



Norwegian University of  
Science and Technology

## Coalition for Change

How lean is interpreted and entrenched in  
Norwegian industry

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## **Problem description**

This is a qualitative research on how lean is interpreted and entrenched in Norwegian industry. Semi-structured interviews have been conducted in order to explore how different actors and stakeholders related to Norwegian industry interpret lean, and to understand how lean has become more than just an adopted management fashion.



## **Abstract**

Swings in the popularity of management concepts is a common phenomenon. The management concept 'lean' can arguably be understood as a management fashion. However, in contrast to management fashion theory where a temporary popularity is characteristic, lean keep being discussed and applied in Norwegian industry. In the literature, the concept is loosely defined, and lean appears to have become adopted by many organisations in Norwegian industry. As such, we wanted to examine how different actors address lean, and to what extent the concept has become institutionalised, such that it is likely to endure and resist pressure for change.

A qualitative approach, more specifically semi-structured interviews, have been conducted in order to explore how different actors and stakeholders related to Norwegian industry interpret lean, and to understand how lean has become more than just an adopted management fashion. A theoretical framework has been applied to evaluate the empirical findings.

Our findings indicate that there does not exist one specific understanding or definition of lean among the different actors and stakeholders included in this study. Each actor has picked out elements from lean that they find suitable for their own reality, to serve their own interests. However, there is a commonality to have a holistic approach to lean, and to think that lean must evolve with the Norwegian model at core. Furthermore, our findings indicate that lean has started to become entrenched in Norwegian industry. This has had much to do with actors imitating other actors, the existence of a strategic infrastructure that gathers different stakeholders and has lean on the agenda, and that actors inhabiting the power of definition have not been so strict in defining lean.



## Sammendrag

Svingninger i populariteten til ledelseskonsepter er et vanlig fenomen. Ledelseskonseptet 'lean' kan forstås som en organisasjonstrend, på engelsk kalt en *management fashion*. I kontrast til teorier om organisasjonstrender, hvor en midlertidig popularitet er vanlig, ser det imidlertid ut til at lean fortsetter å diskuteres og praktiseres i norsk industri. I litteraturen finnes det ingen tydelig definisjon av lean, og lean ser ut til å ha blitt adoptert av mange organisasjoner innenfor norsk industrisektor. På bakgrunn av dette ønsket vi å undersøke hvordan ulike aktører knyttet til norsk industri adresserer og forholder seg til lean, samt undersøke i hvilken grad lean har fått fotfeste i industrien, slik at lean kan motstå endringspress.

Dette er en kvalitativ studie hvor vi har benyttet semi-strukturerte intervjuer til å samle inn data fra ulike aktører relatert til norsk industri. Formålet med studien er å finne ut hvordan de ulike aktørene tolker lean, og om det er grunnlag for å si at lean er blitt mer enn en adoptert organisasjonstrend. Et teoretisk rammeverk har blitt benyttet for å evaluere de empiriske funnene.

Funnene våre tyder på at det ikke finnes en felles, spesifikk forståelse av lean blant de ulike aktørene i denne studien. Hver aktør i studien har hentet ulike elementer fra lean, som de videre har tilpasset sin egen virkelighet, for å tjene sine egne interesser. Likevel er det en felles forståelse blant aktørene om å ha en helhetlig tilnærming til lean, og en tro om at lean i Norge må utvikle seg med den norske modellen i bunn for å lykkes i norsk industri. Videre tyder funnene våre på at lean har begynt å bli institusjonalisert i norsk industri. Følgende forhold har vært avgjørende; for det første har norske aktører imitert og tatt inspirasjon fra andre aktører. Videre har eksistensen av en strategisk infrastruktur som samler ulike interessenter og har lean på agendaen vært avgjørende. I tillegg har aktører med definisjonsmakt ikke vært så strenge på å definere lean.





## Preface

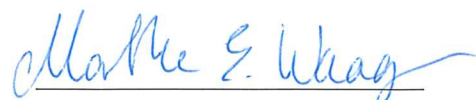
This Master's thesis is the concluding work of our Master of Science degree at the Norwegian University of Science and Technology. The thesis has been written during the spring of 2018 at the department of Industrial Economics and Technology Management. The thesis is part of the BIA project *Lean Management in Manufacturing Industry*, funded by the Research Council of Norway and a number of Norwegian companies.

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*Trondheim, June 2018*



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# 1 Introduction

In the aftermath of the Second World War, Toyota, a Japanese car manufacturer, managed to go from bankruptcy to success, and towards the end of the 1980s, Toyota's production system gained an immense interest among Western organisations and researchers (Womack and Jones, 1996; Rolfsen, 2014). To begin with, the researchers used different labels to describe the production system, including 'the Toyota Production System', 'just in time', 'Toyotism', and 'world class manufacturing' (Skorstad, 1994). The term 'lean' was first introduced in an article by Krafcik in 1988. After the publication of the bestselling book "The Machine that Changed the World" (Womack, Jones, and Roos, 1990), lean became a buzzword in the management community, and the number of books and articles on the topic literally exploded (Benders 1996; Skorstad, 1994). In the following years, manufacturing companies all over the world, including Norway, jumped onto the 'lean wave', and its popularity peaked towards the mid 1990s (Rolfsen, 2014; Kieser, 1997). Despite the immense popularity, there was still a certain amount of ambiguity coupled with the concept, as there was no precise definition of lean (Kieser, 1997; Pettersen, 2009; Rolfsen, 2014). After some years of less publications and attention, lean experienced a downturn in popularity (Benders et al., 2018). The term lean would later reoccur in the new millennium, and by 2005, lean was once again at the forefront of managerial thinking (Sederblad, 2013; Ingvaldsen and Benders, 2016).

Swings in the popularity of management practices is not unique for lean. In fact, such an alternation in the popularity is common for management concepts. This phenomenon is conceptualised as ‘management fashions’ (Abrahamson, 1996). It appears that lean has occurred in two cycles; whereas the manufacturing industry was the main focus in the first ‘lean wave’, lean’s scope was broadened to, in principle, all other sectors in the second wave, including service industries and the public sector (Sederblad, 2013; Benders et al., 2018). The current lean wave appears even more durable than the first (Ingvaldsen and Benders, 2016). However, the fact that the popularity of lean does not seem to decline, is at odds with management fashion theory, where a temporary popularity is characteristic (Benders et al., 2018). One may wonder what has made this longevity of lean possible.

Furthermore, since the very introduction of lean, the management concept has been criticised and discussed internationally, especially regarding the tradeoff between employee autonomy and standardisation (Parker, 2003; Johansson et al., 2013). In addition to researchers criticising the working conditions under lean, some organisations have interpreted lean as the opposite of ‘fat’, and consequently used lean as an excuse for downsizing and cost reductions (Benders et al., 2018). This has resulted in lean getting a bad reputation, and some have even renamed lean production to ‘mean production’ (Parker and Slaughter, 1995 in Rolfsen and Ingvaldsen, 2013). Nevertheless, it appears that lean has gained an enormous enthusiasm among different Norwegian actors, and spread to all parts of Norwegian industry, with 43% of large Norwegian companies reporting to have adopted lean (Madsen et al., 2016). However, based on the critics about lean being at the expense of employee autonomy and involvement, one could question whether lean’s praise of standardisation could pose as a threat towards the Norwegian model.

On a global level, it is rather rare that trade unions on the employee side are positive towards lean, due to beliefs that lean leads to negative impacts on the employees and their work conditions (Rolfsen and Ingvaldsen, 2013). Moreover, trade unions are not a main issue in international literature on lean, such as Womack et al. (1990). However, in Norway, trade unions remain predominantly supportive of lean initiatives (Rolfsen and Ingvaldsen, 2013). Instead of fighting lean, Norwegian trade unions have rather agreed upon that lean is a worker friendly concept, and have actively participated in influencing



and adjusting the content of lean in a way that fits into their priorities (Rolfsen and Ingvaldsen, 2013; Benders et al., 2018).

Besides practitioners, the trade unions in Norway are not the only ones being positive towards lean. Lean has become a management practice that has gained attention from many different Norwegian actors and stakeholders, including consultants, research institutes, and there exist several networks and organs for developing and sharing knowledge of lean. One could ask why all these different stakeholders are concerned with engaging in lean, and even developing a Norwegian understanding of lean. In addition, it would be interesting to see whether different actors and stakeholders agree upon what lean entails. Moreover, lean has clearly many characteristics of a management fashion, which make it interesting to explore whether the concept has a lasting future in Norwegian industry. This leads to the following research question:

*How is lean interpreted and entrenched in Norwegian industry?*

The research question is twofold. First, it seeks to understand how different actors and stakeholders related to Norwegian industry understand and make sense of the management concept lean. Does there exist a common understanding across the different parties of what lean within a Norwegian context really entails? Furthermore, the word entrenchment refers to a management practice being sufficiently institutionalised in an organisation, such that abandonment of it is unlikely (Zeitz et al., 1999). As such, the second part of the research question aims at an understanding of whether lean has become more than just an adopted management fashion; has lean become institutionalised within Norwegian industry? If so, what have made the entrenchment possible?

## **1.1 Review of the content**

The thesis is structured as follows. Chapter 2 presents literature needed in order to answer the research question, including theories on management fashions, lean, and Norwegian lean. In addition, this chapter provides the theoretical framework that is later used to analyse the empirical findings. Furthermore, Chapter 3 explains the methodology of the study, including how the study was conducted, an assessment of the quality of the study,

and limitations. Then, in chapter 4, the empirical findings are presented through the perspectives of each actor that has been included in the study. In chapter 5, the empirical findings are analysed and discussed, and the research question is answered. Finally, in chapter 6, a conclusion is given along with implications of the findings, and suggestions for future research.

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## **2 Theory**

The following chapter provides the theoretical foundation of the thesis. The purpose of this chapter is to present existing literature related to the topic, in order to understand how lean is interpreted and entrenched in Norwegian industry.

The chapter is structured as follows: In chapter 2.1, theories regarding ‘management fashions’ are reviewed, and a theoretical framework that will later be used in the analysis is presented. Furthermore, in chapter 2.2, an introduction to lean as a management concept is presented, and subsequently, it is argued that lean can be understood as a management fashion. Finally, in chapter 2.3, the Norwegian model, which constitutes the macro context to lean in Norwegian industry is presented, before introducing ‘lean the Norwegian way’.

## 2.1 Management Fashions

In this chapter, the concept ‘management fashions’ is presented and the evolution of its conceptualisation is discussed. Furthermore, the management fashion cycle is explained, including why some management concepts become popular, and reasons for their downturn. In addition, the reframing concept is introduced, in order to explain why some management concepts keep being applied and discussed. In the latter part of this chapter, the impacts of the macro context and internal factors have on the reception of a management fashion are discussed, along with a framework which will later be used in order to understand how lean is interpreted and entrenched in Norwegian industry.

### 2.1.1 Defining and conceptualising management fashions

Swings in the popularity of management concepts is a common phenomenon. Examples include ‘Quality circles’, ‘Total Quality Management’, ‘Business Process Reengineering’, ‘Balanced Scorecard’, and ‘Management by Objectives’ (Abrahamson, 1996; Rolfsen, 2014). Even though different management concepts vary in duration and scope, most of them come and go, and few seem to last forever. Some, however, repeatedly gain and lose its popularity. Abrahamson (1991; 1996) was the first to conceptualise this phenomenon as ‘management fashions’, and came up with a specific theory with associated hypotheses, built on the neo-institutional theory proposed by Meyer and Rowan (1977). In 1996, Abrahamson defined a management fashion as “a relatively transitory collective belief, disseminated by management fashion setters, that a management technique leads rational management progress” (1996, p. 257).

Abrahamson (1996) proposed that management fashions are shaped by norms of rationality and progress. Norms of managerial rationality is the expectation that managers will use management concepts that are the most efficient means to important ends (Abrahamson, 1996). As it is rather ambiguous what actually make up important ends and efficient means, managers should try to create the appearance of rationality by using management concepts that are generally believed by stakeholders to be rational. Furthermore, norms of managerial progress is the social expectations that, over time, new management concepts are improved relative to older ones (Abrahamson, 1996). Thus, given conditions of ambiguity, managers should adopt management concepts that are

recognised as progressive in order to create the appearance of improved organisational performance (Abrahamson, 1996; Benders et al., 2018).

Shortly after Abrahamson (1996) published his management fashion theory and associated hypotheses, Kieser (1997) published an article where he criticised Abrahamson's theory for being flawed in several aspects. Among others, Kieser (1997) found it doubtful that Abrahamson (1996) implied that management concepts are available in 'pure form', i.e. without rhetoric, by saying that fashion setters first "create many management techniques", and then later "articulate rhetorics championing the management techniques they select" (Abrahamson, 1996, p. 264). Kieser (1997), on the other hand, claimed that management fashions both start with rhetoric and are transmitted via rhetoric, because rhetoric is the fabric that makes up management fashions.

Even though Kieser (1997) found Abrahamson's (1996) theory of management fashions to be flawed, he did not provide a new and improved definition himself. Today, Abrahamson's definition is still the most cited on the topic on Google Scholar. However, in 2001, Benders and van Veen proposed a reconceptualization of management fashions. Benders and van Veen (2001) thought of Abrahamson's definition of management fashions as highly problematic because it suggests a 'blind faith' in fashions, i.e. that managers uncritically copy pre-scripted management concepts. Instead, Benders and van Veen (2001) found empirically that actors use management concepts rather pragmatically and reflectively. Even though management concepts are launched with particular intentions, they are often received and used differently than intended by their originators (Benders et al., 2018). For instance, managers can perceive imitation as passive and 'weak' (Røvik, 2007). Thus, instead of blindly imitating pre-scripted concepts, different actors rather make use of the discourse around a concept, and decide how to enact that rhetoric based on their own interests, by producing new contents and associations that fit their own situation (Benders and van Veen, 2001; Kieser, 1997).

Consequently, Benders and van Veen (2001) claimed that Abrahamson's definition no longer sufficed due to the lack of 'interpretative viability', which they argue is a key characteristic of management fashions. 'Interpretative viability', coined by Ortmann (1995, in Benders and van Veen, 2001), means that a management concept can be

interpreted in many different ways. As explained by Benders and van Veen: “The interpretative viability allows that different parties can each ‘recognize’ their own version of the concept. These parties may thus accept and even embrace a concept because they see it as being beneficial to its interests” (2001, p. 38). Consequently, Benders and van Veen proposed a new definition of management fashions as “the production and consumption of temporarily intensive management discourse, and the organizational changes induced by and associated with this discourse” (2001, p. 40). This definition takes into account the consequences of interpretative viability, including the rational behaviours for which it allows (Benders and van Veen, 2001).

The interpretative viability offers consumers of management concepts with a number of opportunities as they eclectically can pick out elements they find suitable for their own situation (Benders et al., 2018). When a particular interpretation of a management concept has been chosen and put into practice in an organisation, members of this organisation finds this interpretation to become reality over other interpretations, even if the organisation’s interpretation seem awkward to outsiders (Benders et al., 2018). Moreover, at a higher level of aggregation, prevailing interpretations of management concepts are even likely to differ between populations of organisations, such as in different countries (Benders and van Bijsterveld, 2000). Originators, however, may claim that such interpretations do not do justice to their ideas (Benders et al., 2018). This has to do with the organisational changes following the adoption of a management concept may range from “closely following the idea as originally launched to highly selective cherry picking” (Benders et al., 2018, p. 2). This leads to that the content and label are likely to be loosely coupled (Benders and van Bijsterveld, 2000). Another consequence of actors interpreting management concepts differently is that the concept is constantly being narrowed down. As put by Benders et al.: “one particular interpretation becomes the idea, rather than a set of possible interpretations” (2018, p. 2), and as such, the concept’s interpretative viability is narrowed (Benders and van Bijsterveld, 2000).

### 2.1.2 The management fashion cycle

We have now presented management fashions as a theoretical concept. Furthermore, the management fashion cycle is introduced and in order to explain why some management concepts become popular in the first place, and the reasons for their downturn.

According to Abrahamson (1996), the popularity of management fashions follows patterns that can be described as rapid, bell-shaped curves. Management concepts are initially created and framed by ‘management fashion setters’. The so-called management fashion setters are organisations and individuals who dedicate themselves to producing and disseminating management knowledge, such as consulting firms, management gurus, business mass-media publications, and business schools (Abrahamson, 1996). As such, the fashion setters constitute external forces that pressure the adoption (Wood and Caldas, 2001 in Näslund, 2008) by appealing to managers’ need to act rationally (Benders and van Bijsterveld, 2000). The management concepts and the associated labels then enter adopting organisations (Benders et al., 2018) that continually search for improvement in their operations (Abrahamson, 1996). Ettore (1997, in Näslund, 2008) proposed a five-stage life cycle for management fashions: discovery, wild acceptance, digestion, disillusionment, and hard core. In the discovery stage, only a few pioneers dare to adopt the management technique, and then gradually, they are joined by a rising number of imitators (Kieser, 1997). Furthermore, in the wild acceptance stage, early adopters may be persuaded solely by claims about the management concept’s promising effects or in order to stay ahead of competitors (Benders et al., 2018). Over time, however, in the digestion stage, possible adopters may look for evidence as questions arise about how well the idea actually works in practice (Benders et al., 2018). Furthermore, in the disillusionment stage, critics start suggesting that the method may not be as good as one first believed it to be (Näslund, 2008). However, as management concepts are always implemented in a continuously changing organisational context, it is difficult to prove that performance effects are caused by the idea itself (Benders et al., 2018). As new management concepts emerge in the market and become popular, and more and more practitioners start to doubt the current one, the management fashion is gradually discarded. By the hard core phase, only the devoted followers remain (Näslund, 2008).

Kieser (1997) argues that the existence of the management fashion cycle can be shown empirically by calculating, over a certain time period, the number of articles and books published on a certain topic. In contrary, Benders and van Veen say that there is “a distinction between popularity in the printed media on the one hand, and popularity among practitioners on the other” (2001, p. 43), and that “a high coverage by the media does not necessarily go along with a high rate of application; and, vice versa, the disappearance of the label in the media does not necessarily reflect that the underlying ideas have been dismissed” (2001, p. 42). Of course, the business media may fuel organisational changes, but “there may be much more continuity in management practice than the transitory image suggested by this continuous process of packaging and repackaging ideas” (Benders and van Veen, 2001, p. 50). As such, printed media may not be sufficient in order to measure a management concept’s popularity among practitioners. Actual prevalence among practitioners should rather be quantified through research, however, this can often be difficult to conduct in practice due to low response rates (Madsen et al., 2016).

### **Why some management ideas become popular**

We have now seen that management concepts tend to follow a cycle in which its popularity first increases, before it eventually fades out. However, not all management ideas that are launched by management fashion setters become popular and fashionable (Nijholt and Benders, 2007). A management fashion’s success is determined by the extent to which it is adopted by practitioners (Benders and van Bijsterveld, 2000). Especially consultants play a key role in conveying and implementing management concepts (Rolfsen, 2014). Various management fashion researchers have discovered that management concepts that successfully become popular exhibit certain traits and essential characteristics. Benders and van Veen (2001, p. 35-36) have found seven recurring characteristics in the former literature, which is further presented.

The first characteristic is the promise of performance enhancement. According to Benders and van Bijsterveld (2000), the management fashion setters must appeal to managers’ needs to act rationally by describing a performance gap between the average company and its successful competitors. Furthermore, the fashion setters must present the management concept as a solution that can close that gap. The second characteristic is the



threat of bankruptcy in case of non-adoption. The management fashion setters must communicate the fatal consequences of not adopting the management concept in order to trigger action. The third characteristic is that management fashion setters must use well-known and successful users of the concept in question. Practitioners may be triggered to imitate prestigious companies who have previously adopted a new management concept (Zeitz et al., 1999). The fourth characteristic of management fashions is that the concept must be universally applicable. In order to be applied all over the world and in both public and private organisations, the concept must be described at a sufficient high level of abstraction. The fifth characteristic is that the concept must be easily understandable and have a catchy title. In addition to be labelled in a distinctive and catchy way (Røvik, 2007), the term should also have a positive connotation, such as 'just-in-time'. The sixth characteristic is that the management concept must be released in a timely manner, and be presented as innovative and future-oriented. As put by Kieser: "The book must hit the 'nerve' of today's managers" (1997, p. 61). According to Benders and van Bijsterveld, chances of adoption increase in times of crisis, as "managers feel pressured to ensure their firms' continuity and stakeholders may more easily accept changes" (2000, p. 52). Finally, the management fashion setters must leave a certain room for interpretative viability by presenting the management concept as both general and abstract. Benders and Van Veen (2001) argue that management fashions are defined ambiguous on purpose, as this gives a greater room for interpreting the concept in the context in question. As the ambiguity then leads to multiple interpretations, the chances of market success thus increase.

### **Why the popularity of a management fashion decreases**

Few management concepts seem to last forever. Furthermore, there exist several explanations to why the popularity of management fashions decreases. Among others, Benders and van Veen suggest that a downturn in a management fashion is because fashions 'wear out through use' (2001, p. 44). This is explained by a growing differentiation in interpretations of a management concept, due to the interpretative viability (Benders and van Veen, 2001). Thus, when a management concept has been adopted and interpreted differently by multiple organisations, varying and negative stories about the concept's effects come into circulation. Moreover, widespread adoption leads to that "the problems for which the concept was intended as a solution disappear and,

consequently, the need for the concept vanishes as well” (Benders and van Veen, 2001, p. 43). The label of the concept has become so multifaceted that it has become almost meaningless (Kieser, 1997). Røvik (1998) finds it quite ironically that the seeds of a concept’s decline lie buried in a root of its success; while the interpretative viability is a prerequisite for a management concept to become fashionable in the first place, it is also the reason why it eventually fades. Furthermore, Benders et al. (2018) argue that a decline in the popularity may be caused by signals that the management concept ‘is not delivering’ any more. Moreover, especially in the case of negative experiences, discussions arise whether the management concept itself works, or whether it has been improperly implemented (Benders et al., 2018). As beliefs about management concepts and its effects are transitory and continuously fed by reports of experiences in practice, a management concept’s reputation and its rate of implementation depend on that discussion (Benders et al., 2018). Thus, when varying and negative stories about the fashions’ effects spread to practitioners, the fashion falls into disrepute (Benders and van Veen, 2001). This, in turn, may lead to a counter-fashion (Kieser, 1997). For instance, after many organisations have engaged in decentralisation for a while, a recentralisation fashion can occur in the face of resulting struggles (Kieser, 1997). Sometimes, a management concept marketed as a ‘new’ method is a repackaged version of a previously popular but now forgotten method (Näslund, 2008). This phenomenon is often criticised and referred to as ‘old wine in a new bottle’ (Abrahamson, 1996). However, according to Benders and van Veen (2001), this is not necessarily a bad thing, as it sometimes may be useful to re-address managerial attention to temporarily neglected issues. After all, the concept was meant to solve a particular challenge in the first place, and to managers, the issue is not necessarily whether a management concept is new, but whether it can be used in their organisation (Benders and van Veen, 2001).

### **Reframing management concepts**

While some management ideas fade away, others keep being discussed and applied. As this is the case for lean, a brief introduction to the reframing concept will be given here. As mentioned above, a management concept’s reputation is heavily dependent on the discussions of it in the public. Benders et al. (2018) have constructed a model explaining how management concepts are subject to framing and reframing, which in turn leads to the management concept’s persistence or demise. More specifically, when a management

concept is adopted by an organisation, the label is being coupled with particular contents, which in turn generate outcomes, which eventually affect the label's reputation either positively or negatively (Benders et al., 2018). Thus, for a management fashion to remain in the spotlight, beliefs about enhanced organisational performance are crucial. This can be done through framing moves, i.e. further developing a management concept by renewing its content and thus its reputation (Benders et al., 2018).

### **2.1.3 Adoption and entrenchment of a management practice**

Several researchers argue that adoption and outcomes of a management practice in an organisation depend on the context in which it is adopted (Cole, 1985; Zeitz et al., 1999; Modig and Åhlström, 2012; Rolfsen, 2014; Affonso et al., 2015). In this chapter, theories on why and how to take the macro context surrounding the adopting organisation, as well as internal factors, into consideration are presented. Finally, a framework that can be used in order to collect, organise, review and evaluate evidence regarding the adoption and institutionalising of a management concept is presented. This framework will later be used in order to understand whether lean is entrenched, or merely adopted, in Norwegian industry.

According to Bungum et al. (2015), institutional theory can be applied in order to understand how the macro context affects organisations. In 1985, Cole introduced the effect of macropolitical factors on organisational outcomes. Macropolitical factors refer to factors outside of the organisations, such as cultural, political, and economical factors, and are believed to have a profound effect on the individual organisations (Cole, 1985). Moreover, Cole (1985) suggested that there exists a linkage between the external surroundings and the organisations, or actors, involved. Furthermore, Cole (1985) proposed that in order to understand how organisations handle diffusion of new management movements, one has to regard the environment surrounding the organisation, and also the interplay between them. On a macro level, Cole (1985) stressed that for a management idea to be shared between different organisations, and for it to be adopted in different organisations in a country, three things are crucial. First, there must be a national infrastructure that supports the spread of ideas, second, top managers having the need for change, and third, that the specific management ideas coincide with the

direction in which the managers want their organisations to move in (Cole, 1985). Cole (1989) further argues that smaller countries in terms of size, using Sweden as an example, are more likely to be receptive to adoption of management ideas from outside their boundaries. Zeitz, Mittal, and McAulay (1999) have elaborated on the idea of considering external factors when assessing adoption and entrenchment of a management concept. In addition to Cole's (1985) focus on external factors, Zeitz et al. (1999) include internal factors as well. By integrating some thoughts from neo-institutionalism to gain an understanding for internal factors of organisations, Zeitz et al. (1999) proposed a framework for assessing the degree of entrenchment of a managerial practice. By using five different internal and external factors as bases of entrenchment, the framework aims to first consider whether a management fashion is adopted, and subsequently, whether it is entrenched.

### **Theoretically distinguishing adoption and entrenchment**

Before proceeding with Zeitz et al.'s (1999) framework, there is a need for theoretically defining and distinguishing adoption and entrenchment of a management concept. Implicit in the institutional literature is the assumption that management concepts, once adopted, become embedded within organisations and societies, such that they resist removal or change (Zeitz et al., 1999). However, Zeitz et al. (1999) disagreed with this approach. Thus, in order to investigate what happens after the initial adoption of a management concept, and how adoption converts into entrenchment, Zeitz et al. (1999) found it necessary to theoretically differentiate and define adoption and entrenchment.

In brief, adoption refers to management practices initially being put into use, but not yet embedded in the organisations. Moreover, Zeitz et al. (1999) describe adoption as the process of introducing a management practice to an organization, i.e. the practice crossing the organisational boundaries. The literature concerning adoption of a management practice mainly focuses on the external conditions that lead up to the adoption (Zeitz et al., 1999). As already seen, Cole (1985) emphasise the importance of the external macro context surrounding the organisation. However, there is not elaborated much upon what happens after the initial adoption of a management practice in the literature (Zeitz et al., 1999).

Entrenchment, on the other hand, refers to a management practice being sufficiently institutionalised and embedded in an organisation such that it is likely to endure and resist pressure for change, even under external pressure (Zeitz et al., 1999). Furthermore, Zeitz et al. (1999) see entrenchment as a state of affairs that develops from a dynamic process in which social actors play a key role. In contrast to adoption, entrenchment is reliant on internal, as much as external characteristics. While external factors may stimulate adoption of a management practice, it is internal features that affect how the practice is carried out in different organisations (Nord and Tucker, 1987). Moreover, Zeitz et al. (1999) argue that entrenchment must start with the people who on a day to day basis enacts the management practice within the organisation. In order to fully understand entrenchment, the internal and external forces are combined in a framework consisting of five bases of entrenchment that will further be presented.

### **Framework to assess whether a management practice is adopted or entrenched**

Zeitz et al.'s (1999) framework can be used to collect, organise, review and evaluate evidence regarding the entrenchment of a management practice. In particular, the framework intends to distinguish initial adoption from entrenchment. Practices that have been adopted, but not yet entrenched, should be viewed as fads (Zeitz et al., 1999). There are five bases that are applied to analyse the extent of entrenchment. By base, it is meant "a particular set of internal and external resources that predispose a practice to endure and resist pressure to change" (Zeitz et al., 1999, p. 749). The bases include models, culture, education, regulation, and technical, and are the mechanisms that underlie adoption or entrenchment of a management practice (Zeitz et al., 1999). Each of the bases suggests one proposition in order to distinguish whether the management practice in question has been adopted or entrenched. Further follows an explanation of each base.

#### *Base 1: Models*

The first base of Zeitz et al.'s framework is models. Modelling is described as the act where one actor, being an organisation, individual, or other, adopts a given management practice, and thus motivates other surrounding actors to implement the similar practice in their organisation. As such, modelling can be defined as "the imitation by one actor of perceived practices displayed by others" (Zeitz et al., 1999, p. 748). The incline to adopt already-made models is to reduce uncertainty, where actors differ from being sceptical to

adoption or being very committed. Modelling can often spread through an established network between organisations. The more a certain practice is adopted, the greater foothold it gets in the network, and the more other organisations can feel inclined to model the given practices in their own organisation. Further follows proposition 1, which enables the evaluation of whether a management practice is adopted or entrenched:

*Proposition 1: The greater the amount of external modelling, the greater the duration of a practice and ability to resist pressure to change*

### *Base 2: Culture*

According to Zeitz et al., the base of culture can be defined as “the existence of values and beliefs that are matched by important cognitive and normative propensities of actors” (1999, p. 748). Moreover, cultural entrenchment develops in the mind of the individuals, affecting the norms, beliefs and values held by organisational members. The notion is that when norms, beliefs and values coincide with managerial intentions and actions, they persist and are hard to change (Zeitz et al, 1999). They are further made visible in the organisation and communicated both formally and informally. Thus, the more these beliefs, norms and values are practiced, and integrated in the minds of the members of the organisation, the more likely it is that they will sustain within the organisation. Further follows proposition 2, which enables the evaluation of whether a management practice is adopted or entrenched:

*Proposition 2: The greater the amount of cognitive and value support for practice, the greater the duration of a practice and its ability to resist pressure to change*

### *Base 3: Education*

Zeitz et al. define the basis of education as “the transmission of beliefs, values and technical information by specific means including trained instructors, a body of knowledge, instructional materials, and sites for this activity” (1999, p. 748). Education includes teaching specialists, theories of why things work as they do, systematically organised sets of recommended work practices, and distinctive educational activities such as exams. Zeitz et al. (1999) further stress that formal education is essential in entrenching practices in organisations. Education poses as a sunk cost, but the

commitment of the actors in educational practices creates more stability for the practice. Further follows proposition 3, which enables the evaluation of whether a management practice is adopted or entrenched:

*Proposition 3: The greater the commitment of educational resources to a practice, the greater its duration and ability to resist pressure*

#### *Base 4: Regulative*

Organisations might at some times, or to some extent, be required to oblige to different regulations, legislations or practices. According to Zeitz et al., the regulative base can be defined as “constraints applied by one actor on another, either positive or negative, and consisting of legal sanctions or withholding important resources” (1999, p. 748). Moreover, the regulative base may depend on governmental laws and regulations, organisational power or other internal or external laws and regulations. One example is within the manufacturing industry, where there are strict procedures and requirements for safety considering the employees working in harmful environments. Depending on the location of the organisation, there are different laws and regulations stated by authorities. Further follows proposition 4, which enables the evaluation of whether a management practice is adopted or entrenched:

*Proposition 4: The greater the amount of regulative and coercive pressures supporting a practice, the greater the duration of the practice and ability to resist pressure to change*

#### *Base 5: Technical*

The last base is technical. Zeitz et al. define the technical base as “specific efforts to measure and evaluate responsiveness to need or contribution to performance” (1999, p. 748). As such, the technical factors have emphasis on contributions that strengthens actual performance. This is also validated by Benders et al. (2018), who state that beliefs about enhanced organisational performance is crucial for a management fashion to endure. Moreover, commitment to technical factors is based directly on the subjective attitude of the relevant actors within the associated field or organisation. According to Zeitz et al. (1999), research suggests that employees’ perception of being subject to

measure effectiveness, can positively affect entrenchment if the measured effectiveness is perceived to be positive. Further follows proposition 5, which enables the evaluation of whether a management practice is adopted or entrenched:

*Proposition 5: The greater the measurement of performance effects, assuming the effects are perceived to be positive, the greater the duration of a practice and its ability to resist pressure to change.*

Furthermore, in order to utilise the framework in the analysis, different levels of analysis are distinguished. Zeitz et al. (1999) have identified four levels of analysis, including individual, organisational, inter-organisational, and societal. The more levels that support a given management practice, the higher the level of entrenchment is likely to be (Zeitz et al., 1999). Effects that occur at all four levels of analysis thus provide a highly durable foundation for entrenchment. Finally, it should be noted that the framework is designed to assess the existing level of support within a particular context. However, in applying the framework, the researcher also needs the historical context to interpret, sort out, and understand the evidence at hand (Zeitz et al., 1999).



## 2.2 Lean

In this chapter, an introduction to lean as a management concept is presented, along with an understanding of why and how lean became popular under the theoretical lens of management fashions.

### 2.2.1 An introduction to lean

Lean originates from a Japanese context, more specifically from the production system of the multinational car manufacturer, Toyota, called the Toyota Production System (TPS). Towards the end of the 1980s, there was a surge of interest in Toyota and its success among Western researchers (Rolfsen, 2014). The term ‘lean’ first appeared in the article “Triumph of the Lean Production System” by John Krafcik in 1988. In his article, Krafcik challenged the myth that productivity was created by robust production systems using economies of scale and advanced technology. Instead, Krafcik (1988) argued that systems with low inventory, low buffers and simple technology were able to deliver high productivity and high quality. Krafcik (1988) labelled this efficient production system ‘lean’. In 1990, Womack, Jones and Roos published the bestselling book “The Machine that Changed the World”. This book provided a comprehensive view of what lean production was about, based on years of research, and made a great contribution to developing and spreading the concept globally (Womack, Jones and Roos, 1990).

In 1996, after the publication of the book “Lean Thinking” by Womack and Jones, there was a shift from ‘lean production’ to ‘lean thinking’, and as a consequence, the concept started to spread to industries beyond manufacturing (Benders et al., 2018). Although lean originally developed within the manufacturing industry, lean’s scope has today been broadened to, in principle, all other sectors, and it has become one of the most influential management concepts in the world (Benders et al., 2018; Madsen et al., 2016). The immense interest in lean has led to countless of books and articles on the topic, however, there is no single generally accepted definition of lean, and it is challenging to distinguish between what lean is and what lean is not. According to Rolfsen (2014), the main issue with lean is that the term is both comprehensive and indefinite at the same time. In addition, there is a never-ending debate about whether to culturally adapt lean, or to

implement a universal production system across countries, cultures, and industries (Rolfsen, 2014).

In general, lean is a concept of a vague nature (Brännmark et al., 2012). Moreover, Pettersen (2009) argues that rather than focusing on one single property, lean can be seen as a multidimensional concept comprising many different aspects. However, as for any theory, lean can be viewed from different levels of abstraction (Bryman, 2016). By defining lean at a high level of abstraction, such as a philosophy or way of thinking, the term becomes general and vague, and can thus be applied to a broad range of areas. According to Rolfsen (2014), lean philosophy is concerned with creating value to the customer and removal of waste, while constantly pursuing to continually improve every aspect of your business. In order to succeed, every aspect of the business needs to adhere to the lean philosophy. Some might argue that defining lean as a philosophy is too general. Moreover, lean can be defined at a low level of abstraction, such as methods and tools for how lean can be carried out in a particular industry in practice. This way, lean may become specific to a certain type of context or environment. Keeping in mind that Toyota developed its methods and tools within the large-scale car manufacturing industry, when these tools and methods are observed and copied by other organisations, they risk misunderstanding what lean really is about. In fact, Toyota does not consider any of its tools or practices as fundamental to the TPS; they are only used as temporary responses to specific problems that will serve until a better approach is found or conditions change (Spear and Bowen, 1999).

Another way of understanding lean, at a medium level of abstraction, is as a set of principles (Rolfsen, 2014). Several academics and researchers have tried to explain lean through a set of principles, as it can give a more tangible understanding of lean. However, there is not commonly agreed upon how many principles that are appropriate for a sufficient understanding of lean. For the purpose of this paper, Womack and Jones' principles from the book "Lean Thinking" (1996) are further presented. These principles can be considered to be on a higher level of abstraction compared to other sets of principles, such as Liker's 14 principles from "The Toyota Way" (2004). In the book "Lean Thinking", Womack and Jones present five principles in which the methods behind lean can be fitted (Benders et al., 2018). Moreover, Womack and Jones argue that for an

organisation to practice lean, they need to “specify value, line up value creating actions in the best sequence, conduct these activities without interruption whenever someone requests them, and perform them more and more effectively” (1996, p. 15). The five principles are displayed in table 2.2.1.1:

*Table 2.2.1.1: The five lean principles from “Lean Thinking” by Womack and Jones (1996)*

<b>Principle</b>	<b>Definition by Womack and Jones (1996)</b>
Value	The customer is the one who ultimately defines value. Value for the customer is having a specific product or service, at the right time, to an appropriate price.
Value stream	Identify the value stream. The value stream is the combination of all actions required to bring a specific product or service to the customer.
Flow	Create flow through the value stream, to make sure that the product flows uninterrupted through the system, from design to delivery, without stopping, creating scrap or having backflow.
Pull	Let the customer pull the product or service when they need it, in contrast to pushing the products or services onto the customer.
Perfection	Remove waste in all activities in the value stream when creating a product or service, creating value to the customer without faults or deficiencies. Pursue perfection by improving continuously.

In “Lean Thinking”, Womack and Jones (1996) argue that lean differs from other production systems because lean focuses on putting the whole value stream for products and services ahead of everything else. Womack and Jones (1996) further state that lean opens up for rethinking every aspect of jobs, careers, functions, and firms, so that people working with lean can easier specify value and create a continuous flow throughout the whole production system. The customer should consequently pull the flow throughout the system, where the focus is to continuously strive for a perfect flow. The principles being on such a high degree of abstraction, made it possible for lean to be implemented in industries other than the manufacturing industry (Benders et al., 2018).

Much of the international management literature paints a bright, optimistic picture of lean, and gives promises of enhanced productivity, survival in the global market, and at the same time good work environment (Johansson et al., 2013). However, while most industrial enterprises and many service organisations claim to apply lean in their operations, few have actually managed to reap the benefits that Toyota and others have achieved (Drew et al., 2004). According to an American survey from 2007, only two

percent of organisations that have implemented lean achieved their anticipated results (Liker and Rother, 2011). A solution that suits one organisation, industry, or environment will not necessarily be suitable in another, hence a lean operations strategy should depend on the context (Modig and Åhlström, 2012). Furthermore, the international literature has discussed the tradeoff between employee autonomy and standardisation since the very introduction of lean. Among others, a study conducted by Parker (2003) revealed negative effects on employee outcomes after the implementation of lean practices. In addition, such a work form is argued to hinder opportunities for learning (Ellström, 2006 in Johansson et al., 2013). In general, the ‘leaner’ the production becomes, the greater the risk of overly standardised work movements and physical overexertion (Johansson et al., 2013). However, Ingvaldsen et al. (2012) conclude that even though lean causes some obvious limitations to employee involvement and autonomy, it is possible to have moderate autonomy by organising workers in autonomous groups and let them be responsible for job rotation, maintenance, and quality control.

Despite there not being exclusively positive perceptions of lean, and many practitioners struggling to reap the promised benefits, the management concept has had a tremendous amount of support across industries, even in Norway. As such, there must be something other than success stories that ensure that lean keeps being applied and discussed.

### **2.2.2 Lean as a management fashion**

In this chapter, it is argued that lean can be understood as a management fashion. Moreover, the focus is on understanding why and how lean became a popular management concept. Several books about lean in the international literature contain rhetorics and distinctive features that classify lean as a management fashions (Rolfsen, 2014). Especially the book “The Machine that Changed the World” by Womack et al. (1990) served as a main source in popularising lean among practitioners in the early 1990s (Benders and van Bijsterveld, 2000). The list presented in chapter 2.1.2, gathered by Benders and van Veen (2001), is further used to identify characteristics that can classify lean as a management fashion.

In “The Machine that Changed the World”, Womack et al. persuasively formulated that lean production was more efficient than the former mass production (1990, in Benders

and van Bijsterveld, 2000). Moreover, Kieser (1997) emphasises that those who succeed with lean can make enormous improvements, relating to the management characteristic of promised performance enhancement. Furthermore, Womack et al. describe lean as the only possible and right way (1990, in Rolfsen, 2014), relating to the threat of bankruptcy in case of non-adoption. Moreover, quotes such as “Japanise or die” (Rolfsen, 1993, p. 5) would arguably trigger action. Further, there is no doubt that lean is tied to the amazing success of Toyota (Kieser, 1997), relating to the characteristic of presenting well-known and successful users of the concept. Furthermore, successful leaders such as Eiji Toyoda and Taiichi Ohno are being worshiped (Rolfsen, 2014). In “The Machine that Changed the World”, Womack et al. argue that lean production indeed can be successful outside of Japan (1990, in Benders et al., 2018), emphasising the concept’s universally applicability. Moreover, in 1996, Womack and Jones brought lean to a higher level of abstraction by introducing ‘lean thinking’. This made it possible for organisations outside the manufacturing industry to adopt lean. Another characteristic is that the concept must be easily understandable and have a catchy title. Lean is often presented as a set of simple and general principles (Rolfsen, 2014). In addition, ‘lean’ is a positively charged word. Specifically, it has positive connotations about being fit and healthy (Benders et al., 2018), and is the antonym to ‘fat’. According to Holweg (2007), lean might not have been that successful had not a severe economic crisis set into shortly after the launch of “The Machine that Changed the World”, despite the well-thought-out composition and marketing of the book. This relates to the characteristic of the concept being released in a timely manner. A final characteristic is that the management fashion setters must leave a certain room for interpretation by presenting the management concept as both general and abstract. As we have seen, the lean concept is loosely defined in the literature, and this makes room for different interpretations and versions (Madsen et al., 2016). All these characteristics contribute to that lean can be considered as a management fashion.

### **Reframing lean**

We have now seen that lean can be understood as a management fashion. Recall from the introduction that lean has occurred in two cycles; one on ‘lean manufacturing’ during the early 1990s, and then later ‘lean thinking’, which still persists (Benders et al., 2018). In contrary to the first ‘lean wave’, the second wave seem much more durable (Ingvaldsen and Benders, 2016). The fact that the popularity of lean does not seem to decline is at

odds with management fashion theory, where a temporary popularity is characteristic (Benders et al., 2018). One may wonder what has made this longevity of lean possible. In chapter 2.1.2, the concept ‘framing moves’ as described by Benders et al. (2018) were presented. So-called framing moves have been critical in keeping lean attractive (Benders et al., 2018). Moreover, the shaping and reshaping of lean’s content have been possible thanks to the interpretative viability of the concept (Benders and van Bijsterveld, 2000). Benders et al. (2018) suggest three main framing moves, which is the reason for lean’s persistence, which are further elaborated.

It has not been unusual to believe that lean is linked to the uniqueness of the Japanese culture, and consequently, that it is challenging to implement a lean approach in organisations based in other countries (Affonso et al., 2015). Up until 1988, when Krafcik named the concept ‘lean’, most labels used on the concept were adjectives that referred to Japan. These labels had the disadvantage that when manufacturers outside of Japan failed lean, it was common to attribute the reasons why they failed to the Japanese circumstances, which they could not copy (Benders et al., 2018). Thus, the first framing move was the choice of an attractive label, namely ‘lean’ (Benders et al., 2018). By choosing a label with positive connotations without referring to any geographical base, the concept’s scope of applicability was broadened to manufacturing companies outside Japan. The second framing move was the change from ‘lean production’ to ‘lean thinking’ in the mid 1990s (Benders et al., 2018). As described in chapter 2.2.1, Womack and Jones (1996) created five principles at a high level of abstraction, such that the idea became applicable to other sectors as well (Ingvaldsen and Benders, 2016). In this way, lean’s scope was broadened from the manufacturing industry, to, in principle, all other sectors (Benders et al., 2018). The third framing move, and the last up until the present, is the development of field-specific versions of lean, i.e. tailoring lean to be attractive to certain fields (Benders et al., 2018). This means that the concept now is taken down to lower levels of abstraction, and interpreted within contexts such as healthcare, the public sector, product development, etc. In other words, the concept has started to become multifaceted, and some actors do not even refer to ‘lean’.

Some argue that lean is a fad that will eventually be replaced by a new management fashion (Näslund, 2008). However, Benders et al. (2018) emphasise that as long as beliefs

about performance improvement is maintained, lean can continue to remain in the spotlight of managerial attention.

## **2.3 Norwegian Lean**

As this paper intends to get a better understanding of lean in a Norwegian context, the Norwegian model, which constitutes the macro context to Norwegian lean, is presented, before introducing ‘lean the Norwegian way’.

### **2.3.1 The Norwegian model**

In order to understand ‘lean the Norwegian way’, Norway’s macro context must be taken into consideration (Cole, 1985). In many ways, the Norwegian work life is quite unique, even though it inhabits similarities with the other Nordic countries, Sweden in particular (Rolfsen, 2014). The way in which Norway has chosen to organise its society, is often referred to as ‘the Norwegian model’, and is a result of political decisions and negotiations between the social partners (Bungum et al., 2015). The Norwegian model makes up the macro context in which lean can be understood in Norway, and becomes visible through legislations, regulations, and institutional schemes, but also through formal and informal interactions at both societal and organisational level (Bungum et al., 2015). According to Levin, Nilssen, Ravn, and Øyum (2014), the Norwegian model refers to some principal, structural, and cultural features regarding how the Norwegian work life is organised and practised, as well as the relation between the government and unions. Moreover, the Norwegian model can be understood at three different levels, including societal, work life, and organisational (Levin et al., 2014). These are further presented separately.

#### **The Norwegian model at the societal level**

The Norwegian model at the societal level, also called ‘the welfare state model’, refers to the social benefits provided by the government, including laws and regulations, equality, and other conditions regulated by the public authorities (Levin et al., 2014; Rolfsen, 2014). For citizens to benefit sufficiently from the welfare system and receive the social benefits, they have to participate in the labour force. This encourages a high degree of labour force participation (Levin et al., 2014). Furthermore, the welfare system includes

laws and regulations forming conditions of how work life can be organised (Rolfsen, 2014).

### **The Norwegian model at the work life level**

The Norwegian model at the work life level involves high employment rates, a high degree of organisation, and close cooperation between trade unions on both the employee and employer side, and the government (Rolfsen, 2014). This cooperation is known as ‘the tripartite collaboration’, and makes up the foundation for collaboration and organisation within the individual organisations (Rolfsen, 2014). In the tripartite collaboration, the government takes an active role on behalf of the common interests of the people. Furthermore, employees’ trade unions gather and represent workers belonging to trade unions, while employer’s unions represent employers in public and private sector (Bru, 2013). The unions and government have great power both together, but also separately. In this way, all parties are heard, and a power balance is maintained (Bru, 2013). The tripartite collaboration has given Norway a historical ability to balance cooperation and conflict (Gustavsen, 2007), by choosing cooperation before confrontation, or ‘dancing’ instead of ‘boxing’ (Huzzard et al., 2004). In fact, this collaboration has resulted in Norway having one of the lowest levels of work conflicts globally (Moene, 2007 in Levin et al., 2014).

The most prominent collection for laws and regulations for work life are found in “Hovedavtalen” (English: “The Basic Agreement”). The initial Basic Agreement was carried out by the two opposing social partners; LO representing employees, and NHO representing employers. The agreement consists of the ground rules in the working life. Moreover, it entails the general guidelines for negotiation and cooperation between employers and employees. In addition, it addresses direct involvement of employees (Finnestand, 2011). To this day, the Basic Agreement is still the most important legislation concerning Norwegian work life, and many see it as ‘the constitution’ for work life in Norway (Ravn and Øyum, 2018).



**The Norwegian model at the organisational level**

The Norwegian model at the organisational level, often referred to as ‘the cooperation model’ (Karlsen and Munkeby, 1998), deals with the interplay between actors in the individual organisations (Levin et al., 2014). Much of the reason to why Norway has had such success with ‘the cooperation model’ can be seen in the light of the historical events that took place during the 1960s. In the 1960s, the ‘Industrial Democracy Programme’ was conducted by Einar Thorsrud (Thorsrud and Emery, 1970), which resulted in “the legacy from Thorsrud” (Rolfsen, 2014). The legacy includes the extensive use of representative involvement, teamwork, and what in international literature is referred to as ‘partnership’, i.e. the local collaboration between union representatives and management in the individual organisation (Rolfsen, 2014). Moreover, the Industrial Democracy Programme became the backbone of institutionalising industrial democracy in the Norwegian workplace (Ravn and Øyum, 2018).

The cooperation model is fundamental to establishing systems of involvement of employees in terms of representative involvement, fostering democracy in the workplace (Edström, 2009; Rolfsen, 2014). The partnership has led to the trust between managers and employees being high, and power being distributed satisfactory on all levels (Hernes et al., 2006). Moreover, mutual trust increases the efficiency in the work life, as detailed job specifications and direct control by middle managers become superfluous, instead, employees at all organisational levels are responsible for operations, efficiency, and development (Ravn, 2015; Bungum et al., 2015). According to Levin et al. (2014), a high degree of employee involvement is seen as a prerequisite in order to having democracy in the workplace. The high prevalence of employee involvement in Norway is not very common, not even in other Western countries. To illustrate, in Norway, the Working Environment Act provides the employees a right to participate in cases concerning changing conditions in their working situation, such as the introduction of new technology or changed work organisation (Levin et al., 2014).

### 2.3.2 Lean the Norwegian way

Towards the end of the 1980s, there was a surge of interest towards Toyota and its success among Western researchers, including Norwegian researchers. In 1986, the Norwegian research institute SINTEF published a book called “Framveksten av en ny produksjonstenkning” (English: “The emergence of a new production thinking”), that dealt with what we now refer to as lean production (Skorstad, 1994). This was the first time lean was described in a Norwegian context, and even before the term lean was coined. At this time, Norwegian automotive suppliers had started to work with process controls, quality improvement, and just-in-time logistics, and in the 1990s, the process industry followed (Benders et al., 2018). As Norwegian automotive suppliers had Volvo and Saab, both Swedish car manufacturers, as their main customers, the Swedish combination of a sociotechnical thinking and lean has had strong influence in the development of ‘lean the Norwegian way’ (Rolfsen, 2014). Today, lean is “widely considered as being ‘best practice’ for industrial operations and beyond” in Norway (Benders et al., 2018, p. 9). According to a research conducted by Madsen et al. (2016), lean has spread to most industries in Norway, particularly in the manufacturing industry and among service firms focusing on accounting, auditing, and finance. Moreover, 43% of organisations with more than 250 employees report to have adopted lean (Madsen et al., 2016). Madsen et al.’s (2016) research shows that the majority (72%) of Norwegian organisations are in an early phase of lean implementation, having adopted the concept less than 5 years ago. Manufacturing is the only industry with more than 10 years of lean experience (Madsen et al., 2016).

‘Lean the Norwegian way’ builds on traditions from the Norwegian work life, including the partnership model, laws, and regulations (Rolfsen, 2014). From the very start, lean has been enacted in a worker-friendly way and framed as an instance where management and trade unions together can develop productive and humanly rewarding organisations (Benders et al., 2018). The Norwegian model have influenced the content of lean to emphasise employee participation, democracy, adaptability, and learning, described as ‘soft lean’, as a contrast to a pure tool, technique and cost-efficiency approach referred to as ‘hard lean’ (Sederblad, 2013; Holmemo, 2017).

According to Rolfsen (2014), the legacy from Thorsrud has given us three criteria for discussing lean the Norwegian way, including teamwork, partnership, and work environment. In addition, leadership needs to be taken into account. In Norway, lean teamwork is about developing teams that are delegated as much responsibility as possible within the given operational conditions (Rolfsen, 2014). Sometimes, requirements for standardisation may be at the expense of the degree of autonomy. However, by letting the team itself find suitable and pragmatic solutions in such instances, the Norwegian traditions can be preserved. Furthermore, the Norwegian partnership model encourages that management and union representatives together find solutions of how to work with lean in the individual organisation, including the content of lean, what tools and principles are to be applied, and the actual implementation. Further, in a Norwegian context, the work environment will always have a high priority, particularly encouraged by the trade unions on the employee side. With a positive and safe work environment as basis, quality and standardisation can follow (Rolfsen, 2014). Finally, lean leadership in Norway involves democratic leadership, with an emphasis on cooperation with union representatives, and a strong focus on direct employee involvement (Rolfsen, 2014).

In addition to the four criteria for discussing lean the Norwegian way, there is also a need for elaborating on the Norwegian trade unions' positive attitude towards lean. On a global level, it is rather rare that trade unions are positive towards lean, due to beliefs that lean leads to negative impacts on the employees and their work conditions (Rolfsen and Ingvaldsen, 2013). Based on critics about lean being 'mean', i.e. being the expense of employee autonomy and involvement, one could question whether lean's praise of standardisation could pose as a threat towards the Norwegian model. However, in Norway, trade unions remain mainly supportive (Rolfsen and Ingvaldsen, 2013), and public criticism is restricted to a few anti-lean articles (Benders et al., 2018). Thus, instead of fighting lean, Norwegian trade unions have rather actively participated in influencing and adjusting the content of lean in a way that fits into their priorities (Rolfsen and Ingvaldsen, 2013; Benders et al., 2018). This has to do with the tradition of union representatives being involved in all kinds of developmental activities as part of the legislative and agreement system. (Rolfsen and Ingvaldsen, 2013). Additionally, the latest supplementary to the to the Basic Agreement in 1982, stated that the social partners are committed to collaborate on issues related to development of organisations (Ravn and

Øyum, 2018). The fact that trade unions in Norway support and even encourage lean, is thus of great importance for implementation of lean.

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## **3 Methodology**

This chapter explains the methodology of the study, i.e. we argue for the choices that have been made throughout the research process. The chapter is structured as follows: In chapter 3.1, a description of the research strategy, along with an overview of the research process is presented. Following, the research design is described in chapter 3.2, including sampling of informants and ethical considerations. Furthermore, chapter 3.3 describes the chosen research method. In chapter 3.4, background information of the different actors included in this study is provided, along with reasons for their selection. Then, in chapter 3.5, the process of how the data material was analysed is presented. Chapter 3.6 provides an assessment of the quality of the research. Finally, chapter 3.7 presents some limitations related to the choices we have made during the process.

## **3.1 Research strategy**

### **3.1.1 Choosing a qualitative research strategy**

In this thesis, we have asked the question: *How is lean interpreted and entrenched in Norwegian industry?* The question is a result of the interest there seems to be for lean within a Norwegian context. It seems like there is an area of research that different actors are interested in, but at the same time, there exist little literature on the topic. It was therefore of interest to conduct a study that would aim to give deeper insight on the matter. As such, a qualitative strategy was chosen to conduct the research. According to Bryman, a qualitative strategy is a research strategy that “usually emphasises words rather than quantification in the collection and analysis of data” (2016, p. 32). As Tjora (2013) argues, having a qualitative approach to research facilitates an open interaction between researchers and informants, where the researchers can create closeness with the informants, such that the empirical data gathered can become more nuanced.

### 3.1.2 Overview of research process

An overview of the entire research process is shown in table 3.1.2.1. Note that the process has been iterative rather than linear, as many of the steps have been revised along the way.

Table 3.1.2.1: Overview of the research process

Step	Explanation
<b>Conducting a literature review</b>	A literature review on management fashions and lean was conducted. The theory is presented in chapter 2.
<b>Defining the research question</b>	The research question was defined parallel with conducting the literature review and early gathering of data. Presented in chapter 1 and chapter 3.1.3.
<b>Finding a suitable framework</b>	A suitable theoretical framework with associated propositions was found in order to later analyse the empirical findings. Presented in chapter 2.1.3.
<b>Sampling of informants</b>	Relevant informants were identified and sampled based on a set of selection criteria. Presented in chapter 3.2.1.
<b>Creating interview guides</b>	Interview guides were created to each category of actors. Presented in chapter 3.3.1 and in appendix A.
<b>Conducting and transcribing interviews</b>	14 interviews were conducted and transcribed. Presented in chapter 3.3.2 and 3.3.3.
<b>Analysing and interpreting the raw data</b>	The transcribed interviews were analysed as described in chapter 3.5.1. The empirical findings are presented in chapter 4.
<b>Analysing and discussing the empirical findings</b>	The research question was answered by analysing and discussing the empirical findings according to the theoretical framework. Presented in chapter 5.
<b>Member check meeting</b>	Preliminary findings were presented to some of the informants, in order to validate our research and get feedback. Presented in chapter 3.3.5.
<b>Concluding and finding implications</b>	The thesis was concluded. Implications for practitioners and suggestions for further research were described. Presented in chapter 6.

### 3.1.3 Literature review and research question

After having researched the theme “Lean in the Nordics” during the fall of 2017, we discovered an interest among several actors of understanding lean in a Nordic context, and particularly in a Norwegian context. In this thesis, the scope has been narrowed down from a Nordic to a Norwegian context, more specifically Norwegian industry. Norwegian industry was chosen as scope due to the thesis being part of the competence project “Lean Management in Manufacturing industry” (Forskningsrådet, 2018a). The research question has been developed parallel with conducting the literature review and gathering empirical data. We identified a need for understanding lean the Norwegian way; what is it, how

different actors and stakeholders are interpreting it, and how are different actors further developing the concept? This subsequently resulted in our research question. The literature reviewed in this thesis has been found through the snowball method on the following topics; management fashions, lean, and lean in Norway. For instance, when reviewing the topic of management fashions, we started to read the most cited article on the topic on Google Scholar, which also happened to be the oldest reference, and further found articles that built on that initial reference.

### **3.2 Research design**

Research design refers to the way in which the collection and analysis of data takes place (Bryman, 2016). When having chosen a qualitative research strategy, Yin (2003) argues that the research design should be based on three factors. First, the nature of the research question should be considered, second, the requirements for behavioural control, and lastly, the focus on contemporary events, as opposed to historical events. It follows that we wanted to display how lean is understood amongst different actors in Norway, under the scope of Norwegian industry. First, we chose a ‘how’ question, which is ideal wording for a qualitative research. Further, we found that we did not control the behaviour of the informants, and lastly, we found that we wanted to explore what the current situation of lean is, but also taking into account the historical events that might have had impact on the development of the state of lean in Norwegian industry today. Based on the requirements from Yin (2003), it was subsequently found that we wanted to conduct a qualitative cross-sectional study that was beneficial in order to present a nuanced momentarily presentation of what the status of lean in Norwegian industry, perceived by different actors, is today.

Among the different research designs that exist, our study fits mostly into what is defined as a qualitative cross-sectional study (Bryman, 2016), whereby we introduce more than one case, and the data gathering is happening at one point in time. It should be noted that our study is not in complete accordance with Bryman’s (2016) definition of a cross-sectional study, as Bryman especially emphasises the quantitative approach for a cross-sectional design. However, it was found that a cross-sectional research design would be



most beneficial for our study, and for the purpose of explaining the research design, it is most beneficial to identify it as a qualitative cross-sectional study.

### 3.2.1 Sampling of informants

The sampling of the informants included in this study has been purposive, in addition to using the snowball approach. By sampling purposely, we could use the research question as a basis for whom we wanted to interview (Bryman, 2016). Additionally, in having a purposive sampling, it was of interest to cover many different views on lean in Norwegian industry. However, in our study we did not intend to convey a maximum variation in sampling (Bryman, 2016), as there exist several other actors working with and engaging in lean within Norwegian industry that have not been included in this study. Instead, we selected our informants so that we could illustrate prevailing variations in lean interpretation and entrenchment in Norwegian industry. More specifically, the initial informants were sampled purposively by using the national infrastructure Lean Forum Norway as a point of departure, by strategically contacting the different actors sitting at the board of the forum. Furthermore, the sample was broadened by using the snowball method on the initial informants. This was done by asking the informants of whom to further contact, which in many instances successfully lead to identifying other relevant informants. For instance, the informant from Lean Forum Norway gave us contact information to actors in Produktionslyftet in Sweden.

The selection criteria for informants was that the informant needed to represent either a key actor or stakeholder contributing to the interpretation and entrenchment of lean in Norwegian industry, either at the organisational level, inter-organisational, or national level. The final sample consists of 14 informants in total, distributed among seven categories of actors. The intention with the sample was to achieve a picture of the state of lean in Norwegian industry. Nevertheless, it was never our intention to achieve theoretical saturation, defined as carrying on sampling until a category has been saturated with data (Bryman, 2016). In gathering data, it was more important to get quality of data, instead of quantity. The categories of actors include a key actor, major industrial companies working with lean, a consultancy company, a public funding body for research and development, social partners on the employee and employer side, academics, and Swedish actors. Table 3.4.1 later in this chapter provides an overview of the actors.

### 3.2.2 Ethical considerations

It lies in the nature of our research that the greatest challenge concerning ethical considerations for our study was related to presentation of data, such that it was sufficiently anonymised (Tjora, 2013). However, we have taken measures to ensure that all information is handled confidentially, and all informants involved in this study are treated anonymously. Even though all of the informants are treated anonymously, the names of organisations for the key actors, social partners and the public funding body for research and development are revealed, as these organisations are of great importance for the purpose of this paper. In order to minimise potential harm that could follow the recognition of informants, the topics discussed were not of the sensitive type, and the informants could at all times pull out of the study, without there being asked any questions.

In order to protect our informants, we made sure they were fully informed of our research before conducting the interviews, and before they signed the declaration of consent. The declaration of consent, as can be seen in Appendix B, had three main elements that were communicated to the informants. The first element was information about the research, and information of how we would further make use of the given information. The second element was concerning the conduction and handling of the data from the interview, where it was informed that the interview would be recorded, transcribed, and shredded after the thesis was finalised. And lastly, it was informed of our confidentiality, where it was stated that the information given from the informants would be anonymised, and the identity of the informants would only be known to, and discussed by our supervisor and us.

### 3.3 Research method

Research method refers to the techniques in which data is collected (Bryman, 2016). In order to answer our research question, we were dependent on gathering data from informants with perceived different interests regarding lean in Norwegian industry. In doing so, we were interested in the different informants talking and reflecting about lean, in a manner that would portray what they believed were important elements for lean in a Norwegian context. At the same time, there were certain elements we wanted the

informants to answer. It was therefore chosen to conduct semi-structured interviews, as semi-structured interviews are used when there is an interest in researching the opinions, attitudes and experiences of the informants (Tjora, 2013). In conducting semi-structured interviews, the informant can reflect upon some questions in a relaxed atmosphere, and using an interview guide to stay on the topic of interest (Tjora, 2013; Bryman, 2016).

### **3.3.1 Interview guides**

In developing interview guides for the different actors, we had to have the research question in mind, so that the questions that were asked were formulated in such a way that they could shed light on the research question, from different perspectives. As stressed by Yin (2003), it is important to have unbiased questions, we therefore strived to formulate neutral, objective questions that would not portray any kind of bias. Before formulating the interview guides, there was made distinctions between what kind of informants that was to be interviewed. It was therefore constructed seven categories of informants we wanted to interview, and further made interview guides that were specifically constructed to the different categories, displayed in table 3.4.1. As a result of the distinction, we made seven different interview guides, that each would address the different actor in questions' understanding of lean in Norwegian industry. Though the different interview guides were made specifically to the different informant categories, they all had the same structure and approximate time frame. Firstly, the interview guide would have preliminary questions concerning the informant, thereafter there would be a section on how the informant perceived lean, and if relevant, how they worked with lean. To finish off the interviews, it was decided to have a section concerning the future of lean in Norwegian industry. One of the interview guides is included in Appendix A.

### **3.3.2 Execution of interviews**

In total there were conducted 14 individual interviews, where 12 of them were in Norway, and two in Sweden. As stressed by Tjora (2013), we wanted to make the interviews as comfortable and relaxed as possible for our informants. Therefore, we conducted all the interviews in the best interest of the informants, where we visited them when possible. It follows that we therefore had to move about to conduct the different interviews. In the event of large geographical distances we did our best to schedule as

many interviews as possible, to minimise excessive travelling, and to be as efficient as possible. As for the interviews where the geographical distances were shorter, we visited the informants at places convenient to them. Additionally two of the interviews were conducted over Skype, as we were not able to visit them in person.

The interviews were carried out separately, as we wanted to get the different informants' perspectives independent of each other. Even in the case where we interviewed informants from the same organisations we found it interesting to conduct separate interviews if we were to find contrasting opinions. By having the interviews separately, we found that the informants were relaxed and felt that they could talk freely without feeling restricted by others. Additionally, we informed the informants beforehand of the proposed timeframe of the interviews, were most were conducted within an hour. We found that the interviews took shorter time when the informants talked less freely, and we had to ask many questions. On the other hand, in the interviews where the informants talked more freely, we had to intervene to make sure that we stayed on topic, which resulted in the interviews taking longer time.

When conducting the interviews, we found it useful to record them, using our telephones. By using a recorder, we were able to concentrate on the conversations with the informants, and later transcribe them. We chose to have one person leading the interview, while the other took additional notes and asked follow-up questions. In that way, we made sure that we completed the interview guide, but we were also able to follow up on interesting information that the informants gave us during these interviews. In addition, having one person taking notes during the interviews provided us with important field notes, which according to Eisenhardt (1989), is an important part of field research. Tjora (2013) argues that using a recorder can cause the informants to restrain themselves during the interview. This was however not something that seemed to concern our informants, where it happened on more than one occasion that the informants stated that they would not mind being quoted on what they said. We were among all informants met with openness, and the will to share their knowledge with us. Most of the informants stated that the topic we addressed were important to them, and they would gladly share their beliefs and experiences with us.

### **3.3.3 Handling of data**

After having conducted the interviews, we transcribed the gathered data. As Bryman (2016) argues, it is beneficial to transcribe the interviews immediately after they are conducted, and avoid transcribing all at once. As many of the interviews happened over a short period of time, most of the transcription was done at once, however, we made sure that whenever we could, we would transcribe the interviews immediately after the interview was conducted. When transcribing the data, we were concerned with writing such that it was as representable as possible for how the interviews were actually conducted. As we were going to transcribe the data after the interviews, it was a conscious consideration to conduct the interviews in locations where we were not disturbed by background noise. However, there are as Bryman (2016) argues, some consideration to make to ensure the quality of transcription. One of the greatest challenges was to transcribe correctly. The interviews were conducted in three different languages, namely Norwegian, Swedish and English, and the degree of clear verbalisation varied across the informants. These considerations could potentially have led to some interpretative errors from the interviews. Another aspect to consider is the use of irony or sarcasm by informants, where it is harder to read from the transcriptions whether what is said is meant ironically or if there is not particular meaning behind the wording. In order to minimise misunderstandings and errors in the transcription, we made sure to ask follow-up questions whenever there was uncertain what the actual meaning of the informant was, additionally, in regards to language, we tried to make sure that we understood what the informants stated, and whenever there was room for misinterpretation, we would ask the informant to clarify.

### **3.3.4 Additional data**

In addition to using the interviews as primary data, there were some incidents where we needed additional data. As an example, we were present at one of the informants' presentation of the lean practice in their organisation. At this presentation, we were presented with additional information that enriched our understanding of their lean practice, and also gave us complementary information that we later found useful to use when writing the empirical findings. Another source of additional data we received, was brochures and learning material about lean practice specifically made for the organisation.

### **3.3.5 Member check meeting**

All the informants were interviewed once, it was therefore convenient for us to later come back to some of the informants to make sure that our perception of their information was in line with their beliefs. Respondent validation, or member check meeting, is a process whereby a researcher provides the people of who he or she has conducted research with an account of his or her findings and requests feedback on that account (Bryman, 2016). Additionally, a member check meeting gives the respondent the opportunity to correct errors in the analysis (Guba and Lincoln, 1989). After having analysed the data, we got the opportunity to attend a meeting where several of the informants included in this study were present, and present our preliminary findings such that we could make sure we had understood the informants correctly. The aim for this meeting was to seek confirmation and to ensure that there was a good congruence between our findings and the perspectives and experiences of our research participants, and if not, to find reasons for why there was a lack of correspondence and the reasons for it. At this meeting we presented our preliminary findings to several of the informants, and engaged them in further discussion of the findings where the informants were able to express their reactions and give input. Moreover, we asked the informants to elaborate on subjects where we felt a need for a deeper understanding.

### **3.4 Information about actors included in this study**

In this section, some basic information about the different actors that have been included in this study is given, along with reasons for why they were selected. The section is included in the methodology chapter in order to enhance the understanding of the empirical findings in chapter 4. Table 3.4.1 provides an overview of the different actors that are included in this study.

Table 3.4.1: Overview of informants

Type of actor	Level of analysis	Actor [no. of informants]	Reason for selection
<b>Key actor</b>	Inter-organisational and national	Lean Forum Norway [1]	National strategic lean network engaging in developing and disseminating lean within a Norwegian context.
<b>Major industrial companies</b>	Organisational	Company A [1] Company B [1]	Major industrial Norwegian companies engaging in lean work.
<b>Consultancy company</b>	Inter-organisational	Consultant [1]	Consultants have great impact on companies' interpretation and practice of lean. Sits in the board of Lean Forum Norway.
<b>Public funding body for research and development</b>	National	The Research Council of Norway [1]	Funding and initiating research on lean-related topics in Norway. Sits in the board of Lean Forum Norway.
<b>Social partners</b>	Inter-organisational and national	The Labour Union Confederation (LO) [3] The federation of Norwegian Industries (NI) [1]	The social partners are both large in private sector, and sits in the board of Lean Forum Norway.
<b>Academics</b>	National	Academics [2]	The academics have researched lean for decades and published books and articles on the topic.
<b>Swedish actors</b>	Organisational and inter-organisational	Produktionslyftet [2] Swedish industrial company [1]	Norwegian actors like to compare themselves with Swedish actors.

### 3.4.1 Key actor

Lean Forum Norway was chosen as a key actor in this study, and was also used as a point of departure in recruiting other informants to the study. The reason for choosing Lean Forum Norway as a key actor in the study is that we perceive the forum as the most prominent strategic lean network in Norway. Moreover, the forum is perceived as being crucial in defining, developing, and disseminating lean on a national basis. Furthermore, the forum was used as a point of departure in finding other informants due to the composition of different actors and stakeholders present in the board of the forum. It should be noted that this thesis by no means intends to evaluate Lean Forum Norway itself. The forum is perceived as important for the lean environment in Norway, and is an

arena where different actors and stakeholders are gathered. As such, the forum has mainly been used as a source to gain information regarding lean in Norway, and to get in touch with other actors.

Lean Forum Norway's main event is one large, national conference held each autumn (Lean Forum Norge, 2018). The conference attracts hundreds of participants from small to large organisations from different industries and sectors from all over Norway. In this conference, successful companies present best lean practices, and inspirational key notes give lectures on lean (Lean Forum Norge, 2018). Furthermore, one company is rewarded the price 'the Norwegian lean enterprise of the year' in a prestigious ceremony. In addition to the annual conference, Lean Forum Norway has ten regional branches that frequently arrange workshops, seminars, and company visits (Lean Forum Norge, 2018). The informant that has been interviewed is a key person in Lean Forum Norway. Moreover, the informant sits in the board of the forum.

#### **3.4.2 Major industrial companies**

Furthermore, two major industrial companies have been included in this study in order to see examples of how lean has been interpreted and implemented at the organisational level in Norwegian industry. Both Company A and Company B are Norwegian companies that demonstrate prominent work with lean. More specifically, Company A is an industrial production company, also engaging in research and development. Moreover, Company A is one of many companies that are involved in Lean Forum Norway's work with lean. Company B is a division within a large Norwegian enterprise within the process industry. Both informants that have been interviewed have worked closely with lean and continuous improvement in their respective company.

#### **3.4.3 Consultancy company**

Further on, the perspective of a consultant from a consultancy company has been included in the study. In Norway, there exist numerous consultancy companies selling lean services to organisations in all kinds of industries, in both public and private sector. According to a study conducted by Madsen et al. (2016), 76% of Norwegian organisations report to have involved consultants to at least to some extent when implementing lean. As such, consultants have an immense impact on lean practitioners



and their interpretation of the concept. In our study, one particular consultancy company was chosen, whereby one consultant was interviewed. In addition to offering lean services, the consultancy company in question is also engaged in Lean Forum Norway's activities. Among others, the consultancy company contributes to funding some of the research projects initiated by the forum, the company also has one of their consultants present in both the board and the lean enterprise award committee. The consultant that has been interviewed is a senior manager that has worked in the consultancy company for ten years. It should be noted that only one consultant has been interviewed, therefore, a generalisation of Norwegian consultants cannot be made. The consultant will instead represent one consultant's understanding and interpretation of lean within a Norwegian context.

#### **3.4.4 Public funding body for research and development**

Moreover, The Research Council of Norway, a public funding body for research and development, is included in this study due to its financial engagement in Lean Forum Norway and for advocating research on lean-related topics. The Research Council of Norway is a national strategic body established by the Norwegian government with the purpose of financing, promoting, and marketing Norwegian research (Forskningsrådet, 2018b). The council provides a platform for dialogue between researchers, users of research, and research funders (Forskningsrådet, 2018b). The informant interviewed was one of the initiators of Lean Forum Norge, and sits in the board of the forum today.

#### **3.4.5 Social partners**

Social partners on both the employee and employer side have been included in this study due to their particular engagement in lean work in Norway, as contrast to trade unions internationally. Three informants from the employee organisation Norwegian Confederation of Trade Unions (LO) have been interviewed. The informants belong to LO's Industrial Policy Department, which is responsible for corporate development, cooperation with the employer confederation (NHO), and emergency preparedness (LO, 2018). On the employer side, an informant from a branch of the employer confederation called Norwegian Industries (NI) has been interviewed. NI organises all mainland industries in Norway, excluding the food industry, where they work for competitive

framework conditions for industrial activities in Norway (Norsk Industri, 2018). The informant that has been interviewed is head of research and innovation in NI. Both LO and NI are present at the board in Lean Forum Norway, which made them particularly interesting to include in the study. It should be noted that we did not succeed in finding a contact person from NHO that was engaged with lean. On the board of Lean Forum Norway there has always been a spot for NHO, but there is none at present. Instead NI is represented on the board, and as such, NI was included in this study.

### **3.4.6 Academics**

Two interviews with lean academics are also included in the study. The informants were interviewed due to their knowledge within the field, having studied and worked with lean for decades. The academics have both contributed to developing lean within the Norwegian context by publishing several books and articles on the topic, and are thus considered as providing a holistic overview of key issues related to lean in Norway. In addition, the academics have both been involved in Lean Forum Norway's activities.

### **3.4.7 Swedish actors**

The research has also been supplemented with some Swedish perspectives. Two Swedish actors were included in the study: Produktionslyftet (English: "The Production Leap"); a national Swedish lean infrastructure, and a Swedish industrial company. Note that the Swedish actors have not been weighted to the same extent as the Norwegian actors in this study, and that the analysis is not particularly dependent on the findings from the Swedish actors. The Swedish actors were included in this study because of the inspiration the Swedish industry has given to Norwegian industry over the past decades, particularly within the car manufacturing industry. Moreover, Sweden is a country in which Norwegian actors like to compare themselves with. Most of the Norwegian informants that was interviewed referred to Sweden, often multiple times, during their interviews, emphasising how they have taken inspiration from Swedish industry and perceive Sweden to be at the forefront of lean development and deployment in the Nordics. For instance, Produktionslyftet has been a particularly inspiration for Lean Forum Norway. Moreover, we were recommended by the key person in Lean Forum Norway to contact Produktionslyftet, resulting in interviews with two key persons from Produktionslyftet.

Produktionslyftet is perceived as a key actor being crucial in developing and disseminating lean in Sweden. The ambition of Produktionslyftet is to increase productivity, competitiveness, and the capability to develop Swedish industry, and thereby strengthening the prerequisites for profitable production in Sweden (Produktionslyftet, 2018). Produktionslyftet's core activity is their lean development programme, where they help medium-sized Swedish manufacturing companies to work with lean through education and coaching. More specifically, the selected companies are supported by extensive coaching, and supplemented by university courses on lean.

The Swedish industrial company included in this study develops, produces and markets products made out of plastic. The company was included in this study due to its extensive lean work and participation in Produktionslyftet's lean development programme. The informant interviewed is a continuous improvement coordinator.

### **3.5 Analysis of empirical data**

The gathering of empirical data from the informants resulted in a large volume of information. However, qualitative data can not be analysed in the same, structured way as quantitative data. As such, we had to find a way to analyse the data such that the most relevant and interesting information in regards to our research question could be obtained. Two different types of analysis have been conducted. First, the transcribed interviews were analysed such that the empirical findings chapter could be written, then, the empirical findings were analysed according to the theoretical framework in order to answer our research question.

#### **3.5.1 Analysing the interviews**

After the transcription phase, all interviews were categorised according to type of actor, and read through thoroughly. We have gathered most data during a short period of time, and analysed the data afterwards. Interesting quotes were highlighted, and the material was sorted under different labels, where we coded the different aspects of the interviews in accordance with textual categorising (Tjora, 2013). The data that seemed to be of most

relevance to our research question were then written up according to the perspectives of each actor, as presented in chapter 4.

### **3.5.2 Analysing the empirical findings by using a theoretical framework**

After having used contextual categorising on the empirical data, we applied the theoretical framework by Zeitz et al. (1999), as presented in chapter 2.1.3, in order to answer the research question. In using the framework, the data was made systematic and sorted by each base, with each base further being distinguished at three different levels of analysis; organisational, inter-organisational and national. Zeitz et al. (1999) describe four levels of analysis. However, due to the nature of our research, the time frame, and different informants, we had to make some refinements. It was thus decided that we could analyse the empirical findings using the three upper levels of analysis only, in order to get an indication of the interpretation and entrenchment of lean in Norway. Additionally, in the analysis we chose to rename ‘societal level’ to ‘national level’, where the nature of the informants were such that they to a greater extent represented interests on a macro level in Norway, whereas ‘societal level’ includes the entire world system (Zeitz et al., 1999).

After having systematised the empirical findings according to each base of entrenchment, we considered the amount and quality of supporting elements at each base, and how many supporting elements that were present at the different levels of analysis. In using Zeitz et al.’s (1999) framework, how much data that was present at each level could help us indicate to which extent lean is entrenched in Norwegian industry. Zeitz et al. (1999) also argue that one could analyse the depth of entrenchment by further considering some additional factors. However, from the findings in the analysis, the depth of entrenchment was not considered, as it was rather of interest to discover what had caused lean to become as entrenched as it has within Norwegian industry.

In addition to consider the entrenchment of lean in Norwegian industry, the empirical findings was also analysed to find indication for how the different informants interpret lean, and to see whether there existed some similarities of how the different informants discussed lean. Doing so, we analysed the empirical findings, further using contextual

coding, to find how the different informants spoke of lean, and at which level of abstraction they were talking of lean.

### **3.6 Quality of research**

Reliability and validity are important criteria when assessing the quality of research, especially for quantitative research (Tjora, 2013; Bryman, 2016). However, in qualitative research, there has been some discussion concerning the applicability of these criteria. Among others, Guba and Lincoln (1985; 1989) are critical of the view that there exist absolute truths about the social world, and argue that simple application of reliability and validity standards presuppose that a single absolute account of social reality is feasible (Bryman, 2016). As such, Guba and Lincoln (1989) propose four alternative quality criteria, which can be used in order to include the myriad of human, political, social, cultural, and contextual elements that are involved in qualitative research. These four criteria include credibility, transferability, dependability, and confirmability (Guba and Lincoln, 1989). Each criteria corresponds with criterion from quantitative research. These criteria are further discussed in regards to the quality of our research.

#### **3.6.1 Credibility**

Credibility is equivalent to internal validity in quantitative research (Guba and Lincoln, 1989). Assessing internal validity is, according to Guba and Lincoln “the central means for ascertaining the “truth value” of a given inquiry, that is, the extent to which it establishes how things really are and really work” (1989, p. 234). Furthermore, Guba and Lincoln (1989) emphasise that credibility entails submitting research findings to the informants who were studied, in order for the researcher to obtain confirmation that he or she has correctly understood the social world. In our study, we have tried to present the perspectives of different actors and stakeholders related to Norwegian industry. One technique we have used for ensuring this, is member check meetings, as discussed in chapter 3.3.5, where we shared our interpretations and findings to some of the informants included in the study. Member check meetings are, according to Guba and Lincoln (1989), the single most crucial technique for establishing credibility, by stating that “If the evaluator wants to establish that the multiple realities he or she presents are those that

stakeholders have provided, the most certain test is verifying those multiple constructions with those who provided them” (p. 239).

### **3.6.2 Transferability**

Transferability is equivalent to external validity in quantitative research (Guba and Lincoln, 1989). External validity has to do with generalisation, as put by Guba and Lincoln: “How can one determine the extent to which the findings of a particular inquiry have applicability in other contexts or with other subjects?” (1989, p. 234). As the sampling method used in this research is purposive and not random, it is not possible to generalise the findings to our population, Norwegian industry. Furthermore, the major technique for establishing a satisfactory degree of transferability is, according to Guba and Lincoln (1989) through ‘thick description’, i.e. rich accounts of details of a culture. To meet the Guba and Lincoln’s (1989) requirements for transferability, we tried to reach thick description by creating comprehensive interview guides, and encouraging the informants to elaborate on different matters and asking follow-up questions.

### **3.6.3 Dependability**

Dependability is equivalent to reliability in quantitative research (Guba and Lincoln, 1989). According to Guba and Lincoln (1989), reliability has to do with the consistency of a given inquiry over time, and typically rests on replication of the study. However, this is usually a difficult criterion to meet in qualitative research (Bryman, 2016). In this research, we have studied the informants’ understanding of the ever-changing phenomenon lean, which they continuously try to develop their knowledge of. As such, if we were to conduct the study at another point in time, the informants would probably have shared slightly different insights. Guba and Lincoln (1989) argue that in order to meet the requirement of dependability, the researcher should adopt an ‘auditing’ approach, which entails that complete records are kept of all phases of the research process in an accessible manner. In this study, we have attempted to meet this criterion by carefully documenting the entire research process, combined with a close cooperation with and follow-up by or supervisor.

### **3.6.4 Confirmability**

Confirmability is equivalent to objectivity in quantitative research (Guba and Lincoln, 1989). According to Guba and Lincoln, confirmability, like objectivity, is concerned with “assuring that data, interpretations, and outcomes of inquiries are rooted in contexts and persons apart from the evaluator and are not simply figments of the evaluator’s imagination” (1989, p. 243). While we recognise that complete objectivity is impossible, we have strived to keep our personal values away when deriving findings from the research. Moreover, we have all the time tried to represent the reality of the informants that were included in this study, however, as we have chosen how to make sense of the data material, it is not given that other researchers would have made the same conclusions that we have. Anonymous raw data from the conducted interviews have been preserved, and is available for those who are interested in it. We are always interested in discussing other interpretations of how lean is understood and entrenched by different stakeholders in Norwegian industry.

## **3.7 Limitations**

In addition to considerations of the quality of the research, some limitations of importance related to the choices made during the process and that have affected the research is presented. First, there are limitations regarding the selection of informants in the study. As explained, Lean Forum Norway was used as a point of departure for sampling informants. Even though we limited our sampling to actors that had, either directly or indirectly, something to do with the forum, we are well aware that there exist other actors and organs that deal with lean within Norwegian industry. Other actors would probably have other insights, interpretations, and interests, and as such, by having used Lean Forum Norway as the single source of recruiting informants is a significant limitation, especially when it comes to transferability.

Second, when analysing the empirical findings based on Zeitz et al.’s (1999) framework, only three out of four levels of analysis were applied. Moreover, we did not include the lowest level of analysis, namely the individual level. According to Zeitz et al., all four levels of analysis should be included in order to provide the highest durable foundation for assessing the level of entrenchment. However, as we intended to research the

entrenchment of lean in Norwegian industry, and not just in an individual organisation, we chose to not include the individual level of analysis. Nevertheless, it could have been of interest to include informants that practice lean in their daily work, in order to get a better understanding of how employees experience the organisational changes associated with lean, and how lean is interpreted at the shop floor.



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## 4 Empirical Findings

In this chapter, the empirical findings from the research are presented through the perspectives of seven different types of actors, or stakeholders. Moreover, each of the following sections presents the story of lean as told and perceived by the actor in question.

The chapter is structured as follows: In chapter 4.1, the perspective from Lean Forum Norway, considered as a key actor for developing and disseminating lean on a national level, is presented. Second, in chapter 4.2, two major industrial companies and their approach to lean is presented. Furthermore, in chapter 4.3, the perspective of a consultancy company is presented along with an elaboration on how they work with lean services in Norwegian companies. Chapter 4.4 presents the perspective of a public funding body for research and development. Then, in chapter 4.5, the views of social partners on both the employee and employer side are presented. In chapter 4.6, two academics' views on lean are presented. Lastly, in chapter 4.7, the perspectives of two Swedish actors are presented.

### 4.1 The perspective of a key actor

The informant from Lean Forum Norway reflects that the establishment of a national infrastructure like Lean Forum Norway has been crucial in creating knowledge of what lean is:

*I believe that this kind of arena is important for establishing safety and confidence in what this dangerous animal, lean, is. What is it? Moreover, does the trade union on the employee side dare to think of lean? Or should they keep their eyes shut? (Key person, Lean Forum Norway)*

Furthermore, the informant explains that the motivation behind establishing the forum was to get lean and the Norwegian model into a new conjunction. In order to further develop and keep the Norwegian model relevant, the founders of the forum thought that the different societal actors should be brought together. Prior to the establishment of the forum, the informant tells that there did exist other cooperative bodies, but none of which included The Research Council of Norway or the trade unions. The informant, along with the former head of research in the Trade Union Confederation (LO), sat down in 2009 and discussed what they wanted to include in this forum, and wrote down some principles with the Norwegian model at the core. Among others, they wanted to find a place for the trade unions:

*International literature on lean, such as Jeffrey Liker's principles, says nothing about the role of the trade unions in a lean context. Liker's principles are cleared from unions. As such, in order to get lean to work in Norway, we thought that the trade unions had to be included (Key person, Lean Forum Norway).*

The informant further tells that there were drivers from other parties in establishing the forum as well, including the Research Council of Norway, which provided enough capital to establish the forum. Furthermore, the initial forum got inspiration from other, foreign actors:

*Personally, I had been around the world and seen what had been done in other countries. So when this forum came up, we looked at what the Englishmen, Americans and Swedes had done. We there on took parts of what they had done, especially the Swedes, and copied it. At the same time, we had to fit it to our own, Norwegian context (Key person, Lean Forum Norway).*

The informant points out two main roles that the forum has in Norway's lean environment today. The first role is that the forum promotes learning across different industries, by showcasing good examples and best practices to practitioners. Moreover, the informant states that it is crucial for companies to learn from others doing something different from them. The second role, as the informant perceives it, is that the forum makes a good foundation for research on lean-related topics. The informant tells that over the past years, the forum has stimulated to more research on the topic. According to the informant, it is not given that the research will advance without the existence of the forum. The informant believes that the forum has contributed to a certain acceptance for having lean on the agenda in Norway. The following statement is how the informant defines lean:

*It is a philosophy. It is several principles. And it is some methods. However, it is not methods alone, it is not any principles alone, and it is not a philosophy alone. Lean is a cultural journey that takes time* (Key person, Lean Forum Norway).

Moreover, the informant emphasises that when creating value, it is fundamental to limit waste along the way. In addition, the informant considers that the key to lean is to have a combination of continuous improvement and innovative leaps. There is a need to facilitate both the small and the larger improvements. Therefore, the coupling of continuous improvement to innovation is crucial for operational excellence. Furthermore, the informant is convinced that lean works well in Norway, especially emphasising lean in the industry. In order to succeed with lean in Norway, the informant underlines several aspects. Number one is to get external help:

*We know for sure that nobody gets it right without help, that's for sure. But if you get too much help, you won't learn enough to build knowledge internally in the organisation. And if you get too little help, you won't succeed either. The ones who succeed are the ones who manage to find this balance* (Key person, Lean Forum Norway).

Furthermore, if one wants to be successful with lean, the informant stresses several factors that have to fall into place. These factors include ownership, leadership, understanding of fundamental values, involvement of everyone, and understanding the potential each employee inhabit. In addition, the informant states that it is crucial to get the trade unions involved, both on the organisational level, and on a macro level. When it

comes to challenges related to lean, the informant believes that the main pitfall is not understanding that lean is a cultural journey:

*What is dangerous in many ways, is misusing the concept by implementing tools separately from a lean philosophy. And this is most easily done by consultants, because in this way you can achieve results in no time. And this is actually contrary to what is really the purpose behind a lean philosophy, because in this way you don't get people involved, and it is rather used as a restructuring process that creates resistance in the organisation (Key person, Lean Forum Norway).*

Despite the traditions of involvement and cooperation in Norway, the informant believes that an obstacle is that everyone wants to understand. However, everyone wanting to understand can in turn make it harder to carry out systematic change projects of longer duration. When discussing the future of the forum, the informant admits that the board is afraid of the forum's relevance, constantly wondering and discussing whether what they do is relevant:

*We have been doing the same things for so many years, so we are currently discussing what will be next. What should we do now? And ultimately, it seems that we can still have a role. It is not given that lean continues to develop without the forum. And it appears that there is an acceptance for such an infrastructure in order to maintain the concept on the agenda (Key person, Lean Forum Norway).*

When it comes to the nearer future, the informant announces that the forum is currently starting up a pilot project inspired by Produktionslyftet in Sweden, called Produktivitetsspranget (English: "The Productivity Leap"). As a starting point, the informant explains that the plan is to select five to six medium sized organisations, along with two to three consultancy companies, the Norwegian University of Technology and Science, and with some assistance from Produktionslyftet in Sweden. The purpose behind Produktivitetsspranget is to develop a model for how small to medium sized enterprises can carry out a better lean journey, by offering coaching and education to the selected organisations. As put by the informant:

*The hope is that Produktivitetsspranget will result in learning across the consultancy business, the academic world, and researchers, such that the Norwegian lean model can become more systematic in the long run (Key person, Lean Forum Norway).*

## 4.2 The perspectives of industrial companies

In this chapter, the empirical findings from interviews with informants from two major industrial companies are presented separately.

### 4.2.1 Company A

When it comes to defining lean, the informant from Company A believes that lean is one of the most misunderstood management concepts of our time. Moreover, the informant states that lean is just an adjective, and that it should always be specified a context when referring to lean:

*In Company A, we can call it 'lean X', where X is the context. For instance 'lean leadership' or 'lean product development' (Informant, Company A).*

Furthermore, the informant believes that lean is a way to realise a strategy, rather than being a strategy itself. Lean is, according to the informant, both a practice and a way of thinking. Moreover, the informant elaborates the understanding of lean:

*What lean is, cut to the core, is continuous improvement and kaizen. Based on the three L's, that is learning, leadership and long-term perspective (Informant, Company A).*

When the informant talks of lean with the employees in Company A, five principles are emphasised; customer value, flow efficiency, total quality, process stability, and continuous improvement. These principles are embedded in the company's handbook about lean, where they also have given a definition of lean to the employees consisting of two main parts:

*One: elimination of waste. Two: A management philosophy that identifies and eliminate waste in the value streams of products and services (Informant, Company A).*

When it comes to the development of lean over the past years, the informant believes that the understanding of lean has developed from being very tool and practice oriented, to become a more holistic approach, resulting in a philosophy for the company. The informant emphasises that the tools and techniques are not sufficient, there is also a need to have a philosophy. According to the informant, lean today includes the involvement of

management and leadership. The informant further elaborates on why Company A has had a change of course from tools to a leadership approach:

*Now we have started to change course, and I believe that has much to do with Lean Forum Norway, which has only grown and grown over the past years (Informant, Company A).*

Company A started working with lean a couple of years ago, with the goal of making the company a leading lean organisation, and made a company specific lean programme with a name inspired by ‘The Toyota Way’ by Liker (2004). Company A’s lean journey started with launching the lean programme and handing out a lean handbook to employees and management. The core of its content was waste elimination and management philosophy, creating a common vision and common understanding amongst all. When they first started to work with lean in Company A, there was a lot of emphasis on ‘5S’, as the informant thought it was an easy place to start out. In the beginning, all employees could be involved and the lean work was very visual, nevertheless the results was not as they had anticipated:

*It quickly became “lean is putting yellow tape on the floor.” So we had to go back to the values (Informant, Company A).*

The informant stresses that in order to get lean out to all parts of the division in the first year, the focus was on kaizen, creating the platforms for continuous improvement, and having a top-down approach. The top-down approach in question revolved around understanding the greater picture before implementing lean, taking into account all factors and levels of the company, including employees.

In Company A, the informant explains that they have several different approaches to develop the employees’ understanding of lean. In addition to the previously mentioned handbook, Company A also has a lean e-learning course that ends with an exam, and a basic lean awareness course. In order to uphold the awareness and train the employees, they have regular Kaizen events where they try to upscale their people, while also engaging the actors in the supply chain to learn about lean.

In the day-to-day work, Company A has change agents that are a big part of the learning process. At the time being, the informant reckons that they have five lean principles, as

previously mentioned, that they work with. While having these five lean principles at the core, the informant further stresses that learning is crucial and that they would not have gotten anywhere without learning:

*Knowing why we are doing something, not just how we do it, is important to us (Informant, Company A).*

According to the informant, as much as 80% of the value added on the products that Company A works on, is created in the supply network, therefore the rest of the value chain needs to be involved:

*We in Company A can be as lean as we want, but that is only 20% of the value added. Thus we need to engage our strategic suppliers (Informant, Company A).*

The informant wanted the company's suppliers to start working with lean in their own way, and as such, the informant initiated a supplier development programme for Company A's strategic suppliers. In this programme, consultants from SINTEF Raufoss Manufacturing teach the suppliers lean skills. Today, 60% of the value from the supply network is working towards the same lean philosophy. Therefore, the informant is confident to say that today, Company A has a lean supply chain. The informant further says that the next step is to include the whole enterprise in the lean journey. The goal is to have an enterprise wide lean transformation in the next three to five years, which has been in the thoughts of the informant since the very beginning of the lean journey:

*When I first made our lean programme, I made it scalable. My ambition was that it would be scalable for the whole enterprise. To all the divisions, not just our (Informant, Company A).*

When it comes to involvement of trade unions, the informant states that the trade unions have representatives in the production that are involved in the lean process, and that they both understand, and are involved in the lean process. In addition, they have representatives from the shop floor, where one is even a change agent. The informant reflects that the reason for there being few issues with trade unions in regards to the lean work, has been because they have managed to have a holistic and involving approach to lean.

In regards to measuring the results of lean, the informant states that they manually calculate some of the key performance indicators (KPIs) to give an idea of what they have achieved, and that they have counted their work in process to easily measure it. In addition, the informant explains that they use a balanced scorecard to easier see the effects from what they do. In three years, Company A has reduced its work in process by 40%, and reduced the tied up capital with 12%. There have also been some quality improvements, but according to the informant, these are harder to measure. In addition, the informant explains that Company A uses benchmarking among the different divisions to compare them against each other, and to see which divisions that have improved the most.

In order for an organisation to be successful with lean, the informant believes that there are six factors that need to be considered. First and foremost, there is the aspect of leadership. The informant believes that managers must take ownership of the lean programme and be involved in the processes. Second, there is learning:

*The rate of learning must be greater of the rate of change. Also, if we want to change the organisation, we need to change the culture (Informant, Company A).*

As a third success factor, the informant emphasises that there needs to be a long-term perspective, because lean is not a 'quick fix', and people need to be patient. According to the informant, there needs to be a perspective of three to five years. Moreover, for a full enterprise wide system to be implemented, the informant stresses that there is a need to have a perspective of at least five to seven years. The fourth success factor is that lean needs to be seen as a philosophy rather than a set of tools. Following, the next factor is that you need engagement from the whole enterprise, the lean programme cannot only concern the production. The last success factor is that you need to measure the effects through KPIs.

When it comes to challenges related to lean work, the informant stresses that the greatest challenges are mostly the context, and defining lean. Moreover, the informant believes that the understanding might be challenging for some employees to grasp. In addition, one of the most challenging aspects, as the informant puts it, has been to measure the



effects from lean, due to difficulties with developing relevant KPIs. As the informant states:

*It's killed me, not being able to measure it (Informant, Company A).*

Another problem identified by the informant, is when one implement the tools just because of the attractiveness of them, rather than seeing the reason why they need it. The informant further explains how they deal with people being resistant to change in Company A:

*Yes, some people are resistant to change. That's fine, but don't give them the time of day. Focus on the people who want to change, and want to be involved. Make them change agents, and usually, the people who aren't in, will eventually become engaged. Or they will leave (Informant, Company A).*

Finally, when it comes to the future of lean, the informant acknowledges the increasing focus on digitalisation, but emphasises the importance of not digitalising bottlenecks. As such, the informant is of the opinion that lean needs to be in place before starting to digitalise processes:

*Lean first, then digitalise! (Informant, Company A).*

### **4.2.2 Company B**

When it comes to defining lean, the informant from Company B puts it as follows:

*For me, lean is very much about getting rid of what is not value adding in a production process, but it needn't only be in the production. Our practise today is something we call a 'business system', instead of 'production system'. The business system includes staff and support functions (Informant, Company B).*

The informant started working with lean towards the end of the 1990s, within another division of the enterprise. The division the informant worked at was part of the car manufacturing industry. The informant further states that at that time, they were to a great extent inspired by what was happening in the car manufacturing industry in the 1990s:

*The greatest influence we got was from Swedish car manufacturing, as they were our largest customers. Based on that influence, we developed our own concept (Informant, Company B).*

The informant stresses that the approach they had in developing a lean system was that they took what they knew from the industry and combined it with the influence from Sweden, in addition to some inspiration from six sigma, which was further developed it to their own context. Company B started developing their lean programme in 2006/2007, which they still use today. Furthermore, the informant believes that it is important to develop the business system continuously. The informant elaborates that it all started as a production system for reducing waste, however today, the programme has been further developed, especially in the business direction. The informant emphasises that it is vital to engage widely, such that the employees feel ownership, and that it is ‘their’ system. The informant further explains that the lean work today lies in Company B’s DNA, all the way from top management to the shop floor. In addition, they have a central team and local teams at all factories, which work with and facilitate lean. The informant further comments that the employees in Company B do not explicitly apply the term ‘lean’:

*Our system is not something we call lean, we call it a business system. If you ask any operator or someone working on the shop floor, they probably wouldn’t have any relation to the term lean (Informant, Company B).*

Furthermore, the informant states that lean is a much more tangible concept today, than what it was when they first started the lean programme. In regards of the use of consultants, the informant explains that it has been a conscious decision for them to not use external consultants. The informant explains that they rather wanted to build and develop knowledge internally, in order to gain ownership within the organisation. Nevertheless, the informant mentions that they sometimes use consultants as discussion partners, however they do not let the consultants work unsupervised in the organisation.

When it comes to further developing the knowledge of lean, the informant stresses the importance of Company B being part of a larger network. They also have internal workshops and courses that the informant perceives to be important. The informant also believes that being part of research projects has helped increase their knowledge regarding lean. The informant further explains that they are engaged in networks outside

the enterprise, highlighting their participation in Lean Forum Norway. In addition, the informant believes that there is much to learn from Sweden as well, as they have been to several lean assemblies in Sweden.

In regards to lean work within the supply chain, the informant states that Company B does not have any organised way of spreading lean throughout the supply chain, even though most of the actors in their supply chain is within the same enterprise. Moreover, the informant explains that their business system is not an integrated part of Company B's monitoring of suppliers, they do not even know whether their suppliers engage in lean work. Nevertheless, lean has spread to some other parts of the enterprise:

*Some of the divisions in the supply chain has adopted our lean strategy. We tell them that they're welcome to take a look at the way we work, however we don't have the time to help them. So it rather becomes words of mouth (Informant, Company B).*

In consideration to trade unions, the informant perceives that Norwegian trade unions are highly competence oriented, and is of the opinion that trade unions in Norway are very positive to lean, highlighting the trade unions representing the shop floor workers in Company B.

When it comes to measuring the effects from lean, the informant states that the lean journey in Company B has helped saving millions of Norwegian kroner. There have also been non-financial improvements, including improved quality and better safety for the employees. In addition, the informant has seen major improvements in the involvement of the employees, which is of great importance to them. They have a trust based relationship with the employees, where it is important to believe in the employees' judgement and competence. Furthermore, the informant states that it sometimes is particularly hard to measure the effects in the process industry:

*It is difficult to understand the relation between cause and effect in the process industry, which in turn can result in vague measurements of lean improvement (Informant, Company B).*

According to the informant, Company B has invested a lot in leadership training, which has been crucial in engaging the middle managers. The informant believes that for lean to be successful, leadership is of uttermost importance, which is why they have used

resources to train many of their leaders. The informant further states that workshops and training are important in order to have competent leadership and managers. Another success factor is that there is a need to continuously improve the lean concept, and keep it relevant.

When elaborating on challenges related to lean, the informant believes that those who are not successful in lean implementation, are those who are not able to see the whole picture. Particularly, if one only implement some parts of lean for production, but does not do the business perspective as well, chances to succeed are minimal.

When it comes to the future, the informant believes that lean will endure, stating that lean has come to stay. However, the informant believes that there will be more focus on both digitalisation and industry 4.0, both of which the informant believes are connected to lean. Finally, the informant emphasises that continuous improvement is a prerequisite for all the new trends and techniques that are implemented in the future.

### **4.3 The perspective of a lean consultant**

The consultant shares that over the past years, the consultant has worked with several lean projects in different industries, where lean has had many different ‘shapes’; all from pure lean projects, to lean being part of larger projects. Furthermore, the consultant emphasises the need for a holistic approach to lean:

*Lean has to be an integrated part of how the organisation is managed, on all levels from top management to daily operations on the shop floor (Consultant).*

The consultant further elaborates that an important part, and usually a starting point, is assessing the process by looking at value creation, waste removal, creating flow, and balance capacity with demand. Furthermore, the consultant underlines the importance of the managerial aspect. In order to build a culture for continuous improvement, the manager has to act like a coach, and focus on the entire organisation. According to the consultant, there is nothing wrong with applying some principles and tools, however, if lean is going to be successfully developed, having a long-term perspective is crucial. The consultant specifies a long-term perspective as two to five years. When discussing the use

of lean tools, the consultant stresses that it is important to limit the use of tools in the beginning:

*One has to make some initial choices, of what and where to start, and thereafter pick appropriate tools. However, the tools alone are by no means sufficient (Consultant).*

The informant further elaborates on how to implement lean in Norway, and emphasises that lean should be adapted to the local context. Moreover, the consultant is of the opinion that the Norwegian model can be used as a basis:

*I believe that the Norwegian model can fit really well with lean. In Norway, we have a tradition for an involving approach that is not very hierarchic, and I think it harmonises well with lean (Consultant).*

Furthermore, the consultant is of the opinion that lean is much the same in Norway as ten years ago, however specifically mentions digitalisation as an important aspect that has entered the field increasingly over the last years. Earlier, the consultant thought of lean and digitalisation as two separate races, but recognises now that technology can be used as an integrated part of process improvement and that they are becoming increasingly intertwined. However, the consultant does not believe that digitalisation is the solution to everything, but rather thinks that technology can be used as an integrated part of process improvement and that it harmonises well with lean. The consultant also notes that digitalisation has been present for a really long time, it is just in the recent years it has gained more attention. Besides digitalisation, the consultant believes that the managerial part of lean has also gained more focus than earlier, when lean focused mainly on the production process.

When it comes to lean in Norway, the consultant believes that lean is endorsed due to the good achievements that can be found ‘everywhere’. The consultant further states that in Norway, we have done well in applying lean to service organisations, as well as the public sector. The consultant is confident that all the good results are the reason to why the concept has gained attention and made other organisations adopt lean. Moreover, the consultant remarks that we have managed to depart from Japanese terms and rather adapted the language to Norwegian companies.

The consultant further explains that the consultancy company works with lean in several industries. Furthermore, the consultant explains that when implementing lean in organisations, they do not follow a standard recipe, as they are very concerned with tailoring their services to each customer. However, they have four guiding principles that the consultant further explains. The number one principle has to do with the role of the consultants. The consultant stresses that their job is only to help the customer getting started with their lean journey. It is the customer that is going to lead the process, the consultants are just going to facilitate, without taking over the operation. The second principle is that the consultants' support is largest in the beginning, before gradually decreasing their involvement, such that the customer can continue their lean journey on their own. The consultant informs that they usually participate in some pilot projects in the beginning, concentrating on transfer of knowledge and making a plan for how the customer can manage on their own. The consultant further emphasises that it is important to build knowledge internally in the company in order for lean to become an integrated part of their operations. The third principle is that before implementing lean in practice, the consultants perform thorough analyses, both quantitative and qualitative. This is important in order to get a sound factual basis and establishing a point of reference such that it becomes easier to measure results. The last principle is to have tangible objectives, and develop explicit KPIs that can be used in monitoring effects.

Furthermore, the consultant emphasises that for the consultancy company, it is crucial to be able to refer to effects that demonstrate the results achieved together with their customers. Achieving results is more or less expected from them being consultants. As such, the consultant believes that consultants have more focus on measuring results than what is common for other actors, such as researchers. Thus, when initiating a lean project, the consultants define a zero point and specify what they are going to improve and establish KPIs. In the beginning of the lean implementation, they search for areas that can be easily improved relatively fast and that can serve to motivate employees to further work with lean. After having initiated actions, the consultants should immediately try to measure the effects. The consultant further explains that they measure results both short term and long term. What is of importance is to reach out to all levels of the organisation and identify relevant KPIs that is coupled to the processes in question.

In order to succeed with lean, the consultant thinks that organisations should seek knowledge externally, and that sharing of knowledge is key. For the latter, the consultant believes that Lean Forum Norway is an important arena for exchanging experiences across industries. The consultant further elaborates on why the consultancy company engages in Lean Forum Norway:

*If we are going to be the leading lean consultants in Norway, we have to be proactive and acquire new knowledge. To us, it is important to adopt new knowledge and apply new research. As such, there is a gradual transition between research and consulting (Consultant).*

Moreover, the consultant explains that they engage heavily in Lean Forum Norway's annual conference. The consultant continues by saying that in addition to the forum being an important marketing area for them, it is also a place where they can share their knowledge and contribute to making lean successful in Norway. The consultant further reflects on the existence of Lean Forum Norway, that it possibly creates more engagement around the concept, contributing to actors realising that many others are interested in lean too, with their own unique experiences and approaches. Besides the consultancy company, the consultant particularly perceives SINTEF<sup>1</sup> as an other important actor in the lean environment in Norway, having performed a lot of applied researching projects and coupled their work to international research.

The consultant remains mainly positive towards lean, but lately, the consultant has experienced that lean has gained a bad reputation among several companies and potential customers, particularly within the public sector. This bad reputation has resulted in the consultancy company refer to lean less than before when working with their customers. The consultant finds the term 'continuous improvement' usually more suitable. Furthermore, the consultant believes that the reason why lean has gotten a bad reputation is that some companies have had bad experiences. For instance, organisations that use lean as an excuse to cut costs drastically and downsize, contribute to give lean a bad reputation. Another concern is consultancy companies saying that they do lean, but in reality only use lean as a 'quick fix'. The consultant regards such consultancy companies

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<sup>1</sup> SINTEF is one of Europe's largest research institutes, with multi-disciplinary expertise in technology, natural sciences, and social sciences (SINTEF, 2018)

as cowboys that misuse lean, and in turn create unrealistic expectations of achieving immense results with little effort. In this way, some people really misunderstand what lean really is, and as a consequence, lean's reputation is ruined. However, the consultant emphasises that if lean is done the right way, with a long-term perspective, one can yield great results.

The consultant concludes that lean can be used to improve any organisation, and that there is nothing that implies that the development of lean is ever going to stop. According to the consultant, lean is after all common sense put into system. However, the consultant speculates that one might not call it lean in the future. Moreover, if digitalisation is not taken into consideration and integrated with lean, the consultant believes lean could be extinct.

### **4.4 The perspective of a public funding body for research and development**

Ten years ago, the informant from the Research Council of Norway realised that having hundreds of consultants from large, American consultancy companies implementing lean in Norwegian organisations, resulted in feeding of American corporate culture into Norwegian organisations. In addition, the informant noted that research on lean was not present at all. The informant speculates that the reason why researchers were not interested in lean was because it was just something that consultants did, and that the lack of human aspects made it less exciting. As such, the informant believes that the researchers might have felt too proud to deal with lean. The informant strongly disliked this development, and responded by contacting the Trade Union Confederation (LO) and the employer confederation (NHO). The informant asked whether they could stand to see hundreds of consultants implementing American culture, without consideration for the Norwegian tripartite collaboration, into Norwegian organisations. And they could not. Thus the informant, along with LO, NHO and the current chairman of Lean Forum Norway, got together and established the forum in 2009. The Research Council of Norway contributed with funding, which was the start of Lean Forum Norway. As soon as the forum was established, the Research Council of Norway initiated research on lean. However, lean-related topics, such as productivity, had been on the agenda for years, but



without being referred to as lean. The informant further elaborates on one of the main reasons for the establishment of Lean Forum Norway:

*The purpose behind Lean Forum Norway was that it should engage research. The reason why we finance and stimulate such projects is that we saw that there was a lack of research on lean, and a need for adapting lean to the Norwegian context (Informant, The Research Council of Norway).*

Furthermore, the informant emphasises the removal of bottlenecks as core in lean. The informant further stresses that lean has become a ‘worn out’ term, but notes that a new and better term has yet to come. Furthermore, the informant thinks that over the past years, a Norwegian lean model has started to evolve, referring to consultants being more aware of the Norwegian model, and the publication of the book “Lean blir norsk” (English: “Lean becomes Norwegian”) by Monica Rolfsen in 2014. The informant further elaborates thoughts of what is special about the Norwegian model:

*It is the strong partnership, and the involvement of the employee. This is made possible by having a flat hierarchical structure. And I believe that this could be a competitive advantage for Norwegian industry (Informant, The Research Council of Norway).*

A challenge that the informant has observed lately is that the large consultancy companies have shown less interest for engaging in Lean Forum Norway. According to the informant, it should be strived to continue to include the consultants in the development of lean the Norwegian way by having them on board in the forum, even though they do not wish to contribute financially. Furthermore, the informant mentions challenges related to suppliers, stating that none of the global enterprises are going to succeed if their suppliers are not good enough. In addition, the informant thinks it is challenging that the unions believe that jobs are being removed as work is robotised. Thus, when it comes to the future, the informant identifies digitalisation as important:

*I believe that digitalisation will become prominent, and lean has to find a way to deal with it. Lean Forum Norway should start to think of a new competence project where digitalisation and the human are keywords (Informant, The Research Council of Norway).*

Last board meeting with Lean Forum Norway, the informant brought up the question: “Should we put down the forum? Is there still a need for it? And lean, what is it today?”.

The informant explains that even though there exist other lean organs in Norway, the fact that Lean Forum Norway has managed to gather all the different actors, means that there is still a reason for the forum's further existence. 'Lean in the future' is an untouched theme by researchers, and the informant concludes that the world of researchers is going to become even more thrilling in the time to come.

### **4.5 The perspectives of social partners**

In this chapter, the empirical findings from interviews with social partners on both the employee and employer side are presented separately.

#### **4.5.1 The Norwegian Confederation of Trade Unions (LO)**

According to one of the informants from LO, the main responsibility of LO is to guard the Norwegian model and evolve it to make sure that the model also is relevant in a modern society. As such, the informant states that LO must be involved in change processes. In order to sufficiently understand the reason for LO's excessive involvement in change processes throughout the years, one of the informants explains that one of LO's greatest concerns is to fight a battle for dignity, rather than pay. The informant elaborates that people should first and foremost have good reasons for going to work. Moreover, the informant believes that good wages is part of it, but most importantly, the employees should feel well at work. Furthermore, the informant states that LO does not want people to be fired or replaced without reason. Instead, employees should be re-educated or given appropriate training at work. Another informant believes that there has never been a goal to keep all the different jobs that exist today, but there is a need to create new jobs for the future.

Furthermore, one of the informants believes that LO is positive towards change in general. Moreover, the informant states that having a restructuring process should be beneficent for all parts involved. However, the informant further stresses that restructuring without involvement of LO has a tendency of being difficult. The way the informant sees it, is that Norway is way ahead of relatively close neighbouring countries when it comes to cooperation between organisations and trade unions in working for change. Another informant further states that what is seen as losses after disputes in

Norway, is still more than other countries can dream of achieving. The informant further elaborates on how LO will be involved in change:

*We cannot guarantee that there will not be strikes and conflicts in the working life, but we are going to be involved in the kind of changes that we see are important for the future, and in exchange, there will be a trade union movement positive to change and possibilities (Informant 1, LO).*

According to the informant, LO being positive to change comes at one condition, which is that all changes are in accordance with 'The Basic Agreement'. As long as The Basic Agreement is taken into consideration, the informant believes that LO is in favour of pragmatic changes that improve efficiency and working conditions. The informant further states that LO's approach to change with the given prerequisite, is as follows:

*We are supportive of change, so let's talk of how we can conduct it (Informant 1, LO).*

One of the other informants recalls being introduced to lean for the first time, while visiting Japan and Toyota on behalf of LO in 1986. However, at the time being, the informant was of the impression that the production strategy was rather Tayloristic facilitated, so the informant did not see the involvement aspect at that time. As such, the informant did not leave the concept much thought until the book "The Machine that Changed the World" by Womack and Jonas was released in 1990. With the book being released, the informant saw that the topic of lean became increasingly popular in the Western countries, including organisations in Norway. The informant thereafter became engaged in lean work, as the informant believed it could do much harm if the trade union did not get on board and started working with it:

*I believe that part of the reason for Norwegian trade unions becoming involved in lean has to do with the importance of improvement work in the first Basic Agreement. The Basic Agreement between the parts in the Norwegian working life has at all times been somewhat a productivity agreement, concerning increased involvement for increased value creation (Informant 3, LO).*

One of the other informants elaborates that several people in LO have read the book "The Toyota Way" by Liker, and the informant believes that there is much that makes sense in that book. Moreover, the informant believes that all of the principles presented by Liker

are relevant. Most importantly, according to the informant, are the principles that are concerned with engagement of workers and knowledge creation. Furthermore, the informant believes that if one takes a closer look at the lean principles and philosophy, they all coincide with the legacy from Thorsrud. According to the informant much of the cooperation culture in Norway, including flat hierarchies, and decision-making, has been based on the legacy from Thorsrud. One of the other informants further elaborates on what LO regards as important when it comes to lean:

*We are concerned that lean is something else in Norway than what is often out there (Informant 2, LO).*

The informant further states that Norwegian lean is about all people receiving the same benefits from the common welfare. Another one of the informants answers the following:

*A Norwegian approach to lean for us is about employee driven innovation, influence on the processes, ownership of the processes, and being present in every room where decisions are made. It's about the right to put down your foot if things go too fast or have a wrong course. There are some simple steps, but there is a long-term and systematic approach to this, which is also based on traditional labour traditions in Norway (Informant 1, LO).*

The informant continues by stating that if lean can be a means to create meaningful work and have the Norwegian model at core, LO is in favour of it. Furthermore, one of the other informants believes that lean can be a good measure to decrease absence due to sickness, and help giving people more interesting and challenging tasks at work. If lean is done right it can also increase profitability for organisations, which they are in favour of. As much as the informants LO are positive towards lean, one of them emphasises that having success with lean in Norway is ultimately dependent on having the approval from trade unions. Moreover, if you want to have success with lean in Norway, the informant believes that it is crucial to have goodwill from both LO and NHO:

*As long as we [trade unions] get something out of it, we're in. Then we will contribute to companies being successful with lean (Informant 1, LO).*

Furthermore, one of the informants reckons there are greater difficulties with lean implementation in the parts of the working that are less organised. The informant believes

that lean implementation in the less organised parts of the working life is less beneficial, as it often result in the employees having less involvement and less say in processes that are implemented. As such, this is something LO works against, and is even opposed to.

One of the informants believes that lean actually is the same as continuous improvement, adding that it is also about creating value for the customer. The informant further elaborates that it is not so much a question of whether or not lean is good, but more so that it is a necessity, and that one could more or less call it whatever one would like. The informant believes that an important aspect of how lean is understood in the workplace is in the way improvement work is talked about, where lean is understood as specific processes at the workplace. However, the informant emphasises that talking of lean is not enough in implementing lean:

*An organisation does not become lean by just talking of lean (Informant 1, LO).*

On the other hand, one of the informants stresses that the term lean might be somewhat stigmatised, mostly due to the fact that theory and methods used are based on another work culture than what is prominent in Norway. The informant further believes that those opposed to lean mostly criticise those who tell the history of lean wrong, not necessarily the fundamental philosophy itself.

One of the other informants further elaborates that to get the best results from lean, one needs to involve the employees such that they feel ownership of the process. By doing so, one needs to include employees in decision-making, and motivate them. The informant stresses that having solely focus on increased shareholder value, as some organisations are believed to have, will not lead to success in Norway. Therefore, all attempts to cut costs without including the employees, calling it lean, and saying that this is modern without making the employees feel ownership, is seen as a threat to the informant:

*Lean with the sole purpose of reducing costs, will never be approved by us. We dot not accept that as lean (Informant 1, LO).*

When it comes to challenges related to lean, one of the informants stresses several different aspects. From the informant's point of view it seems like the motivation for implementing lean might be faulty:

*Union representatives and unions are constantly seeing examples of employers coming and saying that now we are going to 'leanify' the business and become more profitable, and what they really do is cutting costs (Informant 2, LO).*

Another challenge that is mentioned by one of the informants is the use of consultants. The informant believes that the use of consultants never has been popular amongst employees, where the informant believes that the use of consultants has always been seen with scepticism from the employees on shop floor. The informant further elaborates that to pressure the employees into lean can further create opposition from employees, which in turn can result in bringing excessive costs to the organisation. The informant believes that people are not opposed to change in general, but rather being opposed to feeling that the change is imposed by others, and not being sufficiently involved in the change process. According to the informant, another challenge with lean is that there are many bad cases of lean implementation. For example those that have worked with lean without knowing what they do, that being consultants or an overly eager manager or employee, failing at implementing lean. However, the informant acknowledges that there are many people who are good at lean implementation, and that some organisations will be better served by hiring help. In general, the informant believes that it has been harder to get involvement from unions in the public sector, than in the private sector. The informant believes that in some parts of LO, people have been especially opposed to lean, not so much because of lean itself, but because of the bad cases. The informant explains that in the private sector there are longer traditions for cooperation, resulting in them being better at coping with changes. This is not the case in the public sector, where one of the informants states that there are less experiences with cooperation. In most cases in the public sector, the informant believes that the bad reputation has had to do with faulty implementation or the faulty cases:

*In public sector, it is probably more usual that lean has been abused in certain settings. That it's all about slimming, then you have misunderstood (Informant 2, LO).*

When it comes to the involvement from LO in Lean Forum Norway, one of the informants explains it as follows. The informant had observed that some industrial organisations had been working with lean for some time before Lean Forum Norway was established. However, at the time being, the informant states that organisations from other industries were beginning to gain interest in lean and work with continuous improvement under the label lean. The informant further observed that several consultancy companies saw the opportunity to sell their competence in a growing market, which was something the union perceived as a concern:

*Then we could choose to either let the consultants with their background from the American literature implement lean into Norwegian businesses, or do something to find out how lean could be used in the best possible way in Norwegian businesses. That is really how it started, we cannot have a lean that is Japanese or American, we must have a Norwegian lean (Informant 3, LO).*

The informant further believes that it is the key person from Lean Forum Norway who is the reason for the social partners being included in the board of the forum, and further shares how Lean Forum Norway was created:

*We were sitting there in 2008, or 2009, at a conference, me, and [the key person] were sitting at the bar. We were drinking a beer and wrote down a list of certain things. We then agreed upon the principles [for Lean Forum Norway]. We had to focus on something, and from that situation, we wanted to consider the situation of Norwegian work life, and especially the industry. I said that the one condition I had, was that it had to have the Norwegian model as a foundation (Informant 3, LO).*

The informant further elaborates that when Lean Forum Norway was established, it was evident for the people coming from the industry that trade unions should be involved and included in the decision-making process. It was, according to the informant, perceived that the trade unions had a tradition for talking together and making decisions without conflict. The founders of Lean Forum Norway were thus insistent, as the informant proclaims, that there should always be a place on the board for the trade unions if they wanted. And because of the traditions for collaboration in Norway, both trade unions agreed to be involved. The informant believes that LO contributes to the work on the board, and hopes that the collaboration will endure in the future. Furthermore, the

informant believes that the reason why LO was interested in participating in the founding of Lean Forum Norway was the following:

*The reason why we joined the establishing of Lean Forum Norway was very much because of our tradition, and our experience with constant focus on measures that can help streamline work processes, and help to eliminate harmful health working conditions (Informant 3, LO).*

In general, one of the informants believes that lean and continuous improvement will continue to be important in the future, “because we are living in a competitive world where one need to perform well all the time, one cannot stop”. The informant believes that if you stop developing, you are done doing business. The informant further elaborates that lean is essentially ‘new wine on old bottles’, it is the same principles that have been present since the post-war period, where the traditions of Norwegian working life will always be present, although the informant is sceptical to how lean will be perceived in the future:

*I do not believe that we will continue to call it lean. I believe that there is to much stigma connected to it already, I believe that they will call it something else (Informant 3, LO).*

Regardless of what one wants to call it, the informant states that what is of importance, is to have efficient production systems, and as short lead times as possible. Apart from lean continuing to exist, the informant believes that digitalisation will play a much larger part in the future, stating that digitalisation has a lot to do with lean. Moreover, the informant stresses that digitalisation will continue to be on their agenda:

*Digitalisation is going to take over focus in the future, but this has happened before, it's nothing new, but the way it happens and how it stimulates the most efficient production will of course be central (Informant 3, LO).*

Further, one of the other informants believes that LO will strive for the profits resulting from digitalisation will be beneficial for all workers, and not only be of benefit for management:

*We need a policy that is both good and workable, which ensures that digitalisation becomes a blessing and not a curse to the workers in this country. Because we will do digitalisation (Informant 1, LO).*



### 4.5.2 The Federation of Norwegian Industries (NI)

The informant from NI recognises that NI has started to realise that more and more organisations are curious about lean. Thus, the informant explains, in order to have a competitive advantage, Norwegian organisations need to have knowledge of lean:

*NI believes that lean is important because organisations need to, at all times, improve in many ways, especially in export industry. The alternative is not being able to compete any longer, and then we won't have any industry anymore (Informant, NI).*

As such, the informant believes that spreading knowledge and teaching their member organisations about lean is beneficial. Among others, NI provides courses for their member organisations on the topic, where they hire experts from the industry. In addition, the informant explains that NI has many different professional conferences where lean is regularly on the agenda. The informant is of the opinion that great results can be achieved in the organisations implementing lean. One of the main considerations of NI, as the informant sees it, is the existence and survival of their members' organisations. As such, NI advocates the issue of lean, however the informant emphasises that they do not interfere with how the organisation carry out their work:

*We do not interfere at all with how the organisations work with and implement lean. However we flag lean in our reports and roadmaps that we have on industries and so on. We always try to show good examples of lean that has worked for other organisations. So maybe they can learn from each other (Informant, NI).*

Furthermore, the informant claims that it is easy to distinguish companies that have been through a lean journey, from those who have not. The informant emphasises that after having attended several company visits, there exist great variations between the different organisations in how they work with lean. The informant observes that there is a certain aspect of proudness in the way some organisations talk of their lean implementation. Other aspects that the informant perceives as significant are the ownership of lean in management, and the continuous improvement in the organisation. Furthermore, the informant defines lean as follows:

*For me, lean can be that one has some kind of focus, and starting systems that create seamless transitions in the whole organisation and having a conscious approach to bottlenecks. There is an evident tidiness in lean organisations (Informant, NI).*

In contrast to other countries, the informant believes that the way employees work in Norway is more based on trust. Moreover, the informant believes that it is the trust aspect, along with a greater degree of autonomy among employees that singles out Norway from other countries. Furthermore, the informant stresses that NI believes that lean is important, if not, they would not have been engaged in Lean Forum Norway. In fact, it was through Lean Forum Norway that the informant was introduced to lean for the first time:

*I was first introduced to lean after I'd started working for NI. I received a phone call from the director of Lean Forum Norway and was asked to join the board of the forum (Informant, NI).*

According to the informant, NI's role at the board in Lean Forum Norway is to secure the corporate perspective, in order to have an industry in the future. However, the informant also acknowledges the human perspective that LO advocates. Moreover, the informant perceives Lean Forum Norway to play an important part in increasing knowledge of things that affect people in the working life, and also stimulate to the research projects. In Norway there is, according to the informant, a need for Lean Forum Norway in the working life so that people can exchange information and knowledge for areas of application:

*From the perspective of one of the social partners in the Norwegian working life, I think it is important that we have such a type of body [Lean Forum Norway] where we can increase knowledge about things that affect people, such as lean (Informant, NI).*

The informant also believes that some find the transition from having had help with lean implementation to be left on their own to be hard. That they in reality need more help in understanding the translation of lean. When it comes to the future, the informant believes that the future of lean depends on digitalisation. The digitalisation aspect is however not without discussion, and the informant reflects on that there is no definite solution to how digitalisation and lean should be combined:

*Lean can quickly become outdated, and there is a discussion on the board of Lean Forum Norway of how digitalisation can be integrated in lean. It's not decoupled, it's all connected. So that's a big discussion there (Informant, NI).*

Further the informant stresses that Lean Forum Norway needs to at all times ask themselves the question of whether they are still able to be relevant. Lean Forum Norway cannot sit back and let others drive the digitalisation aspect, without seeing it in relation to lean to stay relevant. In the time to come, the informant emphasises that Lean Forum Norway needs to be proactive in the proceedings of lean and digitalisation:

*There is no way around digitalisation. In that case, we will be outdated (Informant, NI).*

### **4.6 The perspectives of academics**

Two academics got the opportunity to share their views of lean, where they began with defining lean. Academic 1 further reflects upon the definition:

*Lean isn't just one thing, it is so many different things. I've spent a lot of time pondering, and the closest I get is that lean can be understood in different ways. For instance, lean can be seen as a management fashion, as a management philosophy, or as a set of principles and practices. But lean isn't one of the things alone. It isn't just a fashion. Because if it had been just a fashion, it would have disappeared eventually (Academic 1).*

Academic 1 further elaborates that after having spoken about lean at several conferences around in Norway, it is usually Womack and Jones' five principles from the book "Lean Thinking" that make sense to people. For instance, their first principle is about defining the customer value, which makes sense to most people. According to Academic 1, other principles, such as Liker's principles, tend to be more difficult to relate to and too hard to remember for most people. Academic 2, on the other hand, experiences that lean is just a consultant term, referring to how things can be organised and being perceived as a set of techniques:

*Lean, I don't like the word. It's only a term consultants use to sell services to improve the production processes or work processes. Originally, there was a philosophy surrounding the entire lean logic (Academic 2).*

Academic 2 further explains that how lean is being interpreted in practice, and what lean was originally thought of, are two different things. Moreover, Academic 2 stresses that lean is all about a way of thinking, it is a philosophy, and an understanding. However, Academic 2 is of the opinion that the reason why consultants have developed numerous techniques that can be reproduced by practitioners, is that a way of thinking is harder to sell as a consulting service. But the techniques alone, according to Academic 2, are not in accordance with the lean philosophy. Today, Academic 2 believes that lean has become distant from the original inspiration that brought forth the concept, namely Japanese car manufacturing. Academic 2 further elaborates about what the lean philosophy entails, claiming that it is all about understanding what you live of. First and foremost, you have to understand what the needs of the customer are, since they are the reason you are in business. In addition, Academic 2 states that the ones who really do succeed with lean, are those who try to understand how the customers think, and the needs of their future customers. Furthermore, Academic 2 insists that lean is a modern and advanced form of Taylorism:

*You know, if you tell your employees that you're going to introduce a new, Tayloristic logic, albeit under the label 'lean', people are not going to react with cheers. But what is it that makes people think that lean is so good, then? It is because it has a logic and productivity and a lack of stupidity, that appeal to people (Academic 2).*

According to Academic 2, the basis of the lean philosophy is that production is superior, and everything else is secondary. So when the core of lean has been understood, Academic 2 emphasises that one should try to further develop the Norwegian model at organisational level, together with the view of modern production.

Furthermore, when it comes to 'Norwegian lean', Academic 1 claims that it is not different from 'international lean', meaning that all of the content in international lean is also present in Norwegian lean. As such, Academic 1 does not see Norwegian lean as something else, however, some extra elements are added. According to Academic 1, these elements include work environment, partnership, teamwork, and management. Moreover, Academic 2 emphasises the need for lean to build on the Norwegian model, but is concerned that the strong focus on lean as a set of techniques obscures what the Norwegian model really represents:

*Because the core of the Norwegian model at the organisational level is trust, non-hierarchical processes, direct dialogue, and perceiving experience as relevant for decision making. That the leader believes that it is smart to talk to the employee standing in the middle of it. And that cooperation leads to power balance. These elements are often forgotten in settings where the lean term is being used, such as in Lean Forum Norway. It is important to understand that the Norwegian model is founded on collective agreements and the fact that our working life is organised (Academic 2).*

Academic 2 further emphasises that it is up to the prudence of the leader in the individual organisation to practice the Norwegian model. However, Academic 2 observes that in reality, it is only the minority of Norwegian organisations that do so. Academic 2 presumes that the Norwegian model is mostly rhetorics being more evident in an industrial context, than it is in the public or service sector, and that it is rather the exception than the rule to relate to the Norwegian model in practice. Academic 1 also has some thoughts regarding similarities between Norwegian and Swedish lean:

*I don't think there's a big difference between lean in Sweden and Norway. Yes, Sweden might be a step ahead of us and have traditionally been more systematic in the way they have worked with lean. However, when I'm in Sweden and talk about lean the Norwegian way, they approach me afterwards and tell me that they recognise it as Swedish lean as well. Therefore, I believe that there is only a few contextual factors that distinguishes the way we work with lean from the Swedes (Academic 1).*

Furthermore, Academic 1 perceives consultancy companies as crucial for having developed lean in Norway. For instance, Skatteetaten (English: “The Norwegian Tax Administration”) is highlighted by Academic 1 as a particularly successful example, having hired highly skilled consultants on lean. In addition, Academic 1 emphasises that Lean Forum Norway has been essential in putting lean on the agenda in Norway. Moreover, Academic 1 believes that bringing researchers to the board and initiating research projects have contributed to making the concept, as Academic 1 puts it, ‘clean’. By involving researchers, lean was not just a ‘consultant thing’ any more, it became more legitimised, and lean became a topic in the public debate. Academic 2 also perceives the role as a researcher in the forum as something that creates legitimacy for Lean Forum Norway. By being present at the board of the forum, Academic 2 believes that the forum is not appearing as being bought and paid for by consultants. Academic 1 further believes lean works well in Norway, however the Academic emphasises that lean can be done in

horrible ways too. When asking about whether there exist documentation on that lean works in Norway, Academic 1 says:

*It's impossible to answer this question. Because you can never say that it was because of lean that something worked out. You cannot isolate cause and effect to lean only. This will always be an issue, because organisations aren't like laboratories, other things are constantly happening too. But I can say that it is likely that lean works well in Norway (Academic 1).*

When it comes to lean and success, Academic 1 says that the key to succeed with lean is to find a balance between entrenching lean in the organisation such that it becomes 'our' project, and external help. However, some external help is usually needed, but Academic 1 emphasises that one should be careful using consultants having standard procedures, as that rarely works out well. According to Academic 1, lean is dependent on involvement, and the organisation owning the processes. Academic 2 believes that the most advanced and correct interpretations of lean today, is 'XPS'<sup>2</sup>, where 'X' stands for the organisation, and 'PS' stands for Production System. The core of this interpretation is that each organisation has to identify their own lean practice. Moreover, Academic 1 has observed that many industries, such as the healthcare industry, are having difficulties with implementing something that originally were developed for car manufacturing. As such, Academic 1 also encourages to not call it lean, but rather make your own label, such as 'Company X Production System', or 'the Company X Way'. In addition, Academic 2 views the Norwegian process industry ultimate for doing lean:

*Organisations in the Norwegian process industry don't produce to storage, as the metal continuously flows. Thus, process industry is like the dream for production industry, managing to streamline the process. That is what everyone is trying to achieve (Academic 2).*

When it comes to challenges related to lean, Academic 1 believes that it is problematic to trying to do it too fast, not having engaged top managers, and thinking of lean as a project:

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<sup>2</sup> According to Netland (2013), XPS is a production improvement programme developed specifically for the company.

*If you think of lean as a project: “Now we are lean, and now we can start doing something else,” you will fail. Because lean is not a project, lean is something you have to do all the time. However, the project-oriented approach is hard to let go of (Academic 1).*

Academic 2 is critical to misperception of the concept, and is concerned with people not asking questions to why we do things the way we do. Another challenge, according to Academic 2, is related to trade unions. More specifically, Academic 2 emphasises that since trade unions are not prominent in American industry, there exist very little reflection on trade unions in the literature about lean. Therefore, Academic 2 believes that when Norwegian trade unions within public sector are negative towards lean, it is because they do not see the employees being involved sufficiently in the lean philosophy. They also might feel that the system is both forced onto the employees, and not accustomed to the operations. In the industry sector, however, Academic 2 observes that the industry leaders have understood the importance of talking to and involving employees. Furthermore, Academic 2 argues that lean has a built-in weakness, as lean is about optimising the current production and product. The real challenge, according to Academic 2, is to understand the product of tomorrow, and figure out what the future production is going to look like. Another pitfall identified by Academic 2, is the act of copying others. Academic 2 stresses that if you are copying others, you can never become better than the one you are copying:

*If you are first and foremost inspired by old thoughts and try to copy what others have done before, you'll never become better than number two. If you want to become the best, you have to understand how everything is connected, do it your way, and further develop it. Familiarise with and get to know the world you're a part of. But dare to develop original solutions. Combined, this will give you a competitive advantage (Academic 2).*

The academics have both been able to follow the development of lean as a concept since the early 1990s. To begin with, Academic 1 noted that the concept aimed heavily towards production only. It was all about car manufacturing, and maybe some other production industries, but it was a distant thought that lean could apply to other industries or sectors, such as the service industry or the public sector. And when lean started to spread to other industries, Academic 1 recalls to believe that it was totally meaningless and impossible to apply lean in such places. With the concept now having developed to become more generalised, and applied to service industries for instance, Academic 1 observes that there

is a particular need for visualising the processes, as the processes are not as evident as in physical factories. In comparison to 20 years ago, Academic 2 observes that lean today has gotten a solid ground in Norway, in which it can propagate into. Academic 2 notes that lean is increasingly included in discussions of how good organising and production should be. As such, Academic 2 believes that there is a good reason for Lean Forum Norway to continue to exist in the future. However, Academic 2 announces that last board meeting with Lean Forum Norway discussed whether or not to change the name of the forum:

*Last board meeting was about: "Does the forum need to change its name? Is 'lean' still durable?"  
The point is that this is a continuous discussion, because we're all well aware that we've married a label that is very schizophrenic (Academic 2).*

Finally, Academic 2 is certain that Norwegian industry has all the prerequisites needed for becoming world leading, and argues that one of the reasons for that is that in Norway, salary is not the main concern. Academic 2 believes that the future Norwegian industry worker is going to be highly educated, likely to have a PhD, making the future production driven by knowledge, and thus becoming highly productive.

### **4.7 The perspectives of Swedish actors**

In this chapter, the empirical findings from Produktionslyftet and a Swedish industrial company are presented.

#### **4.7.1 Produktionslyftet**

In consideration to lean, key person 1 from Produktionslyftet contemplates that defining lean might be too strict. However, Key person 1 states that in Produktionslyftet, they usually work with the stakeholder perspective consisting of four stakeholders, including customers, employees, cohesion, and owners. Furthermore, Key person 2 strongly believes that lean should be adapted to the context:

*In Sweden, we have a greater opportunity to make lean something good than what one might have in England, Germany, France and other countries, due to the lack of strong hierarchies. What we're going to do here, is to take advantage of our way of doing things, and make our own lean.*



*Thus, we're not going to copy paste from international organisations. We will do it our way. (Key person 2, Produktionslyftet)*

Moreover, Key person 1 believes that Produktionslyftet has managed to include more than what was originally included in the Toyota Production System. The informant further emphasises that you will not succeed by only copying Toyota without understanding the philosophy and mindset behind it, in addition to exploiting the Swedish context. Furthermore, Key person 1 explains that the reason behind Produktionslyftet's engagement in lean, is the perceived unification of productivity and employee involvement, the two reinforcing each other. When it comes to Produktionslyftet's core business, Key person 1 elaborates on the way Produktionslyftet work together with organisations in their lean development programme:

*We don't start with implementing lean tools and further build on that. The way we work is that we sit down together with the board and discuss a lot what the organisation should look like in five to ten years time. Here, we aim to create consensus and a driving force. Based on that, we enter a small scale pilot area where we experiment with new ways of organising the work, and either it gives us the desired results, or we have to adjust. The last part is to make the new ways of work stick to the member of the organisations, such that it doesn't disappear right away. (Key person 1, Produktionslyftet)*

According to Key person 2, the development programme is not about achieving results quickly, it is about achieving good effects in the long run. Furthermore, Key person 1 is of the impression that lean really works, believing that the combination of education and coaching that Produktionslyftet provides, is key to their progress. However, it is emphasised that it is a cultural change, and not something that just happens overnight. It involves patience and a long term-perspective. Key person 1 further stresses that it is not always easy; it is not just to adhere to a checklist in order to become lean. It really is a mindset that must be rooted in the entire organisation. In the organisations really succeeding with lean, Key person 1 has observed some kind of humbleness, stating:

*What I've seen in organisations that have succeeded with lean, is the view of oneself as not being great. And a wish to become better, a willingness to go out and taking in new ideas and thoughts, and making them their own. You have to be curious, listen, reflect and really want to learn. (Key person 1, Produktionslyftet)*

Moreover, in order to succeed, the role of the leader is perceived by the informants to be of great importance. Key person 2 stresses that the leader should consider himself as a coach, and that the organisational chart should be turned upside down, with the leader at the bottom and all the employees at the top. Key person 2 illustrates the matter as follows:

*The CEO should act like a Shetland sheepdog, gathering all the people and make them move forward. (Key person 2, Produktionslyftet)*

And:

*How should one keep track on the waste? Yes, by handing out waste-torches to all employees. If all employees lighten up their little torch, we can identify much more waste compared to one person having one, large torch. If everyone keeps their own torch, the total picture becomes much clearer. (Key person 2, Produktionslyftet)*

Furthermore, Key person 1 acknowledges that the understanding of the lean concept has gone through a development over the past two decades. Towards the end of the 1990s, Key person 1 had a more critical view of lean, seeing lean as a narrow concept that was often being confused with assembly lines. Looking back, Key person 1 believes that the understanding and dialogue have broadened from being a very tool-based to becoming more comprehensive. More specifically, Key person 1 argues that they had probably only seen the ‘tip of the iceberg’ of the Toyota Way, without really understanding the underlying mindset. Therefore, when they started working with lean in Sweden during the 1990s, the concept was merely copied. However, as Sweden had different prerequisites and other things to produce than in Japan, it did not work out very well. Today, Key person 1 believes that the understanding of lean has become more nuanced, the concept is more developed, and has become adapted to a Swedish context. In fact, Key person 1 admits that they talk less and less about lean in Produktionslyftet, it has rather become a foundation for how they think.

When it comes to the future of lean, Key person 1 emphasises that Produktionslyftet cannot be static and continue to work in the same way as they did ten years ago. However, Key person 1 emphasises that the lean principles and philosophy will still be at the core for how they work. However, there is a need for more development of the concept. In addressing the upcoming, complex challenges ahead of industrial

organisations, Key person 1 stresses that they have to consider both the small steps in the organisations, but also the larger, innovative leaps. Moreover, Key person 1 perceives lean and innovation management as complementary to each other, stating that “they are like siblings that need to find a way to coexist in the organisations”. In addition, digitalisation is brought up as something that will be of great importance in the time to come. Key person 1 views digitalisation as a tool rather than a substitute for lean, and Key person 2 stresses the importance of not digitalising the waste, stating that:

*One has to first get rid of the waste, before digitalising.* (Key person 2, Produktionslyftet)

Key person 1 has attended Lean Forum Norway’s annual conference, and is of the impression that the lean is being discussing in Norway, and the questions that are raised, coincide with the Swedish views. Furthermore, the informant mentions that Norway seems to be a step ahead of Sweden when it comes to research on lean. In addition, Key person 1 reflects on the fact that Lean Forum Norway is starting “Produktivitetsspranget”. There do exist a Lean Forum in Sweden as well, but the forum is entirely independent of Produktionslyftet. Key person 1 concludes with that Norway might succeed in combining the two instances in a better way than what is done in Sweden. Finally, Key person 1 comments on a possible cooperation between Sweden and Norway:

*I am convinced that we have a lot to learn from each other. Neither Norway or Sweden are large countries, and we have a lot in common. Cooperating could definitely strengthen us both.* (Key person 1, Produktionslyftet)

### **4.7.2 Swedish industrial company**

The Swedish company has, according to the informant, had an extensive lean journey, particularly due to its participation in Produktionslyftet’s development programme. The informant defines lean in the following way:

*Lean is about developing the organisation, it is a method for working as well as a philosophy. Philosophy is most important, then comes the methods and ways of doing things.* (Informant, Swedish Industrial Company)

The informant further states that lean involves four main parts; employees, suppliers, customers and owners. In order for lean to work, the informant emphasises that one needs to customise the lean principles, methods and philosophy to the organisation. According to the informant, lean itself might be perceived as a little too abstract, and as such, translating the principles into one's own words will make the concept easier to understand. Moreover, the informant stresses that this is exactly what has been done in the Swedish company, they have made their own 'twist' on lean. By having interpreted lean into the company's own context and reality, the informant is convinced that it has become much easier for the employees to deal with the concept. As such, the employees in the Swedish company do not refer to it as lean, they have instead chosen to call it 'Our Way'. This was repeatedly emphasised throughout the interview. The informant further elaborates on what is the core of 'Our Way':

*For us it is the philosophy that is most important, not any principles or methods. The soft values are more important than the hard ones. It is a lifetime project. And it is an integrated part in our strategy. How we minimise waste, and how we can become more efficient. It is the philosophy and leadership that is of greatest importance to us. (Informant, Swedish Industrial Company)*

Moreover, the informant believes that being close to the process and the challenges related to the process are important. One of the greatest challenges, according to the informant, is having the philosophy intact, and at all time have the engagement form leadership. Lastly, the informant emphasises that in order to be successful, one should not be afraid to fail:

*If you don't fail, you won't learn. In addition, it is a project that needs to be in focus at all times, not something you do occasionally. (Informant, Swedish Industrial Company)*

Furthermore, the informant explains that the Swedish company started working with lean in 2004/2005. The reason why the company started a lean journey, was because the company got a new leader who had previously worked with lean in another company. The informant tells that in the beginning, it was mostly the leaders who were the driving force in the work with lean. The informant tells that it took some years before all parts of the company were involved, and that it still is an ongoing project. The informant further explains how the work with lean has developed:

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*The real transformation came when we started working with Produktionslyftet in 2008. That is when we became more strategic in our lean work. We have been engaged in the development programme twice, the first time in 2008, and the second time in 2014. (Informant, Swedish Industrial Company)*

The informant explains that when the Swedish company got engaged in Produktionslyftet's lean programme, the lean coaches were present at all levels of the company. According to the informant, the lean coaches helped the Swedish company to consider more of the business aspect of it as well, in addition to the production process. In fact, the informant considers that it is in the administrative work where the company has achieved the greatest improvements. Furthermore, the informant stresses that even though the company has worked closely with Produktionslyftet, it is the employees that 'own' the process.

According to the informant, the way in which the Swedish company works with lean today is much like they did when the company first started the lean journey, emphasising improvement work. The informant further explains that the motivation today for working with lean is the aim to continue to exist, stating that everything the company does is for the customers. In addition to the cooperation with Produktionslyftet, the informant believes that the trade unions have been important actors in the lean journey. Moreover, the informant believes that the Swedish trade unions acknowledge that lean could be a means to upholding jobs, and engage in the work with lean because the unions see the advantages and continuity it provides to the employees. Furthermore, the informant mentions that the Swedish company is involved in several lean networks, both nationally and locally, which the informant sees as platforms for learning. In the network, different companies share experiences about what works and what does not work. However, the informant emphasises that there is a great variation of other network participants' knowledge about lean.

When reflecting upon the future of lean, the informant stresses that digitalisation will be of importance. There will be important digital opportunities in the future, however, the informant stresses that the company must avoid digitalising the bottlenecks.



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## 5 Analysis and Discussion

This chapter seeks to answer the research question of the thesis: *How is lean interpreted and entrenched in Norwegian industry?* As such, the empirical findings from seven different categories of actors and stakeholders that are perceived as important for the development of lean in Norway are analysed and discussed. The development of lean in Norwegian industry from being an adopted management fashion, to becoming a more accepted and legitimised management practice, have been analysed on three different levels; organisational, inter-organisational, and national, according to Zeitz et al.'s (1999) framework. Moreover, the organisational level includes the companies that are included in the research. Furthermore, the inter-organisational level includes the interactions between organisations, and actors or stakeholders interacting with organisations. The national level includes the actors and stakeholders that are not in direct contact with the organisations.

## 5.1 Interpretation of lean in Norwegian industry

This chapter seeks to answer the first part of the research question, namely how the different actors related to Norwegian industry interpret lean. How the different actors interpret lean can give an indication to whether there exists a consensus on what lean really is, and whether commonalities can point to there being a Norwegian way to understand lean.

The most prominent finding, across all actors and levels of analysis, is that each actor has adapted lean into their own reality, to serve their own interests. Moreover, the actors have taken lean's core idea, and rationally selected those elements from the concept that suits their own purposes, and thus recognised their own understanding or practice. Lean is, as we saw in the theory in chapter 2, characterised by a certain degree of conceptual ambiguity, meaning that the concept can be interpreted in different ways, theoretically known as interpretative viability (Benders and van Veen, 2001). The interpretative viability allows each actor to recognise their own version of lean (Benders and van Veen, 2001), and can further create an illusion for the actors that they have the same understanding of lean. Moreover, companies have developed company specific business systems, corresponding to what Netland (2013) refer to as 'XPS'. These company specific systems are strategic production systems that build on lean, have a long-term orientation rather than a project orientation, and is adapted to company specific elements such that it fits with local needs and variations (Netland, 2013). In addition, the social partners see that lean can serve as a means for achieving productive industries or to enhance working conditions. The fact that the different actors and stakeholders have managed to find an interpretation that is beneficial to their own interests, facilitates the acceptance of the concept, and even leads to many of the actors embracing lean. Thus, instead of blindly imitating pre-scripted approaches, each actor have rather made use of the discourse around lean, and enacted on that based on their own interests, by producing their own contents and associations that fit their reality. These findings are in accordance with a comparative case study conducted by Brännmark et al. (2012). This study concludes that there is much variation between how different Swedish actors use the lean concept, and Brännmark et al. (2012) argue that it has to do with the ambiguous nature of lean.



The empirical data also indicates that on the organisational level, companies have a more specific and precise understanding of lean, approaching lean more ‘by the book’, compared to actors at a higher level of analysis. Nevertheless, even though lean is understood at different levels of abstraction, actors across the different levels of analysis seem to share a similar rhetoric to some extent. Moreover, all actors appear to have a holistic approach to lean, meaning that they see lean as a philosophy and way of thinking, but also as some principles and techniques, and agreeing that lean is more than “putting yellow tape on the floor”. In addition, they are all of the opinion that lean leads to efficiency in organisations, and that in order to succeed with lean, a long-term perspective is crucial.

Furthermore, at the inter-organisational and national level, there is an agreement that lean in Norway must evolve with the Norwegian model at core. This view is supported by the the informants from the consultancy company, the Research Council of Norway, Lean Forum Norway, LO, and the lean academics. The interest for the Norwegian model is also visible at the organisational level, however more indirectly, as the informants from the companies never mention the Norwegian model explicitly, but rather focus on features of the Norwegian model at organisational level, such as employee involvement and collaboration with union representatives. Evolving lean within the Norwegian context, and integrating the Norwegian model into the concept, could arguably be seen as a framing move (Benders et al., 2018), which help keeping the concept relevant and consequently enhancing the possibility of lean to endure in Norwegian industry.

To summarise, despite the different actors having different areas of interest, lean somehow brings these stakeholders together, creating a common ground for discussion of lean in a Norwegian context. There is a consensus among all the actors and stakeholders that lean, more specifically the mindset and philosophy of the concept, is something good, and something they wish to develop within the Norwegian context. It could further be argued that having this vague approach to lean is a prerequisite for the different actors to agree upon lean in a Norwegian context. However, when lowering the level of abstraction, the variation across the different actors increases in terms of how they interpret lean. Furthermore, as one of the academics puts it, the label ‘lean’ might be questionable, and thus there is a discussion among many of the actors whether the term

‘lean’ itself will continue to exist. Nevertheless, the actors perceive that lean, regardless of what one choose to call it, serve as a good foundation to accommodate their needs and for what the future holds. Moreover, with the exception of one informant, the empirical findings indicate that there is little critical reflection regarding lean among the informants. The different actors present at the board of Lean Forum Norway somehow constitute a ‘coalition for change’, in which the actors together drive the development of lean the Norwegian way, contributing to its further survival and the lengthening lean’s life cycle in Norwegian industry.

### **5.2 Entrenchment of lean in Norwegian industry**

In this chapter, the empirical findings from chapter 4 are linked to the framework developed by Zeitz et al. (1999), presented chapter 2.1.3. Moreover, the framework has been used to organise, review and evaluate the empirical findings according to the five bases of entrenchment specified by Zeitz et al. (1999), in order to find out whether lean is adopted or entrenched in Norwegian industry. Furthermore, in chapter 5.2.1 to chapter 5.2.5, each of the five bases included in the framework are assessed at the three levels of analysis. In chapter 5.2.6, the most prominent findings are summarised and discussed.

#### **5.2.1 Models: imitation of other actors**

Modelling is the act of one actor imitating the perceived practices carried out by other actors (Zeitz et al., 1999). What is more, the persistence of the practice can depend on the attention the practice gets, and on how much actors imitate other actors (Zeitz et al., 1999).

##### **Organisational level**

At the organisational level, modelling is certainly present. The empirical findings indicate that companies in this study are inclined to different kinds of modelling. For instance, it is observed that the companies have company specific business systems that are being modelled by other departments of the enterprises, either purposively or arbitrarily. In addition, companies take inspiration from other actors, both Norwegian and foreign actors, and particularly Swedish actors. According to Yu and Zahler (2010 in Netland,

2013), management practices that have strong technical dimensions are more easily adopted, and thus easier modelled by organisations, than those that have more focus on softer dimensions. As such, modelling might be facilitated when lean is defined and understood on a lower level of abstraction, which appear to be the case at the organisational level.

### **Inter-organisational level**

At the inter-organisational level, the key actor Lean Forum Norway is without any doubt instrumental when it comes to modelling. Lean Forum Norway's annual conference attracting hundreds of participants from all across the Norwegian industry is of particular interest when it comes to modelling. In this conference, lean gurus have much visibility, best practices are shown, companies share their experiences with others, and the prestigious lean price is given to the 'Norwegian Lean enterprise of the year', all of this facilitating modelling to a large extent. In addition to the conference, Lean Forum Norway's regional branches constitute another arena where practitioners can meet with other practitioners and get inspired. Furthermore, Lean Forum Norway's pilot project "Produktivitetsspranget" is strongly inspired by Produktionslyftet in Sweden. Besides Lean Forum Norway, consultants have also been an important medium for modelling and disseminating lean in the Norwegian industry. The consultants conducting modelling, is in accordance with Rolfsen's (2014) assumption that consultants play a crucial role in conveying lean, which further strengthens the importance of having a discussion of 'lean the Norwegian way' that includes the consultants.

### **National level**

At a national level, there has been considerable influence from several international actors, including Sweden, Japan and the United States. Around the time of establishment of Lean Forum Norway, there was a growing concern for consultancy companies with background from American culture implementing lean in Norwegian organisations, without consideration for the Norwegian model. Today, both the Norwegian model and trade unions have to some extent become an integrated part of lean in Norwegian industry, mainly thanks to Lean Forum Norway. Furthermore, the Research Council of Norway has initiated research projects on lean, contributing to making lean more legitimised and visible in Norwegian industry, positively affecting practitioners'

propensity to imitate. In addition, the Norwegian industry sector has served as a model for lean work in other sectors, particularly the public and the private sector, and especially for health care.

### **Summary**

To summarise, modelling is to a great extent present at each level of analysis, and is perceived to have strongly contributed to the adoption of lean in Norwegian industry. The presence of imitation at all levels of analysis implies that lean has good prospects to endure in Norwegian industry. The empirical findings indicate that it is common for Norwegian actors to model other actors, both Norwegian and foreign actors, and particularly the Swedes. Modelling from Swedish actors appears on all levels of analysis, including the modelling by Norwegian companies of Swedish car manufacturers, and Lean Forum Norway copying what has been done in Sweden, particularly taking inspiration from *Produktionslyftet*. Norway being such a small country is believed to make Norwegian actors much more open to modelling from outside its national boundaries compared to larger countries (Cole, 1989). On the other hand, one of the academics appears to be particular critical to companies copying others, emphasising that you can never become better than the one you are copying. Nevertheless, having a formal network like Lean Forum Norway increases the possibility for dissemination and modelling of lean between organisations, and is thus perceived to be of particular importance to lean's persistence in Norwegian industry. Moreover, with support and acknowledge from such a professional network, organisations are more inclined to adopt lean, and probably have more confidence in practicing lean. In addition, the more organisations that adopt a lean strategy, the greater momentum lean gets in the network, and the more other organisations will feel inclined to model lean into their own organisation (Zeitz et al., 1999).

### **5.2.2 Culture: values and beliefs**

The base of culture entails the embedded values and beliefs of organisational members, matched by the propensities of the actors (Zeitz et al., 1999). Moreover, the greater the cognitive and value support for a practice, the greater likelihood for the duration of the practice (Zeitz et al., 1999).

### **Organisational level**

At the organisational level, it is evident that the companies have a holistic approach to lean. Besides applying lean tools and practices, the companies also regard lean as a philosophy and a way of thinking. Elements that are important for the companies in regards to lean, includes continuous improvement, leadership and long-term perspective. Particularly, it has been important for the companies to embed lean in their core values. One of the informants even stated that lean has become part of the company's DNA, increasing the possibility of entrenchment. Furthermore, the companies have adapted lean to fit within their own context, to suit their particular needs. This is done by adhering to the lean principles that are perceived relevant for the company, and integrating these principles into company specific business and production systems, which as previously stated, correlates with the 'XPS' presented by Netland (2013). Furthermore, the empirical findings reveal a certain proudness in the way some informants talk of their lean journey. Having this aspect of proudness signals that those who work with lean have faith in lean serving the purpose of their organisation, enhancing the entrenchment of lean.

### **Inter-organisational level**

Initially, lean was seen as an imported Japanese management practice that American consultancy companies disseminated into Norwegian organisations, being at odds with the Norwegian model. The motivation behind establishing Lean Forum Norway was to get lean and the Norwegian model into a new conjunction. The founders of the forum wrote down several principles that were to be the foundation for how lean should be conducted in Norwegian organisations. The principles had the Norwegian model at core, and are to this day the core for how Lean Forum Norway advocates lean through the forum in Norway. The forum has even made the American consultancy companies join the board, which in turn appears to have resulted in the consultants taking the Norwegian model into account when implementing lean into Norwegian organisations. The empirical findings indicate that today, different actors and stakeholders advocate lean within the Norwegian industry.

### **National level**

In contrast to popular beliefs in other countries, the Norwegian trade unions are positive to lean. However, LO emphasises that they are positive to lean as long as the Norwegian

model is at core, and The Basic Agreement is adhered to. One of the greatest concerns for LO, in addition to secure meaningful work for employees, is guarding the Norwegian model, and further evolves it to make sure that it is relevant in the future. The academics also emphasise that lean needs to build on the Norwegian model in order to be relevant in a Norwegian context. The academics are of the opinion that there is a growing interest of defining 'Norwegian lean' among actors and stakeholders on a national level.

### **Summary**

To summarise, it is evident that there is a great amount of support for and belief in lean among the different actors and stakeholders, which enhances lean's ability to resist pressure to change. On the different levels of analysis, it seems that lean has become embedded in the different actors' beliefs and values; they are all of the opinion that lean is something good, and something they want to be a part of and have a stake in. Moreover, it seems like lean coincides with both the direction in which managers wants their organisations to move in, but is also in the interest of the social partners and other actors. What is of particular interest is the involvement from LO. A prerequisite for this engagement could be the high degree of centralisation within the federations of LO. Moreover, there is a mutual understanding among the informants at the two upper levels of analysis to regard the Norwegian model when implementing and working with lean. Furthermore, having a well-organised national infrastructure like Lean Forum Norway is crucial for shaping and promoting the belief in lean to different stakeholders (Benders et al., 2018). The shared belief, and way of regarding lean between the different levels are something that can enhance the possibility of lean being, or becoming, entrenched in Norway.

### **5.2.3 Educational efforts**

The base of education entails the efforts and resources different actors put to disposition to facilitate for learning and development (Zeitz et al., 1999). Moreover, the greater the commitment to educational resources, the greater the duration and the practice's ability to resist pressure to change are (Zeitz et al., 1999).

### **Organisational level**

At the organisational level, the companies have a strong emphasis on learning in order to enhance their lean practices. There exist different forms of educational efforts, however the denominator is that there are courses and training programs available for all employees, including shop floor workers, middle-management, and leaders. There are some differences in how the learning is encouraged in the companies, however there is in total a strong emphasis on the employees developing their knowledge through different means, as intended by the companies. Another commonality is that the companies are concerned with creating and developing knowledge internally in the company, restricting the use of external help. Having such a strategic approach to learning and development within the companies enhances the possibility of entrenchment of lean, as educational efforts represents sunk costs (Zeitz et al., 1999).

### **Inter-organisational level**

At the inter-organisational level, actors including Lean Forum Norway, NI, the Research Council of Norway, and consultants are important when it comes to developing lean and facilitate learning and education to practitioners. Moreover, as emphasised by one of the academics, Lean Forum Norway has been essential in putting lean on the agenda in Norway and promoting learning across industries. Having such an infrastructure makes it easy to gather practitioners from all across Norway, where they can exchange experiences and knowledge. Furthermore, the forum also stimulates to research on lean and lean-related topics, particularly by having the Research Council of Norway engaged in the board of the forum. In addition, with the pilot project “Produktivitetsspranget”, the forum will offer extensive training to selected companies, contributing to increase the level of education among practitioners. The key person from Lean Forum Norway believes that it is not given that lean will continue to develop in Norway without the forum. There is also found engagement for educating practitioners from the employers’ organisation, NI. The main interest of NI is the survival of Norwegian industry, and as such, the commitment to lean indicates that NI considers lean to be of such importance that it is worth the sunk cost of educating their member organisations.

### **National level**

According to the informant from the Research Council of Norway, there was no comprehensive research on lean in Norway prior to the establishment of Lean Forum Norway in 2009. However, over the past decade, several research projects on lean have been initiated and funded by the Research Council of Norway, contributing to spreading knowledge of lean and making the practice more legitimised in Norway. The funding of lean projects indicates that there is an interest in developing and conducting research on lean on a national level. In addition, the academics have provided research on lean and publication of books and articles on the topic. As such, the academics have also contributed in the literature on lean being seen from a Norwegian point of view, dissociating American and Japanese culture.

### **Summary**

To summarise, there is a considerable resource commitment to training and education at all levels of analysis, particularly on the organisational and inter-organisational level, facilitating the entrenchment of lean. The empirical findings suggest that all actors are concerned with continuously developing their knowledge of lean within their own context. The fact that the companies have invested in formal training courses to their employees, poses as a sunk cost that gives lean practices more stability at the organisational level. In addition, research being part of the development of lean is good as it creates legitimacy, facilitating entrenchment.

### **5.2.4 Regulative: constraints imposed by other actors**

The regulative base can be understood as constraints imposed by one actor on another, that being either to demand or hinder the execution of a certain practice (Zeitz et al., 1999). Moreover, the greater the amount of regulative pressures by other actors, the greater the duration of the practice and ability to resist pressure to change (Zeitz et al., 1999).

### **Organisational level**

At the organisational level, the companies have created their own company specific business or production systems. These systems are built upon the lean principles that are perceived appropriate for the companies, serving as means to provide guidance for how



lean should be carried out in the companies, serving as a form of regulation for lean operations. Furthermore, companies need to cooperate with the union representatives in order to be successful with their lean implementation, which is another regulation companies should adhere to. The empirical findings suggest that union representatives have been included in the lean work from the start, which ultimately lead to minimal conflicts between the opposing parts.

### **Inter-organisational level**

At the inter-organisational level, there seems to be imposed less regulations of the binding nature. There is however some regulations, namely imposing suppliers to engage in lean. When a company imposes regulations for the supply chain, it might enhance the longevity of the practices in the network. However, the practice of imposing regulations in the supply chain does not appear to be a commonality yet, as it was the case for one company only. Furthermore, at the board of Lean Forum Norway, different social actors and stakeholders are brought together. These different actors have all their different interests. For instance, the motivation for LO engaging in lean is to secure the involvement and wellbeing of the employees, and NI wants to secure the existence of the industry, while companies wants the most effective production. Together, the board of the forum can develop and advocate lean in the best interest of all actors. The forum does not impose any regulations on any party, however, it strongly encourages practitioners to engage in lean work according to the forum's recommendations for lean.

### **National level**

From a trade union perspective, 'The Basic Agreement' should at all times be adhered to in the working life, and is something all organisations with a collective agreement are required to follow. The Basic Agreement is thus in itself a regulation for the working life. As proclaimed by the informants from LO, LO is positive to all changes, as long as the changes are in accordance with The Basic Agreement. The informant explains that there is even a part in the first Basic Agreement that has to do with the importance of improvement work. Due of the contents of the Basic Agreement, LO is supportive of lean the Norwegian way. Furthermore, according to one of the academics, one should understand that the Norwegian model is founded on collective agreements and the fact that the Norwegian working life is organised to a large extent. Even though the

informants from LO are mostly positive towards lean, it was emphasised that they were positive to lean in those parts of the working life where the trade unions were represented. Whereas, it can be understood that LO will only contribute to work with and develop lean on the condition that it involves the Norwegian model and the employees are involved. As LO is a powerful actor in the Norwegian work life, the trade union serves as a regulative means, and needs to be taken account for in the implementation of lean. If organisations want to implement lean, they need to do it in agreement with union representatives, and in line with The Basic Agreement.

### **Summary**

To summarise, it is on a national level where the regulative force is most prominent, namely through the Basic Agreement. However, the Basic Agreement affects only the parts of the Norwegian work life that are organised. Apart from one of the companies having requirements for their strategic suppliers to engage in lean work, none of the actors or stakeholders are directly imposed to practice lean, or to contribute in the development of the concept within a Norwegian context. As such, at time being, the regulative base is not covered to such an extent that it suggests entrenchment of lean. Consequently, a greater amount of regulative and coercive pressures supporting lean would contribute to the endurance of the concept. However, it might be difficult for one actor to push a lean strategy onto other actors, and it is rather unlikely that lean becomes a mandatory requirement from higher holds in the near future. Nevertheless, a good starting point could be for companies to encourage other actors in their value chain or network to become lean. Moreover, companies could selectively pick strategic suppliers that are lean, or set lean as a requirement for their suppliers.

### **5.2.5 Technical: measuring performance effects**

The last base, technical, entails the specific efforts to measure the effects of a practice or performance conducted by an actor (Zeitz et al., 1999). Moreover, the greater the measurement of performance effects, assuming that the effects are perceived to be positive, the greater the duration of the management practice will be (Zeitz et al., 1999).

### **Organisational level**

At the organisational level, the empirical findings indicate that measuring effects from lean is of great importance for the companies. Moreover, the use of key performance indicators and balanced scorecards are highlighted as means to evaluate effects in the companies, and can be seen as commitment to lean from the management. However, measuring effects from lean appears to be challenging, and is something the companies seem to struggle with. As one of the academics said, measuring the effects from lean can be challenging as lean is not practiced inside a laboratory. In reality, there are always additional factors that have implications on the measurements. As such, the companies themselves have had challenges related to measuring the exact effects from lean, but are in general very pleased by the perceived results that lean has brought to their performance.

### **Inter-organisational level**

At the inter-organisational level, it seems like it is the consultant that delivers the most tangible results. Consultants are expected to show results, if not, customers are less likely to buy their services, and consequently, the consultants are inclined to be concerned with measuring the effects from lean. Other than the consultant, there does however seem like the actors are convinced that lean works well, even though there is no clear evidence that it does. At this level of analysis, the Swedish actor Produktionslyftet is an example to pursue. Produktionslyftet's lean development programme has demonstrated great results (Olsson and Hellsmark, 2012), and the key persons from Produktionslyftet believe that it is the combination of education and coaching that is key to their progress.

### **National level**

In general, there is little academic research on the effects of lean on a national level. The academics believe that it is impossible to say whether lean actually works in Norway. However, the academics are under the perception that it is likely that lean works well in Norway, which is further supported by a research conducted on by Madsen et al. (2016). This research targets Norwegian companies across different industries, who answer the perceived effects of lean in their organisation. However, Madsen et al. (2016) have not measured the actual effects. Nevertheless, the research conducted by Madsen et al. (2016) indicates that there is a growing interest in providing quantitative data on the effects of

lean in Norway. If lean is to be completely entrenched in Norwegian industry, there is seemingly a need for more qualitative and quantitative measurements on the national level to stimulate the belief in lean the Norwegian way.

### **Summary**

To summarise, the technical base appears to have the greatest improvement potential of the five bases that have been assessed. It is at the organisational and inter-organisational level where the most specific efforts to measure effects from lean can be found. When companies measure positive effects, this is likely to enhance the company's commitment to lean. Recall that for a management fashion to remain in the spotlight, beliefs about enhanced organisational performance are crucial (Benders et al., 2018), and research on that lean actually works would contribute to this. However, measuring the effects is something that the actors in general seem to struggle with. Out of the different actors, the consultants arguably have the most incentives to measure lean. The consultants measuring the effects of lean are a valuable contribution to enhancing lean in Norwegian industry. However, at the national level, there are particular deficiencies of evidence that lean actually works in Norwegian industry. As such, a developed, national research on the actual effects of lean, not only perceived effects, would foster the appearance of rationality, and thus contribute to the retention of lean among practitioners (Zeitz et al., 1999).

### **5.2.6 Assessment of the entrenchment of lean in Norwegian industry**

The most prominent findings from the above analysis and discussions are summarised in table 5.2.6.1, and these are further used to conclude whether lean is adopted or entrenched in Norwegian industry.

Table 5.2.6.1: Summary of the findings from the analysis

Base	Organisational level	Inter-organisational level	National level
<b>Models</b>	<ul style="list-style-type: none"> <li>Companies take inspiration from other foreign actors, particularly Swedish actors.</li> <li>Company specific business systems are modelled in other departments of the enterprises.</li> </ul>	<ul style="list-style-type: none"> <li>The annual conference of Lean Forum Norway facilitates modelling among companies.</li> <li>Lean Forum Norway's activities are strongly inspired by the Swedish actor Produktionslyftet.</li> <li>Consultants are an important medium for modelling and dissemination of lean.</li> </ul>	<ul style="list-style-type: none"> <li>Norwegian lean has been influenced by Japanese, American and Swedish approaches to lean.</li> <li>Research funded by the Research Council of Norway contributes to making lean more legitimised, positively affecting lean practitioners' propensity to imitate.</li> <li>The Norwegian industry sector serve as a model for lean work in other sectors.</li> </ul>
<b>Culture</b>	<ul style="list-style-type: none"> <li>Lean coincides with the direction in which managers wants their organisations to move in.</li> <li>Companies have a holistic approach to lean.</li> <li>Companies have adapted lean into their own context, and embedded lean into their core values.</li> <li>Company informants are proud of their lean journey.</li> </ul>	<ul style="list-style-type: none"> <li>Actors attempt to develop lean with the Norwegian model at core.</li> <li>Lean Forum Norway facilitates engagement and support for lean among different actors and stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>There is a growing interest of defining 'Norwegian lean' among actors and stakeholders on the national level.</li> <li>Lean coincides with the interest of the social partners.</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>Companies have a strong emphasis on learning by offering formal courses and training programs.</li> <li>Companies are concerned with creating knowledge internally, restricting external help.</li> </ul>	<ul style="list-style-type: none"> <li>Lean Forum Norway has been essential in putting lean on the agenda, promoting learning across practitioners, and stimulating research.</li> <li>The social partner on the employer side offers training courses to member organisations.</li> </ul>	<ul style="list-style-type: none"> <li>Actors are in general devoted to extend their knowledge of lean, and adapt it to their own context.</li> <li>The Research Council of Norway contributes to spreading knowledge of lean and making the practice more legitimised.</li> </ul>
<b>Regulative</b>	<ul style="list-style-type: none"> <li>Companies have embedded lean in their business and production systems, regulating the daily operations.</li> <li>Companies must cooperate with union representatives when implementing lean.</li> </ul>	<ul style="list-style-type: none"> <li>One company imposes strategic suppliers to engage in lean.</li> </ul>	<ul style="list-style-type: none"> <li>The Basic Agreement is a regulation for organised parts of Norwegian working life.</li> </ul>
<b>Technical</b>	<ul style="list-style-type: none"> <li>Measuring effects from lean is of great importance for companies, however it is something that they find challenging.</li> <li>Informants perceive lean to have positive effects.</li> </ul>	<ul style="list-style-type: none"> <li>Consultants are particularly concerned with measuring the effects from lean.</li> </ul>	<ul style="list-style-type: none"> <li>Some researchers have conducted a study on the perceived effects of lean in Norwegian companies across industries.</li> </ul>

When assessing the entrenchment of lean in Norwegian industry, we look at the quantity and quality of supporting elements at each base of the framework. According to Zeitz et al. (1999), the extent of entrenchment is higher when all levels of analysis support a given practice. Moreover, for a true entrenchment of a practice to take place, there should be substantial findings in all bases over all levels (Zeitz et al., 1999).

Overall, supporting elements are found at all bases of entrenchment, and within all levels of analysis. At the first three bases of entrenchment, including models, culture, and education, there are many supporting elements present at all levels of analysis, strongly facilitating the entrenchment of lean. At the last two bases of entrenchment, regulative and technical, there are however fewer supporting elements, and some of the elements are perceived to be of less importance for entrenchment. Consequently, the analysis indicates that in addition to being a management fashion that have been adopted by practitioners as a management practice, lean has also started to become entrenched in Norwegian industry, meaning that abandonment of lean, at least as a practice, is unlikely (Zeitz et al., 1999). Most importantly, the entrenchment has been made possible by Norwegian actors imitating each other and other foreign actors, lean becoming embedded in the beliefs and values of the different actors, and the actors are concerned with continuously developing their knowledge about lean in their specific context. These elements have all contributed to that lean has gotten a solid ground in Norwegian industry in which it can further propagate into, lengthening the life cycle of lean.

However, due to fewer findings regarding regulation and measurement of the effects from lean, the analysis suggests that lean in Norwegian industry is not yet fully entrenched. Nevertheless, lean appears to have gotten a solid foothold in the industry, and is even praised by several organisations and actors. One might ask what have made this tremendous support for lean possible despite the lack of support from two bases. Regulative means will not be further elaborated upon, as discussed under chapter 5.2.4, it is not realistic to impose coercive restrictions on actors in the near future. However, when it comes to measuring the effects from lean, a paradox is identified: According to Zeitz et al. (1999), measurement of performance effects, assuming the effects are positive, enhances organisational commitment to a practice. However, at a national level, there exist no or few reported studies on that lean leads to enhanced performance within the

Norwegian industry, and companies strive to measure actual effects. Still, lean is perceived by the different actors to cause positive effects, and continues to gain popularity among practitioners.

It is further interesting to reflect on what would happen when a legitimate actor, for instance the Research Council of Norway, conducts research on the actual effects from lean. Measuring the effects would require lean to be specified and defined at a low level of abstraction. As such, instances inhabiting power of definition would need to agree upon what precisely lean is. The empirical findings from this study showed us that due to the interpretative viability, different actors have interpreted lean on different levels of abstraction. While practitioners, such as companies and consultants, appear to have a more precise definition of lean, actors at the inter-organisational and national level appear to have a more vague definition of lean. Moreover, if lean was to be concretised into a narrow definition, it is not certain that this definition would fit into each actors' reality and interests anymore, and 'the coalition' might burst. Moreover, Pettersen (2009) questions whether a strict definition of lean will be useful at all. According to Hines et al. (2004 in Pettersen, 2009), lean is constantly evolving, implying that any definition of the concept will only be a 'still image' of a moving target, only being valid at a certain point of time. Thus, by letting the lean concept be vague and ambiguous, the different actors can continue to interpret lean on their own, fitting the concept into their own reality to serve their own interests. As a result, the different actors and stakeholders appear to agree that lean is something good, without having to explicitly using one specific definition. It is rather a paradox; the concept being abstract makes lean more understandable and relatable to the different actors and stakeholders. As such, it might be a good thing that there is inadequate documentation of the effects of lean in Norwegian industry, letting each actor recognise their own definition and thus vouch for lean. In addition, measuring the actual effects from lean in different organisations, with different products and different contexts, is methodologically very difficult to carry out. What really matters, according to Benders et al. (2018), is whether the actors actually believe in the concept. Moreover, lean's persistence is dependent on having a good reputation, as it is the reputation that ultimately affects lean's wider support.





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## 6 Conclusions

The purpose of this thesis was twofold. First, we wanted to find out how different actors related to Norwegian industry address lean, and whether there exists a common understanding across different actors and stakeholders on what lean entails. Furthermore, we wanted to understand whether and how lean has become more than just an adopted management fashion, and whether there is reason to say that lean has become institutionalised within Norwegian industry. This was embodied into the research question:

*How is lean interpreted and entrenched in Norwegian industry?*

### 6.1 Interpretation of lean in Norwegian industry

Interpretation is concerned with how the different actors related to Norwegian industry understand and make sense of lean. The analysis of the empirical findings indicates that there does not exist one specific understanding or definition of lean among the different actors and stakeholders included in this study. As we have seen, lean is an ambiguous management concept, and the interpretative viability allows each actor to recognise their own version of lean (Benders and van Veen, 2001). The most prominent finding, across all actors and levels of analysis, is that each actor has eclectically picked out elements from lean that they find suitable for their own reality, to serve their own interests. The fact that the different actors and stakeholders have managed to find an interpretation that is beneficial to their own interests, facilitates the acceptance of the concept, and even leads to many of the actors embracing lean. Even though different actors understand lean differently, they share the same rhetoric to some extent, commonly referring to continuous improvement and the importance of having a long-term perspective.

Furthermore, the different actors understand lean at different levels of abstraction. This means that, companies and consultants have a more specific understanding of lean, understanding the concept more 'by the book', compared to actors such as key actors and the social partners. Moving up at a higher level of analysis, these actors tend to have a more vague definition of lean, mostly referring to lean as a way of thinking, removal of waste, and continuous improvement. Even though lean is understood at different levels of abstraction, it is a commonality, across the different levels of analysis, for the actors to have a holistic approach to lean. In having a holistic approach, the actors consider lean as a philosophy and way of thinking, but also as some principles and techniques. In addition, there is an agreement among the different actors at the inter-organisational and national level that lean in Norway must evolve with the Norwegian model at core. Evolving lean within the Norwegian context, and integrating the Norwegian model into the concept, can be seen as a framing move (Benders et al., 2018), keeping the concept relevant and enhancing the possibility of lean enduring in Norwegian industry.

To summarise, lean is a management concept that engages many different actors and stakeholders in Norwegian industry, including the social partners. The different actors and stakeholders appear to agree upon that lean leads to efficiency, without having to

explicitly use one specific definition of the concept. It is rather a paradox; the concept being abstract makes lean more understandable and relatable to a broad range of actors and stakeholders.

### **6.2 Entrenchment of lean in Norwegian industry**

The framework developed by Zeitz et al. (1999) has been used to assess whether and how lean is adopted or entrenched, i.e. institutionalised in Norwegian industry, such that abandonment of it is unlikely. The analysis of the empirical findings indicates that lean has started to become entrenched in Norwegian industry. Three conditions that appear to have been particularly important for the entrenchment of lean are further presented.

First, Norwegian organisations and actors appear to take inspiration from and imitate other actors, both Norwegian and foreign actors, particularly from Sweden. Norway being such a small country is believed to make Norwegian actors inclined to modelling outside its national boundaries (Cole, 1989). The key actor Lean Forum Norway has also been instrumental when it comes to imitation, inclining organisations to adopt lean, and creating a larger momentum around lean within the industry. Second, a national strategic infrastructure like Lean Forum Norway, gathering different actors and stakeholders, constitutes a 'coalition for change'. Consequently, the direction in which lean develops within the Norwegian context is more controlled and driven together by the actors. As such, the coalition can be regarded as a firm basis in which the entrenchment of lean gets amplified, contributing to lean's further survival in the industry. Third, the reason for lean's widespread popularity, can be that actors inhabiting the power of definition have chosen to not define lean very strictly at a low level of abstraction. This has in turn made it possible for many different actors to vouch for lean.

Furthermore, the analysis showed that there exist little academic research related to that lean leads to enhanced organisational performance. According to Zeitz et al. (1999), firm proof on that lean leads to enhanced organisational performance is important for lean's entrenchment in Norwegian industry. However, our findings shows that on a national level, there exist no or few reported studies on that lean leads to enhanced performance, and companies strive to measure actual effects. Still, lean is perceived by the different

actors to cause positive effects, and continues to gain popularity among practitioners. However, it is concluded that what really matters is whether the actors actually believe in the concept (Benders et al., 2018). Our findings suggest that beliefs of performance improvement weigh more than actual proof. Hence, it might be a good thing that there is inadequate documentation of the effects of lean in Norwegian industry, letting each actor recognise their own definition, and thus vouch for lean. Consequently, as long as performance replaces content, lean can continue to entrench deeper in Norwegian industry.

### **6.3 The future of lean in Norwegian industry**

In the time to come, the term ‘lean’ might fade, but practitioners in Norwegian industry are believed to continue to apply and develop the mindset behind lean. Nevertheless, there are also some threats to the persistence of lean. As uttered by Røvik (1998), the seeds of a concept’s decline lie buried in the root of its success. We have seen that the interpretative viability of lean has resulted in different actors and stakeholders having managed to make sense of the concept, adapting it into their own reality, to ultimately serve their own interests. However, the interpretative viability can also be the reason for lean eventually fading away. According to Benders and van Veen (2001), an explanation for the downturn of a management fashion is because fashions ‘wear out through use’, i.e. when a management concept has been adopted and interpreted differently by multiple organisations and actors, the concept is constantly being narrowed down, and the label of the concept could possibly become so multifaceted and diluted that it becomes almost meaningless (Benders and van Veen, 2001; Kieser, 1997). Consequently, “the problems for which the concept was intended as a solution disappear and, consequently, the need for the concept vanishes as well” (Benders and van Veen, 2001, p. 43).

However, our findings rather indicate the opposite. Despite the fact that lean is ambiguous and each actor has their own interpretation of lean, the different actors’ engagement in lean does not seem to decline, and lean has even started to become entrenched in the industry. As emphasised by Cole (1985), a national infrastructure that supports the spread of the idea is crucial for a management idea to be spread and become adopted in different organisations. As we have seen, Lean Forum Norway constitutes

such an infrastructure, or what we refer to as a coalition, consisting of different actors and stakeholders all vouching for lean. We believe that the fact that Norway is a small country, with low hierarchies, has facilitated the creation of such a supportive, national infrastructure. As we have seen, for the actors engaged in lean, it does not take more than a phone call to come together to initiate a discussion about common interests.

Furthermore, our findings suggest that there exist a consensus among several actors that further development of the concept in Norway is dependent on the existence of Lean Forum Norway, or at least by some strategic infrastructure gathering different stakeholders and having lean on the agenda.

We suggest that this can be generalised to management fashions in general. Having a certain degree of conceptual ambiguity, coupled with a strategic infrastructure gathering different actors and stakeholders facilitate enthusiasm concerning the concept, which in turn can enhance the entrenchment of the fashion among different actors.

## **6.4 Implications**

This study is a contribution to the understanding of how lean is interpreted and institutionalised in Norwegian industry. Moreover, due to the interpretative viability of lean, different actors rationally adapt lean into their own reality, to serve their own interests, which in turn have increased the overall support and acceptance of the concept. Furthermore, we have found that lean has started to become institutionalised in Norwegian industry, and consequently, it seems unlikely that the way of thinking will be discarded in the time to come. Moreover, the existence of a coalition, or strategic infrastructure, consisting of different actors and stakeholders appears to be crucial for the future development and entrenchment of lean in Norwegian industry. Finally, we generalise our findings to management fashions in general. We believe that having a certain degree of conceptual ambiguity, coupled with a strategic infrastructure gathering different actors and stakeholders, can enhance the entrenchment of a fashion among different actors. As such, we encourage practitioners and actors to engage in infrastructures that support certain management ideas.

### 6.5 Future research

Finally, three suggestions for future research are given. First, it would be interesting to research the interpretation and entrenchment of lean in countries that actors in Norway like to compare with, such as Sweden, or other Nordic countries, to shed light on similarities and differences. Moreover, the same theoretical framework could be applied, and among others, one could try to see whether there exists a similar ‘coalition’ in that country, and if so, which actors constitute that coalition. Furthermore, a comparative study could be conducted, comparing the interpretation and entrenchment of lean in Norway to the country of interest. However, it can be hard to determine on what basis the countries should be compared on, as there exist large differences within each country, and assessing one specific coalition or cluster might not be representative for the whole nation.

A second suggestion for future research is to replicate this study, however by conducting different methodological choices, particularly when it comes to sampling of informants. In this study, a key actor was used as a point of departure for choosing informants. There exist many other actors that engage in developing lean in Norway, which could be considered. In addition, only major industrial companies were included in this study, however small to medium-sized organisations constitute a large part of Norwegian industry, and should therefore also be considered. Consequently, a different set of informants would function as a control group for the ones included in this study. Moreover, this could help to isolate the interpretation and entrenchment of lean in Norwegian industry from subjectivity, and one could see whether the findings coincide.

A third suggestion for future research is to consider the interpretation and entrenchment of lean in sectors other than Norwegian industry, such as the public sector. Over the past years, lean has disseminated into all kinds of industries in Norway, and there seem to be other challenges related to those. This would help to complete the picture on how lean is understood and disseminated in Norway in general. Even though we conclude that lean has started to be institutionalised in Norwegian industry, it is not necessarily the case for other sectors in Norway.

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## **Appendices**





# Appendix A: Intervjuguide bedrift

## Del 1: Intro

*Generell informasjon om intervjuobjekt*

- Navn
- Organisasjon
- Nåværende stilling
- Tidligere jobberfaring

## Del 2: Hoveddel

*Prosjektdeltakers relasjon til lean*

1. Hvordan vil du definere lean?
2. Når startet du å jobbe med lean, og hvordan vil du si at lean har utviklet seg i perioden du har jobbet med lean?
3. Hva er viktige lederegenskaper i arbeidet med lean?
4. Hvordan har din erfaring med lean vært? Både positivt og negativt?
  - a. Funker det? Er lean bra?
5. Hvor/hvordan videreutvikler du din kunnskap om lean?
  - a. Interne/eksterne leaneksperter, nettverk, etc.
6. Har du noen tanker om hva som er spesielt for lean i Norge?

*Hva som legges i begrepet lean*

7. Hva opplever du at ansatte i din bedrift legger i begrepet lean?
  - a. Forskjell fra teori vs. praksis?
  - b. Ulike abstraksjonsnivå? (Verktøy vs. filosofi)
  - c. Har ledere og ansatte lik/ulik oppfatning av lean?

*Leanreisen i prosjektdeltakers bedrift*

8. Hvorfor har dere innført lean?
9. Hvordan ble din bedrift interessert i lean?
10. Når og hvordan startet arbeidet i din bedrift med lean?
11. Fortell om hvordan deres bedrift har implementert lean.
  - a. Hva har vært prioritert hos dere? (Konsulenter, verktøy, kultur)
12. Hvordan jobber dere med lean i dag?
  - a. Er det noen som har ansvar for leanutøvelse?
  - b. Har dere noen form for samarbeidspartnere, leaneksperter, etc.?
13. Hvilken påvirkning har fagforeningene på arbeidet med lean?
  - a. Før, under, etter?

14. Etter din mening, ser du forskjell på hvordan din bedrift jobber med lean kontra andre aktører i verdikjeden?
  - a. Leverandører, kunder?
15. Hvordan utvikler dere leankompetansen til underleverandører og andre aktører i verdikjeden?

#### *Lean og suksess*

16. Hva mener du skal til for å lykkes med lean?
  - a. Etter din oppfatning, er din bedrift bevisst på dette?
17. Hva tror du kan være grunnen til at bedrifter ikke er suksessfulle med implementeringen av lean?
18. Ser du noen utfordringer knyttet til lean i din bedrift?
  - a. Hvis ja, utdyp
19. Hvordan er samarbeidet med tillitsvalgte i din bedrift?

### **Del 3: Avslutning**

#### *Lean og fremtiden*

20. Hvordan ser fremtiden ut for lean i din bedrift?
  - a. Tror du at dere kommer til å jobbe annerledes med lean?
  - b. Vil populariteten vare?
  - c. Er det noe som tar over for lean?

#### *Annet*

21. Noe mer prosjektdeltaker ønsker å legge til?

## Appendix B: Declaration of consent

# Samtykkeerklæring for deltakelse i forskningsprosjekt

## Masteroppgave om lean i norsk industri

Vi er to studenter, Marthe Eline Waagø-Hansen og Susanne Irgens Gravdal, som skriver masteroppgave ved institutt for industriell økonomi og teknologiledelse ved NTNU. Masteroppgaven er en del av det pågående forskningsprosjektet "Lean Management" ledet av NTNU. Vi skal undersøke hvordan ulike aktører og interessenter i norsk industri forstår lean, og hvordan de utøver lean i praksis. Dette gjøres for å se om det er mulig å identifisere en «norsk lean» som noe annet enn det vi kjenner fra internasjonal forskning. For å gjennomføre dette ønsker vi å intervju ulike personer har med lean å gjøre i norsk industri, både de som forsker og utvikler lean på nasjonalt nivå, og de som jobber med lean på organisasjonsnivå.

Deltakelse i denne studien innebærer et intervju med varighet på omtrent en time. Spørsmålene vil omhandle prosjektdeltakers forhold til og oppfattelse av lean i sitt arbeid. Intervjuet vil bli tatt opp på lydopptak, og vi kommer til å ta notater underveis.

Vi er underlagt taushetsplikt, og alle personopplysninger vil behandles konfidensielt. All data vil anonymiseres, og navn og tilkoblingsnøkkel vil lagres atskilt fra øvrige data for å sikre konfidensialitet. Både selskapet og enkeltpersoner vil anonymiseres i den grad det er mulig publikasjonen, slik at deltakere ikke skal kunne gjenkjennes. I den grad det ikke er mulig, vil prosjektdeltaker kontaktes for sitatsjekk. Kun undertegnede masterstudenter og veiledere fra NTNU vil ha tilgang til dataen.

Prosjektet skal etter planen avsluttes i midten av juni 2018, og alt materiale vil da makuleres. Informanter som ønsker det kan få en kopi av masteroppgaven etter at den er levert juni 2018. Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger fra deg bli slettet.

Vi kan kontaktes per e-post på [martheew@stud.ntnu.no](mailto:martheew@stud.ntnu.no) og [susannig@stud.ntnu.no](mailto:susannig@stud.ntnu.no). Veilederen vår fra NTNU er Hanne O. Finnestrand, som kan kontaktes på [hanne.finnestrand@ntnu.no](mailto:hanne.finnestrand@ntnu.no).

Jeg samtykker med dette å delta i intervju

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[Signatur til prosjektdeltaker, dato]