

# Dynamics between Lean Service and Management Accounting Practices and the effect on motivation

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Abstract of

# Dynamics between Lean Service and Management Accounting Practices and the effect on motivation

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*Master thesis by Mathias Møller Laugesen*

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Lean has been one of the most prominent buzzword and influential ideas of business operations and business development for the last 20 year. The application to service operations is a significant new direction in operating a service in the 21<sup>st</sup> century. The Lean philosophy is not limited to operation, but is to be regarded as a holistic business strategy, where the Management Accounting Practices, MAP, play an important role in order to optimally reap the benefits from Lean Service operation. The dynamics between the Lean Service and MAP is therefore more interesting than ever.

The findings of the thesis show that misalignment between Lean Service operation and MAP has a negative effect on motivation in an organization with knowledge-intensive employees. Delivering good quality service and a feeling of competence and autonomy are essential to intrinsically motivating knowledge-intensive employees. It is inhibited by several factors in the dynamics; a vertical orientation of the MAP inhibits the transverse flow Lean Service operation, higher targets than the value stream and competitive evaluation system and reward structures that inhibits cooperation, use of key performance indicators, KPI's, for process improvement at the expense of the professional insight of employees. The positive elements, which increase the motivation, are the common understanding of KPI's and decision-making through visual performance measurement, which is used for organizing workload and prioritizing.

The case study is built in the empirical case of KMD implementing the Lean Service initiative, KMD 2.0. KMD is a Danish IT-company, which has implemented this Lean Service program, KMD 2.0. The main

purpose is not providing generic applicable findings, but rather single case study with reflections and suggestions, which can be subject to further investigation.

The point of departure is literature reviews of the motivational theories, Traditional MAP theory and Lean theory, covering Lean Service and Lean MAP. The literature reviews are used for identifying gaps in the existing knowledge, which is be addressed in this thesis and is point of departure for the investigation.

In general the thesis has contributed to the theoretical research field by combining Lean Service, Lean MAP and Motivational theories. The thesis extents and connects the three areas of knowledge.

The practical implications are addressed in terms of suggestions for improvements initiatives, which can align the MAP with the Lean Service operation in KMD. It would not only result in improved motivation of the employee, but also entail improved performance.

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## 1 Introduction

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Lean has been one of the most prominent buzzword and influential ideas of business operations and business development for the last 20 year (Fullerton et al., 2014). In a globalizing market and highly intensified competition on almost all market, the requirements for efficiency and competitive strength are high, which emphasizes the need for business development (ibid.). Lean has improved performance and competitive advantage of many production companies (Bortolotti et al., 2014). With the indisputable results, recognition and adaptation from the business scholars as well as practitioners Lean production has been a prominent business tool in the last two decades (Fullerton et al. 2013).

The Lean philosophy is not limited to operation, but is to be regarded as a holistic business strategy, where the Management Accounting Practices, MAP, play an important role (Banker et al., 1993) (Fullerton et al., 2013,2014) (Fullerton & McWatters; 2002)(Kennedy & Widener, 2008).

The Lean concept, which originated in the manufacturing environment, has since developed into total enterprise manufacturing, world-class manufacturing, Lean production, just-in-time, total quality management, Lean enterprise, Lean service and Lean management accounting (Banker et al., 1993;33) (Fullerton&McWatters, 2002;712)(Suárez-Barraza et al., 2012;366-368). In order to gain the full potential of Lean, it needs to be adopted as a holistic business strategy, including adjusting the Management Accounting Practices, MAP (ibid.). Implementing Lean is therefore no longer just an operational or minor tactical decision, which is well tested in a manufacturing environment. It is a major strategic initiative, which affects all processes and operations, including MAP.

An intensified focus on Lean and MAP is spawned by contradictory perspectives between Lean philosophy and Traditional MAP, which requires a reconsideration of the applicability of different MAP (Maskell et al., 2012).

Implementing Lean principles in only the operations does not reflect the basic Lean idea and hinder the organization to reap the full potential of the initiative (ibid.). Some companies implement Lean in their operations and do not adjust their MAP to support Lean. By origin Traditional MAP and Lean has different orientation, which is why they can be a bad fit when combined. Traditional MAP focuses on the vertical flow of information, decision-making authority and reporting designed to maintain power at executive level, controlling employees by mitigating for agency problem and increase shareholder value (Brickley et al. 2003)(Zimmerman, 2014). Lean focuses on the transverse value stream, which all is centred on and organized by customer value, continuous improvement, while delegating responsibility to employees (Liker, 2004)(Maskell et al., 2012)(Womack et al., 1990). So the profound

orientation is different, which is why a combination will imply a non-optimal exploration of the potential in Lean.

The last 15 years the Lean literature has an intensified focus on the application of Lean in Service operations (Suárez-Barraza et al., 2012) and on Lean MAP (Baines and Langfield-Smith, 2003) (Fullerton et al. 2013, 2014)(Fullerton&McWatters, 2002)(Kennedy and Widener, 2008).

Lean has been a concept in development and one of the most prominent application of the principles are Lean Service. The Lean concept has been in development for since the start 1990s (Womack et al., 1990), building on principles extracted from Japanese manufacturing leading back to the late 1940s (Liker, 2004). The term Lean Service was first mentioned in 1998 and has ever since been explored in the academic arena (Suárez-Barraza et al., 2012). Scholars have been researching the practical phenomenon in service organizations, developing a theoretical framework, investigating the different application settings and new trends and extension of Lean Service (ibid.). The last 20 years the service sector has grown to be the most prominent sector, and now paying more attention to efficiency and effectiveness (ibid.). As service operation is profound different than manufacturing, the Lean principle might not be applied in a 1:1 relation. The different foundation for determining the quality, which is a central element in Lean, is differentiated from customer to customer in services. Customers will tend to have differentiated demands in relation to the service, which entails that the specifications and traits of the service will differ and standardization becomes more difficult if not impossible. This sets up higher requirements for the employees and the constant focus on the customer becomes more essential. The higher requirement of customization in combination if often an advanced service entails that the employee types will typically be knowledge-intensive. This application of Lean to a service operation challenges some of the basic assumption in Lean by having a subjective approach to quality. In service, it is a subjective measure and by often employing knowledge-intensive people, who have a different approach to motivation than assembly line workers (Cerasoli et al., 2014). These differences might also call for some adjustments in the MAP.

The starting point for this thesis is to combine Lean Service and theoretical consideration of MAP. When exploring the MAP-literature, the thesis will concentrate on two perspectives: Traditional MAP and Lean MAP. Traditional MAP reflects the classic business school textbook and the “most used practice” in organizations all over the world (Brickley et al., 2003)(Zimmerman, 2014). Zimmerman (2014) have a basic assumption of economic Darwinism, which implicit entails that the Traditional MAP is be best practice. This basic assumption will be challenged throughout the thesis. Lean MAP is a newer direction evolving along with the idea of Lean as a holistic business strategy (Fullerton et al.,

2013,2014). Most Lean MAP literature is fairly new and has been written after the millennium and is represented by few articles compared to Traditional MAP.

As Lean and Lean Service become progressively more used business strategies, the need for further investigation in this area is of an utmost importance to uncover the dynamics and provide insight as how it can be improved even further.

If the Lean MAP do not support the Lean Service, which has different requirements for quality, the quality of the production get decreased, which can have an effect on the motivation of knowledge-intensive employee to whom delivering good quality service is essential to their professional integrity (Osterloh&Frey, 2002).

### 1.1 Subject area

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The purpose of the thesis is to investigate, how the dynamics of Lean Service and MAP affect motivation.

Motivation is an essential ingredient in having effective and efficient employees (Cerasoli et al., 2014). Motivation is therefore a critical element, weather the goal is to increase shareholder value (Brickley et al., 2003) or achieve the increased performance, quality services and satisfied customers (Liker, 2004). Two overlapping theoretical domains of MAP will be accessed, Traditional MAP and Lean MAP. Lean Service guides the operational direction and principles, which in many ways are the same as the principles of Lean manufacturing. The dynamics between Lean Service and MAP will be investigated and criticized in a motivational perspective.

The empirical settings for the investigation will be KMD, which is a Danish IT-company, which has implemented a Lean Service program, KMD 2.0, in it's outsourcing business (A1)<sup>1</sup>.

In KMD the Lean Service initiative, KMD 2.0, was deployed in 2012 and KMD is still implementing (O1)<sup>2</sup>(A21). KMD 2.0 has been a major business development, but already in the initial empirical search it was clear that the alignment of the Lean Service organization and the MAP was insufficient (O14). It was reflected in the demotivating factors of KMD 2.0, which the interviewees expressed. The interviews correlate with the low degree of work satisfaction from employee satisfaction surveys (A19). All interviewees mentioned KMD 2.0 as a necessary initiative and were positive towards it, but

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<sup>1</sup> See explanation section 2.3

<sup>2</sup> See explanation section 2.3



few inefficient elements hinder the full potential of KMD 2.0 to evolve. Therefore KMD and the KMD 2.0 initiative were chosen as the case.

## 1.2 Problem statement

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On the basis of the previous description the thesis will be guided by following problem statement:

“How do the dynamics of Lean Service and Management Accounting Practices affect motivation of knowledge-intensive employees?”

### 1.2.1 Work questions

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1. “What is the current state of motivational, Management Accounting Practices and Lean literature and which gaps are present in the existing knowledge in a motivational perspective?”
2. “How do the dynamics between Lean Service and Management Accounting Practices affect motivation of knowledge-intensive employees in KMD?”
3. “What are the theoretical and practical implications of the findings?”

### 1.2.2 Aim of the thesis

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The thesis will function as a theory building, which can be further investigated and tested in other Lean Service organizations and validated by studies with larger and more diverse sample groups. The thesis contributes to the existing discussion and development of Lean literature, both in terms of Lean Service, Lean MAP and specific application motivational theories. The main purpose is not providing, generic applicable findings, but rather a single case study with reflections and suggestions, which can be subject to further investigation “*the single case can represent a significant contribution to knowledge and theory building.*” (Yin, 2009;47). For strength and weakness in a single case study see section two on methodology.

The practical aspect will centre on a case study of KMD and the strategic Lean Service initiative, KMD 2.0. The thesis aims to provide reflections on how the current MAP and the KMD 2.0 way of operating affects the motivation of the employees. The reflections on MAP in the context of KMD 2.0 will provide insights as to how KMD can align the MAP and Lean Service organization in order to motivate employees and achieve better results. The thesis aims to contribute to the practical issue in KMD of

Continuous Improvement of KMD 2.0, which also is one of the main pillars in Lean philosophy (Womack et al., 1990).

### 1.3 Design of the thesis

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The thesis takes point of departure in hypotheses made from a review of existing literature, which are tested using empirical data from KMD and afterwards findings are discussed towards theoretical and practical perspective.

Point of departure for the thesis is a literature review of existing motivational theories, Traditional MAP and Lean literature, covering both Lean MAP and Lean Service.

On the foundation of the literature review and critique of existing literature from a motivation perspective, five hypotheses are proposed. The hypotheses concern the motivational implications the different MAP elements have in a Lean Service operation.

The analysis investigates the hypotheses by using the empirical data and applying theoretical explanation to the phenomena encountered by using the theory, which is reviewed in section three.

The findings of the analysis are subject to a discussion of the results and centre of both the theoretical and practical implications. The theoretical implications turn to how the thesis contributes to the existing knowledge and how it can be further expanded. The insights from the discussion are applied to the practical KMD case and provide consideration as to how to mitigate for motivational expediencies and which repercussions the initiatives of aligning the Lean Service operation and MAP to achieve better motivation, could cause.

### 1.4 Delimitation

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The thesis is in general delimited by using a narrow theoretical lens, which has blind spot for interdependencies to elements outside the theoretical scope and the case study design.

The efforts in this thesis are guided by and limited to the extent of the theoretical scope in section three and four. There are many facets and close interdependencies of Lean Service and MAP. The thesis focuses on MAP defined from distinct elements from Kennedy and Widener (2008): accounting practices, empowerment, visualization, performance measurement and reward systems. When addressing MAP there are many interdependencies to other areas such as structural controls, social controls and cultural controls (Bortolotti et al., 2014)(Kennedy & Widener, 2008). The thesis does not disregard the importance of e.g. cultural controls in Lean, but simply focuses on the more mechanistic

elements within MAP. This particular distinction is made to achieve a cleaner detection of the motivational implication of MAP, which are not distorted by e.g. soft Lean practices (Bortolotti et al., 2014). A clear delimitation is made to distinguish the effects.

The delimitation of motivation perspective is tied up to the Ryan and Deci (2000) definition of concept as a continuum ranging from amovitation, to extrinsic motivation, to intrinsic motivation as the internalization of behavioural regulations grows.

The design of the case study sets up a practical and empirical scope, where the only sources of data lie within KMD Operations and the three chosen business units.

## 2 Methodology

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The following section constitutes the methodological frame, which is used for conducting the findings. The methodology section also provides a description of the case, the process of designing the thesis, an overview and reflection upon the data collection and analysis approach and the scientific consequences of those choices.

The basic idea is to build a theory on the investigation of a single case study. The thesis empirical foundation is an embedded single case design (Yin, 2009). There is one case, KMD implementing KMD 2.0, which can be regarded as lying within the chosen context, dynamics of Lean Service and Lean MAP and the effect on motivation (ibid.). Within the case, KMD implementing KMD 2.0, there are several embedded cases, the strategic business unit, SBU, Operations implementing KMD 2.0, three underlying business units and down to eight department. These eight departments are the last common denominator for the empirical data and are therefore regarded as the lowest point of embedded analyses, which there can be differentiated from in the thesis (ibid.).

The case study design is chosen because of the contemporary and novelty nature of the phenomenon investigated. Case studies are of great use, when investigating new areas and trying to understanding the underlying dynamics of a context (ibid.). It can advantageously be used for creating new theories (Kennedy&Widener, 2008), which later on can be generalized to larger scopes after being statistically tested under different circumstances.

### 2.1 Case description – KMD Operations implementing KMD 2.0

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KMD A/S is a privately owned company, which provides IT-services. KMD has been meet by demands from its investors for being more market conformal to meet the competition of rivals. KMD is therefore in the process of a further increase efficiency, as the company has not been geared to the intense conditions after the privatization of the company in 2009 (A20). KMD is also currently struggling with low degree of work satisfaction and CEO has called for suggestions as to how the motivation can be improved, because: *“A high work motivation is an important priority for KMD”* (A19, Quote from CEO).

KMD Operations is an IT-service provider. The case zooms in on Operations, which is the SBU that operates customers outsourced IT. Operation delivers IT as a service. The SBU operates the IT Services by using principles called ITIL®, which in many ways are similar to Lean Service (E3). The operation in Operations starts by having a Service Desk taking care of all incoming requests and complains from

customers (MM3). The Service Desk department then distributes the tasks to second level handling in others departments in Operations depending on the nature of the task (ibid.). All IT as a service are provided on the specification of the Service Level Agreement, SLA (MM1). A SLA states how long an IT service, such as a mail function, can be unavailable and the condition of penalties that KMD has to pay if the SLA is violated.

In order to meet the challenges of the new competitive conditions, a strategic business development initiative, KMD 2.0 has been initiated. KMD 2.0 is a program, which is built on the Lean principles. KMD 2.0 consists of aspects, which concentrate on different parts of business development: Organization and Skills, Performance Management, Process Efficiency, Voice of the Customer and lastly Mindset and Behavior (A1). KMD has been sequentially launching KMD 2.0 throughout the organization in waves. Not the entire organization has been through the program yet (ibid.). KMD 2.0 was initiated in Operations in 2013 (A22).

The KMD 2.0 program only addresses some aspects of the Lean principles and not was a reflection of the Lean enterprise (ibid.). The screening interviews showed resistance and incomprehension of the principles in KMD 2.0 as if it was an incomplete program (O14). This could of course be due to a typical change frustration, which only seemed to be a partial explanation. The indications also pointed towards a difficult transition to the new way of working and thinking, because the MAP in KMD inhibited or worked against the Lean Service operation.

In order to see patterns and conclude on them, more than one department or business unit need to be examined. The sample departments have to be fairly homogeneous in order to mitigate for data distortion from environmental factors. Finally KMD 2.0 has to be implemented for more than a year. When making significant changes in an organization the productivity tends to decrease, the anxiety of the employees seems to increase and the organization is not yet geared to operate at full power under the new conditions. This way the change related data noise elements from the implementation gets discarded and the data is collected from a fairly steady state. Under these conditions Operation and three underlying business units were chosen as case study.

## 2.2 Process of designing the thesis

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The design process has been an iterative process, where the constant development of new sections molded the previous sections (Yin, 2009). The philosophy behind the process of development of the thesis has been not to stretch either the theories or the empirical data due to divergence (ibid.). To mitigate for the risk of divergence of theories and empirical data, the iterative process was a necessity.

Starting every section or taxonomic level on the foundation of the previous and then revisit all previous sections ensured the constant adaptation of previous taxonomic levels an alignment of argumentation that is convincing.

### 2.3 Data collection

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The KMD 2.0 was implemented throughout Operations in 2013 (O1)(A22). As the empirical data is gathered in June to August 2015, many of the changes will be manifested and therefore the empirical data from the interview is considered to be representative.

In order to achieve a foundation of data on which valid conclusions can be made, multiple data sources are gathered with the purpose of representing the same phenomenon recorded from different measures or frequencies (Yin, 2009). Four different data sources are used in this thesis to provide insight on the subject: interviews, target contracts from all the same people as interviews, articles published by the Transition Team in charge of KMD 2.0 waves, central KMD administration or external articles interviewing KMD administration staff and lastly observations both as direct observations and participant observations (ibid.). The interviews are used as the primary sources to guide the investigation.

The screening interviews served as methods of finding the practical challenges in KMD, where an in-depth approach for interviews was suited (ibid.). By letting the interviewee start of and set the agenda with an open interview form, the most critical and useful point should reach the surface. The screening interviews were centred on managers and consultants from the Transition Team in charge of KMD 2.0, and managers from KMD Operations (O14). The screening interviews were carried out in Danish to avoid linguistic barriers. The screening interviews are represented in the appendix as participant-observations (O8)(O11)(O14).

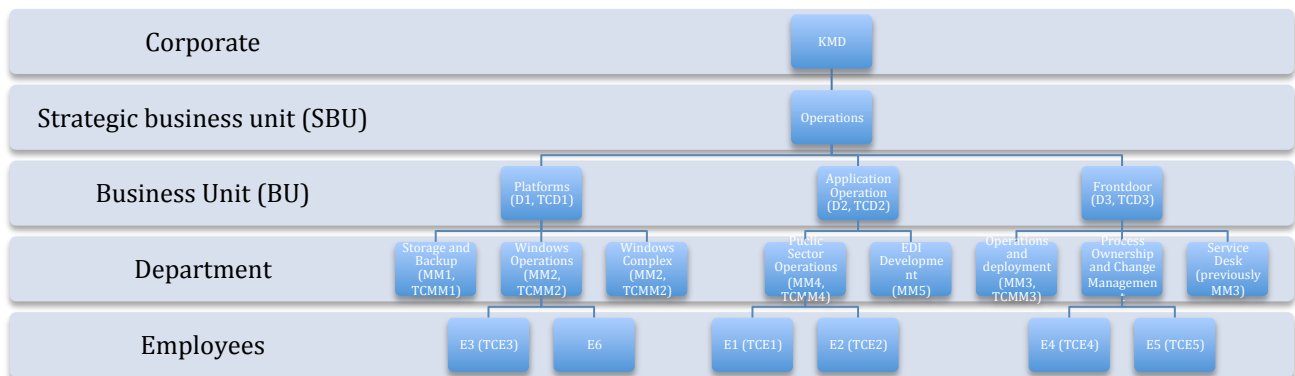
The method for conducting the primary interviews has been a semi-structured approach. The interviews were focused, which is open-ended, but to a certain degree sticks to and gets inspired by the case study protocol. (Yin, 2009). The primary interviews were also carried out in Danish to ensure a free flow conversation. When conducting the interviews a repeating and clarifying approach to the questioning were used in order to dig deeper into the root causes of the topics, avoid preunderstanding and clarify the interviewee's definitions of concepts such as e.g. motivation.

Target contracts were conducted from the same individuals as interviews, in order to support the statements of the interviewee. Not all contracts are complete due to half a year delay in the making of

yearly contracts. Never the less do the contracts represent the manifestation of the target towards, which the employees work, complete or not.

The interviews and target contracts were conducted from three levels in the hierarchy across three different business units within KMD Operations and with a composition men and women reflecting the gender distribution in Operations in the different levels. It is conducted from of KMD-experienced employees, from before KMD 2.0, and new employees, who were hired after the implementation. The sample group criteria is a representation of opinions from all levels in the BU and types of people in order to get the most nuanced perspective and mitigate for blind spots in the empirical investigation.

14 interviews and 12 target contracts were conducted representing three business units and eight departments all under the SBU, Operations. The empirical sources anchored to specific people in KMD, such as interviews and target contract are traceable. Interviews are referred to as the position “D” for director, “MM” for middle manager and “E” for employee, and then a number, without significance, to differentiate between them. “TC” in front of the reference, implies it is a target contract, not an interview.



The articles are gathered from several sources, but all are representative to the official opinion of KMD. Most of the articles are extracted from the KMD intranet and are internal news articles with testimonials from employees and managers, administrative information or executive communication,

all available to the entire organization. One article is taken from an external sources, but an interview with the former HR and Communication Director in KMD (A20). The articles if references to by "A" and then the number of the article.

The observations are obtained through two methods; directs observations and participant observations (Yin, 2009). The direct observations were conducted through non-participating attending at morning meetings in the several departments. The participant-observations are conducted during four years of employment in KMD in another BU, but observing and experiencing the KMD 2.0 program. The observations if references to by "O" and then the number of the observation.

## 2.4 Data analysis

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### 2.4.1 Transcription and coding

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The aftertreatment of the interviews, before applying to the analyses, has two fases: transcription and coding. The all interviews were transcribed in Danish. The only editing, from the articulated words to the transcription, is the elimination of hesitating sounds and restarted sentences. The coding was based on several coding categories extracted from both subject in the conversation, theoretical areas, hypotheses and empirical cases. Afterwards all the quotes on the same topics were gathered to the empirical manifestation of the interviews was organized by the coding categories.

### 2.4.2 Approach to data in the analysis

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When applying the data to the analysis, the quotes were set to support the line of argumentation and empirical patterns were examined. The quotes from the interviews were applied under the argumentation flow in the analysis structured by the theoretical line of argumentation. The application of the quotes supports arguments by combining the empirical data with the specific theoretical arguments. On all hypotheses the interviews was examined for tendencies or patterns across positions in the hierarchy and departments in order to determine weather the findings are bound to specific circumstances.

After applying the quotes and articles to the argumentation, they were translated to English. All translations are more or less direct at the exceptions of Danism and language specific idioms.

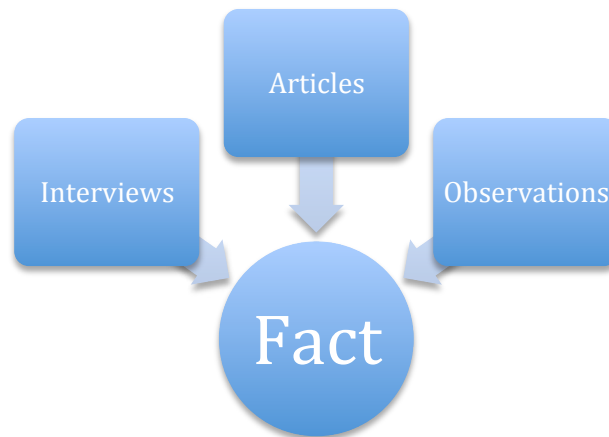
### 2.4.3 Data triangulation

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To ensure the reliability of the interview quotes and consider the addressed topics as testimonials representing facts instead of subjective opinions, the quotes are to be supplemented by a triangulation

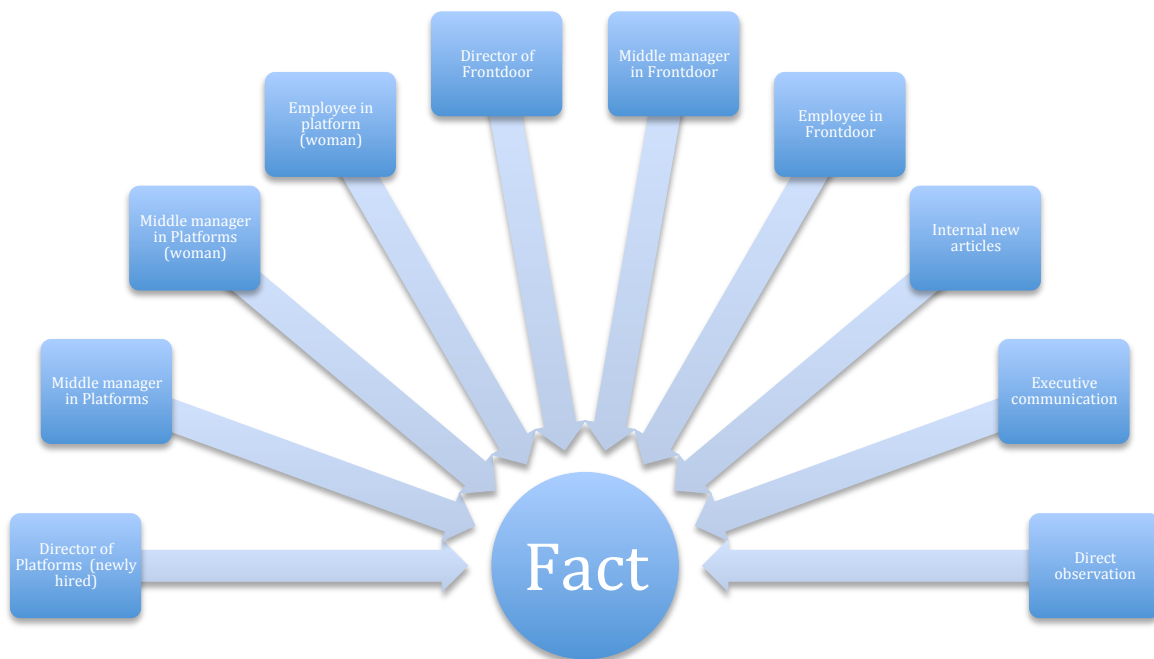


of empirical sources (ibid.). By using multiple sources of evidence, it gets possible to get closer to something that can be considered a fact by triangulating data from different sources. If all sources of data are converging it becomes possible to construct validity to some extent (ibid.). This is a central component, when differentiating a case study from an interview study (ibid.).



(Yin, 2009, 117)

The triangulation method is not only used on the data sources such as interviews, documentation as target contract or articles and observations, but also on from the perspective of the sources. The interviews reflect a sample group from several places in the hierarchy, departments, time of employment and gender. The articles are both internal and external news articles, administrative information and executive communication etc. for the other data sources.



## 2.5 Philosophy of science

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The scientific standpoint in the thesis agrees with the functionalists' paradigm, where the investigation is set to undercover a truth of social regularities, motivation of knowledge-intensive employees and patterns where individuals are molded by their environments, dynamics between Lean Service and MAP and therefore can be regulated by the findings in the thesis (Burrell&Morgan, 1979).

The ontology in the thesis is realism (ibid.). The thesis is searching to find a reality that is objective external to individuals' recognition of it. It is evident in the approach of constructing validity through triangulation and recognizing the findings as valid (ibid.). The thesis does take a standpoint, where it investigates individuals' perceptions of motivation, but regards motivation of knowledge-intensive employees as a mechanic result, where general tendencies across individuals' perceptions are reality.

The epistemology is positivism (ibid.). The entire thesis is based on the ability and belief that it is possible to describe regularities and causal explanations to social phenomenon.

The human nature is regarded through determinism. The general perspective on the human nature in the thesis is that it regards the individuals as product of the environment. It is evident when addressing the motivational effects on individuals from the dynamics of Lean Service and Lean MAP.

The methodology is nomothetic and a hypothetic deductive research approach is used (ibid.). The nomothetic method is a product of the three previous elements. It takes point of departure in the belief that there is an external, hard reality, where knowledge about dynamics and regularities can be obtained (ibid.). The method are a deductive hypothetic method, where hypotheses for testing are crafted on a deduction process from previous knowledge, which serves as the premises for deducted hypothetic conclusion. The method used cannot validate, but only render possible by substantiate the deductive hypotheses as the thesis depends on validation through falsification of the hypotheses (Fulgsang&Olsen, 2004).

With the realism, positivism and nomothetic methodology there follows and inherent problem of the looking glass, which knowledge is obtained through. The measures to detect the phenomenon, which in this thesis are interviews, articles and observations distorts and molds the reality when perceiving, recording and presenting it. Therefore the method of triangulation becomes important. Through a systematic protocol and techniques for data collection and analysis the triangulation mitigates for the

blind spots and distortion of the different looking glass and thereby gets a close to the real world as possible (ibid.).

Due to the scientific approach this thesis does not consider the interpretive and perceptive approach and subjective perspective, which create blind spot for individual founded explanations. Thereby there is a risk of looking for regularities, which are not be explained by cross individual examinations. Then a non-optimal scientific approach can cause a twisting of the empirical data in to something, which it is not.

## 2.6 Validity, representativeness and limitations

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Due to the data collection, data analysis and the research design the thesis is representative to the condition in KMD and the hypotheses should be generalizable to other cases.

The data collection in thesis represents multiple sources and perspectives on the same topics and can therefore be regarded as valid. All data is taken from the same SBU and value stream, which ensures homogeneity and eliminate distortion of data from other influencing factors. It is from three levels in the hierarchy, different types of employees and different data sources. The data are ensured to be convergent, due to the triangulation method, so it establishes a united foundation for the analyses. This brings validity to the construction of the data foundation.

The data analysis is done through a hypothetic deductive method, which connects previous knowledge to the findings and uses the theoretical argumentation flow structuring and supported by empirical data in a logical convincing manner. This ensures the internal validity to the findings, that it is trust worthy in the explanations about the case.

The research design determines the external validity about to which extent the findings are generalizable and this is where the thesis meets its limitations. The arguments for a weak external validity are that it is a one case study in one SBU in one company. The sample group is only 14 interviews and there are only three directors as the smallest sub group. There might be blind spots, which can be of fatal significance if these traits of the blind spot are company specific or in other ways circumstantial. A methodological blind spot could e.g. be that the data is not conducted over time. If the interesting explanation of the dynamics not can be explained in a static view there is a risk of “taking a still picture of a development” and thereby having a methodological challenge.

On the other hand the aspects investigated are not specific to these exact circumstances, which make the findings possible to apply it to other departments or companies, with the same traits, which makes

the findings generalizable. Such traits could be other Lean Service organization with knowledge-intensive employees, where intrinsic motivation plays a significant role to the general level of motivation.

Section 1.3.2 “Aim of the thesis”, states that the thesis is an attempt to shed light upon a new area of research and give suggestions to some hypotheses, which can be subject to further testing in other settings and in a broader scope afterwards. In terms of validity the general scientific, theoretical and empirical method are sufficient in the context of the purpose of the thesis.

### 3 Literature review

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The literature reviews serve as the foundation of the theoretical areas, which the thesis touches upon and therefore the following three theoretical areas are reviewed: Motivational theory, Traditional MAP literature and Lean literature covering Lean MAP and Lean Service.

The purpose of this thesis is to contribute to the existing literature by using the Locke and Golden-Biddle's two-step process method of constructing intertextual coherence and afterwards problematizing the situation (Locke&Golden-Biddle, 1997). In constructing the literature contribution in this thesis use the synthesized coherence as the first process and the incompleteness as the second and problematizing process. The synthesized coherence draws on and integrates existing knowledge, which not previously has been connected in order to develop a new research area (ibid.), Lean Service, MAP and Motivation. The incompleteness represents the problematization of the literature as "*not finished and that the present study will further specify it*" (Locke&Golden-Biddle, 1997; 1040) by identified gaps in the existing literature.

#### 3.1 Motivational literature review

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The motivation literature will be represented through three articles, which will be accessed for knowledge gaps and later on will serve as a perspective to the Traditional MAP, Lean MAP and Lean Service theory assessment.

Motivation means, "*to be moved to do something*" (Ryan&Deci, 2000; 54) and is a crucial element in all aspects of business. Motivation is basic component in achieving human performance, which is why this topic is of great importance for all organizations (Cerasoli et al., 2014). Employee motivation is the sum of all tools used in order to get the employees of a firm to do something (Ryan&Deci, 2000). Two dimensions are relevant, when addressing motivation as a general concept: level of motivation and orientation of motivation. The level of motivation depends on how encouraged a person is to do something. The orientation can be seen as a continuum reaching from amotivation to extrinsic to intrinsic motivation depending on the degree of internalization and integration of the behaviour regulations (ibid.).

The review is structured in two dimensions; motivation orientation and focus areas.

The motivation orientation tells which dimensions, intrinsic or extrinsic motivation, the articles addresses. The focus area is divided into two sub categories: dynamics of motivation and appliance of motivation orientation as a contingency. Dynamics of motivation refers to general explanations as to

when the different orientation of motivation occurs and what makes it change. The second sub-category addresses contingencies under which the appliances of the two orientations best encourage performance.

See table with literature review in appendix 10.1.1 (Table 1).

The review entails three articles, which all addresses the same basic elements in motivational theory: intrinsic and extrinsic motivation and the three articles give insight to the definitions of the elements, explains the dynamics between them and provides guideline as to which situations they are best fit for in order to achieve optimal level of motivation or performance.

Ryan and Deci (2000) defines a theoretical space, which motivation can be defined within. The article presents a spectrum from amotivation, to extrinsic motivations: external regulation, introjection, identification and integration, and finally to pure intrinsic motivation (ibid.). The dynamics, which move the motivation along the continuum, is the degree of internalization and integration degree of values and behavioural regulation (ibid.). Ryan and Deci (2000) defines amotivation as a lack of intention to take action and extrinsic motivation as an instrumental tool, which is released at a certain separable outcome. Intrinsic motivation is depended on to factors: feeling of competence and autonomy (ibid.). Both need to be present in order for an individual to be intrinsically motivated.

Article number two is the Osterloh and Frey (2002), which provide a framework as to how to design the motivation composition. It takes point of departure in the situations, where respectively intrinsic and extrinsic motivation has advantages and how the dynamics in between the two function. Osterloh and Frey (2002) suggests that extrinsic motivation should be applied in organizations, which carry out tasks that are characterized by routine operations in simple jobs and where performance is easy to measure. Intrinsic motivation can advantageously be encouraged and emphasized when:

- Tasks requires creativity
- Tasks has a high degree of incompleteness in definition and are ambiguous
- Transfer of tacit knowledge is needed
- Tasks requires cooperation, which is fostered by personal relationships and communication
- When employees set a high value in participation, which then can be meet by using codetermination and engaging employees in goal setting
- When employees are highly motivated if there work is considered meaningful, then interest in the activity and knowledge about their outcome and results can heighten intrinsic motivation

(ibid.).

The dynamics in between the intrinsic and extrinsic motivation can be described in the crowding-out theory, which describes how extrinsic motivation can undermine the intrinsic motivation (ibid.). This takes place when rewards are contingent on performance, when the sense of autonomy is overruled by commands and when an individual has the feeling of injustice in contingency between reward and performance (ibid.). But even though the crowding out effect makes the composition more complex, Osterloh and Frey (2002) still emphasized that in order to motivate both types of motivation needs to be present.

The third is Cerasoli et al. (2014) on intrinsic motivation and extrinsic incentives impact on performance as a contingency model, which entails task-dimensions of quality and quantity and direct/indirect performance-salient incentives. The article provides a meta-analysis of 950 articles from the last 40 years research on motivation and thereby reflects a large background of the motivational theories (ibid.). The considerations in the article access how intrinsic motivation is related to performance. It shows that intrinsic motivation positively related to performance and has strong ties to performance of quality tasks where extrinsic motivation has to quantity tasks (ibid.). It also proves how the relation between intrinsic motivation and performance is strengthened by the presence of indirect performance-salient incentives and weakened by the presence of direct performance-salient incentives (ibid.). Finally the Cerasoli et al. (2014) supports the statement from Osterloh and Frey (2002) that the present of both intrinsic and extrinsic motivation is necessary in order to motivate employees.

The literature review shows two interesting gaps: no direct investigation to the contingencies towards specific business strategies or practices and Cerasoli et al., (2014) calls for research on what mediate the relationship and importance of intrinsic and extrinsic motivation. All the contingency theories are based on generic settings, which mean no specific investigation on the relationship between Lean Service, a specific use of different MAP and motivation has been investigated. This showing a gap for motivational theory tied up to specific business strategies and settings. Cerasoli et al. (2014) suggests for further investigation to look into what affects the dynamics that mediate the relationship between intrinsic and extrinsic motivation. This gap will also be addressed when investigating how different MAP in Lean Service settings will affect motivation.

### 3.2 Traditional MAP literature review

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The literature review of Traditional MAP literature gives an overview of existing knowledge and will be accessed by using the motivation theories in order to shed light on gaps.

Traditional MAP literature is represented by of the three core elements in Brickley et al., (2003), which functions as an umbrella theory, which entails decision-making authority, performance evaluation and incentive and compensation pay and how they affect each other. To represent the Traditional MAP paradigm eight articles are chosen, reviewed and categorized as an extension of the theories presented in Brickley et al. (2003).

The literature review is structured by to dimensions: MAP focus area and motivation orientation in focus. The eight articles are in the review structured the three legs from the Brickley et al. (2003) theory they address, and motivation orientation in focus, which refers to intrinsic and extrinsic motivation. Thereby the review provides an overview, which reveals how Brickley et al. (2003) is supplemented by more detailed theories, which each has a distinct perspective on the MAP focus area, while showing how motivation is integrated in the theories.

See table with literature review in appendix 10.1.2 (Table 2).

Decision-making authority generally centres centralization versus delegated and how the dynamics of knowledge, cost of knowledge transfer, convergence and agency cost affects the relation between centralization and delegation. Within distribution of decision-making authority there are two central regimes: centralized and decentralized/delegated (Harris&Raviv, 2005)(Mookherjee, 2006). Both regimes come with benefits and costs. The centralization ensures that the manager is in control and can ensure convergence. The downsides are under-utilization of employees' information/knowledge and lead to non-optimal decisions. Centralization requires therefore information transfer from the employees and to manager who makes the decision. This transfer is associated with costs. Delegation utilizes the information from employees, who might have the relevant information and knowledge to make a better decision than in the case of centralization.

Delegation of decision-making authority brings along cost of knowledge transfer and agency costs (Harris&Raviv, 2005)(Mookherjee, 2006). The cost of knowledge and information transfer should be seen as continuum, where specific knowledge is costly to transfer due to inherency of knowledge and capacity for information processing and general knowledge can therefore be transferred to the management at low costs (Jensen et al., 1995). Agency costs entails the costs of designing, implementing and maintaining a control system, which is necessary because all employees ultimately are self-interested (ibid.). Employees are biased towards protecting their own control and will have an incentive to increase their own informational advantage (Harris&Raviv, 2005). Everything else aside, the management will have an incentive to levelling the asymmetry in the information, to maximize the



return (ibid.). All in all the choice between centralization and delegation is mitigated by the cost of information transfer and information processing versus the cost of the control system (Mookherjee, 2006).

When dealing with performance measures there are many considerations to be made and many opinions as to the degree of functionality and it is safe to say that the effect of performance evaluation is circumstantial. The pro arguments are that performance evaluation is used as a feedback system, which provides important intelligence for future decision-making and it can be to access the contribution to shareholder value of entities, when determining the incentive pay (Brickley et al., 2003). In Traditional MAP the performance evaluation is crucial to performance even in the absence of evaluative consequences (Brewer, 1995). The phrase “What you measure is what you get” (Merchant, 2006) might be supplemented by “what you do not measure, you do not get” in the context of individual monitoring (Brewer, 1995). Performance evaluation can as well be a counterproductive element, when impacting negatively on especially intrinsic motivation when employees have evaluative concerns (ibid.).

The literature review reflects three continuums within performance evaluation: measuring vs. not measuring (see above), group monitoring vs. individual monitoring and lastly objective measuring vs. subjective evaluation.

Brewer showed that when the task is concerning a quantity performance evaluation the monitored task exceeds unmonitored tasks in performance at the cost of the unmonitored, when doing individual monitoring. The same is not the case in-group monitoring. There it had no effect on the performance distribution in-between monitored and unmonitored tasks (Brewer, 1995). This can be explained by the individual evaluative concerns and phenomena as social loafing (Brewer, 1995). These findings should be considered, when choosing what to evaluate.

Turning to how to measure, one commonly used approach is using quantitative measures, which is considered to be efficient and be decision influencing (Merchant, 2006). Merchant (2006) sets up following criteria: congruence with organizational objectives, controllable to the affected entity, timely, accurate, understandable and cost effective. On the other end of the evaluation spectrum is the use of subjectivity. In the Gibbs et al. article it is investigated when subjectivity normally is used, which can be seen as an indicator of best practice and it indicates the effects of using subjectivity (Gibbs et al., 2003). When turning to the effects of using subjectivity, it has an overall positive effect on satisfaction on pay in the presence of trust between the employer and employee (ibid.).

The last element in the dimensions in the literature review is the incentive and compensation pay, which is represented and Beersma et al., (2003) and which both focuses on extrinsic motivation and on the contingencies when designing a rewards structure. Beersma et al. (2003) provides insight as to which contingencies rewards are dependent on. The first insight is if a task is characterized by a focus on quantity the rewards structure should be competitive whereas if focus is on quality a cooperative rewards structure will increase performance (ibid.). The article also suggests that the personal traits and capabilities of the employees should be a determining factor when designing the rewards structure (ibid.). In the presence of high degree of extroversion and agreeableness a cooperative structure will fit and if the employees are characterized by being introvert and disagreeable they should not work together with others or be in competition with others. Finally the reward structure is also dependent on the performance level of the individual (ibid.). The best performer will be encouraged to perform better at a competitive structure whereas the worst performer will perform better under a cooperative structure due to the social pressure and professional support from other workers (ibid.).

The review reveals gaps in the existing knowledge of lack of appliance to Lean Service setting and missing attention to intrinsic motivation.

All articles have interdependencies to other MAP focus areas, which means all articles have connections to incentive and compensation pay, which both is one of the main focus areas, but also can be categorized within extrinsic motivation. Pay can though only be regarded as a fragment of the definition of extrinsic motivation (Ryan&Deci, 2000). Only the Brewer (1995) article briefly addresses intrinsic motivation, when explaining how performance measures negatively affect motivation and thereby performance. Cerasoli et al. (2014) has a central point of intrinsic and extrinsic motivation always has to co-exist in order to motivate. When the articles only focus on extrinsic motivation, there is a risk for crowding out intrinsic motivation (Osterloh & Frey, 2002), which decreases the effect of extrinsic motivation. The structural composition of disregarding intrinsic motivation in Traditional MAP and focusing on extrinsic motivation (Brickley et al., 2003) may lead to bad performance and by it most extreme consequence the Brickley et al. (2003) framework has some inherent problems in its structure and focus areas in a motivational perspective.

Another tendency in the Traditional MAP literature is the non-Lean promoting traits such as e.g. vertical coherence. All articles are designed to prevent agency problems, record results and ensure convergence of the firm, which is ensured by the vertical structural flow (Brickley et al., 2003). This flow is fundamentally different in Lean, where the focus is on the lateral flow guided by the customer value. The Brickley et al. (2003)-framework and the supplementing articles are not designed to meet

this different flow orientation, which therefore can be regarded as a gap: how to adjust the Traditional MAP to specific operational settings such as Lean Service.

### 3.3 Lean literature review

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The literature on the Lean topic functions as an overview of Lean MAP and Lean Service literature, while point out gaps from a motivational perspective.

The first group of articles in this review is chosen to reflect this holistic Lean thinking and to represent the elements of Lean MAP (Baines and Langfield-Smith)(Banker, 1993)(Fullerton&McWatters, 2002) (Fullerton et al. 2013,2014)(Maskell et al., 2012). The general Lean literature is taken for the referential value in order to understand the basic principles of Lean as a central point of reference (Liker, 2004) (Womack et al., 1990). The Lean Service article (Suárez-Barraza et al., 2012) is chosen as it gives an overview of all previous literature on Lean Service, the tendencies and future directions.

The literature review is structured by four dimensions: purpose of the article, focus area, success measurement and motivation orientation in focus.

The first of the four dimensions are the purpose of the article, which refers to whether the article or book contributes to the knowledge base by mainly being explanatory, a literature review, theory building or theory testing. The focus area indicates what the domain of the article is whether if it is the operational context or the control tools. The success measurement is the goal, which the texts aim towards or measures up against. In other words the perspective the text should be seen from. The perspective in the thesis is motivation, which is why the motivation orientation in focus is the last categorical dimension, as it serves as an indicator of how often motivation is an integrated element in the Lean articles/books.

See table with literature review in appendix 10.1.3 (Table 3).

The central Lean philosophies and principles are important to understand in order to reflect upon Lean Service and Lean MAP. Womack et al. (1990) and Liker (2004) presents a general explanatory approach and explains the basic five Lean principles and 14 Lean management principles.

The five basic principles in Lean are customer value, value stream, production flow, pull production and pursuing perfection (ibid.). It refers to that creating customer value should be the central beacon to the production. With customer value as a central guideline, all actions should be made in order to improve the value stream as a whole across the different entities, which are involved; a transverse

flow. Thereby sub optimization and non-value activities between the entities are avoided. Production flow centres on eliminating waste in the value stream and delivering the customer value as fast as possible and with the desired quality. The pull production is a principle, which ensures that the production always is aligned with the customer demand, both in terms of range of products or services and in terms of quantity and quality. The last basic principle is the pursuit of perfection, which refers the Continuous Improvement of all aspects of the company and production or delivery (ibid.).

The 14 management principles can be summarized in the four P's philosophy, process, people/partners and problem solving, which all refers back the five basic principles (ibid.). The philosophy in a Lean organization should centre on a long-term thinking instead of focusing on the short terms. The process covers seven management principles, which all intends to eliminate waste. This entails process transparency, avoiding overproduction, levelling out the production, stop and fix problems, standardize tasks, visualization for process control and only use reliable and useful technology. The People and Partners represents three management principles of teaching leaders to represent the Lean mindset and respect and challenge employees and suppliers. The last P is for Problem solving which also covers three management principles, always reflect upon continuous improvement, understand a situation in order to improve it and use consensus for decision-making and then implement fast.

Lean Service is an extension of the Lean production, where the basic idea is that the Lean principles can be applied in other operational settings than manufacturing. Suárez-Barraza et al. (2012) explains how the service sector is a fast growing industry and it faces challenges of efficiency, improve quality and shorten lead-time, which the appliance of Lean principle can remedy. The literature review in Suárez-Barraza et al. (2012) shows how the applicability and concept of Lean Service has been explored and evolved in the last 20 year, yet the relationship to the other extension of Lean, Lean MAP or motivation has not been addressed (ibid.).

Lean MAP focuses supporting the Lean operation as the main purpose. Lean MAP entails on seven elements, which both have a positive relation to the extent of Lean implementation, operational performance and have a synergistic effect in-between them. The seven elements are: employee empowerment, value stream costing, simplified strategic accounting, visual performance measurement, non-financial accounting information, non-financial performance measurement and rewards and compensation tied up to non-financial performance measurement (Baines and Langfield-Smith, 2003)(Banker et al., 1993)(Fullerton&McWatters, 2002)(Fullerton et al., 2013)(Fullerton et al., 2014).

Management accounting systems in Lean operations should be simple and understandable, only contain useful information, which can be used for the employees to ensure operational control and financial control of the value stream and support continuous improvement (ibid.). In Lean MAP the employees are empowered to take action on the foundation of the accounting system instead of being controlled by the system (Fullerton&McWatters, 2002).

In Lean performance measurements are not used for evaluating individuals or department, but are used for controlling the process. In Lean there is a strong focus on value streams and therefore the performance measures should focus on the three main levels: plant level, value stream level and production cell level, not on individuals, functional divisions or BU level, which not are a part of the same value stream (Maskell et al., 2012).

When addressing the field of Lean MAP it contains a basically different approach than the Traditional MAP even though the practical execution might be similar in many ways. Where Traditional MAP focuses on recording results and captures an accurate presentation of the past, Lean MAP focuses on understanding causes and are more future-oriented (Maskell et al., 2012). This entails a much stronger emphasis on operational key performance indicators, KPI's, than financial measures (ibid.). According to the Lean requirement the Traditional measures has three general disadvantages when held up against the Lean methodology: they are too late, primarily financial and too complicated (ibid.). Where the Traditional MAP are designed to support practices such as absorption of overhead cost, using performance measurement to evaluate and control employees and create measures of comparison and are using the financial measures for decision-making (ibid.).

The practical separation of the two MAP domain is difficult as both addresses the same topics and uses many of the same mechanisms, such as in many cases the Lean MAP can be regarded as operating within the Traditional MAP guidelines, but with a specific set of traits. In Lean such traits would be a high degree of delegation of decision-making authority, the use of performance measurements and assessment of these with human intuition and the use of cooperative incentive structures (Liker, 2004). The symptoms of the two MAP domains will in many cases appear similar and can not necessarily be distinguished, even though there is a fundamentally different mindset behind, which is why section four in the thesis do not address them as separate domains, but only as how MAP in the empirical in general influences Lean Service, to which the theoretical considerations from both domains are applied.

When turning to motivational aspects of Lean MAP, they support the same motivational theories as Traditional MAP (Liker, 2004), but have some distinct connections to the preferences for operational KPI's to encourage team efforts and quality work (Fullerton&McWatters, 2002)

The literature review shows gaps in the existing literature of; lack of insight as to the relationship between Lean Service and Lean MAP, and gap of almost no motivational concerns in the Lean literature.

All the theories about Lean MAP concentrate on Lean in manufacturing environments. Even though the Lean thinking and principles originated from a manufacturing firm and it is in those kind of operations Lean most frequently has been applied, the Lean principles can also be applied to service operations and there the relationship to Lean MAP needs to be investigated.

In general the motivational perspective in Lean literature is very weak. Focus in the literature is on the effects such as the extent of Lean implementation and operational performance even though both are depended on employee motivation. All texts are concerned with how to control, direct and guide employees. Liker (2004) and Womack et al. (1990) are the only texts, which addresses motivation and use respectively only five (Liker, 2004; 194-198) and three pages to describe it (Womack et al., 1990; 198-200, 251). Motivation is not to be seen as a disregarded topic, because it is recognized as an important factor, which several of the Lean tools are designed to increase (ibid.). But it seems to be a fairly untested perspective both in terms Lean, Lean Service and Lean MAP.

When combining these two gaps there is a knowledge gap in the literature on how the dynamics between Lean Service and Lean MAP affects motivation.

In the literature several directions for future research are pointed out. The most relevant calls for research within how the dynamics between Lean Service and Lean MAP affects motivation are:

- *"Development optimization and/or testing of emerging theoretical models and fundamental features of Lean Service"* (Suárez-Barraza, 2012;375)
- *"Lack of empirical understanding of lean operations strategy supported by accounting and control practices"* (Fullerton et al., 2013;51)
- *"How accounting and control practices support Lean operations"* (ibid.)
- *"Develop and examine more case studies looking for critical factors, techniques, tools, enablers and inhibitors key to application of Lean Service"* (ibid.)
- *"Call for in-depth analysis of the dramatic change in accounting systems to support operation initiatives"* (Fullerton et al., 2014;236)
- *"The influence of management accounting on discrete management techniques used to implement manufacturing change programs"* (Fullerton&McWatters, 2002;712)

- *“Need for determining the extent to which firms needs to change their internal performance measurement and incentive system when implementing a Lean production”*  
(Fullerton&McWatters 2002, 730)
- *“Management accounting research must be examined in contemporary settings”* (Fullerton et al., 2013;52)
- *“Malmi and Brown’s 2008 call for more clarifying research on appropriate packages of management accounting practices for specific environments”* (ibid.)

## 4 Theory

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On the background of the theories from the literature reviews and the identified gaps, five hypotheses are proposed about how the dynamics between Lean Service and MAP affects motivation.

The hypotheses focus on the motivational effects on knowledge-intensive employees. The specific traits of the case study in KMD Operations are that the employees are highly educated and use specialized professional insight, when solving the tasks, which increases their intrinsic motivation (MM1)(O5). The employees are knowledge-intensive. Intrinsic motivation is especially important to knowledge-intensive employees, who are to solve tasks with a high degree complexity, where there is a need for personal involvement and creativity, which is encouraged by intrinsic motivation (Ryan and Deci, 2000) (Cerasoli, 2014). Therefore there is a specific focus on the motivational effect on this specific group.

### 4.1 Inconsistency in flow orientation between Traditional MAP and Lean Service

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If the vertical flow of information and power has a different orientation than Lean Service, it will lead to a non-supportive MAP and thereby have a negative effect on motivation.

This section investigates the area of missing knowledge from the Traditional MAP review of how the different orientation in Traditional MAP and Lean Service operations affects motivation.

MAP often reflects a basic structure of a vertical coherence in terms of flow of information and power (Brickley et al., 2003)(Mookherjee, 2006)(Zimmerman, 2014) and one of the basic Lean ideas is to support the transverse flow (Liker, 2004). One of the central ideas in Traditional MAP is to inherent responsibilities and decision-making authority along with a target break down, to insure convergence and the competencies to direct (Mookherjee, 2006). This is also reflected in the performance evaluation and the accounting system, which is structured by the same inheriting system and reporting responsibilities (Brickley et al. 2003).

Lean focuses on the transverse flow, which follows the operation stream of value that is structured by the requirements of the customer (Liker, 2004)(Maskell et al., 2012). The entire organization is guided by the value stream (ibid.).

The Brickley et al. 2003-framework is guided by a strategy and how the three-legged stool should support the strategy. Lean Service is a strategy in the Brickley et al. terminology. The inherent structure in Brickley et al. is vertical. Lean is the strategy and requires transverse flow. By having lean



as a strategy there becomes inconsistency in between the three legs and the strategy, which reveals in inherent problem in the Brickley et al. (2003) idea, when applying Lean Service. The inconsistency and interdependencies between the performance evaluation and incentive and compensation pay out of balance and the measures becomes non-converging and non-supporting (Merchant, 2006) for the Lean Service operation. The obstructing nature of the dynamics and the perceived non-contingency and inconsistency will lead towards amotivation or a lowered level of motivation (Ryan&Deci, 2000).

Another way the non-supporting dynamics have a negative impact on motivation is especially concerned with the knowledge-intensive employees. Intrinsic motivation has a significant role in motivating knowledge-intensive employees (Osterloh&Frey, 2002). When the orientation of the MAP works against the Lean Service operation it inhibits the employees in in cooperating along the value stream and thereby delivering better quality service and inhibits the improvement of the processes. On this theoretical background following hypothesis is proposed:

*Hypothesis one: To much focus on vertical coherence in a Lean Service organization will result in inconsistency between the operations and MAP, which will have a negative effect on the motivation of knowledge-intensive employees.*

#### 4.2 Evaluative performance measurement on higher level than value stream

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Performance measurement on a higher level than value stream with evaluative purposes has a negative effect on intrinsic motivation of knowledge-intensive employees.

The literature review on both Traditional MAP and Lean MAP showed lack of integration of intrinsic motivation. The following will take point of departure in this lack of knowledge in the existing literature.

In both Traditional MAP and Lean Service in general, there is a high focus on performance measuring (Brickley et al., 2003)(Merchant, 2006)(Banker, 1993)(Fullerton 2013,2014). It is a central component weather it is used for evaluative purposes in Traditional MAP or for controlling operations and improvement in Lean Service (Liker, 2004).

The purpose of high-level performance measures is to ensure cooperation. Common targets in target contracts used in an organization with knowledge-intensive employees, who values customers' opinion and quality a cooperative reward structure, corporate revenue and EBITDA as target should be beneficial for the motivation (Beersma et al. 2003). Cerasoli et al. (2014) points out that there are a

strong relation between indirect performance-salient targets, such as high level targets, and intrinsic motivation.

The idea of high level targets ensures cooperation (ibid.) finds its limits when the employee group who are measured upon the corporate or SBU revenue and EBITDA, has no need of working together and nothing to do with each other. In other words, Beersma et al. (2003)'s statement might not extend beyond value stream level. When applying high level targets and measures on evaluating individual, the single entity has a very low controllability of the measure (Merchant, 2006). When measuring of such a high level and doing it on e.g. the revenue, the controllability for an individual working in cost-centre department on the lowest level in the organization is almost non-existing. When measuring on high level financial measures the factors which influences the measure are very complex and difficult to make a connection to from the lowest part of the hierarchy. This is due to the high level of the measures, which makes it a product of all employees in the company (Maskell et al. 2012) and due to the financial nature of the measure, which entails that is depended on outside factors such as customer demand, macro economic factor etc. (Baines&Langfield-Smith, 2003).

Traditional MAP has some inherent problems with the use of high level targets. High level targets create inconsistency between the two of the legs in the Brickley et al. (2003) framework, decision-making authority and performance evaluation. In general performance measures with an evaluative purpose has a negative effect on especially intrinsic motivated individuals such as knowledge-intensive employees (Brewer, 1995).

In general performance measure can affect both the intrinsic and extrinsic motivation of employees. In a company with knowledge-intensive employees the intrinsic motivation is especially important, because it is a main driver of performance for task with a high, degree of complexity and requires creativity (Osterloh&Frey, 2002). Intrinsic motivation often plays a more significant role when indirect performance-salient goals are present (Cerasoli et al, 2014). But when measures are perceived injustice, as when evaluating employees on corporate measures, which they cannot influence, the level of intrinsic motivation is hypothesized to go down (ibid.). The effect is too indirect to matter. But even though the intrinsic motivation is very significant, both intrinsic and extrinsic coexists and needs to be present in order to move employees towards something (Osterloh&Frey, 2002).

The extrinsic motivation is also effected. The perceived injustice between the performance evaluation and reward, both in term salary, bonuses and acknowledgement, will drive the level of extrinsic motivation towards amotivation (Osterloh&Frey, 2002).

All in all performance normal employees cannot, significantly affect measures on a higher level than the value stream. When performance measures are set on a higher level it will drive down both intrinsic and extrinsic motivation. Therefore following hypothesis is suggested:

*Hypothesis two: Performance measuring individuals with evaluative purposes on a higher level than value streams will have a negative effect on the motivation of knowledge-intensive employees.*

#### 4.3 Competitive and comparative evaluation system and reward structures inhibiting cooperation

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Competitive and comparative evaluation system and reward structures crowds out the intrinsic motivation and inhibits cooperation, which is essential to knowledge-intensive employees in Lean Service operation.

The missing attention to intrinsic motivation in the Traditional MAP is further addressed in the following, along with the two contradictory orientations when applying Traditional MAP in a Lean Service organization and its effect on motivation

Competitive and comparative evaluation system and rewards structures will decrease performance due to the traits of the tasks. Knowledge-intensive employees, who are solving complex tasks, rely heavily on intrinsic motivation and intrinsic motivation (Ryan and Deci, 2000) (Cerasoli, 2014). A way to encourage employees is to use competitive and comparative rewards systems, which is proven to have a performance enhancing effect on quantity work (Beersma et al., 2003). However this is not on quality work (ibid.), which is relevant for many Service Lean operations. This argumentation functions as a supplement to the previous statement and issue of the misalignment between Lean and evaluative performance measurement.

Competitive evaluation system will lead to sub optimization, which counteracts the Lean Service cooperation and this will lead to decreased motivation at knowledge-intensive employees. When applying a competitive evaluation system, employees are not motivated towards load balancing of human resources, knowledge sharing and in general help each other (Beersma et al., 2003). Employees will try to optimize their own relative performance in comparison to others, sub optimization. One of the basic ideas in Lean is to avoid sub optimization and ensure a low overall production time (Liker, 2004). Lean does not focus on the single entity in terms of an employee and measurements are not used for evaluative purposes (Maskell et al., 2012). When the two different orientations work against each other it creates tensions because to it not an optimal or logical way of designing MAP and

operating. When working in environment, which has obvious flaws and employees are forced to blindly follow it, they lose the feeling of competence, which is essential to intrinsic motivation (Ryan&Deci, 2000). Intrinsic motivation is a very important motivational factor to knowledge intensive employees (Osterloh&Frey, 2002).

Another unfortunate result of sub optimization is that it does not enhance the customer value, which is essential in Lean (Liker, 2004). The importance of customer value is different in Lean Service as quality different for each customer. Cooperation and knowledge sharing and focus on the customer instead of the output of the entity are essential to heighten the customer value in a provided service. This will be obstructed by a competitive and comparative evaluation system and reward structures. Providing value and performing with a good quality, is important to the feeling of competence, thereby intrinsic motivation and motivation as such.

On the foundation of these arguments following hypothesis is proposed:

*Hypothesis three: Applying competitive and comparative evaluation system and reward structures will have a negative effect on the motivation of knowledge-intensive employees in a Lean Service organization.*

#### 4.4 Visual performance measurement for common understanding of KPI's and decision-making

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Using visual performance measurement for common understanding of KPI's and decision-making and thereby engage employees in the coordinating, resource balancing and transparency has a positive impact on the motivation of knowledge-intensive employees.

The Lean literature review showed knowledge gaps of no regards to motivational dynamics and insight as to the relationship between Lean Service and Lean MAP and the gaps will be addressed in the following.

One of the basic Lean principles is to balance the resources to production requirements (Liker, 2004) and the general management elements in Lean focuses on coordinating and creating transparency (Bortolotti et al., 2014). These Lean principles can be facilitated through the Lean MAP tools of visual performance measurement, which creates common understanding of KPI's and decision-making (Maskell et al., 2012)(Fullerton et al., 2013,2014). Visual performance measurement is one of the seven elements in Lean MAP (ibid.). The central element in Lean philosophy is customer value

(Womack et al. 1990). In order to achieve satisfied customers and services delivered at the right quality, workload balancing and prioritizing is essential achieving the flow in the value stream (ibid.).

By using visual performance measurement for common understanding of KPI's and decision-making, the interaction between Lean principle and Lean MAP incorporates social elements such as participation, communication and interest in the activity (Osterloh&Frey, 2002). This leads to a higher degree of internalization of the behavioral regulation, increases the feelings of competence, autonomy and relatedness, which has a positive effect on intrinsic motivation (ibid.). It is important to knowledge-intensive employees, who are driven mostly by intrinsic motivation, to deliver good quality services to their customers. Delivering good quality to the customers is important in order for them to get a feeling of competence, which is a key component in intrinsic motivation (Ryan&Deci, 2000). Intrinsic motivation is important to all employees and needs to be present in some degree for all human in order to move them to do something (Cerasoli et al., 2014) and are very important to people how work with high complexity task which requires a high degree of specialization (Osterloh&Frey, 2002). This theoretical foundation leads to following hypothesis:

*Hypothesis four: Visual performance measurement with an aim of common understanding of KPI's and decision-making which is used for organizing workload and prioritizing have a positive effect on the motivation of knowledge-intensive employees in a Lean Service organization.*

#### 4.5 Process optimization and performance measurement

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Process optimization based on performance measures at the expense of insights from employees has a negative impact on the intrinsic motivation for the knowledge-intensive employees in a Lean Service organization.

As in hypotheses four, the following theoretical contribution takes point of departure in the gaps of no regards to motivational dynamics and insight as to the relationship between Lean Service and Lean MAP.

One of the basic ideas in Lean is to performance measure processes for control and improvements (Banker&Langfield-Smith, 2003)(Fullerton&McWatters, 2002)(Fullerton et al., 2013,2014)(Kennedy & Widener, 2008)(Liker, 2004)(Maskell et al., 2012)(Womack et al. 1990), but there is a risk of disempowering employees and affecting their motivation. The performance measures will often be the point of departure for controlling and adjusting the operations and to make continuous process improvements (ibid.). By doing so in a Lean Service organization, the approach risk to disempower

employee and disregard their professional insight in favour of overemphasizing the use process performance measurement.

One of the seven elements in Lean MAP is employee empowerment (Fullerton et al. 2014), so they are able to stop and fix problems as are one of the central Lean principles (Liker, 2014). Lean emphasizes both the use of KPI's and the use professional insight of the employees through empowerment. This is supported by the Jensen (1995), which clarifies that in order to make optimal operational decisions the in a knowledge-intensive operation, the decision-making authority should be delegated. This is compromised by a blind use of KPI's. All points converge towards finding a balance between the centralized use of KPI's and the delegated use of employee insight.

As previous mentioned performance measuring and evaluation kills or crowds out intrinsic motivation (Brewer, 1995). If the employees are invited in to use their professional insights it would promote their feeling of competence and give them a sense of involve and codetermining (Osterloh&Frey, 2002). By relying too much on performance measures, instead of employee insights, the employees lose the feeling of competence, and they would feel less involved, which is essential to co-determination and intrinsic motivation (Ryan & Deci, 2000). The intrinsic is especially important to encourage knowledge-intensive employees (Cerasoli et al., 2014), which is why following hypothesis is proposed:

*Hypothesis five: Process optimization on the foundation of process performance measurement at the expense of employees' professional insights will have a negative effect on the motivation of knowledge-intensive employees in a Lean Service organization.*

## 5 Analysis

The analysis will be investigating the five hypotheses, by testing the theoretical arguments in the empirical settings.

Hypotheses		Result	Comments
<b>Hypothesis one</b>	<i>To much focus on vertical coherence in a Lean Service organization will result in inconsistency between the operations and MAP, which will have a negative effect on the motivation of knowledge-intensive employees.</i>	Supported	The analysis shows support for hypothesis one and a falsification is not possible and the results are consistent through out cross-analysis of departments, position etc. The different flow orientation in Lean Service and MAP has a negative effect on motivation because the inconsistency causes frustration by reflecting two different directions of focus. The Lean Service strategy, managers and employees desires to improve the Lean Service processes to are obstructed by the division of departments, the target contracts and insufficient KPI's.
<b>Hypothesis two</b>	<i>Performance measuring individuals with evaluative purposes on a higher level than value streams will have a negative effect on the motivation of knowledge-intensive employees.</i>	Partial support	There is found partial support for hypothesis two for low hierarchy employees across all KMD Operations and there is no ground for falsifying it. The hypothesis does not seem apply to middle managers and directors and are falsified under these conditions. Therefore it can be concluded that; performance measuring employees on the lowest levels in the hierarchy with evaluative purposes on a higher level than value streams has a negative effect on motivation.
<b>Hypothesis three</b>	<i>Applying competitive and comparative evaluation system and reward structures will have a negative effect on the motivation of knowledge-intensive employees in a Lean Service organization.</i>	Partial support	Hypothesis three is partial supported and applying competitive and comparative evaluation system and reward structures will have a negative effect on motivation at highly knowledge-intensive employees in a Lean Service organization. It hypotheses is falsified in the Service Desk department and at appliance to directors.
<b>Hypothesis four</b>	<i>Visual performance measurement with an aim of common understanding of KPI's and decision-making which is used for organizing workload and prioritizing have a positive effect on the motivation of knowledge-intensive employees in a Lean Service organization.</i>	Supported	There is found support for hypothesis four, as it cannot be falsified. Whiteboard meetings, which facilitates visual performance measurement and take point of departure in common under standing of the KPI's and decision-making promote transparency and involvement, leads to better workload balancing, prioritization and quality of service and eventually increased intrinsic motivation.
<b>Hypothesis five</b>	<i>Process optimization on the foundation of process performance measurement at the expense of employees' professional insights will have a negative effect on the motivation of knowledge-intensive employees in a Lean Service organization.</i>	Supported	Hypothesis five is supported and cannot be falsified, but might reflect a previous state, from right after the implementation of KMD 2.0, rather than be applicable to all departments at their current state.

The analyses are structured by three main levels; the specific hypothesis, then the theoretical arguments and afterwards exemplified in empirical data, which are be interpreted in the particular theoretical context. This approach ensures a theoretical and empirical validity to the results.

All hypotheses are built on the fact that all employees, middle manager and directors are considered to be knowledge-intensive employee, except for the employees in the Service Desk department.

*"During the morning meeting in Windows Operation, all employees showed professional insight when addressing the task and general challenges. The observer, who has some degree of insight to IT infrastructure, could not follow the level of technical insight and therefore the employees are considered knowledge-intensive. The knowledge-intensive employees in Windows Operations have a high degree of professional integrity, which surfaced when one of the employees had missed a meeting and had not slept the night afterwards due to bad conscience and that he was depressed."* (O5)

*"That we get the job done. They are extremely conscientious and technicians with a capital T. They want to get the job done."* (MM2)

### 5.1 Test of hypothesis one

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When focusing too much on vertical coherence and using general structures from Traditional MAP in a Lean Service organization, it results in inconsistency between the operations and MAP, which will have a negative effect on the motivation of the knowledge-intensive employees.

See table with quotes addressing hypothesis one in 10.1.4 (Table 4).

The table shows a consistency across departments and position in the perception that the MAP is vertically structured and thereby inhibits the transverse Lean Service operation. The only exception is the article, which reflects an intensification of the MAP, where it ensures coherence transversely in KMD. According to the quote this is not the case.

The MAP used in KMD has an inherent vertical flow orientation.

*"It is not always we think as if we are one"* (MM3)

*"Every SBU has its own profit and loss absolutes. Very fast it becomes a 'them and us'"* (D2)



*“An interesting input was e.g. to gather people from across KMD, so e.g. all managers, who operating support, get connected in a network, which transcends the silos” (A7)*

In several aspects of the MAP in KMD the focus on vertical coherence is reflected, both in terms of hierarchy and organization, budgeting and reporting and target contracting (D2)(TCD1-3, TCMM1-5, TCE1-5). The reporting of accounting and KPI's goes from the employees to the middle managers to the Directors to the Senior Executives (D1)(TCMM1, TCD1). The vertical orientation is present not only in the structures (A7), but also in the mindset of the Middle Managers and employees (MM3). The MAP entails a separation of the department, business units and strategic business units and inhibits cooperation between them and promotes sub optimization (MM3)(MM5)(D2).

KMD's MAP is build to support responsibilities, distribute decision-making authority and competence to direct and finally convergence by supporting a vertical flow of reporting paths, information and organization.

*“The target contracts should also reflect what we find important and of course what matches upwards” (MM4)*

*“By using target breakdown the general strategy of the business unit gets linked to clear defined targets to each team and each employee” (A13)*

*“The management accounting practices in KMD is to a high degree focused on evaluating the employees and has links to the target contracts. It is focused on vertical transparency, where the executive directors micromanages the budgets for each business unit. The economic focus of budgets and accounting is the central tool in all decision-making.”(O4)*

KMD Operation is a cost centre (D2). The cost budget and the strategic goals which is divided into operational KPI's are inherited from corporate level to Operations, which is the SBU, to Platforms, the BU, to Server and Storage, the department and finally to single cost targets on specific projects (MM4)(A13). All the elements in the MAP of KMD and the structure of the accounting system are designed to support a vertical flow (MM4)(O4).

In contrast to the vertical oriented MAP, KMD's Lean Service is focused on the transverse flow guided by customer value and value stream.

*"We are dependent on other department deliver to us in time" (E6)*

*"It is real customers, who pays our salaries. It is them, who have to be centre of attention. It is important to shed light on the consequences of incidents, so it is not enough that there is a database, which has a long response time, but it cause a delay to a nurse, who is waiting for the results on a blood sample at a hospital" (D2)*

*"One only succeeds if everyone cooperates with the team or a end-to-end process has performed well" (D2)*

*"Target breakdown is closely related to the 2.0-program... The purpose of target break down is to ensure coherence and quality in targets from top to bottom – from executive management to managers to employees – and transversely in KMD" (A13)*

The Lean Service is reflected in the operation of the outsourcing business and the process of e.g. incident. An incident is a discontinuance of the service experience at the customer (D2). Either the incident is solved in only one department or they will cooperate with other business units and departments in Operations to solve the incident (ibid.). Thereby the different departments, which are a part of the value stream, are dependent on each other (E6). The transverse flow of the value stream goes across departments and across the vertical lines, which the MAP is structured by (D2). To the customers the internal process in Operations does not matter, they just need their IT-service delivered (D2). As the article from intranet states (A13), KMD are aware of the importance of transverse flow in the target breakdown, which does not necessarily means that it is exercised. (O14)

Cooperation is a necessity for Lean Service operations and is inhibited by the MAP (O14), which promote sub optimization.

*"I do not give targets, which has dependencies to other departments... they object immediately" (MM1). Quote from MM1 on his and his employees' opinion about target dependencies.*

*"You get a fragmented decision, where you are forced to consider where you are placed in Operations, forced to only consider cost optimization for your own service" (MM5). Quote from MM5 about sub optimization.*

*"All pointed out that the structures of fragmented departments in KMD inhibited the Lean operation or made it difficult." (O14)*

Due to the MAP silo division of the departments in KMD in terms of targets (O14)(MM1) and decision-making (MM5), the departments are focussing on optimizing their own department and thereby sub optimizing. One of the main ideas in Lean Service, is that optimization always should be centred on the entire value stream and not on a single entity (Liker, 2004). The risk of sub optimizing is that there is a risk that efficiency gets obstructed in the next part of the value stream and thereby the effort is wasted (ibid.). When fragmenting departments the cooperation is inhibited as well. When only measured and held accountable for your own department, there is no incentive for cooperation and helping other departments at your own expense. This shows how the focus on vertical coherence instead of a transverse focus in target and decision-making inhibits the Lean Service

The MAP and Lean Service in KMD have two different flow orientations, which leads to inconsistency between the measuring of the process and strategy and it has a negative effect on motivation.

*"Everything from problem solving to processes and everything, because we know them on the other side of the wall." (MM1)*

MM1 addresses the transverse cooperation in the value stream and makes a clear statement that there still is a clear division of the departments in the value stream. This is due to the organizational structure and accounting structure, the MAP. It shows how the MAP structures are preventing the Lean Service operation to function optimally.

The central issue with the tensions between the vertical MAP and the transverse operation is the inconsistency between the strategy and the performance evaluation (Brickley et al., 2003) in terms of no link between the value stream measures and the targets contracts for employees.

*"So to measure and incentivize team who work on the end-to-end process. In stead of having a Network Group and measuring their KPI's, having a*

*Windows Group and having a Storage Group, then the customer gets a server" (D1). Quote from D1 about how to change the focus in KPI's.*

The KPI's are set up at the value stream level (MM1), which reflects the customer value, but it is not integrated to the target contracts of employees, which still is focused on lower or higher levels than value stream (TCE1-3). This is what D1 refers to in the quotes as desired future state. So to some extent is the measurement used for process control, but as not aligned all the way through the MAP an into the target contracts of the employees. This reflects the inconsistency between the measurements that are related to the target contract and the strategy of Lean Service operation in KMD. The inconsistency is the cooperation-inhibiting nature of the MAP, which lowers the quality of the service and thereby the feeling of competence of the employees, which lowers the intrinsic motivation.

Knowledge-intensive employees, such as technicians in KMD (O5), are to a large extent intrinsically motivated (MM1, MM2) and are partially obstructed in completing the tasks, by the inconsistencies between the flow orientations in Lean Service and MAP.

*"That we get the job done. They are extremely conscientious and technicians with a capital T. They want to get the job done." (MM2)*

When operating in a transverse flow that requires cooperation between departments, the MAP needs to support it; otherwise it will decrease the quality of the delivered service. It has a negative impact on the feeling of competence, which is essential to intrinsic motivation (Ryan&Deci, 2000). Thereby the different flow orientations have a negative impact on motivation.

Not only the employees, but also the middle managers, get motivated by improving the Lean Service processes (MM2), but are obstructed by the target contracts and organizational division:

*"I will really like to participating in improving the entire organization, end-to-end... broaden out to much more and that really motivates me. That is missing" (MM1)*

*"The ambition is to create a platform for knowledge-sharing, where KMD as a whole gains insight and where managers contribute to the optimal common framework on a continual basis, so the transverse cooperation*

*becomes more convenient"* (A7). KMD published quote from the Team Leader of the Continuous Improvement department.

It shows that the employees and middle managers has a intrinsic motivation in their job and the Lean Service way of improving the value stream processes, but are obstructed by the MAP in KMD (MM1)(A7).

The analysis shows support for hypothesis one and a falsification is not possible and the results are consistent through out cross-analyses of departments, position etc.

*"Every SBU has its own profit and loss absolutes. Very fast it becomes a "them and us". If the workflow that we talked about before could actually also follow that orientation. It could entail both the Software Center and Operations" (D2). Quote from D2 on how the MAP divides up the SBU's even though a transverse workflow would be natural.*

The different flow orientation in Lean Service and MAP has a negative effect on motivation because the inconsistency causes frustration and inhibits cooperation, which is essential to Lean Service by reflecting two different directions of focus. The Lean Service strategy, managers and employees desires to improve the Lean Service processes to are obstructed by the division of departments, the target contracts and insufficient KPI's.

## 5.2 Test of hypothesis two

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When using performance measurement from a high level than value streams to evaluate individuals, it affects the motivation negatively.

Motivation is essential to performance and the motivation of low hierarchy employees is negatively affected by to high level targets. The higher a person is placed in the hierarchy the less negative impact does the high level targets have on motivation. In all target contracts, which all employees, managers and directors are evaluated in and which determines bonuses, the corporate or SBU level goals of revenue and EBITDA weights 50 per cent (TCMM1-4, TCD1-3)(E3). The general tendency is that low hierarchy employees are high affected by the corporate targets with a result of amotivation (Ryan&Deci, 2000). Middle Managers see the problem especially on their employees' behalf, but can deflect from it and directors seems to align with the idea. There are no differences across the different departments in KMD Operations.

See table with quotes addressing hypothesis two in 10.1.5 (Table 5).

Due to the pattern in the effect on motivation, the following analysis will focus on the effect on low hierarchy employees. All following statements from middle managers or directors are concerning the effect on the employees.

Normally common organizational targets and rewards are set for all employees in a cooperative structure, but this will eventually be challenged in large corporations.

To ensure convergence, cooperation and exploitation of the synergistic effects, common goals on corporate level are used (Beersma et al., 2003).

*"It is in all our best interest, that we reach our financial targets, so therefore it makes good sense that they have some weight" (E4)*

The high level targets are made to enhance the cooperation and degrade the barriers between departments (E4). This supports the Lean Service operation. The cooperative reward structures are particularly useful, when the tasks are more dependent on quality rather than quantity and it helps the enhancing the performance of the poorest performer (Beersma et al., 2003). So in an organization as KMD, which depends on a high level of expertise and where the performance culture still needs development the theoretical idea of cooperative rewards structures seems to apply.

When turning the motivational effects of the high level targets, the theoretical idea of cooperative structures in a Lean Service operation does seem to have more negative than positive effects in the case of corporate and SBU-level targets in the reward structures.

*"This is where you can actively make an effort to improve it. That is not possible by telling the sales department to sell more" (E6).* Quote from E6 on the controllability in respectively the processes he participates in and the sales process.

The lower an individual are in the hierarchy, the less influence and power does they have to effect other departments (E6). This means that normal employees can only affect the processes, which they are a part of themselves. They do not have any particular derestriction, so all influence must be made

through their hands-on work. This implies that a low hierarchy employee can affect the value stream he or she is a part of.

Low hierarchical employees do only have an insignificant little effect on targets on corporate or SBU level and therefore very low controllability (Merchant, 2006).

*"It is so far from the area in which I operate. I can not directly affect it" (E4)*

In order for a measure to make sense to an employee, it has to fulfil five criteria's, where one of them is the controllability (Merchant, 2006). If an individual cannot affect the outcome of a measure on which they are evaluated on (E4), the employee disregards the target or becomes demotivated (ibid.). In the presence of low controllability on the measures, which are used for delegating rewards, an inconsistency between two of the legs in organizational architecture, performance measurement and incentive and compensation pay, which entail a loss of control of the company and its employees (Brickley et al., 2003).

The other element in the vertical distance in the hierarchy is a result from the many factors within the organization, which affects the high level targets.

*"You have no impact. As such my employees have no impact on the EBITDA. They have a little, but it is nothing they notice in the daily work" (MM3)*

*"To shape the future it is not enough that KMD has a strategy, every employee needs to be able to see their role in the strategy if he or she is to contribute optimally" (A13)*

High level targets are a product of effort from many employees and can easily be affected by management and executive decisions. The impact, with which a normal employee can affect the target, therefore becomes insignificant. KMD clearly states in A13 that it is important for employees to see their role in order to contribute optimally, but it becomes unclear, when the targets are on a too high level (MM3).

The low controllability of the high level targets in KMD, is also a product of measuring on financial factor, which can not be affected due to the current MAP nature.

*"Now I am moved and has become a cost centre, so I have no targets of revenue, other than the revenue targets of KMD" (MM5)*

The quote reveals that MM5 is measured upon revenue target, which he cannot influence due to the MAP structure in KMD. In KMD Operations there has been made a separation of the sales responsible and the delivery organization in the accounting structure (O3). This entails that employees in the delivery has almost no effect on the sales, even though they are a part of the same value stream (Liker, 2004). Revenue is measure, which mostly can be affected by a sales department and only very little by a delivery organization due to the non-existing derestriction's. Beside the inhibiting MAP, other external factors such as demand and macro economic tendencies can affect the revenue as well. So by measuring the delivery employees on revenue results in low controllability (Merchant, 2006).

During the analysis another two other issues of the value stream KPI's have surfaced; they non-degradable and non-representative and can therefore not be used for process improvements.

*"A second input from the Continuous Improvement-day... It is all about progress in improving the design and quality of the KPI's" (A7)*

The KPI-measures are not degradable enough to provide useful intelligence about the process, therefore it is a failed attempt to provide MAP, which support the Lean Service operation. They KPI's needs a better design and quality (A7). The Lean principles entails that measurements should be focused on the value stream in order to control the process and make improvements (Maskell et al. 2012). KMD's measures for the value stream are a KPI for when the SLA, Service Level Agreement, are breached. This could e.g. be that the response time for a normal incident can be no longer than 48 hours. Afterwards KMD will pay penalties (MM2). If department one fixes the problem two minutes before the SLA is breached and sends it on to the next department, then department two and three take the blame. The KPI is misleading, non-representative and puts them in bad light, which is demotivating as well (Merchant, 2006). Unfortunately the measures cannot be used for its purposes of process control and improvements, because the measurement are on a higher level than the departments and cannot be specified further. On top of this some of the KPI-measures are simply not representative for the real situation of the process. This results in many directors, middle managers and employees disregarding the measure and it serves no purpose of process control and improvement. This inconsistency between the Lean Service strategy and the MAP along with the unusable measurement become demotivating to the employees (Merchant, 2006)(Ryan&Deci, 2000).



Most of the employees in KMD Operations are knowledge-intensive (O5), which entails that they to a large degree is intrinsically motivated and autonomy and the feeling of competence is essential in motivating them (Ryan&Deci, 2000).

*"I believe that it is pretty much small and autonomous teams. It is Danes, so we are known for being supreme at being autonomous and able to deal with things" (E2)*

*"That we get the job done. They are extremely conscientious and technicians with a capital T. They want to get the job done. They like to get to delivery on e.g. improvements" (MM2). Quote from MM2 when asked about what motivates her employees.*

*"If we dig deeper in the survey, it is clear that we pleased about the professional cooperation with our colleagues, for the content in our jobs and for the influence we have in planning and prioritize our tasks" (A19)*

*"During the morning meeting in Windows Operation, all employees showed professional insight when addressing the task and general challenges. The observer, who has some degree of insight to IT infrastructure, could not follow the level of technical insight and therefore the employees are considered knowledge-intensive." (O5)*

The quotes represent the employees from two different departments across KMD Operations, who perform highly technical tasks and development assignments, which requires high levels of domain knowledge (O5). The quotes confirm the statement of knowledge-intensive employees are intrinsic motivated, by mentioning the two core components of intrinsic motivation; a sense of autonomy (E2)(A19) and the feeling of competence (MM2)(A19)(Ryan&Deci, 2000).

The high level targets in KMD are demotivating to the knowledge-intensive employees, due to the central motivational element of intrinsic motivation.

*"But the risk is to give them dependencies and targets as they not have direct impact on. It is actually pretty demotivating to them" (MM1)*

*"It makes sense to use them for improvements, but it does not make sense to use them to bump in the head" (E6)*

There are two kinds of negative effects on intrinsic motivation for knowledge-intensive employees: the effects of measuring and the effect of measuring on a too high level.

When employees, who get motivated by autonomy and feeling of competence, gets monitored and evaluated there is a risk of a decrement in the intrinsic motivation (Brewer, 1995). Monitoring and surveillance compromises the autonomy, as it is perceived as an attempt to control (E6). The feeling of competence get decreased, when monitoring get perceived as evaluative and as a sign of mistrust of competence (ibid.). It also counteracts the general Lean Service idea of measuring should be used for process improvement and control, not for evaluative purposes (Maskell et al., 2012). This has the most significant impact on the motivation of knowledge-intensive employees.

By measuring on high level the targets, the contract is not to the same extent dependent on the competences of the knowledge-intensive employees and the feeling of competence is compromised by the high level targets. The dependencies to others downgrade the level of autonomy. At the same time their controllability of the high level targets is low (MM1)(Merchant, 2006). All this drives both the intrinsic and extrinsic motivation down.

Even though intrinsic motivation plays a substantial role in motivation the employees in KMD Operations, the extrinsic motivational factors are still essential.

*"You reached your target. That is good." " Then what is my incentive for next time to say that I also will reach those targets? You will have to give that to people, because human behave and think as such: well, then it does not matter". (E3)*

*"I simply do not believe that money can to the trick, not in Denmark. I believe that most people would feel that the pay, I receive for this is simply not enough, because the way we work is way out there and money can not solve the problem" (E4)*

E3 is presenting his conviction that all people need extrinsic motivation. He does not address which kind of extrinsic motivation, but just some kind of externally induced separate outcome for reaching the target in the target contract (Ryan&Deci, 2000). The lack of extrinsic rewards is missing, which

undermines the purposes of the measures, when they are perceived evaluative (Brickley et al., 2003). Still it needs to be a balanced approach towards to mix of intrinsic and extrinsic motivation (E4)(Ryan&Deci, 2000).

Due to the perceived injustice in the measuring drives both the intrinsic and extrinsic motivation of the knowledge-intensive employees in KMD Operation down towards amotivation (Ryan&Deci, 2000)

*"It create demotivation, if you can do nothing about your targets" (MM3)*

*"Some of us have been asking for, instead of setting the economic target on EBITDA, then set them up to target on a team level" (MM3)*

The two quotes sums of the points behind hypothesis two, injustice in relation to the low controllability of the targets, the evaluative concerns of the measuring, which leads to lack of autonomy and lost feeling of competence, and lack of extrinsic rewards harms both intrinsic and extrinsic motivation in KMD Operations (MM3).

The highest level of measuring, which an employees should be held responsible in the target contract is at value stream level.

*"It makes it less painful, if you give them dependencies to another department, if they know them. But it is still not optimal, because you give them a target to something which they do not have a complete right of disposal and that is not good" (MM1). Quote from MM1 on the cooperation between the departments in the same value stream.*

As the quote suggests, dependencies are never optimal to the single individual because it entails a loss of control, but dependencies to other collaborators whom they know because they are in the same value stream can be accepted (MM1). Cerasoli et al (2014) also showed a relation that in the presence of indirect performance-salient measures, as the value stream measuring is, and intrinsic motivation is strengthened. So the value stream target would thereby have a positive impact on the intrinsic motivation (ibid.). It shows that measures on value stream level are acceptable because the employees have worked with the other departments and to some extent they can affect the outcome. They have some degree of controllability, which they would not have on a higher level (Merchant, 2006). Therefore the value stream level should be the highest level of measuring.

On the basis of this analysis, there is found partial support for hypothesis two for low hierarchy employees across all KMD Operations and there is no ground for falsifying it. The hypothesis does not seem apply to middle managers and directors and are falsified under these conditions. Therefore it can be concluded that; performance measuring employees on the lowest levels in the hierarchy with evaluative purposes on a higher level than value streams has a negative effect on motivation.

### 5.3 Test of hypothesis three

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Competitive and comparative evaluation system and reward structures affect motivation of knowledge-intensive employees negatively, because they counteract the Lean Service operations.

The distribution of employees, where hypothesis three is applicable, is not consistent across departments and positions. See table with quotes addressing hypothesis three in 10.1.6 (Table 6).

The quotes do not reflect unambiguously answers to the hypothesis, but reflects different findings depending on the level of complexity in task solved in the departments. The quotes from the employee and middle manager represents a department of second level support, which is a department, where the tasks require high technical solutions. In these cases hypothesis three applies (E2)(MM1). The differentiation comes on the quotes from the directors. D1 states a different perception of the motivational factors in a second level department, as they become motivated by competition and comparison (D1). He is the director of MM1 and therefore should have the same perception as MM1 as they lead some of the same employees. It can though be because he has been the director of Frontdoor in less than a year and do not yet know the motivational background of his employees (D1). Either can it be explained by competition and comparison can be useful, but only to some extent or either it reflects a profound different perception of what motivates employees. D3 is a director for the BU Frontdoor and he supports the statements of D1. This particular statement might imply that the employees in the Frontdoor and the particular group he addresses are first level support with less technical profiles. In the Service Desk the employees have lighter knowledge profiles and their outcome is, to a higher degree than second level supporters, measured on quantity than quality. Under such circumstances employees would be motivated by a competitive and comparative evaluation structure. The distribution of oppositions shows that hypothesis three only applies to the second level support department where very knowledge-intensive employees work and not to the first level support and D1 is missing insights to what motivates his employees.

The knowledge-intensive employees in KMD (O5) value their ability to deliver good quality to their customers and are aware that it requires cooperation to do so.

*“Typically to a group of employees: “the four of you now have this target. Solve it”” (MM1). Quote from MM1 on motivating, target setting and performing.*

*“There is normally a fuzz about involvement of the employees, but it is not enough to involve them at irregular basis. 2.0 requires cooperation” (A5)*

MM1 typically assigns targets to a group of employees. He has acknowledged the Lean Service principle that in order to achieve a good quality in a service with high requirements for skilled employees it is important for them to cooperate (A5)(Liker, 2004). When ensuring the quality in the service provided, the feeling of competence is heightened and thereby the intrinsic motivation. Intrinsic motivation is very prominent when motivating knowledge-intensive employees, which underlines the need for cooperation.

Delivering quality on a complex assignment, which motivates the knowledge-intensive employees, often requires e.g. sparring and knowledge sharing (A9)(Osterloh&Frey, 2002), which is enhanced by cooperation and prevented by competitive evaluation systems and rewards structures.

*“I like that I am a team worker. If we cooperate, then I can do some improvements for the customer, then there is motivation, energy and commitment.” (E2)*

*“One team of my employees, who are depended on another team of my employees... that is ok because there is unity and solidarity enough to make it work” (MM1)*

*“Dialogue is of utmost significance, when developing IT with that level of complexity” (A9)*

First of all the employees actually enjoy cooperating and working together in teams (E2). The motivation, energy and commitment do not only refer to E2 self, but also the co-workers in the second level support (E2). The quote also mentions the improvements for customers, which refers to

delivering even better quality in services, as an important motivational factor (E2). MM1 underlines that the dependencies, which are inevitable in second level support, only functions well because of the unity and solidarity (MM1). Unity and solidarity are enhanced by a cooperative reward structure, but undermined by competitive structures or evaluation system (Beersma et al., 2003).

In KMD Operations the evaluation system and reward structures are organized in such way that every employees are evaluated and rewarded relative to the other employees, making the evaluation system and reward structure competitive and comparative.

*"If they do not see that the distribution follows a normal bell curve distribution, then we have to change the performance score. It creates something unnecessary to adjust the employee performance score, so employees who normally has earned a score is degraded as a result of statistics. It is not ok. I think that part is unfortunate... It was articulated as "in every race there is a winner and one who finishes last", but that does not entail that it is an employee, who has a low performance" (MM1)*

*"We have 0.6 to distribute between you" and you know that if some people get more, then there are other who does not receive anything. It is not a company with unintelligent people" (E2)*

The example with the performance score is based on an individual and isolated score, but is afterwards adjusted so the final score is to be regarded as relative to the other employees. Thereby a system that seemingly not is competitive changes nature after the adjustment. The performance score is important to all employees, as it is a catalyst of promotion and punishment (MM1). When using a subjective approach to assess the employees (MM1)(MM2), trust is essential to whether the employees are satisfied with the terms (Gibbs et al. 2004). The readjustment of the assessment undermines the trust between the employee and the middle manager and the motivation decreases (MM1).

The second quote is on the rewards. As there only is a certain amount, which the managers can use for increases in salary, it becomes a competitive structure, as good performers might still be the worst performers in relation to the others and therefore not will receive a increase (E2).

The problem of using a competitive structure in KMD is that inhibits the cooperation between employees, which is essential in Lean Service and to delivering a good quality to the customers.

*"I believe that many places, it is all about signalling upwards that "I have not made a mistake, but there are someone over here who could be better. I got it covered. Should another round of lay offs take place or something like that, then I have done my share to make sure that I am not in the danger zone". Right now there is a lot cover my \*\*\*". (MM3)*

The competitive structure is destructive for the flow and cooperation in the value stream. The cooperation is undermined by unnecessary selling out (MM3) and can be disruptive to the human resource load balancing, knowledge sharing and help between employees in the value stream. These elements are essential to the flow of the service delivery and the quality, which in Lean Service are the most important features (Liker, 2004). Thereby the competitive evaluation system and reward structures undermines the Lean Service in KMD.

The problem between the competitive systems or structures and Lean Service affect the motivation negatively, both because it undermine cooperation, but also because the inherent opposites forces the employees to operate in a far from optimal design of MAP and operation, which decreases the motivation.

*"You can do that if you get acceptance of the KPI's" (D3). Quote from D3 on the importance of initiatives making sense.*

Knowledge-intensive employees treasures their work and have a desire to always do better and their motivation depends on it (MM2). The feeling of competence is essential (Ryan&Deci, 2000). The quote is an example of the importance of employees acceptance of KPI's in order to motivate them to perform better (D3). When forcing employees to do something, which does not make sense, it is at the expense of motivation. When setting up a competitive MAP, which does not support the basic principle of the Lean Service operations that is implemented, it is not optimal. It forces employees who values working smart to do something in a far from optimal way, which compromises their professional integrity and causes them to lose the feeling of competence and thereby their intrinsic motivation (Ryan&Deci, 2000).

Another angle to the problems between competitive systems and structures in the MAP and Lean Service operations is the encouragement of sub optimization versus aiming towards creating customer value.

*"The chain is not stronger than the weakest link" (E6)*

*"Then they can see that it all is tied together and that there are dependencies" (MM1)*

*"If you take the process again, then you have to be interested in who is in the other end of the process to ensure an overall success. It is only out of kind willingness it happens now. There is no structure, which dictates it" (D2)*

When delivering a service through Lean Service operations, creating value for the customer is the point on which everything should be centred (D2)(Liker, 2004). All the quotes underline the importance about the entire value stream have to cooperate and work as one unit, which delivers one service instead of separate entities, who delivery partial services (E6)(MM1)(D2). When applying a competitive evaluation system in the MAP, employees are not encouraged to act in accordance with the Lean principles. The competitive promotes the sub optimization of the single entities and counteracts the cooperation. In order to ensure the success of delivering quality to the customers there is a need for a MAP, which supports the Lean operation (Fullerton et al., 2013, 2014). In KMD operation *"there is no structure, which dictates it"* (D2), there is a misalignment between the MAP and the Lean Service operation in KMD Operations. This inhibits the employees in delivering a good quality service to the customer, which they value and are important for their feeling of competence and intrinsic motivation (Ryan&Deci, 2000). Ergo does the misalignment between the MAP and Lean Service affects the motivation of knowledge-intensive employees negatively.

The hypothesis is supported, but does not apply in the Service Desk, where the tasks has a lower degree of complexity and do not require the same level of knowledge-intensive employees. One of the directors (D1) contradicts the hypothesis, but this is disregarded as a partial truth or as a result of lack of feeling with his employees as his subordinates are of a different opinion (MM1). The empirical evidence from middle managers and employees in knowledge-intensive departments all point towards supporting hypothesis three.

Hypothesis three is partial supported and applying competitive and comparative evaluation system and reward structures will have a negative effect on motivation at highly knowledge-intensive employees in a Lean Service organization. It hypotheses is falsified in the Service Desk department and at appliance to directors.



#### 5.4 Test of hypothesis four

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Visual performance measurement with an aim of common understanding of KPI's and decision-making, used for organizing the workload of resources and prioritizing the effort, improves motivation at knowledge-intensive employees.

See table with quotes addressing hypothesis four in 10.1.7 (Table 7).

The positive impact on motivation of common understanding of KPI's and decision-making seems to apply in across all departments in KMD Operation and apply to almost all employees, middle managers and directors. The only exception are E2, who thinks that the whiteboard meetings are on a to high level to be relevant to E2 and colleagues which includes to many employees and does not reap any particular benefit, but acknowledges that his manager does (E2).

In KMD Operations three different whiteboards, through which the visual performance measurement is facilitated, are used for common understanding of KPI's and decision-making.

*"In KMD we use three types of management boards, which support visual management and continuous improvement. The Activity Board is used for managing and coordinating the daily work. The Planning Board is used for planning assignments on long-term. The IO Board (Improvement Opportunity Board) is used for visualizing KPI's and to handle improvement initiatives in the department" (A1)*

*"At the Process Ownership and Change Management morning meeting the only two boards out of their three boards were addressed; the activity board and the improvements opportunity board. All employees explained their current activities and the number of tasks in the different task-queues in POB were discussed. The current status on the KPI of the processes and penalty team, were discussed" (O6)*

The most used whiteboards are the IO-board, which hold all the planning for Improvement Opportunities and the activity-board, which hold the KPI's and operation planning (O6)(A1). The Planning-board is for long term planning, and does not play any significant role in the daily routines (O6). The backlog, from which assignments are fed, are the service management system POB, where all cases are logged, the penalty group which monitors service contract and ensures the terms are meet

with compliance and finally the improvements from the IO-board (O6).

Whiteboard meetings in KMD Operation facilitate a common understanding of the performance measurements and decision-making. At the whiteboard the tasks from the activity-board, the penalty team and POB are organizing and prioritization.

*"I regard the board meetings as operational planning" (E5)*

*"I think that the most successful was the implementation of board meetings. I think it was extremely good. It gave structure to the way we handled activities" (E4)*

*"All this about operational meetings and operational planning as our board meetings are... that is the most important. Then someone mentions KMD 2.0, then that is what I think of."(E5)*

*"The board is primarily a dialogue and planning tool" (A4)*

All departments hold morning whiteboard meeting discussing, organizing and prioritizing the upcoming work (E4)(E5)(O6). These meetings are an important and integrated part of the use of the visual performance measurement (O6) and it has significantly changed the way of managing operations and delivering a service in KMD Operation (E5)(A4). The visualization of the workload and prioritization from the penalty group and POB is used on a daily basis for organizing the workload and ensure the flow of the value stream, as an important Lean element (Liker, 2004). The visualization has helped to keep track of the performance on service agreements (O6), which has decreased the amounts paid in penalties (O8) and is a sign of improvement service quality.

The main advantages to the whiteboard meetings are the coordination and transparency, which helps organizing the workload.

*"It brings transparency to the manager in relation to what I do... what is it precisely each of us are doing. That is where she gets information from" (E5).*  
Quote from E5 on how the visual performance measurement brings value to the manager.

*“What you wishes to create are structure, operation planning and transparency to be able to see how time is spend.” (D3)*

*“In the 2.0-program KPI’s are set up for productivity and are displayed at the board. Thereby it is evident to managers and employees how the effort of the team is progressing. It is an example of operational transparency” (A18)*

*“At the morning meeting in Windows Operations the activity board, the workload of task in the different queues and the workload of improvements were discussed in plenum. The employee, who was leading the meeting, summed up their common priorities of old improvements and on the foundation of the discussion and the employees submitted them selves to different tasks.” (O12)*

The transparency came with KMD 2.0 (E5) and was a new element in KMD, which was a drastically improvement in organizing the operation. With the transparency the manager can monitor the departments and no one can hide their effort (E5)(D3)(A18). Previously many managers in KMD had no clue as to what their employees were doing or if they where doing anything (MM2). They did not have the measures to tell weather they were on track (MM3) and thereby had a hard time controlling their operation. Visual performance measurement provides a transparency, which along with coordination at the meetings that centres on the whiteboards, makes it possible to organize the workload (O12).

Organizing the workload on the basis of the whiteboard meetings eventually leads to heighten customers’ value.

*“You can call it load balancing. It works really, really well to us. I think we get through an extreme amount compared to how many resources we are” (E6)*

*“In the daily work we can use it to change our focus on resources. If we can observe that the problem track is all green all the time and our incident track is red every third month, when we can take a look at if it is necessary to have three men on the problem track or move one extra resource over” (E6)*

*"I want to add something one the positive elements. The boards and the visualization... it causes less interruptions during the activities, at least in the beginning and then you get a better progress" (MM5)*

When delivering a service it is essential to remember, what brings value to the customer (D2) and that is defined as compliance with the service agreement (O8). When organizing and prioritizing the workload it means that the same resources can solve many more tasks (E6) and solve the right ones (O8) so that the terms in the service agreements are met and improvements can be made on the services (MM5). The more productive use of resources leads to better quality in the service.

Delivering a service with a high quality is and essential part of motivating knowledge-intensive employees (O5).

*"We have a structure. We have an overview and we can continually switch positions, which mean we have an option to even out the resources" (E6)*

*"Our technicians are extremely protective of their professional integrity. It is extremely important to them to get to the finish line and have a high customer satisfaction. (MM1)*

*"The knowledge-intensive employees in Windows Operations have a high degree of professional integrity, which surfaced when one of the employees had missed a meeting and had not slept the night afterwards due to bad conscience and that he was depressed." (O5)*

The quotes underline the causal relationship between the structure and workload balancing of human resources and motivation of the knowledge-intensive employees (E6)(MM2). The structure and resource management makes it possible to deliver a better quality services. Technicians are knowledge-intensive employees (MM1) and they find satisfaction in maintaining their feeling of competence, which leads to intrinsic motivation (O5)(Ryan&Deci, 2000).

The intrinsic motivation is also fostered through participation, communication and interest in activity the employees are performing, which is facilitated through the whiteboard meetings that centres on the common understanding and joint decision-making.

*"I actually believe that it give them a sense of responsibility and some insights to what prioritization is and what it takes to make it work. I think it provides them with insight and involvement in the way we work" (D1)*

*"It seems to work and to a team, it is a good way to know what ones colleagues are doing, so it not just becomes individual achievements" (D2)*

*"Before there were employees who wanted to perform, but where is was difficult to proceed when stocked in an assignment... Now these issue is debated at the whiteboard meeting" (A6)*

*"At the morning meeting in Windows Operations the activity board, the workload of task in the different queues and the workload of improvements were discussed in plenum. The employee, who was leading the meeting, summed up their common priorities of old improvements and on the foundation of the discussion and the employees submitted them selves to different tasks." (O12)*

The three intrinsic motivation-fostering elements are present at the whiteboard meetings. The common understanding, participation and involvement in decision-making promote an internalization of the goals and performance culture (O12)(Osterloh&Frey, 2002). When values are adopted and employees are engaged to a degree where they are co-determining or used as advisors when planning (A6), it heightens the involvement and interest and eventually it raises the self- determination (D1)(D2)(Osterloh&Frey, 2002).

The whiteboard meetings has a few down sides which need to be considered:

*"In our department, I think it works like this; if I suggests my improvements on the delivery I work on, then I actually waste the time of 15 people... I believe that these board meetings are of more value to my manager than they are to me. But is it brings him great value, then it is fine by me" (E2)*

*"I think we spend extreme amounts of time on it. If you consider that we are 3000 people in the organization. We meet every morning for 15 minutes. It accumulate to an extreme number of hours every day" (E4)*

E2 accepts the value that it brings to the manager and states that it is *"fine by me"* (E2). E4 only expresses concerns about the amount of time, which is used upon the visual performance measurement at the whiteboard meetings. Neither of the quotes entails statements about decreased motivation due to the use of visual performance measurement in managing the operation.

On the basis of the analysis in section there is found support for hypothesis four, as it cannot be falsified. Its findings are summed up in following quote:

*"To it is to be able to see all which is to be planned. The elements, which can be made more transparent, the things we can cooperate on, the thing, which can be communicated... That is positive. So the transparency, the drive, the conversations and discussions, that is really good." (MM5)*

Whiteboard meetings as tool for visual performance measurement, which takes point of departure in common understanding of the KPI's and decision-making, promote transparency and involvement, which lead to better workload balancing, prioritization and quality of service and eventually increased intrinsic motivation.

### 5.5 Test of hypothesis five

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In Lean Service, performance measurement is used for process optimization and it might have a negative impact on intrinsic motivation at knowledge-intensive employees if KPI's are used at the expense of professional insight.

There is a consensus across departments and different types of positions, that the process optimization solely relies on KPI's and disregards the employees opinions, it negatively affect motivation.

See table with quotes addressing hypothesis four in 10.1.8 (Table 8).

When KMD 2.0 was first introduced, many KPI's were implemented in a very rigid manner and they were not customized to the needs departments (MM1). It was perceived as having a negative impact

on the use of KPI's and motivation (MM2). After a short while many departments stopped using the KPI's, where they did not provide value (D1). The table and following analysis might reflect the state right after the implementation, as KMD 2.0 has entered a second iteration, driven by the departments them selves, where KPI's and professional insight are supplementing and relying on one another (MM1)(O9).

*"The issue came from KPI readings, the professional insight form colleagues and manager was considered and a meeting with the customer arranged and inspiration from a guide from the Service Desk was taken in." (O9)*

Never the less can the hypothesis still be tested, but might not reflect the current state as much as right after the implementation of KMD 2.0 (O9).

Process control, optimization and continuous improvement are an essential parts of Lean (Womack et al. 1990) and KMD 2.0 (MM2) and in a Lean program the optimization should use the measurements:

*"The general idea in Lean is that you can measure all most everything, more or less." (E3). Quote from E3 addressing KMD 2.0 as a Lean framework.*

*"That is what KPI's are supposed to do. You set the course and then you have to correct it in time... You have to know where you are and where your target is all the time, otherwise you will not get there... That is management by KPI's." (E5)*

*"Operational transparency make is easier to control the business. When visualizing our KPI's and target it is easier to proceed in the right direction" (A18)*

*"The only topics discussed where the KPI-situation and how if any corrections to the current workload were necessary. It reflected a general philosophy in KMD 2.0." (O10)*

In KMD, the process measurement is used for always have a feeling with the state of the operation (E5) and used to identify improvement potentials (E5). The general management philosophy in KMD 2.0 is founded in targeting, measurements and corrections (E2)(O10)(A18).

Especially during the first period of time after implementing KMD 2.0, there has been a tendency to maintain process control and make improvements on measurements instead of insights from the employees.

*"I would have appreciated if someone had thought it through before McKinsey came with their framework-suitcase and fixed the world" (E4)*

*"It did not work because the starting point was only ticket per hour and that only represents a very little fragment of reality to me. We tried to use these KPI's, but they were just way out there" (MM1)*

*"It is of no use to burst forward with a measure, you have to demonstrate insight to the work of each employee" (A8)*

When KMD 2.0 was implemented it was not customized and all departments were to use tickets per hour and value stream KPI's, which was almost impossible to use for process control and optimization (MM1)(MM2). KMD 2.0 was a McKinsey framework built upon the Lean principles and was delivered "out of the box" (E4). KMD 2.0 was in lack of adjustment to the KMD operation and McKinsey brought along a determination to use the insufficient process measurement for control and improvements (A8).

When forcing on the use of insufficient KPI's, while disregarding the professional insights from skilled employees, the risk of impacting motivation negatively is increased.

*"...Then the employee feel that they have decision-making authority and that they have influence on their own process, while the management still can set up some guidelines." (E3)*



*"I want to be listen to. I would like to know who has a say in it. Who is it that decides that this is what we do" (E4)*

*"I believe that it is involvement. To get them to decide what task they shall be doing for the day. It can be a risk because you take some of the autonomy away from them" (D1). Quote from D1 on the upsides and down side to use the measurement for micromanagement.*

*"If the team's improvement opportunities are not taken seriously, then it is difficult to encourage the team" (A9)*

*"When we access the complexity and scope of the assignment... It is important, that we pick up on this, when planning a release – and that is only possible if we involve the employees" (A11)*

Process control and improvements on insights bring forward the feeling of competence and participation. The feeling of competence is along with autonomy (E3) the main components in intrinsic motivation, which is important to knowledge-intensive employees (A9)(Ryan&Deci, 2000). This type of employees get motivated by being involved, exercise their skills and working smart (E4)(MM2)(D1), everything that enhances the feeling of competence (Osterloh&Frey, 2002). When disregarding their insight when doing decision-making, it leads to a non-optimal decision (A11)(Jensen, 1995), which compromises the feeling of competence and does not involve the employees. All the elements are important to the level of intrinsic motivation of knowledge-intensive employees and it goes against the Lean way of thinking, where measures should be supplemented with insight from employees (Liker, 2004).

Hypothesis five is supported and cannot be falsified, but might reflect a previous state, from right after the implementation of KMD 2.0, rather than be applicable to all departments at their current state. The findings are summarized in the following quote:

*"You can have a KPI for how many there are and if there are too many. But the most important is how you react to it" (D2)*

To conclude intrinsic motivation at knowledge-intensive employees in a Lean Service organization is negatively affected is performance measurements are used for process optimization at the expense of their professional insights.

## 6 Discussion

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When there is misalignment between Lean Service Operation and the MAP, which affects the motivation of knowledge-intensive employees and this might cause future problems in KMD.

### 6.1 Discussion of hypotheses

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#### 6.1.1 Discussion of hypothesis one

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In KMD the MAP orientation is focused on the vertical flow to such a degree that it inhibits the transverse flow of the value stream between the departments. The test of hypothesis one clearly states that the transverse flow and the will to make Continuous Improvements it are held back by the division of departments, insufficient target contracts and non-representative KPI's.

Goodwill is the primary element that makes the cross-departmental cooperation works in KMD in spite of the inhibiting MAP. Many of the MAP-elements in KMD are structured by the strict vertical coherence, which entails a silo division of the department, both mentally and economically (MM1). All the attempts to support the cooperation across departments rely on KPI's and high level targets in the target contract. The KPI's has so far been misrepresentative and the targets are disregarded, when they are above value stream value due to low controllability. Therefore the cooperation relies on goodwill between the departments (D2). This emphasizes the Mindset and Behavior track in KMD 2.0 (A1). This approach might work in some cases and with some employees in times, where the workload is not too overwhelming. Due to agency problems, then as soon as times get tough and the MAP do not support the cooperation, then people will stop helping and ensure their own business as first priority (MM3)(Mookherjee, 2006). This could result in severe service quality problems, large penalties and customers leaving. To mitigate for the challenges of agency problems the Lean Service operation and MAP needs to be aligned. This seems to be one of the most significant gaps in the implemented version KMD 2.0, which has relied more on the Mindset and Behavior and Voice of the Customer (A1).

The knowledge-intensive employees in KMD are asking for better transverse cooperation and want to work smart and they want to improve the operations. It seems like all employees in KMD can see the benefits of cooperating and are convinced that the best quality is achieved by cooperating (E1-6). They are just inhibited to do so by the MAP. If rise of the agency problems becomes a reality and the service quality is compromised, it would drive the feeling of competence down, thereby the intrinsic motivation and consequently drive employees away.

An optimal solution might be difficult to design, but structures should support and enable not inhibit the operations, but as the design of the MAP current is, the analysis differently shows room for improvements.

### 6.1.2 Discussion of hypothesis two

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When designing the target contracts, employees should not be held accountable for target on a higher level than the value, where they can affect the outcome and even then it is about balancing between to evils.

When only setting targets on individual level, the cooperation is not encouraged, but controllability is high and on common levels, such as value stream level, the cooperation is supported, but the controllability goes down. Designing target contracts will have an inherent problem when balancing between individual targets and common targets. It is especially present to the employees, who has the lowest degree of influence and are the most resistant to targets on higher level than individual (MM1).

The two employees, who are process owners (E4)(E5), which is a cross-departmental coordinator, is asking for more consequence from managers as a sign of him not having influence on his targets (E4). Middle managers and directors have a lot more influence on the targets and therefore accepts the dependencies in their target contracts, but they understand the employees' concerns.

The problem of the corporate and SBU-level targets is that even though the employees in a value stream in KMD Operation has done very good, they can not reach their targets if another SBU fails. MM3 recognizes that it would not make sense to pay bonuses if KMD did not reach the corporate financial targets, but it then should be a binary element in the target contracts. Then the element is not all disregarded, but it would also leave 50 per cent more to other targets than the high level targets, which would entail even more dedication (MM3).

Another problem in the use of target contracts is to ensure that not only there are at maximum value stream level, but also that the KPI's are representative and that the target contracts are ready in time. When KPI's do not reflect the real situation in the operation (MM1) and the target contracts are not delivered in time (E6), then it creates mistrust to the MAP. Thereby the reliability of the target contracts is undermined by the insufficiency of the MAP from which follows that employees disregard the targets and becomes demotivated. They get demotivated both due to the fact that they are trying to achieve something in a broken system, which compromises their feeling of competence and due to the lack of extrinsic motivation, which a good targets contract promotes.

When KMD is further improving the KMD 2.0 concept, these considerations on target contracts should be kept in mind, as it entails a closer integration of target contract and the Lean principles in KMD 2.0 (A13, A14). Once again the MAP in KMD is not supporting to the KMD 2.0 and sometimes it even inhibits and demotivate employees.

On the other hand the performance has increased significantly so the motivation might have been affected by other external factors.

*"Back then we were approximately 38 employees or something like that with external finances for 32 millions. At new year we left a group of employees at approximately the same size, 38 or 37, but with doubled finances" (MM5)*

*"Should another round of lay offs take place or something like that, then I have done my share to make sure that I am not in the danger zone" (MM3)*

The quote of MM3 specifies the increased extrinsic motivation of externally induced consequences in terms of fear of being fired, which could be an explanation to the increased performance (MM5) as also could be a direct product of the Lean Service effect on productivity.

### 6.1.3 Discussion of hypothesis three

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Competitive evaluation system and reward structures are incompatible with a Lean Service operation, but the competitive aspect is still an important motivational factor. The analysis shows important insights; that KMD is in need of a more cooperative supporting MAP and that the employees performing tasks with low degree of complexity, in the Service Desk, are motivated by competition. Other departments are to a certain degree motivated by the fear of getting fired, which also caused them to sub optimize to increase their own performance (MM3).

Competition is an inherent part of human nature and relates in many ways to the agency problem at wanting more for one self at the expense of someone else. This is motivating to others than just the Service Desk, in terms of the fear of getting fired (MM3), which still is an extrinsic motivational factor with an external induced outcome to a certain performance (Ryan&Deci, 2000).

The problem is that when having competitive structure, the Service Desk, and everywhere else, will have their own interest before everyone else's and thereby not act in the best interest of the value

stream. This relates to the Lean explanation of spared resources should be used for further improvements, not to be taken out of the equation as a cost reduction (Liker, 2004). To some extent competitive structure inhibits the Lean Service Operation, but at the same time motivates employees to a certain extent.

It seems to be a motivational factor, which cannot be disregarded, but one should be aware of the consequences for Lean Service and quality. Thereby it drives down the intrinsic motivation, especially at knowledge-intensive employee and in general crowds out the intrinsic motivation. Once again it seems to call for a balance between the competitive and cooperative evaluation system and reward structures, but when designing KMD should be aware of the intrinsic motivational killing consequences.

#### 6.1.4 Discussion of hypothesis four

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The use of visual performance measurement facilitated through whiteboard meetings with an aim of common understanding of KPI's and decision-making has driven up the motivation, but it should be a balanced effort so it does not become too expensive or becomes irrelevant to the employees.

The challenge of the whiteboard meetings is that they easily can become a higher cost than benefit. Several employees have showed concerns about the whiteboard meetings (E3, E4). First of all should be kept short, as intended (O7) and only with people of relevance to each other, otherwise they waste time (E3). In KMD there are more than 3000 employees (E4), where just a little waste of time for each employee can become a significantly cost. Secondly the whiteboard is not a tool only for manager to control, but a tool for communication and transparency to be used for involvement of employees. Therefore it is important that it has not only relevance to the manager, but also to the employees (E3). These two notes have been the concerns about whiteboard meetings, which addresses the risk of the whiteboard meetings being more costly than beneficial.

Both downside aspects of the whiteboard meetings should constantly be considered in order to keep the benefits higher than the costs and to maintain the beneficial balance.

#### 6.1.5 Discussion of hypothesis five

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Process optimization in Lean Service in KMD should be a combination of using KPI's and insights from employees, not just relying on KPI's as previously.

The use of professional insight in problem solving is not only a good thing for the solving session itself, but also for the motivation. It leads to feeling of competence through involvement and better quality in improvements and thereby drives up the performance and intrinsic motivation. This does not mean that professional insight is all, but it is useful, especially in service with high skills and non-specified and customized solutions. One of the core components in problem solving in Lean is the “go and see for yourself” and the use of “the five whys” in order to understand the problem in order to find the right solution and not sit in an ivory tower and make improvements by KPI's (Liker, 2004). Lean supports a balance or triangulation of data between use of KPI's and professional insight to find solutions. KMD Operation moving in this direction and the next step is to get even more useful KPI's, which not only is on a value stream level, but also degraded to a level where it can provide intelligence about the cells in the process (D2).

Another important aspect is that previously the employees in KMD were autonomous (MM2). By relying too heavily on KPI and disregarding their input, the previous autonomy creates a greater risk of the employees feel incapacitated (MM1). When changing the way of operating in KMD it can be of great advantage to reuse the good elements from previously and use for future DNA. This meaning that the desire and experience of problem solving should be incorporated in the new KMD 2.0 way of working. This is also the direction KMD is heading now after some adjustments from going too far into improvements by KPI's.

#### 6.1.6 Synthesis of hypotheses

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Misalignment between MAP and Lean Service operation has a negative effect on motivation, especially intrinsic, and the relation between the two is mitigated by whether the employees are knowledge-intensive.

The findings have revealed that in order to achieve a higher motivation there is a need for an adjustment of the MAP in KMD to support KMD 2.0 and improve the program and the operation in the departments, where it is already implemented. When doing these adjustments it is important to take the type of employees into consideration, because it is a defining factor when designing the coherence between MAP and operation. When having knowledge-intensive employees, who are motivated differently than simple task employees, it is very important to have in mind that the employees are to a higher degree intrinsically motivated and put an honour in working smart. Misalignment of the MAP and Lean Service inhibits them in working smart and achieving high quality delivery of service, which compromises their feeling of competence and thereby decreases their intrinsic motivation.

Even though all hypotheses indicate that the motivation has been negatively affected, which should result in decreased performance, then the productivity has increased significantly (MM3)(E6). In some departments the same amount of employees produces twice as much as before KMD 2.0 (MM5). So the question is whether the consequences of the five hypotheses are that significant? The heightened productivity can be caused by several causes; effects from lean service delivery or extrinsic motivation in terms of fear of being let go.

First of all that KMD 2.0 works and has increased efficiency in the departments even though it to some degree has been at the expense of motivation (MM3) (E6). The KMD 2.0 might have had a negative impact on intrinsic motivation in KMD, which should have negative consequences to the performance (Cerasoli et al. 2014). But the purpose of the Lean Service initiative is to improve efficiency and Lean Service is dependent on many other factors than just motivation (Liker, 2004)(Womack et al., 1990). Thereby decreased motivation might have a negative impact on performance, but it is insignificant compared to the Lean effects.

Another explanation could be that the extrinsic motivation of risking to be fired has motivated employees to such a degree that it overthrows the effects of hypotheses one to five (MM3).

The thesis does still have its relevance, when turning to further improvements of KMD 2.0 and gain better result in the future. If KMD is to continue to perform better, it is important to adjust on all parameters. In the first wave of Lean implementation the low hanging fruits and easy wins have been harvested. The Continuous Improvement is a central part of the Lean philosophy and the KMD 2.0 program and therefore the improvements should continue, not just in the departments, where KMD 2.0 as already implemented, but also of the framework itself and on an administrative and structural level. *“When KMD 2.0 is completed? It is completed when we all, managers and employees, work with improvements as a natural part of our day, every day”* (A7- quote from CEO). As an answer to the call from the CEO, the administrative and structural improvements of the MAP could be initiated. If the challenges of misalignment between MAP and KMD 2.0 are handled, a heightened performance effect can be achieved both through increased motivation, but also by working smarter and by MAP supporting the Lean Service operation instead of inhibiting it. So by looking to the findings and the thesis and the recommendations in section 6.3.2 the KMD 2.0 concept can be improved even further and the initiatives be integrated in a second iteration of the program in the departments, where it has already been implemented.

Why should KMD bother to address the motivational aspect if the management by fear has such a significant effect on performance? The motivational effects from the lay off round, is a short-term



effect and entails a risk of driven the employees away. Extrinsic motivation that is entirely external regulated (Ryan&Deci, 2000), such as being fired, has a short-term effect (Osterloh&Frey, 2002), because it crowds out the intrinsic motivation and encourages employees to find other jobs with better conditions. So in order to keep employees and maintain performance, by other means than management by fear, an alignment of the MAP and Lean Service Operations, which promotes the more positive intrinsic motivation, is of importance.

Even though the thesis have a paradox in terms of the relevance towards current performance, the future relevance of the findings will be significant.

## 6.2 Theoretical discussion of results

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### 6.2.1 Support and extension of theories

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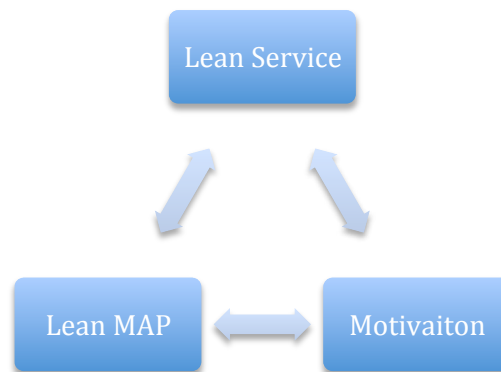
The thesis has confirmed and supported findings from both the motivational literature and the Lean MAP literature.

The findings in the thesis have confirmed some of the dynamic of intrinsic and extrinsic motivation and the appliance of especially intrinsic motivation. The dynamics of crowding out effect, the underlying components of intrinsic motivation and the degree of internalization of regulating externalities that changes the extrinsic motivation is present in the KMD case. The importance of intrinsic motivation to knowledge-intensive employees and the need for the presence of both intrinsic and extrinsic motivation has also been confirmed through out the investigation of the hypotheses.

Some of the basic elements of Lean MAP and the critique from the Lean MAP literature on the misalignment between Lean operation and Traditional MAP have also been confirmed. The case study has confirmed that the visualization of performance measurement has a positive impact on Lean implementation and operational performance through hypothesis four (Fullerton et al., 2013, 2014). It also supported the critique from Lean MAP literature on Traditional MAP for using KPI's for evaluative purposes instead of process optimization and that it promotes non-lean behaviour in hypothesis five (Maskell et al., 2012).

The thesis extents both the Lean Service literature, the Lean MAP literature and motivational literature, by closing gaps in the existing literature with new insights. The insights from the thesis extent the Lean Service literature in two directions; new insights on Lean Service in the relation to respectively Lean MAP and motivation. Lean Service is a fairly young field with many unexplored

areas, where the relation to MAP and motivation is previous gaps in the literature (Suárez-Barraza et al., 2012). Motivation in relation to Lean in general is also an area, which is mentioned to a very little degree, only five pages in Liker (2004; 194-198) and three pages in Womack et al. (1990; 198-200, 251). The Lean MAP literature is extended with the application in relation to Lean Service and by being regarded in a motivational perspective.



### 6.2.2 Disagreement with theories

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The findings in the thesis and the theoretical foundation disagree with aspects of Traditional MAP theory.

The disregarding intrinsic motivation and mechanistic approach towards motivation in Traditional MAP is a fundamental different than the one presented in this thesis. One of the central elements in this thesis is the importance of intrinsic motivation and how it is influenced by the dynamics of Lean Service and MAP. The Traditional MAP, as it is represented in this thesis, does not take intrinsic motivation into account (Beersma et al., 2003)(Brickley et al., 2003)(Zimmerman, 2014). The Traditional MAP theories only address incentives, which provide extrinsic motivation and its relations to the other elements of MAP.

The thesis and these theories are built on different basic premises. The reason for the focus in this thesis, is the belief in the significance of the point presented in the motivational theories in the thesis, intrinsic motivation is an essential and significant element when motivating people (Osterloh&Frey, 2002)(Ryan&Deci, 2000).

If turning the empirical findings of enhanced performance in spite of decreasing intrinsic motivation, then intrinsic motivation does not seem significant in a performance perspective and everything else aside. But the case can not be regarded as a static still picture and in a vacuum, so even though the

effects of intrinsic motivation do not seem significant to performance at the moment of the empirical data gathering it might still have an important role to play. The findings from the hypotheses shows that it is an important element and it seems to have greater significance in the future than it previously have had.

Another central disagreement with Traditional MAP is the general vertical orientation, which is the axis around which the Traditional MAP is centred (Brickley et al., 2003). The Traditional MAP focuses on the vertical coherence, where the Lean Service operation is focused on the transverse flow. One of the main findings from hypothesis is that the MAP should be supporting to the transverse orientation in Lean Service. By simple definition these two standpoints are irreconcilable. But it might not be more nuanced than that. Almost all organizations, including Lean organizations, have a hierarchy and with hierarchy some extent of vertical orientation follows. At the same time cross-departmental cooperation is difficult not to come by and have some other advantages such as e.g. knowledge sharing, better conditions workload organizing and transparency of functionality and performance. So it might just be more of a balance to find between the vertical and transverse orientation in the MAP, so that it supports the Lean Service operation (Maskell et al., 2014), while still ensures convergence and guards against agency problems (Brickley et al., 2003).

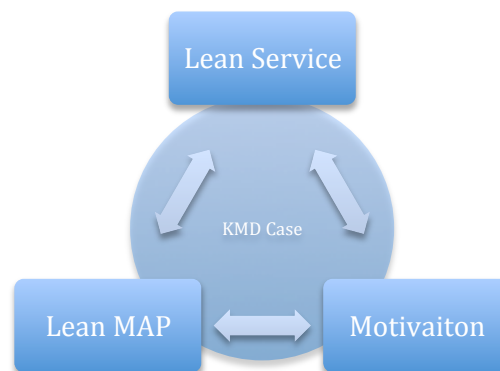
A third general area, where the thesis diverges from Traditional MAP, is where the thesis findings shows that competitive evaluation system and rewards structures does not enhance Lean Service operations. Traditional MAP does not condemn competitive structures in any ways, but acknowledges the agency problems and opportunistic behaviour, which is the premise for competitive structures. In the test of hypothesis three, the finding shows that competitive structures and internal competition are inhibiting for Lean Service operation, where transverse cooperation is essential. Never the less the results also found that competitive behaviour is encouraged with success in a department, even though the department was of less knowledge-intensive employees. It is interpreted that the anomaly in the Service Desk, which is not a knowledge-intensive department, serves as evidence for the difference between the two groups of employees. But once again it paints a black and white picture of the appliance of competitive structures in a Lean Service organization. Even though it inhibits the Lean Service cooperation, it does not necessarily entail that it would have larger costs than benefits under all kinds of circumstances. Once again a balance should be found, where admittedly the competitive structure should be present to a little extent in Lean Service operations with knowledge-intensive employees.

The thesis and this discussion of the findings does not make a clear distinction between Traditional MAP and Lean MAP and is open to the pursuit of equilibriums between diverging orientations. The Traditional MAP theories are a broad variety of theories; many of them are to some extent not inherent diverging from the Lean MAP. In many ways there are some similarities, which makes a distinction between Traditional MAP and Lean MAP difficult. The findings of the hypotheses are valid, but they do not rule out more nuanced approach the MAP in the context of Lean Service. So to sum up it is about finding the right and supporting balance between vertical and transverse orientation in MAP (hypothesis one), designing collaborative structures that still motivates (hypothesis two&three), balancing transparency and micromanagement while ensuring involvement (hypothesis four) and achieving the right balance of using KPI's and professional insight for process optimization (hypothesis five).

### 6.3 Theoretical implications

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The theoretical contribution to the existing literature extends knowledge within three theoretical domains; Lean Service, Lean MAP and Motivation. As previously mentioned in section 6.2.1 the hypotheses is investigated in a case study setting in KMD and serves as extension of the three knowledge domains by describing the interrelations between the three.



The thesis has a subject area, which is a gap in previous knowledge. The following describes which gaps within the existing knowledge. Some of the gaps were identified during the literature review in the thesis, some were the authors themselves who have called for further research. The thesis does not necessarily close the gaps, but contributes to address following gaps pointed out in the existing articles.

See gaps in appendix 10.1.9 (table 9).

By addressing the gaps in the existing literature the thesis brings along a better understanding of the interrelations, dynamics and balances between Motivation, Lean MAP and Lean Service.

### 6.3.1 Future research

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The thesis lines up several possibilities for future research, where the most prominent would be further development and testing of the hypotheses. The aim of the thesis is to contribute to the existing literature and the gaps in existing knowledge by theory building. The idea is not to produce a generic valid theory, but to extract very hypotheses from a one case study. If to continue the work done in this thesis, future research could start by mitigating for the methodological weaknesses.

The thesis is based on a single case study, which is one of the most significant weaknesses to eliminate. This means testing the hypotheses in cross-industry, cross-company, cross-value stream settings and see if they still apply or should be altered. It also entails the statistical testing on large data samples in order to find out the extent of applicability.

A different approach would be to record results as a video instead of a still picture. The results from the hypotheses are taken as a snapshot of a place in time and do not reflect development. The results from hypothesis five clearly show that some of the interesting substance in this area is in the development. Therefore it could be beneficial to follow the development in the dynamics of the hypotheses over time and through the different Lean Service maturity stages.

Another interesting idea could be to change the perspective from motivation to another perspective as the consequence of the dynamics between Lean Service and MAP. Instead of focusing on which effects the dynamics has on motivation, it could be in the perspective of customer satisfaction or as the Lean MAP literature suggest extent of Lean implementation, operational performance or financial performance (Fullerton et al., 2013,2014)(Kennedy&Widener, 2008). It would also be interesting to have a multiple perspective on the dynamics, so the results would record the relation of e.g. motivation and operational performance as a result of the dynamics between Lean Service and Lean MAP.

Instead of changing the perspective in the research the dynamics could be changed to Lean managerial tools or to cultural Lean controls. The focus in the thesis has been on dynamics between Lean Service and Lean MAP. One or both of these knowledge domains could be changed to cultural Lean controls (Bortolotti et al., 2014) managerial tools such as the whiteboard meetings, the practices such as standard operating procedure or problem solving sessions (A12).

An area of future research could also be on the importance of intrinsic motivation compared to extrinsic motivation. Instead of shifting the perspective then dig deeper in to the relation and dynamics between intrinsic and extrinsic under business specific strategies such as Lean Service, as was identified as one of the gaps. An analysis, with more focus on a relational comparative analysis of the motivational elements, would clear out just how important e.g. intrinsic motivation are compared to extrinsic, which this thesis seems to raise more questions about than answering.

### 6.3.2 Practical implications

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The five hypotheses point out weaknesses at the KMD 2.0 program and the MAP of KMD, which drive down the motivation in KMD and can be mitigated through a series of adjustments and focus areas.

The practical implications of the findings were in all five hypotheses lowered motivation, especially the intrinsic motivation of knowledge-intensive employees. Lowered intrinsic motivation has consequences:

- It lowers the performance of the knowledge-intensive employees compared to the optimal
- It makes KMD a place of less attractive employment both to existing and to future employees, which can be a significant cost in the long-term and to the competitive advantage

If KMD is to achieve even better results, become leaner and work smarter in the second iteration and Continuous Improvement of KMD 2.0, then they should start by the identified issues from the hypotheses. Employees in KMD are knowledge-intensive and they want to work smart and delivery good quality (E1-6). It motivates them. By aligning the MAP with KMD 2.0, so that it supports instead of inhibits, then it serves as mitigation for the lowered intrinsic motivation. The lowered motivation is caused by the same, non-optimal operations, as drives the productivity and quality down. So not only would mitigating for the challenges in the hypotheses result in increase motivation, but also in increased efficiency, lower cost per service delivered and better quality. The performance has increased significantly increased in the same period as the decreasing motivation, which can be explained by the Lean Service effect or by fear of being let go. This might minimize the significance of findings during the first iteration of KMD 2.0, but as a Continuous Improvement in the second iteration, from this point and beyond, it is important in order to improve motivation and performance.

The challenges from the hypotheses can be met by issuing identified improvement opportunities. The initiatives and focus areas have been pointed out as a practical answer to the challenges of hypothesis

one to five. They are not to be seen solely as initiatives of motivation, but as initiatives of administrative and structural improvements, which result in improved operation and thereby increased motivation and performance:

1. Dissolve the silos not only in the mindset, but also in the accounting. Gather all value streams under one budget (MM1 MM2) – mitigating challenges of hypothesis one
2. Design target contracts with different focuses. This point contains four areas:
  - a. Use targets which encourages the transverse flow and cooperation within the value stream and ensure a close communication between the departments with interdependencies
  - b. Value stream level as the highest level of common targets. If the element of the corporate financials are found necessary, then incorporate it as a binary term, whether or not KMD and the SBU's have reached its targets, which would leave more percentages for other targets
  - c. Incorporate only well tested KPI's, which are representative for reality in targets contracts
  - d. Target contracts are to be delivered in time, so the employees can use them as guidelines and motivational factors- mitigating challenges of hypothesis one and two.
3. Be aware that competitive evaluation system and reward structures kill the Lean Service cooperation and it should be implemented to a smaller extent, especially when dealing with knowledge-intensive employees – mitigating challenges of hypothesis three
4. Maintain focus on transparency, customer value and workload organizing and prioritizing and be aware of the relevance to all managers and employees at meetings – mitigating challenges of hypothesis four
5. Only use KPI's which reflects reality when using measurements for process improvements – mitigating for challenges of hypothesis five
6. Use both KPI's and professional insight for process improvement and combine them wisely – mitigating for challenges of hypothesis five

If addressing the challenges by using the recommendations, KMD would achieve increased motivation and performance. The recommendations would serve as continuous improvement of the KMD 2.0, which can be implemented in the already leaned departments and be integrated as a part of the KMD 2.0 program.

## 7 Conclusion

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Misalignment between Lean Service operation and MAP has a negative effect on motivation in an organization with knowledge-intensive employees. The case study is built on the empirical case of KMD implementing the Lean Service initiative, KMD 2.0.

The purpose of the thesis is to provide a case study, which serves as theory building that integrates previous knowledge from Lean Service and MAP as access the outcome in motivational terms. The aim is to provide hypotheses from a single case study, which could be extended to larger scopes, other settings and be statistically tested.

The point of departure is literature reviews of the motivational theories, Traditional MAP theory and Lean theory, including Lean Service and Lean MAP. The literature reviews is used for identifying gaps in the existing knowledge, which is addressed in this thesis. By mapping up the existing theories and look to the calls for future research, the thesis is theoretically placed, where it provides new and interesting insights.

The findings of the dynamics between Lean Service and MAP and its effects on motivation, were accessed in five hypotheses. The hypotheses revealed that the decreased motivation of knowledge-intensive was at least partially caused by misalignment between Lean Service and MAP in terms of:

1. The vertical orientation of the MAP inhibited the transverse Lean Service operation
2. Higher targets than the value stream did not increase cooperation, but resulted in indifference and demotivation
3. Competitive evaluation system and reward structures inhibits the cooperation, which is essential to Lean Service operation
4. Decreasing motivation can be counteracted by using visual performance measurement for common understanding of KPI's and decision-making, which are used for organizing workload and prioritizing
5. Use of KPI's for process improvement at the expense of the professional insight of employees

All hypotheses are in the investigation delimited to knowledge-intensive employees. Knowledge-intensive employees are to a large degree driven by intrinsic motivation and when the basic two elements of intrinsic motivation, feeling of competence and autonomy, is compromised by the misalignment, the general motivation decreases.



A consequence of the findings there are both theoretical implications to research fields and to practical implications to KMD in terms of mitigating for the challenges.

In general the thesis has contributed to the theoretical research field by combining Lean Service, Lean MAP and Motivational theories. All three areas had no previous theoretically investigated connections. Thereby the thesis extends and connects three areas of knowledge.

The practical implications are summed up in suggestions for improvement initiatives, which can mitigate for the misalignment between the Lean Service operation and MAP in KMD. If implemented, it would not only result in improved motivation of the employee, but also entail improved performance. The initiatives could serve as a Continuous Improvement in the already leaned KMD departments or as an improvement of the KMD 2.0 framework.

## 8 Perspectives

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The findings of the thesis have provided sets of new ideas to different perspectives on Lean; expansion of the Lean MAP theory and a pre lean implementation assessment tool.

In the interviews conducted from KMD, two empirical topics seemed to be mentioned over and over in many relations; the target contracts and the organizational structure. These two MAP elements are somehow often connected to the inefficiency and non-lean supportive MAP. This suggests that it could be beneficial to investigate these two as an integrated part of the Lean or Lean MAP framework. Maybe even set up a principle for Lean target contracts or Lean organizational structures (D2).

Another perspective is to approach Lean implementation, with a guide or tool to customization of the Lean framework. Lean is not a one size fits all and the KMD 2.0 showed this. McKinsey had a framework, which was implemented out of the box without further customization (E3). Some of the initiatives, which have consumed a lot of resources, were abandoned shortly after the implementation due to lack of customization of KMD 2.0 to KMD.

There are many possibilities and ways in which an organization can be leaned. A new approach could be a less rigid “all or nothing”-description in the general Lean principles, but be set-up, where customization and tools for it, are integrated as a central element in Lean. This would provide a more contingent framework, where the implementation takes point of departure in the empirical starting point, external and internal environment so all previous organizational capabilities and skills are not disregarded.

Existing literature has already proposed a Lean maturity model (Hammer, 2007) and the assessment idea could be applied into a pre implementation analysis, which revealed the sequence in which Lean elements should be implemented in. It would ensure that the organizations could reap the easiest and most prominent benefits first. This assessment tool would lay ground for a contingent Lean philosophy, which, if applied, could explain why the performance has improved in spite of the decreased intrinsic motivation, because it would identify the initiatives from the first iteration of KMD 2.0 as the easy wins with the highest impact on performance. It would then suggest an improvement of the dysfunctions between the MAP and the Lean Service operation as a second iteration improvement.

In a time where the Lean concept is expanded there is a need for sorting out, which elements to use. This could advantageously be incorporated in the core of Lean principles. As the findings of

hypotheses five and the Lean theory supports, improvements should be a synergistic effect between measures and insight. When choosing which Lean elements to implement with the current Lean approach, it has been done through professional insight. It would be beneficial to provide an assessment tool for providing the measures for the sequence in which the Lean element should be implemented in. This would mean applying Lean philosophy in improving the Lean framework in a meta Continuous Improvement.

## 9 References

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### Literature

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- Baines, A. & Langfield-Smith, K. (2003). Antecedents to management accounting change: a structural equation approach. *Accounting Organization and Society*, 28(2003), 675-698
- Banker, R.d., Potter, G. & Schroeder, R.G. (1993). Reporting Manufacturing Performance Measures to Workers: An empirical Study. *Journal of Management Accounting Research*, 5(?), 33-55
- Beersma, B., Hollenbeck, J. R., Humphey, S. E., Moon, H., Conlon, D. E. & Ilgen, D. R. (2003). Cooperation, Competition, and Team Performance: Toward a Contingency Approach. *The Academy of Management Journal*, 46(5), 572-590
- Bortolotti, T., Boscari, S. & Denese, P. (2014). Successful lean implementation: Organizational culture and soft lean practices. *International Journal of Production Economics*, ?(?), 1-20
- Brewer, N. (1995). The effects of Monitoring Individual and Group Performance on the distribution of Effort Across Tasks. *Journal of Applied Social Psychology*, 25(9), 760-777
- Brickley, J. A., Smith, C. W. & Zimmerman, J. L. (2003). Corporate Governance, Ethics, and Organizational Architecture. *Journal of Applied Corporate Finance*, 15(3), 34-45
- Burrell, G. & Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis – Elements of Sociology in Corporate Life* (1<sup>st</sup> ed.). Burlington, MA: Ashgate Publishing Company
- Cerasoli, C. P., Nicklin, J. M. & Ford, M. T. (2014). Intrinsic Motivation and Extrinsic Incentives Jointly Predict Performance: A 40-year Met-Analysis. *Psychological Bullitin*, 140(4), 980-1008
- Fuglsang, L. & Olsen, P. B. (red.) (2004). *Videnskabsteori i samfundsvidenskaberne. På tværs af fagkulturer og paradigmer* (2nd ed.). Frederiksberg, MA: Roskilde Universitetsforlag
- Fullerton, R. R., Kennedy, F. A. & Widener, S. K. (2013). Management accounting and control practices in a lean manufacturing environment. *Accounting, Organizations and Society*, 38(2013), 50-71
- Fullerton, R. R., Kennedy, F. A. & Widener, S. K. (2014). Lean manufacturing and firm performance: The incremental contribution of lean management accounting practices. *Accounting, Organizations and Society*, 32(2014), 50-71
- Fullerton, R. R. & McWatters, C. S. (2002). The role of performance measures and incentive system in relation to the degree of JIT implementation. *Accounting, Organization and Society*, 27(2002), 711-735
- Gibbs, M., Merchant, K. A., Van der Stede, W. A. & Vargus, M. E (2004). Determinants and Effects of Subjectivity in Incentives. *The Accounting Review*, 79(2), 409-436
- Hammer, M. (2007). The Process Audit: A new framework, as comprehensive as it is easy to

apply, is helping companies plan and execute process-based transformations. Harvard Business Review. May 2007, 111-122

- Harris, M. & Raviv, A. (2005). Allocation of Decision-making Authority. Review of Finance, 9(2005), 353-383
- Jensen, M. C. (1995). Specific and General Knowledge, and Organizational Structure. Journal of Applied Corporate Finance, 8(2), 4-18
- Kennedy, F. A. & Widener, S. K. (2008). A control framework: Insights from evidence on lean accounting. Management Accounting Research, 19(2008), 301-323
- Liker, J. K. (2004). The Toyota Way – 14 management principles from the world’s greatest manufacturer (1<sup>st</sup> ed.). New York, MA: McGraw-Hill
- Locke, K. & Golden-Biddle, K. (1997). Constructing opportunities for contribution: structuring intertextual coherence and “problematizing” in organizational studies. Academy of Management Journal, 40(5), 1023-1062
- Maskell, B., Baggaley, B. & Grasso, L. (2012). Practical Lean Accounting: A proven system for measuring and managing the lean enterprise (2<sup>nd</sup> ed.). Boca Raton, MA CRC Press
- Merchant, K. A. (2006) Mresuring general managers’ performance: Market, accounting and combination-of-measures system. Accounting, Auditing & Accountability Journal, 19(6), 893-917
- Mookherjee, D. (2006). Decentralization, Hierarchies and Incentives: A Mechanism Design Perspective. Journal of Economic Literature, 44(June 2006), 367-390
- Osterloh, M. & Frey, B. S. (2002). Business Performance Measurement - 7. Does pay for performance really motivate employees?. MA: Cambridge University Press
- Ryan, R. M. & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psycology, 25(2000), 54-67
- Suárez-Barraza, M. F., Smith, T. & Dahlggaard-Park, S. M. (2012). Lean Service: A literature analysis and classification. Total Quality Management, 23(4), 359-380
- Womack, J. P., Jones, D. T. & Roos, D. (1990). The Machine that changed the world – The story of Lean Production (1<sup>st</sup> ed.). New York, MA: Rawson Associates
- Yin, R. K. (2009). Case Study Research: Design and Methods (4<sup>th</sup> ed). Thousand Oaks, MA: SAGE Publications
- Zimmerman, J. L. (2014). Accounting for Decision Making and Control (8<sup>th</sup> ed.). New York, MA: McGraw-Hill

### Interviews

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See appendix on USB memory stick.

### Target contracts

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See appendix on USB memory stick.

### Observations

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See appendix on USB memory stick.

### Articles

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See appendix on USB memory stick.

- Source of A1-A19, A21,A22: KMD intranet
- Source of A20: [http://hildebrandtbrandi.com/sites/default/files/cases/kmd\\_dansk\\_0.pdf](http://hildebrandtbrandi.com/sites/default/files/cases/kmd_dansk_0.pdf)  
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## 10 Appendix

See appendix on USB memory stick.

### 10.1 Tables

#### 10.1.1 Table 1

Article	Description	Motivation orientation		Focus area	
		<i>Intrinsic motivation</i>	<i>Extrinsic motivation</i>	<i>Dynamics of motivation</i>	<i>Appliance of motivation orientation as a contingency</i>
<b>Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions (Ryan and Deci, 2000)</b>	The article revisits the definition of intrinsic and extrinsic motivation in the light of contemporary theory. Intrinsic motivation is defined as the psychological fundamental interest to satisfy the need for competence and autonomy. Extrinsic motivation is instrumental motivation, which can reflect external control and true self-regulation depending on the degree of internalization and integration.	X	X	X	
<b>Does pay for performance really motivate employees? (Osterloh and Frey, 2002)</b>	The article provides a framework for achieving the right balance between intrinsic and extrinsic motivation. The basic agenda is to oppose the blind use of bonus systems and emphasizes the fact that reward system crowds out intrinsic motivation, which is important for task with a high degree of complexity and novelty. At the same time the framework acknowledges extrinsic motivational effect on certain tasks.	X	X	X	X Creativity vs. stereotyped task Multiple task problem Transfer of tacit knowledge vs. explicit knowledge Cooperation Participation Interest in the activity
<b>Intrinsic Motivation and Extrinsic Incentives Jointly Predict Performance: A 40-year Meta-Analysis (Cerasoli et al. 2014)</b>	The interrelationship between intrinsic and extrinsic motivation and how it affects performance under different conditions. A contingency model is proposed with two moderators: performance type (quality vs. quantity and incentive contingency (directly/indirectly performance-salient).	X	X		X Task dimensions Direct vs. indirect performance salient incentives Prediction of performance

10.1.2 Table 2

Article	Description	MAP focus area			Motivation orientation in focus	
		Decision making	Performance evaluation	Incentive and compensation pay	Intrinsic motivation	Extrinsic motivation
<b>Corporate Governance, Ethics and Organizational Architecture (Brickley et al., 2003)</b>	Organizational architecture on a holistic level concerning: decision making authority, performance evaluation and incentive/compensation pay. The architecture is considered as a three-legged stool, which will fall if the legs not are adjusted to each other and the strategy they have to support. If there is a design flaw in the matching it will have severe consequences for the company.	X	X	X		X
<b>Specific and General Knowledge, and Organizational Structure (Jensen 1995)</b>	Distribution of decision-making authority in organizations in relation to knowledge distribution. Addresses the trade-of between information costs of centralizing and agency cost when decentralizing the decision-making authority. To handle the first problem the article focuses on specific and general knowledge, which should be the allocation key for decision-making authority along with technologies for structuring the information flow and control mechanisms.	X				X
<b>Decentralization, Hierarchies and Incentives: A Mechanism Design Perspective (Mookherjee 2006)</b>	The paper focuses on the incentives and control dynamics from different ways of organizing the distribution of decision-making authority. Discussing how to mitigate for the agency, incentive and coordination problems in large organizations by using MAP. In short, by organizational structure and setting up reporting and information systems of contracting, reporting and target setting.	X		X		X
<b>Allocation of Decision-making Authority (Harris and Raviv, 2005)</b>	The articles addresses allocation of decision-making authority between a CEO and a subordinate in different settings. The variables are centralization/decentralization, type of decision and information. The findings show that the CEO is prone to delegate/retain power to the entity that has the most important information. The findings show that in the case of agency problems the willingness of authority distribution from the CEO's side is increased. The will also have an incentive to reduce informational asymmetry between him/her self and the subordinates, where the subordinates will have an incentive to be counterproductive in this direction.	X				X
<b>Measuring general managers' performance (Merchant 2006)</b>	The paper provides a discussion of how to compose the right measurement in performance evaluation through a critical approach to all elements. The article addresses the criteria for a motivational measurement and discusses different types of measuring such as market measures, financial measures and combinations of measures.		X			X
<b>The effects of Monitoring Individual and Group Performance on the distribution of Effort Across Tasks (Brewer 1995)</b>	Concerns how individual monitoring, group monitoring and no monitoring affects the employees' performance of quality and quantity and their distribution of effort.		X		X	X
<b>Determinants and Effects of Subjectivity in Incentives (Gibbs et al. 2003)</b>	Addresses the use of subjectivity in awarding bonuses. The paper focuses on under which conditions subjectivity occurs in assigning awards. It determinants situations in which there is a correlation between subjectivity and size of bonus, pay satisfaction and performance.		X			X
<b>Cooperation, Competition, and Team Performance: Toward a Contingency Approach (Beersma et al. 2003)</b>	Concerns how rewards structures and team performance is related. The article proposes a contingency model: cooperation versus competitive reward structures in different conditions such as extroverted/introverted, agreeableness, task dimension such as speed and accuracy, skills of employees.			X		X



10.1.3 Table 3

Article	Description	Purpose of the article				Focus area			Success measurement	Motivation orientation in focus	
		Explanatory	Literature review	Theory building	Theory testing	Lean manufacturing	Lean Service	Lean MAP		Intrinsic motivation	Extrinsic motivation
<b>The Machine that changed the world – The story of Lean Production (Womack et al. 1990)</b>	Explains the basic principles and elements in the Lean production, explains how they work, displays the results and addresses the expansion of the way of working and thinking.	X				X			X	X	X
<b>The Toyota Way – 14 management principles from the world's greatest manufacturer (Liker 2004)</b>	Taking point of departure in the Toyota way of manufacturing, Liker gives a introduction to the Lean philosophy, the tools and 14 management principles which is the key to Toyota's Lean manufacturing success.	X				X			X	X	X
<b>Practical Lean Accounting (Maskell et al. 2012)</b>	Addresses the different elements of Lean Accounting and the rationales behind the different methods and philosophies. Lean accounting practices versus traditional accounting control systems with a particular focus on performance measurements.	X				X	X		X	X	
<b>Reporting Manufacturing Performance Measures to Workers: An empirical Study (Banker et al., 1993)</b>	Concerns how to adapt the reporting of performance measures to workers to optimize the extent of implementation of just-in-time production, TQM and teamwork programs. This is done by increasing the availability of information on production, quality, posting information charts on the shop floor and workers morale.			X	X	X	X		X		
<b>The role of performance measures and incentive system in relation to the degree of JIT implementation (Fullerton&amp;McWatters, 2002)</b>	Addresses how performance measures and incentive systems affect the degree of lean implementation positively by using non-traditional performance measures, rewards tied up to non-financial measures and increased employee empowerment.			X	X	X	X		X		X
<b>A control framework: Insights from evidence on lean accounting (Kennedy and Widener, 2008)</b>	Theory building on previous Lean MAP and control components literature. The theory presents which components and interdependencies a Lean MAP framework for lean manufacturing entails.		X	X		X	X	X	X		

<b>Management accounting and control practices in a lean manufacturing environment (Fullerton et al., 2013)</b>	Further development of the Kennedy and Widener 2008 framework. The adjusted framework, consisting of components and interdependencies, provides a statistically tested correlation as to the impact on the extent of lean manufacturing.	X	X	X	X	X	X
<b>Lean manufacturing and firm performance: The incremental contribution of lean management accounting practices (Fullerton et al., 2014)</b>	The articles focuses on how Lean MAP can support the lean operation and the holistic lean strategy. The article builds and statistically tests theories. The findings of the article concerns how much Lean MAP directly or indirect affects the performance of the operations.	X	X	X	X	X	
<b>Antecedents to management accounting change: a structural equation approach (Baines and Langfield-Smith, 2003)</b>	The article provides testing of hypotheses on the interrelatedness between changing environments, strategy, organizational design, advanced manufacturing technologies (e.g. lean), advanced management accounting practices and non-financial management accounting information and organizational performance derived from other literature.	X	X	X	X		X
<b>Lean Service: A literature analysis and classification (Suárez-Barraza et al., 2012)</b>	Provides an overview and classification of the existing literature within Lean Service. The four main trajectories within lean service are: Exploration of Lean Service, Creation of the theoretical framework of Lean Service, Specific applications of Lean Service, New trends and extensions of Lean Service. The review also provides an overview of the emerging trends within Lean Service.	X			X		

10.1.4 Table 4

Position	Interviewee	Quote	The vertical MAP structure inhibits the transverse Lean Service operations	The MAP structure support the transverse Lean Service operations
Employees	E3	<i>"You can not really use it. Well, the management can use it"</i>	X	
Middle Managers	MM1	<i>"I do not give targets, which has dependencies to other departments... they object immediately"</i>	X	
	MM1	<i>"I will really like to participating in improving the entire organization, end-to-end... broaden out to much more and that really motivates me. That is missing"</i>	X	
	MM4	<i>"The target contract should also reflect what we find important and of course what matches upwards"</i>	X	
	MM5	<i>"You get a fragmented decision, where you are forced to consider where you are placed in Operations, forced to only consider cost optimization for your own service"</i>	X	
Directors	D1	<i>"So to measure and incentivize team who work on the end-to-end process. In stead of having a Network Group and measuring their KPI's, having a Windows Group and having a Storage Group, then the customer gets a server" quote from D1 about how to change the focus in KPI's.</i>	X	
	D2	<i>"Every SBU has its own profit and loss absolutes. Very fast it becomes a "them and us". If the workflow that we talked about before could actually also follow that orientation. It could entail both the Software Center and Operations"</i>	X	
	D2	<i>"Every SBU has its own profit and loss absolutes. Very fast it becomes a "them and us"</i>	X	
Article from intranet	A13	<i>"Target breakdown is closely related to the 2.0-program... The purpose of target break down is to ensure coherence and quality in targets from top to bottom – from executive management to managers to employees – and transversely in KMD"</i>		X

10.1.5 Table 5

Position	Interviewee	Quote	Motivation affected negatively	Sees problem but can deflect	Aligns with the idea of measuring on corporate level
Employees	E3	"It is a common target and I can no affect the outcome by anything other than doing my job... It makes my indifferent about my targets"	X		
	E4	"When we do not reach you financial targets, then it gets to me some how, because I do not reach my targets"	X		
	E6	"It should have no weight to us". Quote from E6 on the weighting of the financial targets in the target contract"	X		
Middle Managers	MM1	"I need to have enough free per cents in my target contract to give them these. So the worst thing possible would be if HR dictated that 100 percent of the targets contracts should be financial all on high corporate level in KMD". Quote from MM1 on the need for operational KPI's in target contracts.		X	
	MM2	"That is what I have for support when I stand up to them. They might come with all there illustrative houses, where we are the foundation and all that, but if we can not affect it more than just one corner of it.". Quote from MM2 on explaining the high level targets to her employees.		X	
	MM3	"You have no effect. As such my employees have no effect on EBITDA. They can affect it a little, but nothing significant in he daily work"		X	
Directors	D1	"E.g. we have a high level financial target for how much Operations can cost in total. It is of course on a high level... The counter argument is that they can not affect it, but if everyone diverges from the plan, then we miss the target.			X
	D3	So half of sum is tied up to financial targets... That actually work fine"			X

10.1.6 Table 6

Position	Interviewee	Quote	Believes that low hierarchy employees are motivated by competitive evaluation system	Believes that low hierarchy employees are motivated by cooperative evaluation system
Employees	E2	"If we cooperate, Then there is motivation, energy and commitment"		X
	MM1	"Some had a rough time getting over it" Quote from MM1 addressing the competitive evaluation system		X
Middle Managers	D1	"Those who was in Complex was considered better and more skilled than the others who was in Core, which was the simple assembly line more or less. One could incentivize people: "If you become very skilled and perform well, we can move you to Complex.""	X	
	D3	"Then there are some who are competitive, who thinks that being placed as number one on the phone-answering chart is extremely motivating to them. So you would be able to trigger the element of competition."	X	
Directors				

10.1.7 Table 7

Position	Interviewee	Quote	The use of common understanding of KPI's and decision-making motivates	The use of common understanding of KPI's and decision-making demotivates
Employees	E1	<i>"The positive things, well when there is prioritized tasks for the day and it is pointed out, which ones are the most important to get solved. Then it provides transparency on everybody's assignments throughout the week"</i>	X	
	E2	<i>"In our department, I think it works like this; if I suggests my improvements on the delivery I work on, then I actually waste the time of 15 people... I believe that these whiteboard meetings are of more value to my manager than they are to me. But is it brings him great value, then it is fine by me"</i>	(X)	(X)
	E6	<i>"You can call it load balancing. It works really, really well to us. I think we get through an extreme amount compared to how many resources we are"</i>	X	
Middle Managers	MM1	<i>"Our technicians are extremely protective of their professional integrity. It is extremely important to them to get to the finish line and have a high customer satisfaction. But you cannot have 10 customers and 100 assignments and make everyone happy, because some will turn red. There will be some, which we will not solve in time. When I can feel they are overloaded, then I can take some of the load of them or make sure to allocate more resources"</i>	X	
	MM5	<i>"It is to be able to see all which is to be planned. The elements, which can be made more transparent, the things we can cooperate on, the things which can be communicated... That is positive. So the transparency, the drive, the conversations and discussions, that is really good."</i>	X	
Directors	D1	<i>"They are looking the manager in the eyes as I delegates to everyone, so it is not just one self, who is affected, it is spread out even. So in that way I believe that it does not take away the incentive. There is room if you have the motivation and a transparency so people thinks that it is an interesting place to be"</i>	X	

10.1.8 Table 8

Position	Interviewee	Quote	KMD uses KPI measurement at the expense of professional insight	Professional insight is used to supplement the KPI measuring
Employees	E1	<i>"...Then the employee feel that they have decision-making authority and that they have influence on their own process, while the management still can set up some guidelines."</i>		X
	E4	<i>"I would have appreciated if someone had thought it through before McKinsey came with their framework-suitcase and fixed the world"</i>	X	
Middle Managers	MM1	<i>"We properly operate with more insight... than we did before... about the KPI's I believe that it is difficult to present reality in numbers"</i>	X	
	MM2	<i>"Then my people took the blame because it looked like they did not produce anything. When looking to the KPI's, it seemed that we had a lot of inbound and did not work at all.... Nobody could explain it". Quote from MM2 on misleading KPI's.</i>	X	
Directors	D1	<i>"Break it down to some processes and then optimize each step, then it will turn out better in the end. To some extent that is correct, but in some cases it just does not make sense."</i>	X	
	D3	<i>"The common KPI's has not considered. Actually they are specific to certain roles". D3 on common KPI's not presenting state in Frontdoor.</i>	X	

10.1.9 Table 9

Gaps addressed in the thesis		
Gaps in motivational theories	Gaps in Lean Service	Gaps in Lean MAP
<ul style="list-style-type: none"> <li>- Motivational dynamics in specific business strategy settings</li> <li>- What affects the dynamics that mediates the relations between intrinsic and extrinsic motivation</li> </ul>	<ul style="list-style-type: none"> <li>- Development optimization and/or testing of emerging theoretical models and fundamental features of Lean Service (Suárez-Barraza, 2012)</li> <li>- Develop and examine more case studies looking for critical factors, techniques, tools, enablers and inhibitors key to application of Lean Service (ibid.)</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of empirical understanding of lean operations strategy supported by accounting and control practices (Fullerton et al., 2013)</li> <li>- How accounting and control practices support lean operations (ibid.)</li> <li>- Call for in-depth analysis of the dramatic change in accounting systems to support operation initiatives (Fullerton et al., 2014)</li> <li>- The influence of management accounting on discrete management techniques used to implement manufacturing change programs (Fullerton&amp;McWatters, 2002)</li> <li>- Need for determining the extent to which firms needs to change their internal performance measurement and incentive system when implementing a Lean production (Fullerton&amp;McWatters 2002)</li> <li>- Management accounting research must be examined in contemporary settings (Fullerton et al., 2013)</li> <li>- Malmi and Brown's 2008 call for more clarifying research on appropriate packages of management accounting practices for specific environments (ibid.)</li> </ul>