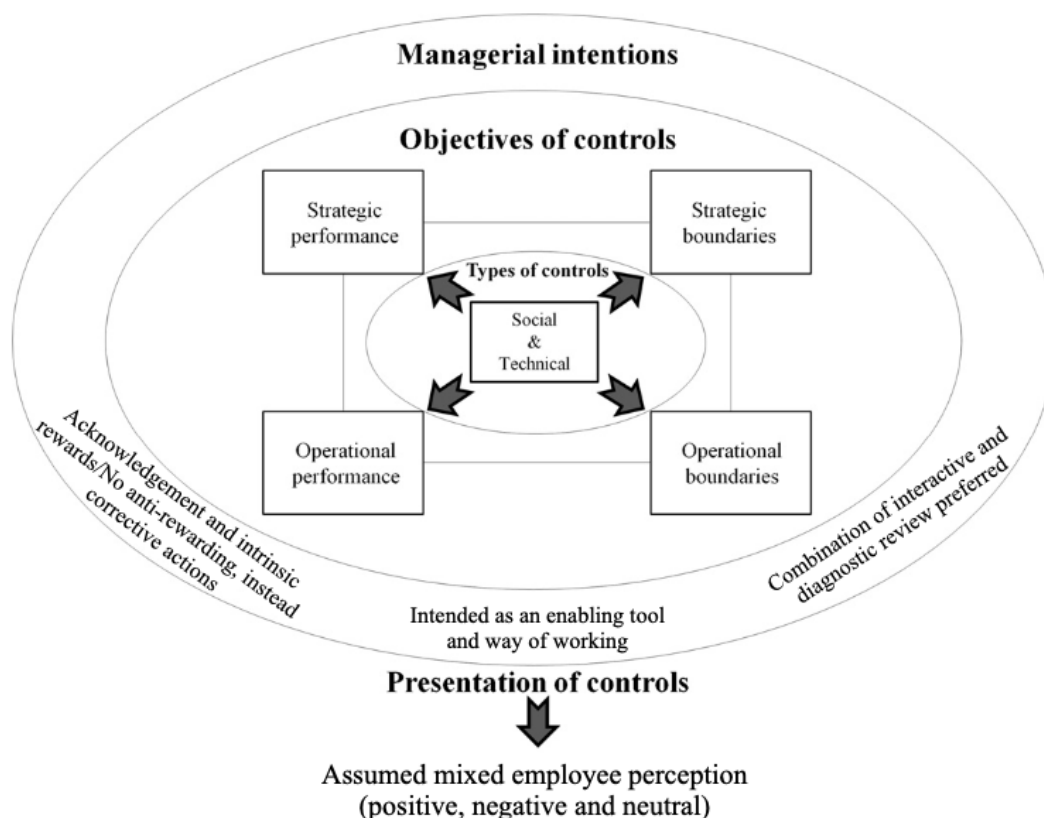
While results suggest that management should be sensitive about communicating controls to employees, Tessier & Otley (2012) imply that when employees know management is reviewing their work, the performance tends to be more diligent. However, this assumption might indicate that there are less procedural controls in place at the case company, in which case employee perception of controls is more negative. Participants also noted that the way the message is presented is vital for employee perception. It was suggested that continuous improvement should be presented as an enabling tool and the control element should not be focused on in communication. Encouraging employee inclusion and transparency as well as communication of CI roles and ownerships was also thought to support the development of CI culture. There was also an example of a workshop increasing employee's understanding of how their work in the process relates to company strategy, which received positive feedback.

However, participants remarked that employee perception of a structured continuous improvement approach in the organization could be mixed, although no one is against continuous improvement as a concept. Employees might feel negatively about using new systems and confusion about what is defined as an improvement initiative. Other employees could also experience the combination of agile and structured working positively. However, it was also thought that employees that were around during the first time continuous improvement was launched in the organization could perceive the relaunch more negatively, while newer employees might have a more positive perception. It was suggested that the negative association to the first continuous improvement launch was related to an assumption that it was boring, complicated and theoretical. This suggests not enough support was provided for employees to reach CI goals and as participants mentioned, the organization was not ready to adapt the CI approach back during the first launch.

Finally, Simons' (1995) theory that performance is rewarded whilst non-performance and -compliance is punished, Tessier & Otley (2012) argue that compliance is in fact also rewarded. Participants thought anti-rewarding in the sense of corrective action and feedback during employee development meetings was sufficient, although the ultimate responsibility should be on the manager. Participants did not have strong opinions on rewarding

compliance, however there were thoughts that compliance is part of employees role description and should therefore not be separately rewarded as well as thoughts that compliance could be rewarded the same way performance is.

Figure 10: Case analysis of Tessier’s & Otley’s revised version of Simons’ LOC framework



Source: Tessier & Otley 2012, 173

6.2 Results discussion

The purpose of this study was to provide insight to how continuous improvement could be controlled and how control systems are used by management. The first research question (RQ1) presented in this study was “how is continuous improvement controlled in financial control processes?”.

The case study results show that while there are various levels of process controls in place, continuous improvement controls are more ambiguous, largely since they are still under development. Continuous improvement controls need to be studied through processes, since CI is part of process activities. Therefore, process control is central for controlling CI. Study results show that the extent and complexity of control systems depend on the individual

process. One of the processes has a formal, accounting-based performance measurement system to monitor the process, which does not include any CI related controls or measures. However, since the processes are interdependent, the process performance measurement system can be used for benchmarking in other processes.

Analysis of the case study with the MCS package framework by Malmi & Brown (2008) suggests that the links between the different control systems have been considered during the ongoing governance model design. The cultural controls, which are broad and subtle, are enforced through communication of values and clan culture (group subculture). Continuous improvement ideals should be communicated and expressed actively in order for values to be ingrained in the organization and implemented in everyday tasks. In planning of process goals, CI goals should also be taken into consideration, both of which should be aligned with company strategy. Cybernetic controls are even more interesting to this study, since previous research has not established if and how CI could be controlled through measurement. Furthermore, case study participants expressed uncertainty about if, how and why to apply cybernetic controls to CI activities. It was suggested that cybernetic controls could be applied through budgets, i.e. resource allocation, and hybrid measurement systems, e.g. a PDCA control cycle. For measurement systems to work in CI activities, CI reporting tool data could be utilized, which requires further user effort and ownership of CI culture, it would also demand refining of the CI reporting tool for effective data flow. The reward and compensation control was also seen through the process perspective by case study participants, i.e. reward and compensation control in CI should be applied the same way as in process activities. The aforementioned controls are all exercised through administration controls. Governance and organization structure as well as policies and procedures represent the most practical and user-friendly part of CI controls. Therefore, it is natural that development of CI started with defining guidelines, rules and procedures, which introduce the direction of the aforementioned controls. Developing process standard operating procedures and guidelines was a concern for some processes, as they present a low, user-level control of both process and CI activities. Although these are proposals on how to approach controls in the case study, the essence of Malmi & Brown's (2008) research, i.e. the control's relationships should be considered already during governance model design. That is to say, the desired CI culture should be considered already in the process standard operating procedure development stages.

The implementation and control of business strategy is according to Simons (1995) exercised through four levers of control (belief systems, boundary systems, diagnostic control systems and interactive control systems), which take a more practical and feasible approach to controls than Malmi & Brown's (2008) suggestions. Simons' belief systems emphasize the same core values as Malmi & Brown's cultural controls, further defining the importance of actions, goals, purpose and meaning that values provide. Therefore, communicating values and beliefs through different channels, e.g. meetings, training, workshops, intranet, tools, newsletters and also guidelines and standard operating procedures, is especially important during the implementation phase of a strategy. The limits between controls are ambiguous and controls tend to overlap. Although boundary controls oppose belief systems, setting the game rules are just as important as encouraging creativity. That is to say that when the game rules for CI are developed, both operational and strategic, the goals should also be communicated to set expectations and targets for users. The diagnostic and interactive control systems were in the case company implemented through meetings, most of the participants mentioning the importance of face-to-face interaction. Obtaining information about strategic uncertainties and critical performance variables is very feasible in smaller teams and departments. The participants also indicated that they preferred the informal sessions with free information flow since it allows for insights and understanding into the process and its activities as well as employee development. The understanding of the root issue and the data behind the figure was also of great importance for participants, which also served as a platform for communication of targets and beliefs.

Tessier's & Otley's (2012) framework extends Simons' (1995) framework for instance by defining types of controls as social and technical. While the social controls are viewed as strategic, technical controls are considered operational and both types of controls have performance and boundary aspects. Technical controls were by participants more manageable than social controls, which are more of subjective and qualitative nature. The technical could be measured by compliance to rules and guidelines, system right checks, task lists and such. However, the technical controls will only reveal what has been achieved as opposed to how it was achieved. Therefore technical controls alone do not support controlling of CI, where adaptation to CI culture is vital to the long-term success of the program. Social controls enforce beliefs and values through different methods discussed earlier. However, social controls should also be made visible to management. Surveys and quizzes on perception, attitudes and understanding of CI could give a broader understanding into how CI culture is accepted. Both technical and social, or operational and strategic, controls could also be

applied through the CI reporting tool. The issues on the Kanban boards should reflect not only the actions and steps taken, i.e. were the CI guidelines and rules followed, but also if the user applied some type of CI principles or agile thinking. From a strategic point of view, management could for example look for signs of focus on customer value, utilization of networks and in-house expertise, search for sustainable solutions and strategic alignment in improvement initiatives. This type of control does however require regular and devoted use of the CI reporting tool, which could pose a practical challenge for users based on perception and approaches. Unlike Simons' research, Tessier & Otley view diagnostic and interactive controls as descriptions of how controls are used. This study found that participants gained an overview of their processes through diagnostic review but generally interactive review was preferred to understand the context, situation or development. The interactive review also supports the diagnostic review through providing the background. Once again, management was not only interested to see that targets had been achieved but also how they were achieved.

Further, this study found a variance between management intention and employee perception. Case study data reveals that management intends CI as an enabling tool, which could be met by mixed attitudes. A challenge with assumed negative employee attitudes was for example older employees' perception of CI as constraining due to the time constraints, adaptation of new systems and possibly even the CI programs sustainability. Employees' emotional responses should be recognized, in order to avoid skepticism. Participants were highly aware of the power of communication and management has the opportunity to influence employee perception of CI through communication. Finally, as Tessier & Otley (2012) suggested, this study found some evidence that compliance is rewarded in the same way as performance, although further data would be required to confirm this theory.

To summarize, this study found that continuous improvement activities could be controlled through the same management system controls as any other types of financial control activities. Although CI tends to be controlled as part of financial control activities, both operational and strategic controls could be applied to gain further insight and understanding into CI activities. Cybernetic controls as well as planning and administrative controls are highly applicable to CI activities through process controls. While case study data shows that reward and compensation controls would likely not be applied in the case company, cultural controls impact all other controls and should this be considered exceptionally during program development. This study found that CI controls were in development and were thus not

implemented during the time of the research. Instead these research findings explore the options and feasibility of potential CI controls.

The second research question (RQ2) in this study was “how does management use management control systems?”.

This study aimed at extending research of how management uses controls from a practical perspective and avoid ambiguity, which is often associated with management accounting research (Malmi & Brown 2008; Kennedy & Widener 2008; Baldvinsdottir, Mitchell and Nørreklit 2010). Management uses controls to obtain an overview of their process, ensure daily operations are running smoothly, assess opportunities, avoid risks, develop employees, reach operational and strategic targets, see the impact and effect as well as plan based on trends. This study found that controls are enabling management and support decision-making by for instance revealing if focus, efforts and resources are being used efficiently and effectively (Artz, Homburg & Rajab 2012). This reveals that controls are not only important to ensure that daily operations are functioning but supports management in strategic issues as well. Additionally, controls act as documentation that can be used as fact-based arguments in negotiations. Some performance measurement figures were also found to be more valid than others depending on their tangibility and accuracy (e.g. ambiguous or too abstract performance measures are not practical), efficiency, comparability, basic assumptions for example about the process being the figure and availability to background information. The lack of comments, context or background to a figure was seen as a risk for the feasibility by management. This study also found that the legitimacy of figures is situational, as suggested by Goretzki et al. (2018), which suggests that figures legitimacy has to be judged case to case.

This study found that management recognizes the need for diagnostic control review but in for instance process and CI matters, tends to prefer interactive control review. A combination use of both diagnostic and interactive review gives management the full story but to be able to take ownership of opportunities or risks in the process, management needs further insight, which can be gained through interactive review. This also applies in CI related matters, where understanding the ways of working and level of adaptation of the CI culture are acquired through interactive review. According to this case study, management preferred face-to-face meetings with their employees, teams and departments for interactive review (Tessier & Otley 2012).

In conclusion, management uses different controls for different purposes, depending on the control's target. Controlling a process includes managing employees, activities, operational and strategic goals, opportunities and risks, planning, output and results. This study found that controls and performance measures support management decision-making, feedback and guiding opportunities as well as communicating expectations and limitations. Management utilizes different methods when reviewing controls, preferring diagnostic review for snapshots and interactive review for in-depth analysis. These results reflect that management relies on controls to support manage activities, processes, people and the organization both operationally and strategically.

7 CONCLUSION

This study provides insight into how continuous improvement is controlled in financial control activities. The purpose of the study was to close the gap between control and agile theories, which was done by examining if and how continuous improvement could be controlled through MCS frameworks. In this study, management control systems were analyzed with MCS frameworks by Malmi & Brown (2008), Simons (1995) and Tessier & Otley (2012).

This research discovered that because continuous improvement is part of process activities, it was also most feasible to be studied and analyzed through processes. The results show that the organization is aiming at improving its continuous improvement capability through relaunching and development of CI controls at the time of the research. Although CI controls were not employed at the time of the study, the potential CI controls could be studied through process controls, which reflect the types and objectives of currently adapted controls.

In this case study, CI controls could be applied through process controls, since CI is part of the process. Cultural or belief controls should communicate values and ideals that guide social behavior, while cybernetic controls should recognize critical performance variables management should respond to. Cybernetic controls for CI could analyze the data from the CI reporting tool through the PDCA cycle, which would reveal the outputs and results of improvement initiatives in addition to the attitude and acceptance of CI culture. Alternatively, the CI reporting tool data could be used for technical controls while social and cultural controls could be applied through internal communications, meetings, training and workshops. Administrative or technical controls are more measurable due to their nature and are applicable to CI as well, to monitor guideline and rule compliance. Reward and compensation controls in the form of extrinsic rewards are according to the case study results not applicable in a separate CI environment, since it is part of daily process operations and needs to be reviewed in relation to overall performance, although there are exceptions. Instead, intrinsic rewards (i.e. an internal rewards and sense of accomplishment) and feedback were considered appropriate reward and compensation controls for performance and compliance in the CI environment. Planning controls are relevant at the time of the study and should focus on issues such as expectations, targets, communication, governance model as well as what types of cybernetic controls to implement to support CI culture.

This research further discovered that the legitimacy and persuasiveness of accounting figures is indeed highly situational, as suggested by Goretzki et al. (2018). This suggests that management accountants need to consider the context as well as basic assumptions of the figure before accepting it. Analysis indicates that the legitimacy and persuasiveness of accounting figures is supported by additional information, which could be further data or background information, which could also be obtained through informal arrangements (Jordan & Messner 2012). Additionally, analysis implies that management prefers interactional review of controls, that is to say face-to-face discussions and meetings. This study also suggests that management perceived process and continuous improvement controls as enabling, although they could be time consuming and distracting at times. These results indicate that the management accountant has to be highly flexible and adaptable as well as maintain regular and active contact with her network in order to control operational activities as well as the change process.

The findings of this research present various opportunities for further research to increase the understanding of the research topic. Malmi & Brown (2008) argue that studying MCS packages in one paper could be challenging considering the level of sophistication of the MCS package framework. Therefore, further studies on the MCS package framework as well as Simons' LOC framework and Tessier's & Otley's revised framework should be studied further in the case study context. Secondly, the depth of the case company remains moderate, mostly due to the wide topic of the research in addition to the lack of implemented controls in the case company. This research could benefit from further analysis of MCS frameworks after full implementation of control systems. Thirdly, future research could focus CI culture by investigating how agile ways are applied in daily work and what role perception plays in acceptance of agile ways. Additionally, it would be interesting to do a comparative study on this research topic to see how different CI and implementation methods yield different results.

However the contributions of this paper go beyond its conclusions. The lack of similar studies confirms that there is need for a discussion about the relationship between MCS and agile theories and practices. To the best of the authors knowledge, these topics have not been researched in a case study before. This study therefore acts as a foundation for a discussion about combining opposing theories and applying them into practice, in ways organizations find useful and value adding.

8 SVENSK SAMMANFATTNING - SUMMARY IN SWEDISH

Styrning av ständig förbättring i ekonomistyrningsprocesser: En fallstudie

Denna avhandlings syfte är att öka förståelsen för både ständig förbättring i en ekonomiförvaltning och hur förvaltningskontrollsystem (management control systems) används av ledningen. Enligt tidigare forskning finns det en koppling mellan förbättring av kvalitet och vinst i företag (Fryer, Antony & Douglas 2007). Förbättring av kvalitet kan ske på flera olika delområden i ett företag, bland annat utveckling av mjukvaror, tillverkning eller finansiella processer. En central metodologi för förbättring av kvalitet är ständig förbättring (kaizen, continuous improvement), som är en samling av olika verktyg, tekniker, sätt och metoder, vars avsikt är att möjliggöra ständig förbättring. Några av de mest populära och använda metoderna är lean management, det balanserade styrkortet, Sex Sigma samt hybrider av dessa (Grenzfurtnner & Gronalt 2020). Genom optimering av processer strävar ständig förbättring efter att eliminera icke värdeskapande uppgifter, sänka kostnader, förbättra kvalitet och öka arbetstagarnas och verksamhetens effektivitet (Sower & Fair 2012, pp. 2-4).

När företag introducerar interna program för ständig förbättring, kommer också frågan om kontroll av prestation och output upp. Denna avhandling undersöker om agila metoder kan kontrolleras genom traditionella förvaltningskontrollsystem (Simons 1995; Malmi & Brown 2008; Tessier & Otley 2012) för att vidare undersöka förhållandet mellan agila metoder och kontroll. För att kunna undersöka avhandlingens primära syfte, har avhandlingen ett sekundärt syfte, det vill säga undersöka förvaltningskontrollsystem och användning av sådana (Malmi & Brown 2008; Kennedy & Widener 2008). Artz, Homburg och Rajab (2012) anser också att ledningens preferenser och användning av prestationsmått vad gäller beslutstagande borde undersökas vidare.

Relationen mellan kontroller och agila metoder är ett intressant och relevant forskningsområde eftersom sätten har motsägande teorier. I denna avhandling kommer förvaltningskontrollsystem att undersökas från ett internt agilt program för att upptäcka om kontrollsystem är användbara eller rimliga att tillämpa i en agil miljö. Undersökningen är motiverad av Malmi och Brown (2008) som anser att förvaltningskontrollsystem som en del av ett paket borde utforskas vidare, och Kennedy och Widener (2008) som anser att tillämpningsprocessen av lean accounting borde utforskas vidare, för att öka förståelse av kontrollsystem. Avhandlingen motiveras också av forskningar från bland annat Maskell och

Kennedy (2007) samt Artz, Homburg och Rajab (2012), som anser att ledningens användning av förvaltningskontrollsystem i praktiken och deras mervärdeskapande egenskaper borde undersökas vidare.

Avhandlingens forskningsfrågor är följande:

Forskningsfråga 1: Hur kontrolleras ständig förbättring i ekonomistyrningsprocesser?

Forskningsfråga 2: Hur använder sig ledningen av förvaltningskontrollsystem?

Studiens teori bygger på tidigare forskning och teorier om ständig förbättring samt förvaltningskontrollsystem. Teorin om ständig förbättring innehåller metoder som lean management, det balanserade styrkortet, Sex Sigma, JIT, Total Quality Management, scrum och hybrid modeller. Tidigare forskning om förvaltningskontrollsystem innefattar både forskning om hur kontrollsystem används (Goretzki et al. 2018; Jordan & Messner 2012; Stormi, Laine & Korhonen 2019; Islam, Adler and Northcott 2018; Adler and Borys 1996) och ramverk för kontrollsystem. Undersökningens data analyseras främst genom tre ramverk för kontrollsystem, Malmis och Browns (2008) management control system package, Simons (1995) Levers of Control samt Tessiers och Otleys (2012) uppdaterade version av Simons LOC-ramverk. De olika ramverken för kontrollsystem har olika perspektiv på kontroll men de har också flera gemensamma faktorer, som bland annat sociala kontroller, procedurkontroller och belöningskontroller.

Anhandlingens fallstudieföretag är ett finskt, industriledande tillverkningsföretag med en betydande ekonomiavdelning som skulle omlansera ständig förbättring som ett strukturerat program i organisationen. För att kunna svara på forskningsfrågorna, gjordes elva semistrukturerade intervjuer med ledningspersoner inom ekonomistyrningsprocesser. Dessutom hade intervjudeltagarna också centrala roller i fallföretagets interna program för ständig förbättring. Eftersom avhandlingen i fråga är en fallstudie, gjordes intervjuerna i en organisation som förblir anonym i studien. Intervjuobjekten hade relevanta roller som ledningspersoner både i sina processer och i organisationens agila miljö. Intervjuerna följde den bifogade intervjuguiden, som innehåller sammanlagt 25 frågor. Efter intervjuerna transkriberades svaren för analys. Utöver intervjuerna, hade jag en stödjande roll i den ständiga förbättringen i organisationen och kunde samla kompletterande material för att skapa en djupare avhandling. Eftersom avhandlingen var kvalitativ var avsikten inte att kunna generalisera eller sammanfatta resultaten utan i stället att öka förståelsen av ett specifikt fenomen (Patton 1987, pp. 9–10).

Resultaten visar att företaget genom en strukturerad och strategiskt inriktad omlansering av ständig förbättring ville öka på kapaciteten för ständig förbättring i organisationen.

Forskningsfrågorna kunde delvis besvaras genom intervjuerna. En utmaning var att det nya programmet för ständig förbättring inte lanserats fullt ut när insamlingen av data skedde.

Detta ledde till att frågor om processer och förvaltningskontrollsystem kunde besvaras fullständigt men praktiska svar om ständig förbättring blev bristfälliga i vissa fall.

Resultatet av den första forskningsfrågan visar att ständig förbättring i ekonomistyrningsprocesser inte fanns vid den tiden intervjuerna gjordes. I stället var kontroller av ständig förbättring under utveckling. Utveckling av kontroll över agila sätt är inte enkla att utveckla och kan också behöva lansering av programmet innan det går att hitta fungerande kontroller. Eftersom svaren på första forskningsfrågan var bristfälliga, undersökte studien hur kontroller skulle kunna tillämpas på ett praktiskt och värdeskapande sätt i organisationen.

Studiens analys visar att även om de valda förvaltningskontrollsystemen för denna studie inte nödvändigtvis är det mest praktiska sättet att kontrollera ständig förbättring, ökar de förståelse av elementen som borde följas och iakttas. Resultaten visar att kulturella kontroller är viktiga för hållbarheten av den ständiga förbättringen och kan påverkas genom aktiv och motiverande kommunikation till anställda. Kulturella kontroller som har många likheter med sociala- eller tillitskontroller (belief controls), är också svåra att påverka eftersom anställda kan ha emotionella responser till nya sätt att arbeta på. Också för att eliminera osäkerheter och skapa förtroende i ständig förbättring borde kommunikation innehålla klara riktlinjer och förväntningar, för att anställda ska ha verktygen för att kunna uppnå förväntade mål. Sociala kontroller går också hand i hand med tekniska kontroller, eftersom den ena typen inte kan existera utan den andra. Tekniska kontroller som bland annat instruktioner, regler och standardförfarande ger anställda gränser som behövs för att de ska förstå spelets regler. Tekniska kontroller kan också ses som administrativa kontroller, vilka är lättare att påverka och ändras, men har i processspecifika uppgifter inte någon verklig inverkan på hur ständig förbättring görs. Att skapa en kultur av ständig förbättring kräver alltså kommunikation och definition av kreativitet och gränser.

Övriga kontroller som kortsiktig och långsiktig planering var aktuella vid tiden för studien. Belöningskontroller ansågs inte vara relevanta i fallet, eftersom ständig förbättring ansågs vara en naturlig del av anställdas vardagliga arbete. Däremot saknades cybernetiska kontroller (budget, finansiella och icke-finansiella mätningssystem) inom ständig förbättring,

vilket innebar att ledningen inte visste vilken output eller betydelse ständig förbättring hade. En cybernetisk kontroll skulle kunna utvecklas genom att utnyttja det nuvarande rapporteringssystemet för ständig förbättring genom att rapportera förbättringsinitiativ genom PDCA-cykeln (plan-do-check-act). Idén i förslaget är att utnyttja det sista stadiet (act) för att rapportera effekten som förbättringen hade. Utmaningen med ett sådant system är dock att det är mycket svårt för ledningen att beräkna hur mycket organisationen besparat i euro genom förbättringar inom kvalitet eller tidssparande.

Den andra forskningsfrågan fick fullständiga svar, eftersom intervjuobjekten använder sig av kontroller i sina processer. De viktigaste funktionerna för kontroller var bland annat stödandet av resursfördelning, genomskinlighet i processen för att kunna identifiera risker och möjligheter samt övervakande av anställdas utveckling. Intervjuobjekten föredrar att få kompletterande information och bakgrund till siffror genom interaktiva metoder, det vill säga möten och diskussioner, i stället för diagnostiska metoder, det vill säga ensidig överblick över siffror. Detta motiverades genom att kontroller anses stödja ledningens beslutsfattande, till vilket ledningen behöver all tillgänglig information. De flesta intervjuobjekten ansåg också att ständig förbättring utvecklas som ett strukturerande och möjliggörande verktyg för anställda. Även om ledningens avsikt var positiv, ansågs det att anställdas reaktion till programmet för ständig förbättring kan vara både positiv och negativ. Enligt en tes kan de anställda som jobbat i organisationen sedan första lanseringen av programmet för ständig förbättring för några år sedan vara mer negativa än nyare anställda, som verkar ha anpassat ständig förbättring till sitt vardagliga arbete. Anställdas reaktioner och attityder till ständig förbättring har betydelse eftersom programmet måste accepteras för att en kultur av ständig förbättring ska skapas och ha en verklig påverkan i organisationen. Intervjuobjekten ansåg att kommunikation om ledningens avsikter med programmet, det strategiska värdet av ständig förbättring samt dess uppgift som ett möjliggörande verktyg för anställda borde användas för att påverka anställdas reaktioner och åsikter.

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APPENDICES

Appendix 1. Accompanying letter

General information

Outline

The study examines how continuous improvement in the Financial Control organization is measured and how the measures are used by management. One purpose of the interview is also to discover if and how the performance measures add value to the organization.

The study is conducted through interviews, with interviewees representing the continuous improvement program in the financial operations organization. A total of 12 participants are expected to contribute to the study through interviews.

Interview

The interview questions are divided into three sections:

- I. Interviewee's role in CI*
- II. Continuous improvement performance measures*
- III. Use of performance measures by management*

The questions are intended to provide an extensive understanding into the company's how continuous improvement initiative performance is measured in addition to how performance measures are de facto used by management. Through these topics, I am also examining how the continuous improvement initiative and its performance measurement add value to the organization. Please familiarize yourself with the questions in Interview questions - attachment before the interview.

Additional information

- The interview questions are provided in advance for you to familiarize yourself with the topic and the questions.
- The duration of the interview will be around one hour.
- The interviews will be conducted in English (if not objected).
- The interviews will be recorded (if not objected), the information will be kept confidential and will only be used by me for the purpose of this study. The recordings will be deleted after the study has been completed.
- The information that you provide will not be published anywhere, other than in this thesis, in which the anonymity of the interviewee and the organization will be respected.

This study is conducted as part of my master's thesis in accounting during spring 2021.

Thank you for participating!

Appendix 2. Interview questions

Interview questions

Abbreviations:

CI = Continuous improvement

PM = Performance measure

I. Interviewee's role in CI

1. What is your current title and role within the company?
2. What is your educational background?
3. How long have you been employed by the company?
4. How long have you been working in your current role (inc. role in CI)?
5. What types of activities does your process or sub-process include?

II. Continuous improvement performance measures

6. Which areas of performance are essential to measure or track in your process?
 - a. Why are these areas performance relevant to monitor in this process?
7. Since the relaunch of continuous improvement, have you reviewed how CI performance is measured in your process?
8. Have you (or your team) done any adjustments or changes to the performance measures based on your review? If yes, what adjustments were made?
9. What is your and your team's role is in performance measure development and the change process?
10. How do (or will) you measure or track performance in the process?
 - a. What financial measures are used?
 - b. What non-financial measures are used?
11. How do (or will) you measure or track compliance?
12. What social controls (i.e. values and norms) apply in the process and how should they be measured?
13. What technical controls (i.e. procedures, rules) apply to the process and how should they be measured?
14. Why are some PM's more legitimate or salient (i.e. noticeable, meaningful or memorable) to you than others to you?
15. What performance should be measured or tracked but is currently not?
 - a. Why is this performance not measured or tracked?

III. Use of performance measures by management

16. Why do you use performance measures relating to your CI process?
17. How do you use performance measures relating to your CI process?
18. How do the performance measures support your decision-making?
19. Why are the CI performance measures valuable to you?
20. Do you experience process control and performance measurement as enabling, coercive (i.e. constraining) or both?
21. How should performance and compliance be rewarded and/or punished in your opinion?
22. Will you review CI process performance interactively (i.e. face-to-face meetings, involving employees in formulating new strategies), diagnostically (i.e. monitoring output vs pre-set targets) or by a combination of both?
23. How does controlling your process's operational performance relate to company strategy?
24. How are the controls and performance measures of your process going to be communicated within the organization?
25. Do you think employees (will) perceive CI process control (i.e. strategic and operational controls, managerial intentions), positively, neutrally or negatively? Why?

Appendix 3. Interview and interviewee details

Interviewee	Interviewee title	Experience at company	Interview date	Interview duration (minutes total)
Interviewee 1	Senior Manager	15 years	27.4.2021	41
Interviewee 2	Manager	10 years	29.4.2021	33
Interviewee 3	Manager	1 year	27.4.2021	44
Interviewee 4	Senior Manager	2 years	29.4.2021	25
Interviewee 5	Senior Manager	9 years	26.4.2021, 28.4.2021	71
Interviewee 6	Senior Manager	3 years	28.4.2021	35
Interviewee 7	Director	20 years	29.4.2021	46
Interviewee 8	Manager	2 years	20.5.2021	45
Interviewee 9	Expert	29 years	27.4.2021	38
Interviewee 10	Senior Expert	3 years	29.4.2021	41
Interviewee 11	Director	14 years	26.4.2021	40