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Management of Best Practices in Multinational Companies

A comparative case study concerning implementation of operations best practices in two subsidiaries of the Jotun Group

Ole André Aa
Henning Sirevaag Anthonsen

Industrial Economics and Technology Management
Submission date: June 2011
Supervisor: Øystein Moen, IØT
Co-supervisor: Torbjørn Netland, IØT

Norwegian University of Science and Technology
Department of Industrial Economics and Technology Management

NTNU
Det skapende universitet

MASTERKONTRAKT
- uttak av masteroppgave

1. Studentens personalia

Etternavn, fornavn **Aa, Ole André**	Fødselsdato **05. mar 1985**
E-post **aa@stud.ntnu.no**	Telefon **48249923**

2. Studieopplysninger

Fakultet **Fakultet for Samfunnsvitenskap og teknologiledelse**	
Institutt **Institutt for industriell økonomi og teknologiledelse**	
Studieprogram **Industriell økonomi og teknologiledelse**	Hovedprofil **Strategi og internasjonal forretningsutvikling**
E-post **aa@stud.ntnu.no**	Telefon **48249923**

3. Masteroppgave

Oppstartsdato **17. jan 2011**	Innleveringsfrist **13. jun 2011**
Oppgavens (foreløpige) tittel **Management of Best Practices in Multinational Corporations**	
Oppgavetekst/Problembeskrivelse Formålet med oppgaven er å bidra til økt forståelse av gjenbruk av gode praksiser (best practice) i multinasjonale selskaper. Mer spesifikt vil oppgaven fokusere på ledelse av prosesser knyttet til dette temaet. Oppgaven vil ta form av et case-studie, og vil sette empiriske observasjoner i sammenheng med relevant teori på området.	
Hovedveileder ved institutt **Professor Moen Øystein**	Biveileder(e) ved institutt **Torbjørn Netland**
Merknader **1 uke ekstra p.g.a påske.**	

4. Underskrift

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Partene er gjort kjent med avtalens vilkår, samt kapitlene i studiehåndboken om generelle regler og aktuell studieplan for masterstudiet.

14.01.2011
Sted og dato

Claudine An
Student

Hovedveileder

Originalen oppbevares på fakultetet. Kopi av avtalen sendes til instituttet og studenten.

NTNU
Det skapende universitet

MASTERKONTRAKT
- uttak av masteroppgave

1. Studentens personalia

Etternavn, fornavn **Anthonsen, Henning Sirevaag**	Fødselsdato **18. jan 1987**
E-post **henninganthonsen@gmail.com**	Telefon **97779710**

2. Studieopplysninger

Fakultet **Fakultet for Samfunnsvitenskap og teknologiledelse**	
Institutt **Institutt for industriell økonomi og teknologiledelse**	
Studieprogram **Industriell økonomi og teknologiledelse**	Hovedprofil **Strategi og internasjonal forretningsutvikling**
E-post **henninganthonsen@gmail.com**	Telefon **97779710**

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Trondheim 14.01.11

Sted og dato

Henning S. Anthonsen

Student

Hovedveileder

Originalen oppbevares på fakultetet. Kopi av avtalen sendes til instituttet og studenten.

Preface

This document is a master's thesis written as the concluding part of a master's degree in Industrial Economics and Technology Management at Norwegian University of Science and Technology (NTNU). The conducted study has taken place during the spring semester of 2011. Concerning the authors of the thesis, they have taken courses within the branch Product Development and Process Engineering, and have a specialization in Strategy and International Business Development. Prior to the thesis, the authors have performed a literature review of the topic Best Practice Management which will be presented at the MITIP 2011 Conference in Trondheim together with co-author Torbjørn Netland.

The authors would like to thank several people for what has been a challenging and very exiting semester. First, we would like to thank study supervisor Torbjørn Netland for your guidance during the course of the research, and for your always constructive criticism. We also highly appreciate your efforts for setting us in contact with the case company. Second, we would like to thank Jotun Group, and in particular leader of Group Operations Improvement Marianne Terland Nilsen. Not only have you provided us with a highly relevant real-life business case, you have also – by far – surpassed our expectations when it comes to cooperation and support. You have given us the opportunity to travel across half the world, providing us with the connections and resources to make this happen – and to a standard of luxury we did not expect. For this we are truly thankful. In England we would like to thank Alan Roden for all your help and welcoming presence. In Indonesia we would like to thank the whole team of managers – and in particular Factory Manager Irene H. – for a wonderful time at the factory. Thank you also Project Manager Robin Arvidsson for great company during the stay in Jakarta.

Executive summary

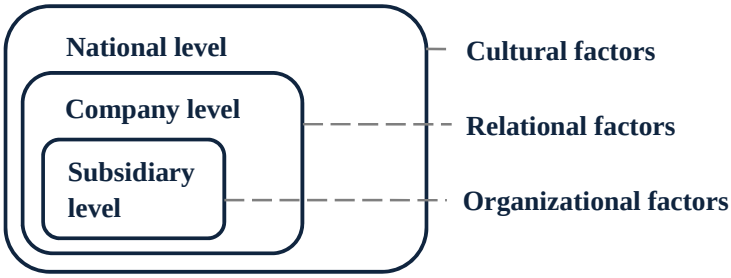
As the modern business world has entered a state of what has been called “a hurricane of globalization”, the incentives for manufacturing companies to enhance their competitiveness are higher than ever. Many multinational manufacturing companies now choose to implement operations best practices like Lean Manufacturing in their multi-plant manufacturing networks in order to accomplish this. The Jotun Group is a multinational manufacturer of paint which has established Jotun Operations Academy – a training program for employees – in order to transfer best practices to the company’s subsidiaries. However, headquarters has experienced that the effect of the improvement initiative has varied between the company’s subsidiaries, and wants to learn why this is the case.

Literature within the area has recognized several barriers which may occur when introducing new best practices to an organizational unit. The aim of this study is to increase the understanding of the conditions that influence implementation of operations best practices in the subsidiaries of a multinational company. In order to accomplish this, a comparative case study of two manufacturing units in the Jotun Group is conducted, investigating one plant in Flixborough (England) and one plant in Jakarta (Indonesia). Through the comparative case study, the study will i) investigate the degree of best practice implementation in the two subsidiaries, ii) identify factors which have influenced the implementation and iii) provide an explanation for the different outcomes of the two cases.

The choice of using a case design builds on voices in the literature which argue that implementation of a best practice depends on multiple contextual conditions. Drawing on the strengths of such a research design, the study employs multiple sources of evidence, such as: semi-structured and un-structured interviews, direct observation, documentation and a survey. Further, in order to guide the collection of empirical data, the study uses theory from seven streams of literature: Absorptive Capacity Theory, Contingency Theory, Change Management, Agency Theory, Corporate Socialization, Resource Dependency Theory, and the cultural dimensions of GLOBE.

The background for the comparative study was a perception that the Flixborough-plant had achieved major improvements through employment of the new practices, while not much had happened in Jakarta. The investigations create a more nuanced impression of the current situation; the managers in Jakarta have indeed made some attempts to use the new practices, and the practices are to some degree implemented in the organization. Still, local managers are finding it difficult to achieve results from the new practices, and both managers and other employees are losing focus on the practice implementation. In comparison, the best practices are much more widespread in the Flixborough organization. Employees are found to value the practices to a greater extent than in Jakarta, suggesting that one has achieved a higher level of internalization. This appears to have had a positive effect on the ability to create lasting changes in the organization.

The study identifies 23 factors which have contributed to the different states of implementation in Flixborough and Jakarta. These are appearing on three levels of analysis: *subsidiary level*, *company level* and *national level.*



The identified factors are used to construct and propose a multidisciplinary model for factors influencing best practice implementation in a multinational context, presented on page 80. Although the findings suggest a complex interaction between multiple factors on different levels, the discussion identifies some particular conditions as major determinants for the different outcomes in the two cases.

- First, in line with Absorptive Capacity Theory, the discussion shows how the plant in Flixborough clearly had a major advantage over the one in Jakarta due to higher levels of *prior relevant knowledge* and *practical experience*.
- Second, the discussion reveals several differences in the way the local change processes were managed, the most essential factor appearing to be *local top managements' efforts as a driving force* in Flixborough.
- Third, a discussion drawing on Agency Theory goes a long way to explain the different behaviours of the managers at the two plants, as the discussion reveals *misaligned incentives* between headquarters and local managers in Jakarta.
- Fourth, a strictly limited *degree of monitoring* from headquarters appears to have made room for the misdirected efforts from the Indonesian managers.
- Some cultural factors are found to function as potential restraints for the implementation, but not as determinants of the final outcome.

For managers of multinational parent companies, the findings imply that providing theoretical knowledge about best practices to local managers is not enough in itself. In order to achieve higher levels of implementation, local managers must both possess a practical understanding of how to translate practices into results, and have incentives to perform considerable efforts on behalf of the implementation initiative. As a contribution to theory, the explanatory power of each of the employed theoretical perspectives is discussed. Further, the study clearly indicates the value of distinguishing between different levels of implementation, and to recognize that a units' *ability* to make use of operations best practices is a major issue during best practice transfer. A main limitation of the study is the restricted number of cases, and future researchers are encouraged to test the proposed model on a higher number of manufacturing plants – preferably also across several parent companies.

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MANAGEMENT OF BEST PRACTICES IN MULTINATIONAL COMPANIES

A comparative case study concerning implementation of operations best practices in two subsidiaries of the Jotun Group

1. Introduction

Attempts to replicate "best" practices arguably reach as far back as to the first crafts in human history (Voss, 1995). After the success of Japanese industry in the 1970s and 1980s, the attention surrounding this endeavor has been nothing short of exceptional. In later years, implementation of a standardized set of best practices has become a popular undertaking for multinational manufacturing companies as they wish to increase competitiveness in an increasingly globalized environment (Netland, 2010). However, there has been a growing recognition in the literature concerning the challenges attached to transfer of practices internally in an organization (Kostova, 1999; O'Dell & Grayson, 1998; Szulanski, 1996). This study investigates the challenges the Jotun Group is experiencing when implementing operations best practices in the company's subsidiaries.

Jotun is a multinational company that produces paint for decorative and industrial purposes. Due to rapid growth in sales the recent years, the company experiences a need for increased production capacity. In addition to investments in new plants and production equipment, the company wishes to increase the efficiency of existing factories. Jotun states that the goal is to increase the capacity with 50 % solely by increasing the efficiency of the factories operating today.

As an initiative in order to achieve this target, Jotun established Jotun Operations Academy (JOA) in 2007. The purpose behind this initiative is to implement a set of operations best practices in the company's subsidiaries. The academy takes the form of an educational program where representatives from the company's subunits are trained in operations best practices. By observing the development of the subsidiaries, Jotun has experienced that the effect of the academy has varied between the different units; some units have achieved higher levels of best practice implementation than others. Representatives from headquarters of the Jotun Group are curious to know why this is the case.

1.2 The aim of the study

The aim of this study is to investigate and explain the different outcomes of best practice implementation in two of Jotun's manufacturing units. In order to do so, a comparative case study is conducted using one subsidiary in England (Flixborough), and one in Indonesia (Jakarta). These subsidiaries are believed to be contrasts when it comes to implementation of

operations best practices; in England there have been large improvements the recent years, while in Indonesia there appears to be fewer changes. By providing an explanation for the differences in the two cases, the goal is to achieve a greater understanding of the factors that influence implementation of operations best practices in multinational companies.

1.3 Research questions

In order to achieve the targets indicated above, the following research questions are applied.

RQ1:	To what degree have operations best practices been implemented by the investigated subsidiaries?
RQ2:	Which factors have influenced the investigated subsidiaries' implementation of operations best practices?
RQ3:	Why has the implementation of operations best practices varied between the investigated subsidiaries?

Table 1: Research questions

The first research question is related to the current state in the two cases. These findings provide a backdrop for answering the two following questions. In order to answer research question number two, the study draws on theory from multiple streams of literature. The described literature is used to establish a theoretical framework, functioning as a guide for the empirical investigations. Based on the findings from discussing this question, a multidisciplinary model is proposed for factors influencing best practice implementation in a multinational context. Further, by taking a holistic perspective on the previous findings, including a discussion of how the different factors are interrelated, the study identifies the main determinants of the outcomes in the investigated cases – answering research question three. As an additional contribution to theory, the study discusses the explanatory power of each of the employed theoretical perspectives.

1.4 Scope of the study

As described above, the main focus of this study is the conditions that have influenced best practice implementation in the two investigated subsidiaries. However, the scope of the study is broader than solely looking at the *local* implementation process. As the introduction explains, the implementation of best practices in Jotun has happened in a highly characteristic context; the implementation was initiated by headquarters, not by the subsidiaries themselves. The implementation process may therefore be viewed as a *transfer* of best practices from headquarters to the subsidiaries (see Kostova, 1999). As a consequence, the scope of the study will include an investigation of how the context of the multinational company may have affected the best practice implementation. Further, in order to reflect the multinational nature of the Jotun Group, it is decided to also include the possibility that the different national cultural contexts of the subsidiaries may have influenced the final outcome.

1.5 The concept of Best Practice

Although “best practice” has become a widely used term, there is a myriad of different definitions across the literature of what best practice really *means.* The aim of this section is to provide a general overview, and to combine the derived understanding into a novel definition of “best practice” in order to ensure a consistent understanding of the term throughout the case study.

In the literature concerning manufacturing strategy, the term “best practice” seriously entered the research agenda in the 1970s and early 1980s, alongside the increased attention to the outstanding performance of the Japanese manufacturing industry (Laugen et al., 2005). This led to a focus in the west on trying to imitate these Japanese “best practices”. The best practice concept received further stimuli by the increasing popularity of benchmarking business processes and the emergence of a set of quality awards. An underlying assumption of this early *best practice paradigm* was the idea of “one best way” leading to superior performance. (Voss, 1995) The diffusion of “one-best-wayism” was supported by factors of globalization like international consultancy firms, the popularity of management literature and the positivistic approach of business school academics (Clegg et al., 1996; Huczynski, 1993; Thompson et al., 1994)

However, since Voss (1995) identified a best practice paradigm, the concept of “one best way” has been challenged, and researchers have become more aware of the complexity tied to the concept of sharing, transferring and implementing best practices (see Bowman, 1996; Dooyoung et al., 1998; Perrin et al., 2007) As a result, a more nuanced branch of literature has appeared, taking a more critical stance to issues like the universalism of practices, the link between practices and performance, and the problems associated with replicating, adapting and transferring practices (Martin & Beaumont, 1998; Sousa & Voss, 2008; Szulanski, 1996) On the research agenda is also the managerial process of implementing practices (Brown et al., 2007).

Reflecting the ongoing discussion in the literature, there is a myriad of different definitions of what best practice *means.* A lengthy list of various definitions is provided in Appendix A, derived from a previously performed literature review (Aa et al., 2011). It seems commonly agreed in the literature that a “best practice” is a practice that is positively related to better performance for a firm that adopts it (Laugen et al., 2005; Szulanski, 1996; Tucker et al., 2007). There is, however, no consensus for whether a best practice should be *the best* way to perform a process (Heibeler et al., 1998), or just *a better* way (O'Dell & Grayson, 1998). Another unclear issue concerning the definition of “best practice” is whether a best practice in one organization has to be transferrable to other organizations. Some emphasize that a best practice should have been proven to be the best process for *many* organizations (see O'Dell & Grayson, 1998), while others state that the only requirement for a “best practice” is that it have shown to improve performance for a single company (Camp, 1989).

Proposing a definition of "best practice"

Prior to a definition of the term *best practice*, it is important to clarify what a *practice* is. Operations practices are loosely defined in the literature (Kostova, 1999). Szulanski (1996) states that practice is *the way things are done* in an organization. Distinguishing between practices and knowledge in general, Szulanski (1996) argues that it is important that knowledge not only *exists* in an organization, but also is *applied in real life* in order to be considered a practice. For this study, such an understanding of "practice" will suffice.

Based on the discussion in the literature, the following definition of best practice is proposed: *A best practice is a practice that is believed to have the potential of increasing the performance of organizations other than the one of origin.* This definition is built on an assumption that best should at least be of relevance for other units, either internally in a company or to external parties. Without this assumption, transfer of best practices would be of minor interest. However, the definition makes room for the debate about whether best practices contribute to increased performance or not, demanding only that a best practice is *believed* to lead to increased performance. Further, in the definition it is consciously avoided to state that a best practice must be equally suitable for *all* organizations, opening for a discussion about the universality of practices.

1.6 Structure of the study

The study uses a linear-analytic structure – the standard approach for composing research reports (Yin, 2009). First, the theoretical background for the study is outlined. Based on the described literature, a theoretical framework is established which is used as a guide for collection of empirical data and subsequent discussion. Chapter three describes and discusses the methodology applied in the study, while chapter four presents background information about Jotun Group, Jotun Operations Academy, and the two investigated subsidiaries. These chapters are followed by a presentation of the empirical findings in chapter five. Chapter six discusses the findings using theory described in chapter two. Based on the empirical findings, a theoretical model is proposed. After a discussion of the main findings, chapter seven discusses the theoretical perspectives employed in the study. Based on the discussions, the research questions are addressed in chapter eight, followed by implications for managers and theory, and suggestions for further research.

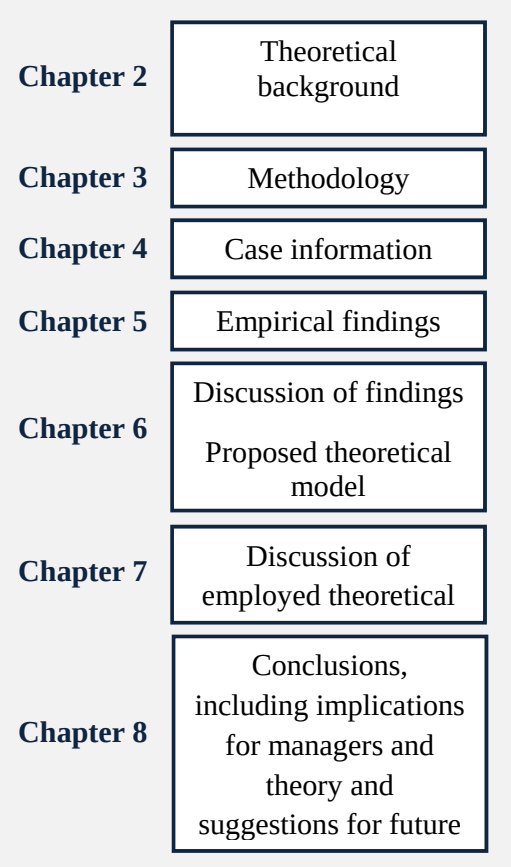


Figure 1: Structure of the study

2. Theoretical Background

This chapter presents literature related to transfer and implementation of best practices in multinational companies. The presented theory serves two purposes. First, it gives the reader a brief introduction of the main topics and concepts discussed in the study. Second, the topics described in the literature are summarized into a theoretical framework, providing an overview over classes of factors which may influence implementation of best practices. This framework functions as a guide for the collection of empirical data and the subsequent discussion of the findings. Prior to the presentation of theory, the reasoning behind the selection of literature is explained. This is followed by a description and graphical illustration of the structure of the chapter.

Selection of literature

There are many streams of literature which are relevant for answering the proposed research questions. This calls for a structured approach to the selection of literature. The reasoning behind this selection is developed through discussions with study supervisor and a previously performed literature review (see Aa et al., 2011). Derived from the review is an assumption that implementation of a best practice may be a highly complex undertaking with multiple different factors potentially affecting the result. In order to capture some of this complexity in the intended study, it is decided to use a *multilevel and cross-disciplinary* approach.

Kostova (1999) argues that a multilevel approach is appropriate, if not necessary, for studying such a complex organizational phenomenon as a cross-national transfer of a best practice between headquarters and a subsidiary. Complying with this reasoning, three levels of analysis will be used in the study: *subsidiary* level, *company* level and *national* level. Within these levels, literature from several disciplines is selected which may be relevant for explaining the outcome of the two cases. On the subsidiary level, focus lies on how *organizational factors* within a unit may influence best practice implementation. On the company level, focus lies on how the relationship and interaction between headquarters and the subsidiary may influence implementation, termed *relational factors*. On the country level, the focus of this study lies on the impact of *cultural factors* on best practice implementation. This logic is illustrated in figure 2.

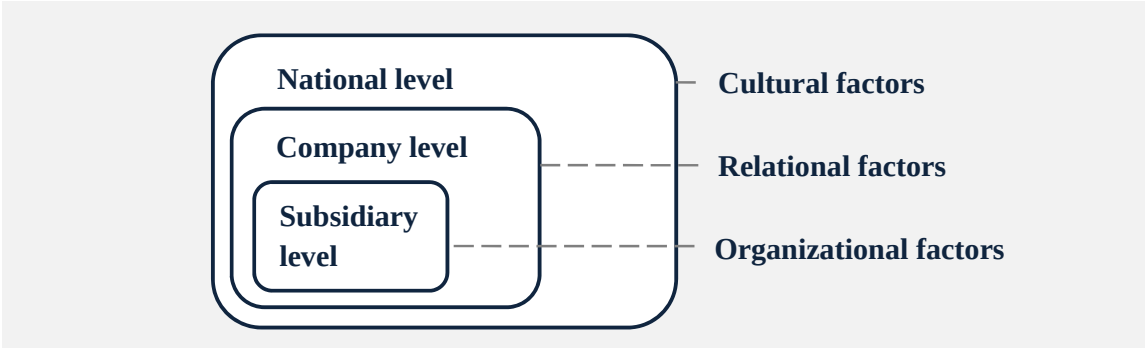


Figure 2: Levels of analysis

Structure of theory

In order to increase the readability of the chapter, the literature is be presented using the categorization into organizational, relational and cultural factors. Figure 3 illustrates how these types of factors may influence the degree of best practice implementation. First, section 2.1 describes theory regarding organizational factors. Second, section 2.2 presents theory regarding relational factors. Third, section 2.3 presents theory regarding cultural factors. Further, there are different views in the literature regarding the *degree* of best practice implementation. This subject is treated in section 2.4. Finally, section 2.5 summarizes the previous sections into a theoretical framework.

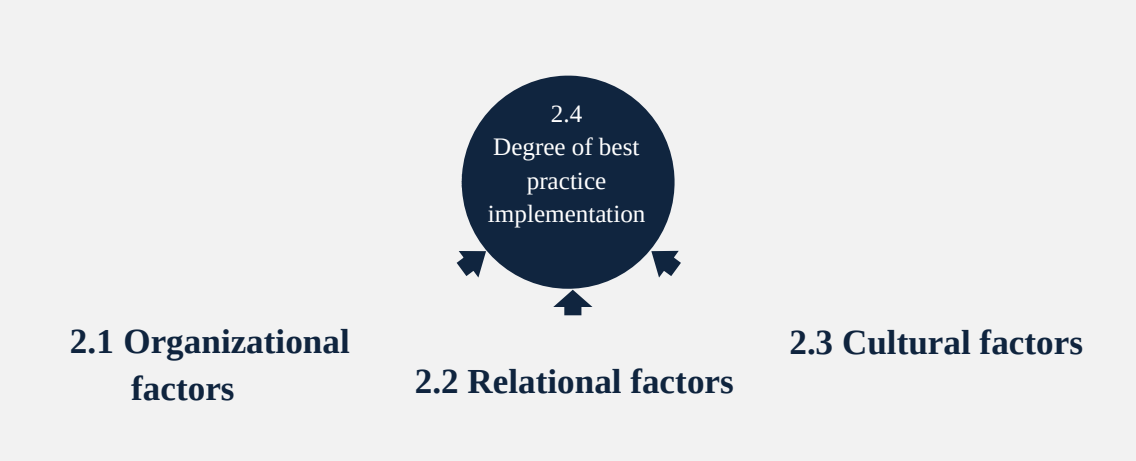
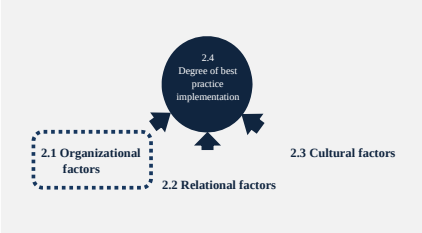


Figure 3: Overview of topics to be covered in this chapter

2.1 Organizational Factors

This chapter presents theory within three streams of literature which may contribute to an understanding of an organizational units' ability to implement new operations best practices: Absorptive Capacity Theory, Change Management, and Contingency Theory.



2.1.1 Absorptive Capacity Theory

The main concern of Absorptive Capacity Theory is how properties of an organizational unit determines its' ability to *absorb* new knowledge. The absorptive capacity construct was introduced by Cohen and Levinthal (1990) and was defined as "a firms' ability to value, assimilate and apply new knowledge". A central assumption in the theory is that organizational learning is a cumulative and path dependent process. A second set of assumptions is that organizational learning is highly dependent on the existing knowledge base of the firm, as well as the effort put into acquiring new knowledge. (Cohen and Levinthal, 1990)

Several authors have addressed absorptive capacity as an important factor in knowledge and practice transfer. Szulanski (1996) finds that absorptive capacity of the recipient unit is the most important barrier in transfer of practices between organizational units. This is in line with Keida and Bhagat (1988), who argue that the recipient's firm's absorptive capacity,

(along with the differences in societal culture) influences the transfer of technology between units. Ferdows (2006) also highlights absorptive capacity in his study of transfer of production "know-how", arguing that absorptive capacity of a production unit determines how efficiently it can apply new production recipes.

Although the absorptive capacity construct is widely applied in studies on knowledge and practice transfer, both the definitions and the interpretations of the construct varies in the literature (Zahra & George, 2002). The core of the construct seems to be recipient firms' level of relevant knowledge (Ferdows, 2006; Gupta & Govindarajan, 2000; Kedia & Bhagat, 1988). Another important factor is the *effort* in knowledge acquisitions and problem solving (Cohen & Levinthal, 1990; Kim, 1998), along with a unit's *interface* towards external sources of knowledge (Cohen & Levinthal, 1990; Daghfous, 2004). Others are touching into management of the *implementation* process (Kedia & Bhagat, 1988; Szulanski, 1996). This is argued to be important in order to overcome *organizational inertia* which is a factor that negatively affects the organizations absorptive capacity (Daghfous, 2004). Organizational *structures* and *interdepartmental communication* is also argued to affect a unit's ability to absorb new knowledge (Cohen & Levinthal, 1990; Daghfous, 2004).

As the interpretations vary in the literature, Zahra and George (2002) suggest a reconceptualization and extension of the absorptive capacity construct. They divide the concept into: *potential* absorptive capacity and *realized* absorptive capacity, and models it as a dynamic capability (see: Teece & Pisano, 1994). Potential absorptive capacity consists of the ability to *acquire* and *assimilate* knowledge, and forms the potential of what the firm can realize. Realized absorptive capacity consists of the ability to *transform* and *exploit* knowledge; in other words, how to utilize new knowledge into products and processes.

One of the characteristics which distinguish operations practices from knowledge in general, is the process required in order to implement them. Implementation of operations best practices such as Lean manufacturing and Continuous Improvements often involves fundamental organizational change (Mefford & Bruun, 1998). As mentioned above, the absorptive capacity theory to a certain acknowledges that management of the implementation process can influence absorption of new practices (see: Szulanski, 1996). However, the absorptive capacity theory does not provide any insight into the characteristics of such change processes, and how they should be managed. In order to get a further understanding of such change processes, theory regarding change management will be presented in the following section.

2.1.2 Change Management

There is a significant stream of literature addressing management of change in organizations. Theory within this field commonly views the introduction of new knowledge or practices as a process (Kotter, 1995) A core assumption is that change initiatives may meet internal resistance from employees during this process (Jacobsen, 2004; Strebel, 1996). Strebel (1996) argues that individual's opposition towards new initiatives is *the* main reason why change initiatives fail. Concerning implementation of new practices, the resistance may be especially strong if the practices come from a foreign source, due to what is commonly labeled the "not-

invented-here" syndrome (Pascale and Sternin, 2005). Pascale and Sternin (2005) explain that forced adoption of foreign practices can be interpreted as statement from headquarter that the performance of the unit is not good enough, and might therefore be perceived as an insult.

Characteristics of successful change initiatives

Another central assumption in the literature is that the ability to produce lasting changes in the organization depends on the way it is managed. A reoccurring theme in the literature is the importance of *top management support* in operations change initiatives. Mefford and Bruun (1998) state that firms which have succeeded with implementing Lean and Continuous improvements have had chief executives who strongly believe in the concepts. In line with this both Martin and Beaumont (1999) and Angell (2001) emphasize the importance of management acting as change agents or change champions in implementation of operations practices. Kotter (1995) in turn, highlights the importance of creating a strong guiding coalition to push the change initiatives.

Communication of a *sense of urgency* is also important in order to motivate for change (Kotter, 1995). Motivation is important both for creation and sustainment of operations improvement (Bateman, 2005). According to Kotter (1995), organizations often underestimate how hard it can be to drive people out of their comfort zones . In order to manage this, it is important to clearly communicate why the changes are necessary (Kotter (1995). Construction of a crisis can in such cases be very effective (Kim, 1998).

A widespread understanding about the organizations *direction* is important for sustainment of change initiatives (Upton, 1996). This can be achieved by communication of a clear vision (Kotter, 1995). However, according to Shaffer and Thompson (1992), it is important that such visions should not be long term and diffuse. The authors argue that in order to create successful change, it is important to have distinct goals which can be achieved within reasonable timeframes.

Another factor which is argued to affect the motivation and sustainment of change initiatives is achievement of *early results.* According to Martin and Beamont, (1999) this is one of the most important factors in order to convince the opposition-coalition about the value of the initiative. This is supported by Schaffer and Thompson (1992) who argue that changes actually start with results. They take a critical stance against the activity centered change processes where massive training and efforts are made only because it is "the right thing to do". Rather they argue that companies should initiate managerial and process innovation only as they are needed and the change initiative should be linked to short term goals. Empirical results will then show what works and good results will eventually stimulate and motivate for further improvements.

Involvement of employees is also important in order to motivate the workforce and reduce resistance towards change processes. According to Beer and Nohria (2001) bottom-up involvement of employees will increase the commitment towards change initiatives. Employee empowerment is also one of the fundamentals of Lean manufacturing and Continuous Improvements (Womack et al., 1990)

2.1.3 Contingency theory

It has so far been assumed that the best practices in question are suitable for the unit in which it is tried to be implemented. Such a line of thinking is characteristics for a "best practice" paradigm in the literature, originally based on the idea of "one best way". The underlying assumption for this paradigm is that usage of universal best practices will lead to superior performance. (Voss, 1995) According to Sousa and Voss (2008), there has been a shift in the operation management literature from justification of the value of practices to the investigation of under which contextual conditions they are effective.

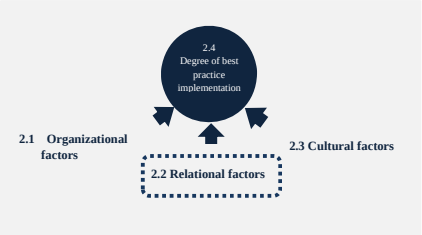
Fit with operational characteristics

Several authors argue that the suitability of a practice depends on the fit between the practice and the operational characteristics of the organizational unit in which it is implemented. In a literature review, Sousa and Voss (2008) observe that many studies report that fit between operations practices and a company depends on the size of the company, and on which industry it belongs. However, this also depends on the practice. The literature review indicates that some practices, like Lean Manufacturing, are dependent on company size, while other practices, like Quality Management, show few or no signs of this. (Sousa & Voss, 2008) In a similar lane, Maffin and Braiden (2001) find that operations practices might depend on the volume of production. In a study on 58 UK mechanical and electrical engineering companies, the authors find that contextual factors make it in-appropriate for low-volume producers to apply generic product-development best practices. Rather than adopt a model of best practice, companies need to develop procedures which more adequately reflects their inherent need and the types of project they undertake (Maffin & Braiden, 2001). This view is shared by Leseure (2000) who classifies companies with similar needs into different "firm species". These "species" are groups of companies who share certain similar characteristics, e.g. product range, volume of production, and process types, and who therefore can apply similar best practices (Leseure, 2000).

Fit with existing practices

Other authors point out that the fit of a best practice may also be determined by the practices which are already in use by the subsidiary. Davies and Kochhar (2000) develop a framework for selection of best practices in which the authors highlight the need to assess which practices that need to be implemented prior to the practice in question. Some practices depend on that other practices are in place in order to be effective. Failing to provide the necessary "infrastructure of practices" might therefore result in failure of more sophisticated practices to materialize into benefits. While Davies and Kochhar (2000) investigate how a company can adapt its' local practices to meet the requirements of a new best practice, Jensen and Szulanski (2004) investigate the opposite approach – investigating what happens when a best practice must be adapted to local conditions. The findings of their study indicate that a greater need for adaption to local conditions increases the *stickiness* best practice transfer, i.e. the eventfulness of the implementation. Such eventfulness is defined as the degree to which implementation is perceived to be a happening by the employees involved, e.g. by exceeding expected time frames or requiring more resources than planned (Szulanski, 1995).

2.2 Relational Factors



There might also be conditions on a corporate level which influence the degree of practice implementation. Different perspectives have been taken in the literature to describe how the relationship between headquarters and a subsidiary affects the motivation of local managers to follow instructions from headquarters. The following section presents literature within: Agency Theory, Corporate Socialization, and Resource Dependency Theory.

2.2.1 Agency theory

Agency Theory seeks to describe relationships where work is delegated from one actor, the principal, to another, the agent (Eisenhardt, 1985). The relationship between headquarters and a subsidiary in a MNC can be viewed as a principal-agent relationship, and an increasing number of studies are using Agency Theory in research on MNCs (Bjørkman et al., 2004). The main concern of the theory are the problems which arise when control is separated from ownership (Jensen & Meckling, 1976).

Post-contractual problems

The problems facing a principal when engaging an agent can be divided into *pre-contractual* and *post-contractual* problems (Bergen et al. 1992). Concerning a *post-contractual* situation, i.e. when an agent has been hired, Agency Theory assumes a set of conditions that might make the delegation of work problematic. It is assumed that an agent might be motivated by self-interest, seeking to maximize a utility function other than that belonging to the principle (Alchian & Demsetz, 1972). Therefore, if the interests of the agent and the principal are in conflict, the agent might have incentives to behave in a manner that deviates from the agreements between the two parties (Eisenhardt 1985). Problems of suboptimal or misguided behaviour which occur as a result of these misaligned incentives is commonly referred to as a problem of *moral hazard* (Bergen et al., 1992). This problem is further enhanced due to information asymmetries, meaning that one actor has information the other desires but does not have (Bergen et al., 1992). The principal has imperfect information about the behaviour of the agent, making it difficult to discern whether the actions of the agent are in line with the interests of the principal or not. Contributing to the problem is also the assumption that the principal and the agent might have different risk preferences (Bergen et al., 1992).

Monitoring and residual claimancy

In order to better align the behaviour of the agent with the interests of the principal, and thereby reduce the problem of moral hazard, Agency Theory proposes two solutions: *monitoring* and *residual claimancy* (Alchian & Demsetz, 1972). By monitoring the behaviour of the agent, the principle can know whether the agent is acting in the manner that was agreed in the contract. However, this information comes at a cost. (Eisenhardt, 1985) Residual claimancy functions as an alternative solution. By basing whole or parts of the agents reward on the outcome of the agents work, the incentives of the agent and the principal are more aligned. However, given the uncertainty of the outcome and the possible risk aversion of the

agent, this transfer of risk might come at a cost. Agency theory predicts that an optimal contract is one who balances the costs between monitoring and cost of transferring risk to the agent. A behaviour that is easy to control and a risk averse agent favours a behaviour-based contract, while difficulties observing behaviour favours an outcome-based contract. (Eisenhardt, 1985)

Pre-contractual problems

Pre-contractual problems, i.e. problems concerning the period before an agent is hired, arise as the principal has incomplete information about whether the traits of the agent are in line with the qualifications or characteristics needed to perform the intended work or not. Further the agent might have incentives to exaggerate, misrepresent or withhold information about own abilities if being hired is in line with these agents self-interests. A potential problem is therefore that the principal hires an agent that is unfit for the intended work, implying costs for the principal due to unsatisfactory performance outcomes. This is frequently termed a problem of *adverse selection*. (Bergen et al., 1992)

Agency theory proposes three strategies that can be used to overcome this problem: *screening*, examining *signals* from the agent, or providing opportunities for *self-selection*. Screening means that the principal gathers information about the agent, in addition to the signals sent by the agent self. Acquiring addition information will make the principal better equipped to hire an appropriate agent. (Bergen et al. 1992) An alternative strategy is to examine the signals sent from the agent, for example by considering the actions that the agent has previously performed. A third option for the principal is to actively set the agent up for choices which that might involve costs for potential agents – thereby providing agents with an opportunity for self-selection. (Bergen et al. 1992)

2.2.2 Corporate Socialization

The aim of corporate socialization is to establish a shared set of values, objectives and beliefs across several units of a company (Nohria & Ghoshal, 1994). This approach may function as an alternative to structural control mechanisms as the ones proposed by Agency Theory (Ouchi, 1979). The reasoning employed is that by creating a shared set of values and beliefs, the actions and choices of managers in different contexts will be more aligned with the purpose of the company (e.g. Dolan & Garcia, 2002; Nohria & Ghoshal, 1994; Ouchi, 1979). This may also positively affect knowledge transfer. Establishment of common identity and shared long term visions will more likely lead to internal exchange of knowledge and resources (Bjørkman et al., 2004).

The literature within this area presents several social mechanism which may be used in order to create a coherent company culture with shared values and beliefs: selection, training and rotation of managers; emphasis on open communication between headquarter and subsidiaries (Nohria & Ghoshal, 1994); corporate mentoring programmes; and cross-subsidiary executive programs (Gupta & Govindarajan, 2000). A coherent corporate culture can also be formed through mechanisms such as rituals, symbols, company language, legends and myths in which the corporate values are communicated (Dolan & Garcia, 2002).

Attitudinal relationship with headquarters

Through corporate socialization, relations between individuals in different corporate units are created. This will, in addition to reinforce the company culture, also in itself have a positive effect on knowledge transfer in the corporation (Hansen, 2002). Hansen (2002) finds that short pathlengts, i.e. direct interpersonal relations, increases knowledge sharing in multiunit companies. In line with this, Szulanski (1996) finds that an *arduous relationship*, defined as a relationship which is laborious and distant, is among the most prominent barriers for transfer of best practices.

Kostova (1999) theorizes that the motivation of important decision makers and key players at the subsidiary unit is dependent on their degree of *commitment to*, *identity with*, and *trust in* the parent company. The author reasons that these factors will influence: i) the willingness of local managers to exert considerable efforts on behalf of the parent company, ii) the ability to understand the value of the practices for the company as a whole, iii) the occurrence of the "not-invented-here" syndrome, iv) the costs of interaction, and v) the uncertainty experienced by the subsidiary regarding the value of the practices the motives of the parent company. Regarding this last topic, Leyland (2005) conducts a study of how trust and reputation impacts the transfer of knowledge between units. Leyland (2005) argues that when practices are transformed, the resulting consequences are indeterminate. This means that a certain "leap of faith" is required by the parties involved in order to support the process through continuous interaction and feedback. The study indicates that a lack of trust or an impaired reputation will negatively influence commitment of resources and willingness to engage in information transfer, thereby halting or constraining the transfer process. (Leyland, 2005)

2.2.3 Resource dependency

An alternative perspective on the relationship between headquarters and subsidiaries can be found in Resource Dependency Theory. This theory is concerned with how the power of an organization is affected by its' resource dependency relationships with other organizational units (Medcof, 2001). Although the theory was originally intended for discussion of the relationships between organizations, it has also been found applicable for relationships among units *within* organizations (e.g. Harpaz & Meshoulam, 1997). Geppert and Williams (2006) argue that power relations, political control and scarce resources always have been relevant for management for MNCs, but that these aspects are becoming increasingly important in the structurally disintegrated, multi-focused and network-based relationships developed in todays' MNCs.

Assumptions of Resource Dependency Theory

Ulrich and Barney (1984) explain how resource dependency theory builds on three basic assumptions. First, organizations are assumed to consist of internal and external coalitions, emerging from social interactions and established in order to influence and control behaviour. Second, it is viewed that the environment contains a scarcity of resources which are valuable for the survival of the organization. Third, organizations are viewed to work towards acquiring resources that minimizes their dependence on, and maximizes the power over, other organizations. (Ulrich & Barney, 1984)

Literature regarding best practice implementation

Relevant literature within the field of best practice implementation is very much in line with these assumptions. Kostova (1999) reasons that a subsidiary may perceive that it depends on resources from the parent company, e.g. capital, technology, managerial expertise, or the promotion of subsidiary staff. The subsidiary may also be competing with other units for these resources, contributing to resource scarcity. These conditions may lead to an increased willingness and motivation of local managers to comply with requests from headquarters, also regarding best practice transfer (Kostova, 1999). Martin and Beaumont (1999) find, in their study on standardization of practices in CASHCO, that the economic growth and internal success in the subsidiary made the investigated unit more self-confident, and therefore more reluctant to adapt to central-made policies. The economic success of the investigated subsidiary unit made its perceived dependence on headquarters lower, and perceived negotiation power higher. This in turn influenced their response towards policies from headquarters. (Martin & Beaumont, 1999) In line with this, Geppert and Williams (2006) find that the better the economic performance and the strategic position of a subunit, the higher is the likelihood of political opposition against coercive dictation of practices.

Responses from local management

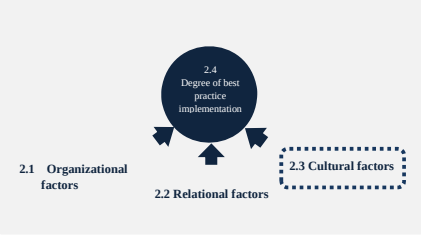
Attempts to impose a standardized global model might lead to the emergence of "battlefields", i.e. severe conflicts and power struggles between local management and the MNC headquarters. However, both the likelihood for a battlefield situation, and the outcome of the situation, is dependent on the relative power relationship between the local subunit and the MNC. (Geppert & Williams, 2006) The resistance may also appear in more covert forms; Martin and Beaumont (1999) include in their study a list of different ways local management might respond to instructions from headquarters. The authors illustrate that the resistance does not necessarily have to be evident "on the surface", i.e. through explicit signals to headquarters.

Category	Types of responses by subsidiary managers
Self-serving co-operation	Co-operating with those headquarters' initiatives that are seen by local managers to serve local interests
Benign neglect	On-the-surface co-operation with headquarters initiatives, but doing little or nothing to implement them
Introduce "home-grown" policies	Getting the response in first to head off headquarters' initiatives
Public compliance/private defiance	On-the-surface co-operation but covert implementation of "home-grown" policies and practices
Resistance through distance	Distancing the subsidiary through "impression management" of the subsidiary's unique culture/context to headquarters and attempting to author more culturally appropriate practices
Overt opposition	Principled opposition through representation to headquarters' initiatives backed up by threats and sanctions
Deliberate subversion/sabotage	Deliberate interventions by subsidiary managers designed to subvert headquarters' initiatives

Table 2: Categories of compliance and resistance in center-subsidiary relations, adapted from Martin and Beaumont (1999).

2.3 Cultural Factors

The geographical location of a subsidiary may also be relevant for best practice implementation. Several authors argue that national culture has an influence on transfer of practices and knowledge in multinational companies (e.g. Javidan et al., 2005; Kedia & Bhagat, 1988; Kull & Wacker, 2009).The focus of this section is the impact of national culture on operations best practices.



2.3.1 Cultural dimensions

Literature concerning culture's impact on operations management often builds on the studies of Hofstede (1980) (Kull & Wacker, 2009).Based on a survey collected from a multinational company with subunits in 40 countries, Hofstede (1980) extracted four main cultural dimensions: Power Distance, Uncertainty Avoidance, Individualism and Masculinity. Later Hofstede added the dimension "long term orientation of time" to the four dimensions. (Kull & Wacker, 2010) A country's scores along these dimensions can be used to say something of the inhabitants "collective programming of the mind" (Hofstede, 1980:51)

Hofstede`s five dimensions was extended into nine dimensions by the GLOBE-study[1](Kull & Wacker, 2009). These dimensions are presented in table 3. In the GLOBE study, social scientists have acquired data from 17000 middle managers in 1000 organizations from 62 societies (Javidan et al., 2005). Empirical data from this study which is relevant for the investigated subsidiaries are presented in section 5.4.1.

Cultural dimension	Description
Future Orientation	The extent to which individuals engage in future oriented behaviours such as delaying gratifications, planning and investing in the future
Institutional Collectivism	The degree to which a collective`s institutional practices encourage and reward collective distribution of resources
Humane Orientation	The degree to which a collective encourages and rewards individuals for being fair, altruistic and generous, caring and kind to others
Uncertainty Avoidance	The extent to which a collective relies on social norms, rules and procedures to alleviate unpredictability of future events.
Assertiveness	The degree to which individuals are assertive, confrontational and aggressive in their relationships to with others
Power Distance	The degree to which members of a collective expects power to be stratified and concentrated at higher levels.
In-group collectivism	The degree to which individuals express pride, loyalty and cohesiveness in their organizations or families.
Performance Orientation	The degree to which a collective encourages and reward group members for performance improvement and excellence.
Gender Egalitarianism	The degree to which a collective minimizes gender inequality

[1] There is an on-going discussion in the literature concerning whether the cultural dimensions of GLOBE is compatible with Hofstede's dimensions or not (see Smith, 2006). This debate is considered to be outside of the scope of this study.

Table 3: GLOBE dimensions, Kull and Wacker (2010)

2.3.2 National culture's impact on practices

In a much cited paper concerning transfer of technology across nations, Kedia and Bhagat (1988) conceptualize that the effectiveness of such a transfer depends on the cultural dimension of the two nations. Concerning transfer of *practices*, Raval and Subramanian (2000) state that the cultural context will influence "the perception, understanding, interpretation, motivation, acceptance and successful implementation of best practice". (Raval & Subramanian, 2000: p183). The authors argue that ignoring the cultural context during best practice transfer may hinder the success of competitive strategies and cause costly failures. Similarly, Newman and Nollen (1996) warn against a blind standardization of practices across cultures as their findings indicate that business performance is higher if management practices are adapted to the national culture.

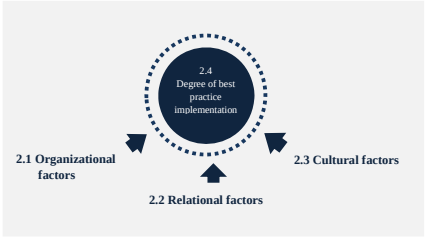
Some studies specifically investigate the impact of culture on *operations* best practices. The cultural dimension *assertiveness* is found to have a negative impact on some best practices (Kull & Wacker, 2009). High degree of assertiveness increases inter-employee competition and opportunistic behaviour – conditions which have shown to negatively affect implementation of quality management practices, such as Six Sigma and TQM (Total Quality Management). Assertive employees will in addition be less motivated when rewards are given to collective groups instead of individuals. Since teamwork often is a central ingredient in operations best practices, reluctance against collective rewards may be a hinder for the effectiveness of such initiatives. (Kull & Wacker, 2009)

Also the dimension *uncertainty avoidance* is found to have an impact on operations best practices. Uncertainty avoidance indicates the degree to which members of a culture are uncomfortable with risk and uncertainty. Cultures with low uncertainty avoidance will easily accept uncertainty in life and take each day as it comes, while cultures with high uncertainty avoidance consider uncertainty as a threat which has to be fought. (Hofstede, 1980) According to Kull and Wacker (2009), management of risks is one of the pillars of quality management's best practices. The authors propose that a high level of uncertainty avoidance in the local culture is positive for the use of such practices, as individuals will be more inclined to follow standard procedures and make changes in orderly ways. The findings of the study support this proposition, indicating that a culture with high uncertainty avoidance is positively related to the effectiveness of operations quality management practices. (Kull & Wacker, 2009)

Power distance reflects to what degree people expect that power is concentrated on higher levels in the organization (House et al., 2002). Power distance influences the amount of formal hierarchy, the degree of centralization, and the amount of participation in decision-making (Newman & Nollen, 1996). In a culture with high degree of power distance, employees are used to following instructions from their superior without question (Javidan et al., 2005). In continuous Improvement initiatives, empowerment of people in lower levels of the organization is a key concern. This can be challenging in cultures with a high degree of power distribution. (Mefford & Bruun, 1998)

In-group collectivism reflects the relationship between the individual and the collective. Individualists play a greater emphasis on personal goals, while collectivism places the group rights and goals ahead of the individual rights (Hofstede, 1980). Power et al. (2009) investigate the impact of the individualism/collectivism dimension on 639 manufacturing plants in nine countries, and find that collectivistic culture positively affects return on investments within operations. The authors point out that cooperation, collaboration, goal-sharing and employee values associated with quality management initiatives in operations. These are congruent with a collectivistic mind-set, which may be the reason why collectivistic culture in this study is shown to be a better context for operations best practices than an individualistic culture.

2.4 Degree of implementation



There are several authors who argue that one must distinguish between different degrees of implementation. Morita and Flynn (1997) state that only modest benefits are derived from an operations best practice if the practice is only adopted to a certain extent. Supporting this view, Laugen et al. (2005) find their study on that the performance derived from operations best practices depends on the degree of usage, or the "depth" of which the best practices are implemented.

Other authors are more specific about that what this "depth" actually means, and how this is expressed in an organizational setting. Drawing on institutional theory Kostova (1999), argues that successful transfer of a practice from one unit to another is achieved when the recipient unit has institutionalized the practices. This is the state where the practice has achieved a "taken for granted status", and has been infused with meaning and value. The author conceptualizes institutionalization at two levels *implementation* and *internalization*. Implementation is expressed as to the degree which the unit follows the formal rules implied by the practice. Internalization is the state in which the employees at the recipient unit view the practice as valuable and become committed to the practice. (Kostova 1999: 311) Although these concepts are theoretical distinct, they are likely to be interrelated. High degree of implementation will be associated with higher levels of internalization. (Kostova 1999)

Tolbert and Zucker (1996) propose a three stage model for the institutionalization of practices. The different stages are: pre-institutionalization, semi-institutionalization and full institutionalization. The characteristics of these stages are presented in table 3

Stages of institutionalization	Characterizations
Pre-institutionalization	Few adopters, limited knowledge about the practice. High failure rate.
Semi-institutionalization	Fairly diffused, gained some degree of acceptance by the employees. Moderate failure rate.
Full institutionalization	Widespread and accepted as necessary. Low failure rate.

Table 4: Stages of institutionalization, building on Tolbert and Zucker (1996)

Common for the conceptualizations of both Kostova (1999) and Tolbert and Zucker (1996) is that the desired state of adoption – a full institutionalization or internalization – is a state where the practice is seen as valuable by the members of the organisation. In this stage the employees are satisfied with the practice and feel commitment towards it. Such positive attitude will positively affect the sustainment of the practice. (Tolbert and Zucker, 1996, Kostova, 1999)

2.5 Theoretical framework

The theoretical topics described above may be summarized into a theoretical framework, illustrated in figure 3. It is assessed that each of these topics represent classes of factors which may have an effect on implementation of best practices in a multinational company. The theoretical framework functions as a guide for the rest of the study. First, the topics guide empirical data collection. Thereafter, theory within each topic are be used to analyse and discuss the findings.

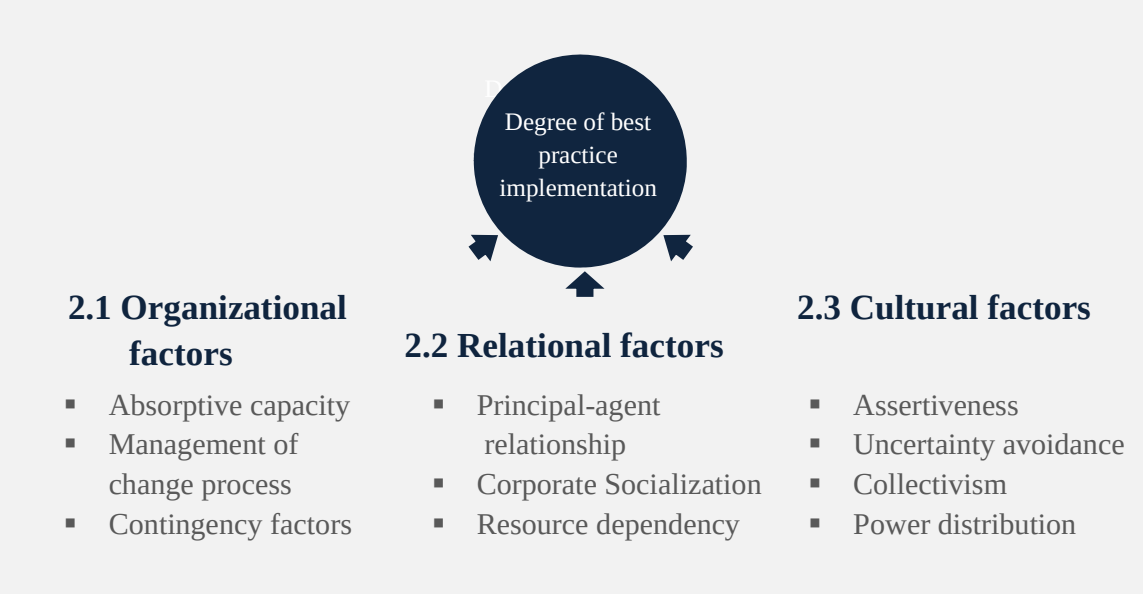


Figure 4: Classes of factors derived from theory that are relevant for investigation of implementation of operations best practices in multinational companies.

3. Methodology

This chapter treats the methodology used to answer the proposed research questions. The first part of the chapter describes the studies' *research design*. The second part presents the applied *research methods*. The distinction between these two concepts will be explained under the respective headers. The third and last part of the chapter discusses the limitations and weaknesses of the applied research methodology, in addition to the case study tactics which have been employed to increase the quality of the research design.

3.1 Research design

A research design is a framework for the collection and analysis of data. There are many available options for the researcher, including but not restricted to: experimental design, cross-sectional design (also called survey design), case design, and longitudinal design (Bryman & Bell, 2007).This study uses a case study design.

3.1.1 Choice of research design

The choice of using a case study design is related to both the purpose of the study and the inherent properties of this particular research design. As described in the theoretical background, there might be many different factors which affect best practice implementation. It was assessed during the choice of research design that these factors might be present simultaneously, and that they indeed may influence each other. It was therefore the authors' view that much valuable information may lie in how these factors interact with each other. In order to observe and discuss these interactions, the context specific conditions were reckoned to be of great importance in order to explain the different outcomes of best practice implementation.

A focus on contextual conditions is one of the primary concerns of the case study design. This research design is especially suitable when one wishes to understand a contemporary phenomenon in its' real-life contextual conditions, and it is hard to make boundaries between the studied phenomenon and its context (Yin, 2009).The phenomenon to be investigated in this study is implementation of best practices in subsidiaries of a multinational company. Other conditions which make the use of a case study design attractable are: if the research questions are formulated as "how" or "why"-questions; if the study is of a contemporary set of events; and if the investigator has little or no control over the events (Yin, 2009). These conditions are all present in this study, and the case study design is therefore assessed to be well suited for the intended study.

Some social science theorists separate between *qualitative* and *quantitative* case study designs, pointing out that the choice between these directions may reflect underlying epistemological and ontological orientations of the researcher (see Bryman & Bell, 2007 for a further discussion of this matter). However, the distinction between the two may not necessarily be clear cut, and others do not make the same distinction between the two (see Yin, 2009). Given the priorities

described above, this case study is more in the direction of a qualitative case study. However, some quantitative sources of information will also be used, as described in the next chapter: *Research Methods*. This decision is based on Yins' (2009) argumentation that appreciable benefits may be realized by using both qualitative and quantitative sources of data.

3.1.2 The choice of cases

The use of a case study design implies that a unit of analysis has to be selected, i.e. the "case" that is to be studied. Cases may come in many forms, including: *decisions, individuals, organizations, processes, programs, neighbourhoods, institutions* and *events*. Further, one must decide whether to use a single- or multiple-case design. Both of these designs also involve a choice of whether or not to use multiple embedded units (Yin, 2009). This study uses a multiple case design.

In collaboration with Jotun and study supervisor it was decided to use two factories as units of analysis: one in Flixborough, and one in Jakarta. These are the cases of the study. Following the classification of Yin (2009), this might be viewed as a multiple case study with two cases. Both the concerns of Jotun and scientific considerations have been taken in order to arrive at this decision. Jotun experiences that the outcomes in these two units subsidiary units are different, and wants to learn why this is so. The interest and consequent cooperation from Jotun provides the authors with access to vital information, an important factor to consider during case selection (Yin, 2009).

From a social research perspective, choosing a multiple case design has advantages over a single case design. It is less vulnerable compared to a single case study by not having to lay "all the eggs in one basket". More importantly, the analytic benefits of having more than one case may be substantial; multiple case design allows *literal* or *theoretical* replication. A literal replication is when the cases predict similar results. A theoretical replication predicts contrasting results, but for anticipatable reasons. (Yin, 2009) For this case study, the predicted outcomes are high and low degrees of implementation in the factories. The replication logic followed is therefore "theoretical replication". Choosing this kind of "two-tail" design also gives to analyst the opportunity to highlight differences by contrasting the two cases (Voss et al., 2002). Further, using two cases might reduce potential scepticism due to concerns of the uniqueness of a single case(Yin, 2009). In general, Yin (2009) recommends using at least two cases when this is possible.

When choosing the number of cases there were practical considerations which had to be taken into account: the costs of travelling to the different factories; the time available for collection of empirical data; the complexity of the researched phenomenon; and the time available for data analysis. It was therefore agreed that limiting the number of cases to *two* cases was a good solution, giving more time to in-depth investigation and analysis of the selected subsidiary units. None the less, the limited number of cases is a limitation of the study, and will be discussed in section *3.3 Discussion of the research design*.

3.1.3 The use of theory

Theory can be defined as an explanation of observed regularities. There are two main approaches to the relationship between research and theory: *deduction* and *induction*. Using a deductive approach, theory and hypothesis comes first and drive the process of collecting data. The empirical findings are then used to evaluate the initial theory. Using an inductive approach, the connection is reversed. First, empirical data is collected. Secondly, theory is generated on the basis of the findings. Still, the distinction between the two approaches is not always clear cut. The methods may also be used in combination, going back and forth between theory and data. This is called an iterative approach. (Bryman & Bell, 2007)

According to Yin (2009), it is a common error to presume that a case study should be performed with a strictly inductive approach. Rather, theory should function as a guide for the empirical investigations (Yin, 2009). This study will therefore be a combination of a deductive and inductive approach. First, existing theory is used to construct a framework of factors which might affect best practice implementation. The factors included in the framework may be viewed as rival theories, and functions as the studies propositions. In order to decide whether the factors have had the predicted effect, theory will be gathered using these factors as a guide. This approach resembles the deductive approach described by Bryman & Bell (2007).The study then aims to use the observations from the study to build a model for the factors affecting best practice implementation, i.e. building theory on the basis of the empirical findings. This resembles the iterative approach. One might therefore view the applied method as an iterative approach with one iteration.

3.2 Research methods

A research method is simply a technique for collecting data (Bryman, 2008). There are multiple different research methods that might be used in a case study to gather evidence, the most commonly used being: documentation, archival records, interviews, direct observations, participant-observation, and physical artefacts (Yin, 2009). A strength of the case study as a research design is the possibility to use many different sources of evidence. First of all, this allows the researcher to address a broader range of historical and behavioural issues. Most importantly, the researcher might develop converging lines of inquiry, a process of triangulation which might make the findings of the study more convincing and accurate. (Yin, 2009)

Semi-structured interviews

This case study draws on evidence from four separate research methods: interviews, direct observation, documentation, and a survey. This way of using several sources of evidence is called *data triangulation* (Yin, 2009). Following the recommendations of Yin (2009), a case study protocol has been developed for how the research methods should be used. This protocol can be found in Appendix B. The next subsections describe how the methods which have been used, and how they have been used for data collection.

3.2.1 Interviews

An interview may be conducted in three generic forms: structured, semi-structured and unstructured (Bryman, 2008). This study makes use of semi-structured and unstructured interviews.

Semi-structured interviews

Semi-structured interviewing means that the researcher has a fairly specific list of questions or topics guiding the discussion. However, the interviewee has still considerable room in how to reply, and the interview might make detours from the original plan. (Bryman, 2008) Semi-structured interviews were used to collect data from three different organizational units in Jotun: the factory in Flixborough, the factory in Indonesia, and headquarters in Sandefjord. Obtaining both the subsidiaries' and headquarters' view is another form of *data triangulation*. A total of 13 semi-structured interviews were conducted. An interview guide was used to perform the interviews, a part of the research protocol attached in Appendix B. The same interview guide was used at the two factories, while a different one was used for JOA representatives. By using the same interview structure in both the investigated cases, the cross-case comparability of the findings is improved (Bryman & Bell, 2007). At the factories, interviews were conducted with different levels of the organizations, from top and mid-level managers to operators, -again a contribution to data triangulation.

In Flixborough, four semi-structured interviews were conducted. In Indonesia, the number of semi-structured interviews was nine. Due to language barriers, two of the interviews in Indonesia were conducted by use of a translator. The different number of semi-structured interviews is caused by practical issues during the data collection process, and will be discussed along with other limitations of the study in chapter 3.3. It should be noted that the number of unstructured interviews in Flixborough is higher than that in Indonesia. The number of semi-structured interviews with representatives from headquarters is two.

The semi-structured interviews were recorded and transcribed. However, due to technical issues, two interviews were not recorded in their entirety. For one interview in Flixborough, the recorder failed to start. During one interview with headquarters, the recorded malfunctioned midways in the interview. For these interviews, the remaining session were documented by taking notes.

After the interviews were transcribed, the transcriptions were sent to the interviewees for approval. There were only a few minor adjustments made to the original versions. Of the interviewees, 10 permitted the publication of name and position, while 3 preferred to be anonymous. The interviews varied in length, the longest lasting for approximately 1 hour, and the shortest approximately 30 minutes.

Unstructured interviews

Unstructured interviewing means that the researcher has, at most, a predefined notion of topics or questions of interest. The interviewee is given room to respond freely, and the researcher

simply follows up on responses of interest. The unstructured interview has many similarities with a regular conversation (Bryman, 2008)

In Flixborough, eight unstructured interviews took place. The longest of these lasted over the course off three days, taking place in multiple sessions. The four shortest lasted for approximately 15 minutes each. In Indonesia, one unstructured interview took place, with duration of approximately 30 minutes. During the interviews, notes were taken by hand. The unstructured interviews were all performed with both authors present, limiting differences in interview style.

3.2.2 Direct observation

By using direct observation, the researcher may obtain relevant behaviours or conditions in the real-life context of the studied phenomenon. The observation can range from formal to casual data collection activities (Yin, 2009). The observation might also involve different levels of participation of the researcher, ranging from full involvement to full detachment (Bryman & Bell, 2007). The authors have made use of direct observation by visiting the factories in Flixborough and Jakarta. The factory in Flixborough was visited for three days, and the factory in Indonesia for three and a half day. In both the factories, the main contribution to the *observation* was through tours in the factory. During the tours, questions were directed to the guide. Other than this, there was no participation with production, meaning that the general level of involvement was low according to the classification of Bryman and Bell (2007). The main purpose of the direct observation was to evaluate the degree of compliance with the best practices in question. Further, the authors noted other observations which could contribute to increased understanding about the investigated factors in the developed theoretical framework. As such, the observation was more in the form of casual data collection as described by Bryman and Bell (2007)

3.2.3 Documentation

Documentary information is likely to be relevant to almost all case study topics (Yin, 2009). This study has made use documentary data from different sources. The annual report of the Jotun Group of 2010 has been used for information about the company. A set of course material about Jotun Production System has been used to gain insight into the content of Jotun Operations Academy. A historic overview over key performance indicators of the plants have been used to gain insight into the operation performance of the two plants. PowerPoint presentations about the two factories have been used to gain background information. Further, some additional documents of the plants' improvements have been provided by employees during the field visits.

3.2.4 Survey

The authors have also made use of a small survey, included in the case study protocol. The purpose of using the survey is to gather additional information about the degree of best practice implementation. In this way one might examine whether the answers of the employees in the

survey are concurrent with the information that was obtained through the interviews. By using a survey one might also reach a larger group of employees than by the other methods.

Obtaining respondents to the survey proved to be a challenging task, and only a limited number of employees participated from each site: 15 in Flixborough and 15 in Indonesia. Further, the final sample was not representative for the employees, with a greater representation from management. This represents a limitation of the study, and will be discussed further in chapter *3.3.3.Limitation due to practicalities.* Consequently, the findings from this research method will be used only to a certain extent, and will in these cases be used with great caution.

3.3 Discussion of the research design

The proposed research design is not without limitations and weaknesses. Some are them are inherent to the case study as a research design. Others are due to the resource constraints the study is subject to. Others again are caused by practicalities during the data gathering process. In this chapter the weaknesses will be discussed, together with the case study tactics which have been employed to limit their impact. These tactics are summarized at the end of the section, together with the impact they have had on the quality of the research design.

3.3.1 Limitations inherent to the research design

Multiple critiques have been raised against qualitative research strategies: The research strategy is too subjective; the studies are difficult to replicate; there are problems of generalization, and the transparency may be low (Bryman & Bell, 2007).

Subjectivity

This study is exposed of the subjectivity of the researcher both when deciding on which areas to focus on during data collection, and during the interpretation of empirical findings. In order to reduce the degree of subjectivity when deciding on which areas to investigate, a theoretical framework has been developed to guide the empirical investigations, building on existing theory within the area. Still, the selection of theory, as described in chapter 2, is based on subjective judgment, and may therefore be considered a weakness.

Regarding the interpretation of the empirical findings, several measures are taken to limit this weakness. After each interview, the transcribed interviews have been sent to the interviewees for approval, assuring that their statements have been correctly captured. Further, the authors have arranged meetings with the key informants of each site after the data collection was finished. During these meetings, the authors' interpretation of the main findings were presented and discussed. The intention of the meetings was to secure that the understanding of the researchers was in line with that of the members of the social context. This practice is called member validation, and is a means of increasing the credibility of qualitative studies (Bryman & Bell, 2007). Another means of reducing the impact of subjectivity has been to separate between presentation of empirical findings and analysis of the data. In this way, a reader may be able to make his or her own judgments on the basis of the empirical findings. Still, despite the taken

measures, some degree of interpretation is always involved in the process of gathering and presenting information. The subjectivity of the researcher therefore is a potential weakness of the study.

Researcher bias

Because of the subjectivity involved in qualitative research, a study may be exposed of a bias of the investigator. One way of limiting the potential threat of a bias is to record and present the researchers preconceptions and predictions before the process of gathering data. The purpose of this is to give the reader an option of knowing the researchers frame of interpretation. In this way, a reader may evaluate how and to what degree the preconceptions of the researcher might have influenced the interpretation of the empirical findings[2] In line with this practice, the authors' preconceptions are presented in Appendix D.

Troubles with replication

The critique concerning difficulties with replication of qualitative studies is connected to the researchers' subjectivity. Because the research strategy often values an unstructured approach and depends on the researchers' ingenuity, it is almost impossible to conduct a true replication (Bryman & Bell, 2009). These concerns are of course true also for this study. However, some measures have been taken to increase the potential for replicating the study. The measures taken to reduce the concerns regarding the researchers subjectivity is already discussed above. Concerning using an unstructured approach, some of the contributions to an unstructured approach are uncalled for; e.g. sloppiness and lack of rigor from the researcher. These issues are among the major concerns regarding case studies (Yin, 2009). In order to reduce this concern as much as possible, a case study protocol has been developed which may be found in Appendix B. The purpose of such a protocol is to establish procedures and general rules to be followed during data collection (Yin, 2009). The established protocol contains the research instruments used for the study: the interview guide and the survey.

Problems of generalization

Qualitative studies have often been critiqued for their generalisation to other situations than the context specific case which was the subject of investigation (Bryman & Bell, 2009). The answer to this critique lies in the purpose of the case study, and a distinction between *statistical* and *analytical* generalization. The case study does not intend to generalize to a larger population, i.e. statistical generalization. Rather, the intention is to generate new theory on the basis of the understanding developed during analysis and discussion of the findings, called analytical generalization. (Yin, 2009) As previously discussed, the intention of this study is to generate a model for factors which can influence implementation of best practices in multinational companies. The model is based on two case units, which both belongs to the same mother company. For this model to be applicable for a larger population, it has to be tested and supported on larger samples, and with subunits from different mother companies.

[2] Source: Morten Levin, lecture about social research methods 20.10.2010, NTNU

Lack of transparency

Another concern of qualitative research has been the lack of transparency. In some cases it may be difficult to establish what the researcher actually did, and how he or she arrived at the studies' conclusion (Bryman & Bell, 2009). Several measures have been taken to increase the transparency of the study. As previously discussed, a research protocol was established, giving insight to the procedures of the researcher. A research database including the empirical findings from the study has also been established. This database is available on request, and with the permission from the Jotun Group. Still, the largest contribution to transparency is the establishment of a *chain of evidence*. The purpose of such a chain of evidence is to allow an external observer to follow any derivation of evidence from the initial research questions to the final conclusions of the study (Yin, 2009). Efforts have therefore been made to ensure that the links between the research questions, choice of theory, empirical data, and the derived conclusions, are as clear as possible.

3.3.2 Limitations due to resource constraints

The study has been subject to time and other resource constraints, giving rise to a set of limitations which are related to this particular study.

The amount of theory

There are a great number of topics and theoretical perspectives which could be used to study phenomenon in question. Due to resource constraints, these cannot be covered exhaustively. The limited number of perspectives is therefore a limitation of the study. Still, the authors are not aware of any previous studies which have included as many different perspectives for this topic. As a contribution to the theoretical topic in question, this is considered a strength of the study. Each of the factors derived in the theoretical framework from the theoretical perspectives may be considered a potential explanation for the different outcomes in the cases. Examining the impact of all these factors is therefore a means of addressing rival explanations (see Yin, 2009). Further, great consideration has been made when selecting the chosen perspectives. The decision was based on both the results of a previous conducted literature study of the topic of best practice management, and advice from the supervisor. However, the high number of different perspectives comes at a trade-off. Because of the resource constraints, the volume of theory within each perspective is necessarily reduced. This is a potential weakness of the study.

Time for data collection

The resource constraints have also been a limitation during the collection of empirical data. First, the researchers have had limited time to spend in the field collection information. This is both due to the time constraints and the costs involved in travelling to and staying at the locations of the studies cases. Jotun has made contributions to lessen the impact of this restraint. The authors have also received some funding from Unifor[3] after applying for support for the research project. Secondly, the available time of the research subjects, i.e. the employees at the factories and Jotun

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headquarters, have limited the information gathering process. Due to this limitation, not all of the semi-structured interviews lasted long enough to cover all the topics of the interview guide. This should be considered a weakness of the study. The data collection has also been impacted by the number of different theoretical perspectives mentioned earlier. The number of topics that is investigated has necessarily limited the amount of collected information within each topic. This is a limitation of the study.

3.3.3 Limitations due to practicalities

The study also has some potential weaknesses due to practical considerations during the data collection process.

Limited access

During the information gathering process, managers at the respective plants were in control of which employees were selected for interviews. This is also true for the conversations with operators. The managers were also responsible for distribution of the survey to employees. The fact that managers at least to some degree were in control of the information available to the researcher should be considered a potential weakness of the study.

Survey sample

Concerning the survey, the number of respondents was limited in both cases, reading 15 and 15 in Flixborough and Jakarta respectively. Random sampling methodology was not applied when distributing the survey, as described above. As to be expected, the results therefore portray an uneven distribution between management and employees, with an overrepresentation from management. There are also differences between the two cases. In Jakarta there is a higher number of staff, while Flixborough includes a higher number of operators. This is at least partly caused by the fact that most operators from the factory in Jakarta do not speak English,-the language used in the survey. As a consequence of these weaknesses, no attempts will be made to use quantitative analysis tools other than mean values and a bar graphs displaying results. The results will also be used with high caution.

Distribution of interviews

As described during the section for research methods, the number of semi-structured and unstructured interviews vary between the two cases. This is caused by the limited availability of factory employees described earlier. In Flixborough, a larger number of unstructured interviews were performed. In Jakarta, the most convenient form of interview was the semi-structured interview. It was therefore decided to conduct a larger number of semi structured interviews in this case. This difference could be considered a weakness of the cross-case comparability of the study.

Language barriers

The study was at least to some degree subject of language barriers, mainly because the researchers are not familiar with the Indonesian language. At least one interviewee in Jakarta

expressed concerns related to the ability to express opinions as desired in English. When interviewing operators in Jakarta, translator had to be used. This means that the operators' views had to be interpreted and communicated by the translator. There is therefore a chance that some information may have been lost or distorted because of language barriers, making it a potential weakness of the study. Still, as the management in Jakarta spoke English quite fluently, it is the researchers' opinion that differences in language have not been a major weakness.

3.3.4 Summary of employed case study tactics

The prior sections have focused on the limitations and potential weaknesses of the research design. However, it should be underlined out that great efforts have been undertaken in order reduce the impact of these conditions. Table 5 presents a summary of the research tactics which have been employed in this study. The use of tactics has been guided by the recommendations of Yin (2009), and the right column describes the author's proposal for how each of the tactics influences the quality of a case study.

Employed research tactic	Impact on research quality
• Use of multiple sources of evidence • Uses member validation for both key empirical findings and the transcribed interviews • Establishment of a chain of evidence	Improves construct validity
• Addressesing rival explanations derived from multiple theoretical perspectives	Improves internal validity
• Uses theoretical replication *to a certain extent* (only two cases) • Makes active use of prior theory	Improves external validity
• Uses a case study protocol including an interview guide and a survey, included in appendix B. • Has developed a case study database, available on request and with permission from Jotun Group	Improves reliability

Table 5: Employed research tactics

The authors have also included their preconceptions about the explanation for the different outcomes in the two subsidiaries as a means of reducing the threat of researcher bias[4]. These preconceptions are found in appendix D.

[4] Recommended by Morten Levin, lecture about social research methods 20.10.2010, NTNU

4. Case presentation

The following chapter presents background information about the studied case. The first section describes the company Jotun. The next section describes Jotun Operations Academy. The third section presents the two investigated subsidiaries.

4.1 Presentation of the Jotun Group

The Jotun Group is a multinational company with headquarters in Sandefjord, Norway. The group manufactures and distributes decorative paints for private households and coatings for industrial purposes. The Jotun Group consists of 70 companies and 38 production facilities spread worldwide on all continents In 2010, the group employed 7800 people, and had a total sales income of 12 002 743.[5] The company is organized around product and geographical location, as illustrated below in figure 6.

Figure 6: Departments in the Jotun Group

The company is privately owned, enabling the company to take a long term perspective on its investments. In this spirit, the company has chosen to apply a *greenfield strategy* for many of its' new establishments, i.e. production facilities are built from the ground (de Wit & Meyer, 2004). In this process, the entrepreneurial spirit of local managers is highly valued by headquarters. The company has employed a relatively *decentralized business model*, meaning that the direct control of subsidiaries from headquarters is limited (de Wit & Meyer, 2004)

Jotun places great emphasis on the companies' culture, built around the four values: loyalty, care, respect and boldness. These values form the foundation of a mindset and subsequent behavior that is termed the "penguin spirit", referring to the penguin in the company logo. Employees who comply with these values are called "true penguins". Jotun actively uses managers who embody the company values to transfer values and practices between the companies' subsidiary units.

[5] Source: Jotun Group - Annual report, 2010

The company plans to expand its production capacity, proposing an establishment of 30 new factories during the next decade. The company also aims to increase productivity of existing production facilities with 50 % during the same period. Jotun Operations Academy (JOA) has been established in order to support this objective. This Academy has been run by the department of *Group Operations Improvement* (GOI) which has the responsibility for continuous improvement of production and deliverance worldwide in the Jotun Group.

4.2 Jotun Operations Academy

Jotun Operations Academy (JOA) is an academy under the Group Competence Department Management in Jotun. It was initiated in 2007 with a single course. Since then, JOA has grown to consist of four different courses: Jotun Operator Training (JOT), Jotun Operations Academy-Basics, Jotun Operations Academy Level 0ne (JOA 1) and Jotun Operations Academy Level 2 (JOA2) These are presented in table 6.

Course name	Description
Jotun Operator Training	Established in 2010 with the purpose of providing basic training in paint production, process chemistry and HSE to operators in factory, quality control and lab. Targeted towards operators.
JOA-basics	Consist of the fundamentals from JOA1, such as basic methods in Lean manufacturing and HSE. The course is held on site, primarily by local trainers who have attended JOA2.The course is meant for low- and middle managers as well as other key persons in Operations. Established 2009.
JOA-Level One	Targeted toward middle managers and managers in operations. The main focus is Lean manufacturing and HSE but the academy also contain theory about process, maintenance, and supply chain planning. Established in 2007.
JOA- Level Two	Established in 2009. For production managers, and with the purpose of changing manager`s roles from conventional managers to coaches, and equip them with knowledge and skills to be in the driving seat for Lean-implementation and improvement work. The participants are certified to conduct JOA-basics in their own organization.

Table 6: Content of Jotun Operations Academy. Source: JOA-presentation from Competence Development Department, Jotun Group.

4.2.1 Jotun Operations Academy-Level One

Even though JOA-consists of four different levels, the focus of this study is on the original JOA-namely JOA1. JOA1 has been arranged since 2007 and has several representatives from both Flixborough and Indonesia have attended this training. The other levels of JOA are of newer

origin, and have to date had a lower influenced the operations of both Flixborough and Indonesia.

JOA1 was established in 2007 with the intention to 1) improve HSE and effectiveness in operations and 2) to increase the general competence level for the management teams in areas of Production, Process, Logistics, HSE and Maintenance.[6] Jotun wants Lean manufacturing and HSE to be a read thread in all of the company`s operations and JOA is an important mechanism in order to achieve this goal. The content of JOA is a combination of theory, cases for discussion and practical factory exercises. It focuses on teaching practical tools for improvement in HSE, Manufacturing, Maintenance and Logistics.

JOA1 takes the form of a seminar divided into two modules with a 7-8 weeks break in between. The first session lasts for five days, the second session for four days. Prior to the seminar, the participants have to prepare and take a pre-test. Between the seminars, the participants are assigned homework which will be discussed during the second module. In order to motivate the participants to apply knowledge and practices they learn at JOA1, they are given an assignment to fulfill within six months after the JOA1. The assignments are created and adapted to each individual but they all require use of techniques and knowledge thought at JOA1.The main content and the specific practices communicated through JOA is summed up in table 7. According to the leader of GOI, greatest focus has been on Lean thinking and HSE.

A non-coercive approach

Headquarters intends to apply a non-coercive approach for the implementation of the operations practices, reflecting the company's decentralized business model. Factories are free to implement the practices that they want.

> *"It is not our intension to force practices upon them. Ideally they should themselves see the value, and on their own will implement the knowledge and practices of JOA. It can decrease the motivation if we force them to change" (Marianne Terland Nilsen, Group Operation Improvements Manager)*

However, the effects of the training have not always been evident. GOI-representative Idar Larsen argues that local top managers should expect more from employees who have attended JOA in order to justify the costs involved with this training. Marianne Terland Nilsen describes that the company's approach gradually has become stricter, placing greater emphasis on control of the assignments employees are given to complete after JOA. According to Nilsen, this process is resource demanding, and the follow-up has not been as good as originally intended due to resource restraints.

[6] Source: Presentation*: " Implementering av Lean i Jotuns globale produksjonsnettverk"*, Kjell Gundersen Group Operations Improvement

Topic	Practices
Change Starts with Results	Deming's Circle (PDCA), Kotters 8 steps, Create short term wins. Waste elimination-7-wastes
Management Control and Reporting systems	Management by objectives: objectives, plan, control, report (PDCA), TOR (terms of reference)-meeting-document. Control System Mapping, Evaluation of MCRS
Chemical Risk assessment	Risk matrix, Risk assessment; Controlling risk-procedure
Classic Theory-supply chain planning	EOQ-estimation, Forecast-calculation, Reorder point-estimation; Safety stock-estimation
ABC-theory	Pareto 80/20 ruleIdentification and focus on vital few
Levelling Production	Production- levelling
How can Supply Chain add value to business?	Kaikaku-the ten commandments from H. Hirano Think supply chain, Compete through supply chain
Zone classification, Static electricity, Fire and explosion, Ex Equipment	Electrical equipment safety, Fire and explosion safety Hazardous area classification, Static electricity practices.
Lean Thinking	Team work, Continuous improvement mind-set, Waste elimination Focus on value chain, focus on time (responsiveness), 7 wastes
OTIF measurement	OTIF-measurement-use it in order to improve! (On Time In Full)
Helicopter View-Process Flow	SIPOC-process mapping, Flowchart (Linear, Deployed)
Value Adding non Value Ad	5 lean principles: value, value mapping, flow, pull, perfection) Value Mapping (Customer Value, Operational Value, Non-Value Added)7 wastes
Laws Standards and Insurances	Duty of care, Document-handling-templates.
Chemical handling	Safety Data Sheets- read and use SDS, Chemical Handling
Batch planning in factory	ABC product classification, Batch planning, Make C products to order
Quality Control	QC-procedures; compulsory tests, reporting , Statistical process control, Storing and handling of raw materials, Licensing procedure
Introduction JOA II	Five principles of Management in Jotun: Communicate Expectations, give opportunity to perform, provide follow up, assess and help, judge and reward fairly
Speedy Kaizen	Root cause tools: Gemba, 5W2H, Fishbone, 5Whys, Pareto Graph SMED, SIPOC, Process map. Teamwork: encourage employees. Managers: create environment for success, encourage staff, help others to learn tools, highlight opportunities and problems, recognitions/rewards
Maintenance	Corrective Maintenance
Fire fighting systems	Information about fire fighting systems.
Finance for Operations	Accounting, focus on operations cost drivers, KPIs, Working Capital
5S-sessions	5S: Sort, Set in order, Shine, Standardize, Sustain. -Implementation
What is lean	About Lean
SMED	SMED-Three steps: Organize workspace, study working process, converting internal setup to external setup

Table 7: Overview of the content of JOA1.This overview is based on an interpretation of documented material from a pilot version in 2007. According to Marianne T. Nilsen, there have not been any major changes since then.

4.3 Jotun factory in Flixborough

The Jotun operations in UK were initiated through the purchase of Henry Clarke & Son in 1974, representing an exception from the modern day greenfield strategy of the Jotun Group. The name of the new entity was Jotun-Henry Clarke Ltd. The current plant in Flixborough was built in 1988, and was operational in 1989; The site has grown with 60 % since then. After a business re-organization in 2001, the factory belongs to Jotun Paints (Europe) Ltd. This company has approximately 350 employees, 135 of which are based in Flixborough. The main function of Jotun Paints (Europe) Ltd is to supply goods in Europe, but exports also to Central and South America, The Caribbean and West Africa. (Alan Roden, 09.03.11)

Figure 7: Factory in Flixborough

The factory in Flixborough produces heavy duty marine and protective coatings. The products are mainly solvent based, but some are water based paints. The factory is Jotun's largest coatings factory in Europe, with a manufactured volume of 22.0 million litres in 2010. The plant employs 55 people in the factory and 20 in the warehouse, organized in two shifts. The site is certified according to the standards of ISO 9001 (quality management), ISO 14001 (environmental management) and OHSAS 18001 (occupational health and safety). (Alan Roden, 09.03.11) The factory has undergone a major transformation during the last 5-6 years. In 2005, the plant was performing poorly. The inventories were large, but one was still unable to satisfy customer demands. The results were so poor that the factory was under threat of being closed. (Marianne T.Nilsen 25.03.2011) Today, the situation is improved, and the factory in Flixborough is developing into one of the most efficient in plants in the Jotun Group[7]. Increased performance is one of the reasons why Jotun Group has decided to move production from Fredrikstad to Flixborough.

[7] Company presentation, Alan Roden 08.03.2011

4.4 Jotun factory in Jakarta

PT. Jotun Indonesia was founded in 1983. The first factory in Indonesia was established in 2000, and the current facility was built in 2005 – located in Jakarta. In addition to the factory, the company now consists of six sales offices spread around the country, located in: Medan, Pekan, Batam, Balikpapan, Surabaya and Makassar. Through these branches, the company covers the most of the Indonesian market. (PowerPoint Presentation by Irene H., Factory Manager)

Figure 8: Factory in Jakarta

PT Indonesia produces paint and coatings for the marine, protective and decorative segment. In Indonesia they are market leaders in both the marine and protective coatings segment, and they are the 5th biggest actor on the decorative market. The plant is certified according to the same standards as the plant in Flixborough: ISO 9001, ISO 14001 and OHSAS 18001. (Jotun Presentation)

The wet-paint market in Indonesia is sharply expanding, and is viewed by Jotun Group as a high-growth market (Idar Larsen, Project Manager- Group Operations Improvements). The plant in Jakarta has increased sales with around 200 % the last 5 years (KPIs, Appendix C), and is one of the fastest growing subsidiaries in the Jotun Group[8]. Due to the strong growth, the factory is struggling with meeting the required production volume. Local managers have therefore applied for funding for more production equipment. Parallel to this study, headquarters has conducted an evaluation of the application from Indonesia, investigating the local conditions in order to verify if there is a need for additional equipment. The evaluation concludes that the plant *already has* sufficient production equipment in order to cover the demand in the foreseeable future, and that the current use of the machinery is far from the theoretical maximum capacity. In order to serve the expanding market, headquarters has initiated an improvement project in Indonesia which includes a goal of increasing the utilization of the current equipment. (Marianne Terland Nilsen)

[8] Source: Jotun Group- Annual report, 2010

5. Empirical findings

The following chapter presents the empirical findings from the two studied cases. For each case, findings about the degree of best practice implementation are presented first. Thereafter follows collected information which is used as the basis for analysis and discussion about best practice implementation in chapter 6.

5.1 Flixborough

This section presents empirical findings of the case about the Jotun factory in Flixborough.

5.1.1 Best practice Implementation

In the first sub-section (5.1.1), the operations best practices which were identified in the Flixborough plant are presented. The purpose is to establish the present "status" regarding the degree of best practice implementation.

Right First Time and statistical process control

In the recent years there has been a strong focus in Flixborough on producing batches of paint *right first time* (RFT). In order to increase the rate of RFT, one has applied *statistical process control* to map the factors that affect the paint quality. After 6 consecutive positive results a product is considered as a RFT-product. In addition to this, emphasis have been placed on improving the paint-recipes, making them more nuanced and detailed in order to control exactly how each type of paint is made. In this work the operators have been actively involved, leading to hundreds of recipe-improvement suggestions. (Alan Roden, Technical Manager)

Mini Business Areas

One of the more recent improvements that have been implemented in the factory is the so-called Mini Business Areas (MBAs). The charging area in production has been divided into small areas, typically around a machine. In this area, a specified team has the full responsibility for all activities and performance. It has been registered that as operators no longer are moved around on different machines, but have their fixed MBA, they get an ownership-feeling both for the equipment and the team performance – something which has led to positive results (Stewart Mackay, Improvement Manager). Regarding the MBA performance, it has been created a stepwise performance plan with a 3 years perspective which each MBA are regularly measured against. Compliance with 5S is included in this evaluation.

Small Group Activities

In order to involve the operators in the improvement work, one has implemented what is called small group activities (SGA). Here, operators, team leaders and managers meet to discuss improvement issues. In these gatherings *problem solving techniques* like PDCA (Plan-Do-Check-Act), 5 Whys and Fishbone-charts are used. Several operators' state that these small group activities are very positive because it makes them included and listened to in the improvement work. Sometimes more extensive workshops are conducted in order to solve specific challenges – for example to eliminate bottlenecks in the production or improve change-

over time. In these situations one puts improvement charts on the walls and does extensive problem solving activities. (Stewart Mackay, Improvement Manager).

Extensive Measurements

Extensive measurement of machine capacities, availabilities and product cycle times have been done over several years. This has been an important foundation for the improvement work in Flixborough (Stewart Mackay, Improvement Manager). In addition, regularly updated information about performance and improvements are displayed on well visible places around in the production and other places in order for operators and staff to see. There is for example a board in the production that graphically shows the daily produced volume compared to the weekly goals. They have also charts for each MBA that shows whether one has reached the daily targets or not. This makes it possible for everyone to follow the performance of each MBA, motivating the MBA-teams.

Operations results

The plant in Flixborough has performed well by Jotun standards the last years (Idar Larsen, Project Manager - Group Operations Improvements). The plant has managed to improved the OTIF from 78 percent to a score around 98 percent in the period from 2006-2010 (Alan Roden, Technical Manager). One has also reduced the inventory levels from 2 million to 1 million litres, and has in average 12 days of production in stock. A contribution to this is a reduction of batch sizes from 4500l to 2000l of paint. In addition one has reduced company complaints from 35 to 14 percent. Along with these improvements one has also reduced the number of shifts from 3 to 2.

5.1.2 A difficult start

Reaching the degree of implementation described above has not been uneventful. In Flixborough there have been attempts to implement Lean Manufacturing-practices as far back as the early 2000s. However, these early attempts did not lead to any substantial lasting changes in the organization.

Resistance against change

The early improvement initiatives met a lot of resistance from the employees. According to earlier factory manager Alan Roden, statements like “I have made paint for twenty years, so don’t tell me how to make paint” were common to hear when changes was initiated. This impression is further emphasized by the Continuous Improvement Manager, Stewart Mackay:

> *“The people side of change process is undoubtedly the most difficult part. It takes many years to get the workforce to get on board; here it has taken 6 years. Peoples’ mentality is hard to change.” (Stewart Mackay, Improvement Manager)*

This impression of internal resistance is also evident in the perception of one of the team leaders (earlier operator) who states the following regarding an improvement initiative:

> *"We thought it was just one of these ideas that would disappear after a couple of weeks." (Bryan McDonald, Team Leader)*

In several of the interviews it is stated that the main problem with the Lean initiative in the early 2000s was that the initiative was not sustained. The resistance against the initiative was high, and the change process was not managed in a way that won over the resistance. From the interviews it is revealed that the communication between management and operators where limited, and the operators where not much involved in the change process. Another problem was, according to technical manager Alan Roden, that one tried to do too much at the same time. He emphasizes that it is important to have clear distinct goals for the practices one implements and not just implement for the sake of implementing. In this first implementation initiative, the pressure from management did not sustain, and a buy-in from the operators was never achieved. This gradually led to a return to the previous state of behaviour.

5.1.3 A second attempt

Four years ago a new attempt was initiated. This time there had been a change in top management; new leaders had been employed with background from other plants. Marianne Terland Nilsen (Leader of Group Operations Improvement) explains that the background for this change was an evaluation of the conditions in Flixborough. The evaluation was performed by a representative from headquarters who worked as management for hire for approximately 6 months.

> *"At that time, I think it was around 2005-2006, the operation in Flixborough was totally out of control. Stock-levels were tremendously high; and even with this high stock level they were not able to deliver. So it was really something completely wrong with the setup and with the way they were operating" (Marianne Terland Nilsen, Group Operation Improvements Manager)*

The evaluation concluded that the current management was neither willing nor able to perform the required changes at the plant. As a result, the old management was replaced with people who were viewed to be better suited for the purpose. The new managers brought with them new ideas and practical knowledge about how Lean could be implemented in practice. These leaders made it "crystal clear" that this time, the focus on operations improvement and Lean manufacturing would be sustained. In the words of team leader Stephen:

> *"Suddenly other people came in from outside, and said: this is going to happen! And after a couple of weeks it was still the same: "this is going to happen". And then: "Right, right. This time it looks as it's is here to stay". I think maybe if they had pushed a bit harder the first time around, they wouldn't have struggled later on." (Steven, team leader)*

As the previous quote shows, management kept pushing these new initiatives also after a couple of weeks. This is a clear difference from the previous attempt. The continuous improvement manager expresses that the support from the new managers was “like a breath of fresh air”, and expressed that his work with continuous improvements got a lot easier with increased support from top management.

Achieving results

From the interviews, it becomes apparent that the new improvement initiatives in Flixborough created results; performance improvements were achieved already after a couple of weeks. This reduced the resistance and made attitude towards the improvement initiatives more positive. Several mention that achieving results were important in order to get the buy-in from the operators.

> *“When the operators saw that it was working, they got on-board.” (Bryan McDonald, Team Leader)*

> *“Most operators where negative to Lean in the beginning (early 2000s) but now we have seen the benefits: cleaner, better work environment- which have made the attitude better.” (Stewart Mackay, Improvement Manager)*

When talking to operators in the production, it is apparent that the awareness of the improvements which has been done the resent years is high. They know what improvements that have been done, and they are familiar with the focus on continuous improvements.

Emphasizes the importance

It is a revealed that both staff and operators share the perception that the work with operations improvement is very important. Several mention that they knew the factory was performing poorly earlier, and that operations improvements was important in order to secure the future existence of the plant. This has worked as a major motivation for the workforce.

> *“If we didn't change, this site might not have a place within Jotun anymore. So I think when you hear things like that, then that sort of put people into: "well, I've got to do this or I might not be coming to work one morning". I think that's why especially this site has driven so hard to get to where it is now. (Steven, Team Leader)*

> *“Improvement initiatives are good because it secures our jobs” (Operator #3)*

Measurement of operational indicators

Measurement of operations indicators has received a lot of attention in Flixborough. Stewart Mackay (Improvement manager) states that it is extremely important to gather data from the production in order know what the performance-level actually is at. One has therefore systematically been gathering data the last 5 years, providing a foundation for improvements.

"Now that one has a benchmark, improvements can be made. By measuring cycle times of 480 products we know which areas to focus on." (Stewart Mackay, Improvement Manager)

From the operator side, the attitude towards this practice of extensive measurements has not been entirely positive. The feeling of being watched by a "big brother" is mentioned as a negative aspect. However, this scepticism has been reduced over time, and the fact that they can follow their own performance and compare it with the other mini business areas works encouraging. It was observed during the field-visit that results were updated and visually displayed for the operators to see.

"Monitoring…it's okay. I was a bit negative in the beginning, but it gives us insight about the performance, and it is nice to compare against other MBAs. (Operator #2)

"In the start it was like this big brother thing. We thought they were watching us all the time, but it wasn't really for that reason, it was for collecting information so we can measure cycle times and that sort of thing. It shows us trends of how we have improved." (Bryan McDonald, Team Leader)

Organization of improvement work

In Flixborough one has a dedicated position as Improvement Manager, a manager who takes care of monitoring and follow-up of improvement projects. This manager is also active in initiating new improvement projects and facilitates small group activities. When it comes to educating the workforce on operations knowledge, the plant has used external expertise, arranging courses for staff and team leaders.

5.1.4 Knowledge about operational best practices

The earliest improvement initiatives were led by the Improvement manager Stewart Mackay, who had taken a course on World Class Manufacturing at Hull University. Later on, in 2005, the company joined a local operations improvement initiative called PICKME. This engagement educated parts of the workforce in Lean Manufacturing and continuous improvements-techniques, and gave the factory improvement ideas from external sources. In addition to this, the new leaders who were employed in Flixborough had backgrounds from other plants, and had practical experience with Lean Manufacturing from before.

"PICKME and lots of visits from other factories kick-started what we see today. The PICKME program contributed with courses in Lean Manufacturing. Many of the improvements ideas were also introduced by managers with experience from outside the company". (Stewart Mackay, Improvement Manager)

In 2008, half a dozen operators and team leaders attended a course in business improvements techniques called the MBQ-level two. The factory has also sent many managers to Jotun Operations Academy. According to the Continuous Improvement Manager there have been 10

participants during the last four years. JOA has had a broader scope than the previous courses. Several employees claim that the broad scope has been valuable, as it is easier to understand the need for improvements on specific areas when one also sees the "big picture".

In addition to an increasing knowledge about operations best practices, the general level of education in the organization has increased the last years due to increased competition for work in the local area. Another factor which has influenced the knowledge level is the stability of the workforce in the recent years. There was a period around 2006, where there was a great deal of changes of the workforce due to changes from three to two shifts. The last four years, the workforce has remained stable which have increased the continuity on improvement projects and increased the collective knowledge level. New people who come in are trained by the ones that have been there for a while.

In general, there has been an increased level of knowledge about Lean and Quality Management practices since the first Lean initiative in the early 2000s. Stewart Mackay points at the increased knowledge as positive in order to succeed with implementation of new operations improvement programs.

> *The more people that where educated on these issues, the easier it is to roll out such ideas as more people understood the value. Overall knowledge also makes it easier to understand the improvement in specific areas. (Stewart Mackay, Improvement Manager)*

> *I had knowledge about Lean from my work at another factory; it makes me more positive towards these practices. Generally it helps to have knowledge about Lean. (Operator #1)*

5.1.5 A good fit between the practices and the organization

The managers at Flixborough perceive that most of the practices from JOA are useful for their responsibilities in the factory. Most of the practices are relevant for their daily work, and one employee estimates that 90 % of the practices are used at least on a weekly basis.

> *"For me, the relevance was that JOA hit right on what I was doing on my day to day work. So for me it had a lot of relevance" (Paul Briggs, Warehouse Manager)*

> *"I think in general there are a few things in there that give you an overview of something you'll never use or revisit again. But I would say that 90 % of it is very useful" (Anonymous Manager)*

Technical manager Alan Roden states that the main challenge has been to get people to accept the practices, not the practices themselves. The practices have quite easily adapted to local conditions, once "the ball started rolling". However, some practices have been harder to implement, or not implemented at all, at least partly due to existing practices. Just In Time

production (JIT) has not been implemented, partly because of the lack of a forecasting system. Today, all production planning is based on historical data.

> *"The factory does not follow Just-in-time. Maybe in an ideal world." (Stewart Mackay, Improvement Manager)*

Employees at the factory have experienced challenges with the implementation of a new ERP-system using IFS-software. This new warehouse management system represented a clear breach with the existing practices which were based on a Kanban-system, and the ERP-system has required considerable adaption to local conditions. Employees in the finished goods department have expressed frustration over replacing the old routines with the new ones; especially when minor issues which were easy to perform before now takes a long time because of some technical difficulties. One employee expresses that he feels the implementation of the system has taken the warehouse back a couple of years in time.

Another employee explains that process mapping has been hard to exploit to the full potential due to limited raw material tracking. If there is something wrong with a batch, not knowing were the raw materials have come from makes it difficult to trace sources of error. The raw material tracking is made more challenging by the fact that suppliers are in China and Dubai, not from the UK.

5.1.6 An improved relationship with headquarters

Before the second improvement initiative there was a low degree of communication between Flixborough and headquarters. The plant was performing poorly at the time, and technical manager Alan states that most likely the plant did not want the attention.

> *"Nobody likes shouting out bad news" (Alan Roden, Technical Manager)*

When headquarters in turn communicated that changes were needed, the old management was unwilling to comply. As previously discussed, the headquarters then choose to replace the management with someone who were willing to perform this task. During this process and the following improvement initiatives, new relations were established. These connections were not only with Group Operations Improvement, but also with the Supply Chain Department.After this change, the interviews indicate that the relationship between headquarters and Flixborough has improved, and that there is a higher degree of interaction than before.

> *"I think the last 4-5 years the relationship with headquarters has improved dramatically. Before there was not so much interaction between the sites, but now a lot of managers, employees, workforce, are visiting Norway meeting people. It is a lot easier talking to somebody when you know who you are talking to, and you've met them face to face." (Anonymous Manager)*

> *"I think the relationship now between us and Norway is probably the best it's ever been." (Anonymous Manager)*

The employees experience that HQ has picked up interest now that the results have been improved, and that the confidence headquarters has in the plant is higher than before. The transfer of production from Fredrikstad to Flixborough is used as an example of this, an achievement the operators appear to be proud of.

5.1.7 Increased strategic importance

The strategically importance of Flixborough is higher than many of the other plants because of its' function as Jotun's hub in Europe. GOI-leader Marianne Terland Nilsen states that the strategic importance increases further as the factory takes over production from Fredrikstad. Still, as described in the company description in chapter 4, the factory is only one of a total of 38 factories. Employees at the plant are of the opinion that factories compete against each other for funding through compliance with the new practices. There seems to be an established understanding that being successful at implementing the new practices "looks good", and that the improvements are the reason why production is transferred from Fredikstad.

5.1.8 Adoption of Jotun values

The degree of alignment with corporate values and the inclusion in the company culture seems to have been low in Flixborough before the new top management came in. The new director, Richard Chapman had an important role by promoting the Jotun values to the factory.

> *"Before he arrived it was probably not as within the Jotun spirit as we are now. I think that has a lot to do with Richard and his relationship with Norway as well." (Anonymous Manager)*

After this change, the degree of involvement of operators has increased. The introduction of new values had an impact on the relationship between management and operators; both operators and team leaders express that earlier there was a barrier between management and operators. Management did not take much interest in what the workforce thought, and the operators had little insight to what happened at management level. Today, both operators and managers express that the barriers between management and operators have been reduced, and that this has had a positive impact on the factory. According to operators in the filling area, the dialogue between managers and operators has become much better the last years. Now the operators feel included and listened to in the process of operations improvements. The communication between the operators and management is open and there are no signs that show that operators are afraid to state their opinions to their superiors.

> *"The barriers between management and operators have decreased the last years. I think that is one of the reasons why the improvements have succeeded." (Operator #3)*

> *"Yes, because of the brake down of the wall between management and the operators, the morale has become better. And when the morale is higher, the productivity becomes higher." (Bryan McDonald, Team Leader)*

Still, the employees first and foremost feel committed to the factory, rather than Jotun Group as a whole. It also seems that they are mostly concerned with the performance of the plant in Flixborough, not the Jotun Group as a whole. The reason for this is that they want to keep the jobs in Flixborough.

> *"Some of the guys need explaining: we are doing this to guarantee your jobs In the future. That is their buy in. They are not too bothered by what the company does, but they are bothered with if they have a job or not." (Paul Briggs, Warehouse Manager)*

> *"Regarding the commitment to Jotun among operators, we do not force the culture on them as long as they do a good job. (Stewart Mackay, Improvement Manager)*

> *"A difficult question. I really don't know." (Anonymous employee about whether he feels included in the penguin culture)*

Teamwork

Several managers at the plant state that good team-working is very important in order to succeed with operations improvements. However, some of the operators also state that the team spirit in general could be better. The relationship between operators from different shifts is not very close, and it happens that people leave problems for the next shift (Operator #3). Stewart Mackay (Improvement Manager) states that the workforce loyalty towards the organisation could be improved. He observes that in the British culture people perceive it as a right to have a job, and that they therefore do not appreciate working for Jotun as much as they probably do in other countries. As a consequence, the commitment and loyalty to the collective and the company could be better. As previously mentioned, there has been explicit resistance towards change among the workforce in Flixborough. The following quote illustrates that operators can be confrontational if their opinions are challenged.

> *"It lies in the English culture to dislike change. A typical attitude is that: "I have always done it in a certain way", or: "Do not teach me how to make paint; I have been making paint for 20 years". This culture is not easy to change. (Stewart Mackay, Improvement Manager)*

5.2 Indonesia

This section presents the empirical findings from the Jotun factory in Jakarta. The structure of the section is similar to that of the previous section, meaning that identified practices are presented in the first sub-section, followed by other relevant empirical findings.

5.2.1 Degree of best practice implementation

The following conditions were identified concerning the state of practice implementation in the Indonesian plant.

A3 improvement projects

The investigation shows that there has been initiated several small improvement projects in Indonesia the recent years. These are called A3 projects as illustrations of the conducted projects are printed on A3-paper. In an A3 project, improvement attempts are carried out in a structural way, following the logic of the PDCA-circle (Plan-Do-Check-Act). In the projects, problem solving tools like the 5 Whys, Fishbone and Process Flow Mapping are used to find the root cause and a solution. Then a roadmap of actions is created in order to achieve desired improvements. The whole procedure is documented and displayed on boards where both staff and operators can see them. (Irene H., Factory Manager)

Continuous Improvements

In addition to the A3-projects, there have also been carried out and documented a lot of smaller improvements since the first attendance at JOA in 2008. Their improvement register shows that there have been executed 51 improvements from 2008-2010, and the factory manager explains that there have been conducted more improvements which have not been recorded. Examples of improvements are: the filling process has been improved by making the layout more compact and adding an extra filling valve. The pressure measurement has been standardized to make sure that the air pressure for all equipment is on specification. The area for placing pre-weight materials for charging has been organized in order to reduce waiting time, reduce stress level, and give sufficient passage for traffic. For further examples, see Appendix E. It is worth noting that 90% of the improvements are requested by four managers, including the factory manager.

5S framework

Another example of improvements is the implementation of 5S. This framework has been implemented in both production, logistics and engineering. After the JOA this been done in a structural manner and it is now monitored as part of the HSE-routines under the responsibility of the HSE-department. Operators are rewarded for complying with 5S. Still, the factory manager explains that they might forget these principles during peak production, for example by forgetting to clear up paint spilled on the floor.

Still in the process

Although there have been initiated several A3 projects and registered many improvements, the factory in Jakarta still struggles with sustaining improvement initiatives (Irene H., factory

manager). Further, one has not been able to involve the whole organisation in a satisfying manner. According to factory manager Irene H., they are still "in the process".

Operations results

As mentioned in the case description, the plant's production volume increased quite heavily the last years, reflecting a booming Indonesian market. Interpreting the development of the factories KPIs (see Appendix C). It seems that a major contributor to the increased volume is an increased use of manpower. However, operations improvements have also been evident as the manufacturing cost as percentage of sales has gone down with 20 %, and the customer complaints have been reduced. This indicates improvements in processes and product quality (Nelson, Finance and IT Manager).

One of the main challenges in Jakarta has been the deliverance reliability. This is measured by the rate of On Time in Full (OTIF) deliveries. For February 2011 the OTIF was 87 % while their goal is 95 % (Heru Taufan, Logistics Manager). Another challenge in Jakarta is the inventory level. Today, the average stock-level corresponds to 35 days of production (Idar Larsen, Project Manager - Group Operations Improvements).

5.2.2 Introduction of new knowledge

The implementation of the best practices in Indonesia started after the factory manager Irene participated in the first sessions of JOA in 2007. Prior to this, the knowledge about operations best practices was low at the factory. At the course, Irene H. was rewarded as the best student of the class. Since then, 4 additional representatives from the plant in Jakarta have attended JOA. Irene has also attended the JOA-level2.

Internal education

After the factory manager (Irene H.) attended JOA-level2 she conducted internal courses in JOA-basics at the factory. This training has been directed towards staff and middle management. The factory manager explains that plans are made to also include the operators in the future. However, first the course material must be translated from English to their native language. The need for education of both management and operators is mentioned as important in several of the interviews. One of the reasons is that the improvement projects sometimes lack support from mangers because they do not know what the benefits of these projects are. Another reason is that there is a knowledge gap between operators and the managers who have been attending JOA-basics.

> *"Yes, there is a gap. If we talk like this to them (operators), they will say: "what is improvement?" That is why we need to train them." (Achriano Toyang, Production and Laboratory Manager)*

> *"Because not all managers know what the benefits are, the support may be better. But we have plans to explain to them what the benefits are. I believe that if they know what the benefits are, they will support us a 100 %. Bjørn Abraham (Managing*

> *Director) already knows about the benefits, but the head of departments may need more explaining. If they all attend the JOA-basics I guess that will help. We have plans to give JOA to all of the head of departments." (Achriano Toyang, Production and Laboratory Manager-involved in conduction of JOA basics)*

In addition to a need for more general knowledge about operations best practices in the organisation, the degree of prior practical experience is low:

> *"We have got the tools, but we have to start from scratch. It would have been nice with a database where we could see how others are doing it." (Irene H., Factory manager)*

The lack of practical experience and low degree of understanding about how to employ the practices in real life is also observed by Marianne Terland Nilsen:

> *I believe they have learned to use the methodology and the tools, but maybe they are sometimes missing out on where to use it. A lack of understanding of what the bottlenecks really are." (Marianne Terland Nilsen, Group Operation Improvements Manager)*

The low attention to bottlenecks seems to appear because of a limited degree of measurement in the operations. This is illustrated by the actions of the change agent from GOI; his first procedure was to measure machine capacities in the factory. A related problem which has been characteristic for the improvement initiatives in Jakarta is lack of visible results. Following the lack of measurement, few employees are able to point at any specific quantitative results from their improvement projects.

Limited involvement of employees

In general, it appears that the involvement of the operators in the improvement initiatives is low. Improvement projects are mainly conducted by managers. The maintenance manager therefore calls for a greater degree of involvement of the operators.

> *"In the Japanese style, the operators are more active, they are part of the groups, maybe with some staff, where they discuss the problems and try to solve them in order to improve. And they are really open-minded. In the A3 projects here in Jotun, it is only the staff that are doing the projects, and afterwards they give instructions to the operators. The operators are not active." (Tumpal, Maintenance Manager)*

This maintenance manager has acquired knowledge about quality management best practices from working at a Japanese plant. The Jotun plant in Jakarta is located in an industrial park side by side with many Japanese production firms such Honda and Suzuki. A few numbers of managers from Jotun have visited the Suzuki plant. Although these managers were impressed by the factory, no conscious efforts appear to have been done in order to learn operations best practices from Suzuki or any of the other Japanese plants in the area.

Regarding the involvement of employees, the factory manager explains that there are some "bright" operators that give feedback to managers; others speak mostly among themselves and inform the "bright" operators. Irene states that it is hard to involve many of the less "bright" operators because they are only followers that say "yes" and "ok". She thinks that the reason for this behaviour may be because of the cultural background. Many of the operators that are only "followers" are Malaysian and Irene think that it may be because of the Malaysian culture that they do not speak much and only follow instructions.

Openness to change

Despite low degree of prior knowledge, both staff and operators are open for change. Resistance from employees, or challenges with convincing workers, is not mentioned by any as a problem in this plant. At the contrary, everyone in our interviews claims that staff and operators are open for change.

> *"In the operations I see that the mind-set is open. They are open for the changes." (Nelson, Finance and IT Manager)*

> *"In the operations they are open for the improvements." (Irene H., Factory manager)*

There are few signs of explicit confrontation or assertiveness in workforce. From the field visit, the impression is that people are polite towards each other, and to limited extent confrontational or aggressive. No one, neither management, nor operators mentions that improvements are hindered by opposition from the workforce. A general impression is that people are polite and loyal.

5.2.3 Fit between practices and the organization

The employees in Indonesia express that the practices are suited for their situation. Special focus is the contribution to a more structured and systematically way of problem solving.

> *"Yes, because in the JOA we are taught how to use the tools for how to solve a problem systematically. Before that we were only jumping to the solutions. We were reminded in the training: "don't just jump to the solution". They have given us a proper and systematic way to get the real root cause, and then after that, make a solution. I think it is very good" (Irene H. Factory Manger)*

The employees do not point out any practices which are perceived to be unsuited for the factory.

> *"No, all the topics are very useful. I really like it!" (Achriano Toyang, Production and Laboratory Manager)*

5.2.4 Management of the implementation process

As previously mentioned, sustainment of initiatives is a challenge in Jakarta. Typically, the project teams that are meant to conduct A3-improvement projects "forget" to do them because they are too occupied with their daily tasks. This view is also shared by the representative from GOI (Marianne Terland Nilsen) who states that it seems like the change initiatives have a tendency to fall back to the old way of doing things. Irene H. (Factory Manager) expresses the need for a higher degree of local monitoring and follow up, but she concludes that this has not been done to a satisfying extent so far. Irene H. explains how management in Jakarta experience that their focus is drawn away from the change initiative. The reason for this is that the daily chores are experienced to be too pressing.

> *"So far, after conducting the JOA basic to the company - we have already done two classes - the consistency is not good. Not only from the participants, but also from us as trainers, because we also focus on our main jobs. Even though I after the JOA level 2, and therefore function as a change agent, I also have to focus on the factory." (Irene H., Factory Manager)*

> *"I totally agree with her (Irene). Sometimes we are very focused with our daily activities and we therefore forget about the improvements. That is the big challenge." (Achriano Toyang, Production and Laboratory Manager)*

A high sales target

The daily chores are to a large degree influenced by the sales target of the plant. Management expresses that one has to choose between conducting long term change initiatives and fulfilling the short term sales target set by local top management. The sales target this year is a 40 % increase from last year, meaning that the production volume also needs to increase by 40 %. This target is perceived to be very high. If this target is achieved, all personnel are rewarded with a holiday trip to Lombok – last years' trip was to Bali.

> *"I have to choose the factory first, because we have to fulfil the orders. The implementation of JOA has become slower because of this. Improvement initiatives will give results, but it takes time. Every day we have to focus on results, today, not tomorrow. Therefore we seek quick solutions in order to reach the target. If we reach 711 Jotun goes to Lombok. The long term and the short term focus should be more balanced." (Irene H., Factory Manager)*

In contrast, Marianne Terland Nilsen does not perceive the improvement initiatives as a contradiction to working towards the sales targets.

> *"I find it strange that they do not see the value of improvement initiatives in order to reach sales target. If they are not striving towards improving their operations, what are the operations-management doing?" (Marianne Terland Nilsen, Group Operation Improvements Manager)*

Management by example

Both Irene and other middle managers emphasize that they have to be good examples and "live the talk" before they can expect others to do it. Further, it is emphasized that middle management cannot expect operators to do improvements before they have conducted improvements and improvements projects themselves. This focus on management by example is characteristic for the Indonesian plant.

Internal Communication:

Cross functional communication is mentioned as a challenge in order to succeed with implementation of operations best practices. Many of the improvement projects are affecting several departments which mean that they have to work in cross functional teams. This has shown to be a challenge:

> *There is a challenge in the assignments: they are done by groups which consist of employees from several departments, cross functional, and they have to do their work in their own departments. So there is a challenge to continue those projects. Sometimes we have to remind them, where is the project?" (Anonymous Manager)*

Another issue revealed through the interviews is a lack of communication between sales and operations. The sales-force is accused for being "yes-men" who sell everything they can without taking the operations into consideration. Demand for customized products outside the factories stock-keeping-units disrupt the production and lower the manufacturing efficiency. This is clearly frustrating management in operations. Suggestions have therefore been made to include the sales-force in the JOA-training, so that they also can see what production is trying to achieve.

Top manager is supporting but not pushing

Data from the interviews clearly indicates that management director (MD) in Indonesia is supporting operations improvement initiatives. Several representatives from middle management and staff say that operations improvement initiatives always get support from MD. However, the main focus from MD has the recent years been to increase sales volume. This focus becomes evident both from the interviews and also from banners and poster seen several places on the factory area. These signs indicate that MD primarily is pushing sales targets, not operations improvements initiatives.

> *"Irene's manager Bjørn Abraham, is very supportive, and he will never say no. But he is not pushing, because he is pushing sales and other things." (Marianne Terland Nilsen, Group Operation Improvements Manager)*

5.2.5 A closer relationship

In Indonesia, new relationships have been established with headquarters during the JOA training. After this, the degree of trust and closeness of the relationship has improved.

> *"I think we are starting to be quite close. Irene has been attending more training, so we have learned to know her quite well. And she has also more contact people in Norway; she is in contact we me, and some other people in group operations improvement. I think we have quite good contact. And I also believe that we trust each other, and that we have an open dialogue." (Marianne Terland Nilsen, Group Operation Improvements Manager)*

> *"Last time Irene was in Norway she was back home in my house, eating dinner with my family, so it has started to be a good relation. (...) Now Irene knows, and I hope she also feels, that she has full support from Norway. And that she also find it easier to make contact if she has any challenges, or if there are some things she wants to discuss" (Marianne Terland Nilsen, Group Operation Improvements Manager)*

During the interviews, several of the managers express that they perceive that the support from HQ is good. Still, it appears that that the relationship with HQ is limited to staff-level and up.

> *From the staff level and above they can feel connected, not only to Jotun Indonesia, but also to Jotun Norway. If we are talking about operators, they are not really connected with others externally. They feel only as Jotun Indonesia. But for me myself, the external support is fantastic, especially from regional and corporate" (Irene H., Factory Manager)*

> *"Fatah does not know. He knows that Jotun Norway is our mother-company. But how deep the relationship is, he does not know." (Operator Fatah through translator)*

The geographical distance is also an issue, and the time difference makes direct contact difficult. Interaction between the parties usually happens after working hours in Indonesia, and most often through media channels like chat. This is because the cost of direct conversation through telephone is perceived to be high. As a result, the frequency of contact is a bit low.

> *"Even though we are kind of close, we are far away. It may go weeks in between every time we are in contact. And you know, that is not good enough" (Marianne Terland Nilsen, Group Operation Improvements Manager)*

5.2.6 Strategic importance

According to Marianne, the strategic importance of the plant in Indonesia is quite low. This is because Jotun`s hub in South-East Asia is the plant in Malaysia. The efficiency of the plant is also quite low compared to other Jotun plants. As mentioned in the case presentation, headquarters has therefore recently started an improvement project with the goal of improving the operational performance. This project will last for six months, and will be led by a

representative from Group Operations Improvement. The improvement project was in fact started up during the authors field visit in Jakarta. The response from local management to the improvement initiative appeared to be positive. Indeed, the leader of GOI, Marianne Terland Nilsen, expressed surprise over the lack of encountered resistance. Rather, the employees seemed eager to get started with the improvements. After an inspection of the operational facilities, where comments about potential improvement areas were made, a group of managers and employees used the night to come up with suggestions for improvements the next day.

5.2.7 Inclusion in company culture

The plant in Indonesia has developed a strong solidarity culture, promoting teamwork, care and respect. In the interviews, almost everyone mentions that the factory feels like a big family, and that if individuals face problems their colleagues will gladly assist. The following quotes are illustrating for the team spirit and "family culture".

> *"I believe that we support each other. We can work as a team. I really love to work in the factory, because it feels like we are the same family." (Achriano Toyang, Production and Laboratory Manager)*
>
> *"About the working environment: He feels that the teamwork is good because of the family environment." (Operator Abdul, through translator)*
>
> *"This company is like a family company. We care about each other. If we have a problem, my friend will give me input, and together we will solve the problem". (Anonymous Manager)*

Promoted by managing director

The managing director has promoted Jotun values. As described in chapter 4.1, using a Norwegian top manager to communicate the Norwegian values in local factories has been part of Jotun's strategy. It is evident that emphasis is laid on putting people first and reducing boundaries between management and operators. At the contrary, employees on all levels express that the communication between operators, middle and top managers is open.

> *"He feels that there is open communication .Not only with the colleagues in the department, but also with the foreman, and even to the upper level, like the factory manager. If the operator has the idea for an improvement, they can also give it directly to middle manager, not only to the foreman. So it is very open communication. (Operator Abduhl Fatah, through translator)*

The managing director gets credit for getting well along with and care about all the employees. It is also mentioned that all employees eat at the same tables, and that everyone have the same menu. This shows that the barriers between management and operators are consciously tried to be minimized. This culture is illustrated by following quotes:

> *"The working environment is very good. Much because of the MD, not only Bjorn Abraham, but also previously. They always put people as number one, and they understand what the situation is here, what kind of challenges the local people have. Not only in the working area, but also in their family lives." (Irene H. Factory Manager)*

> *"But in Jotun, by having the respect and care values, the top management is committed to enforce that kind of value. And we all have the same menu in the canteen, and we can sit at the same table and talk to each other. And Bjorn Abraham gets very well along with all employees and there is no barrier. And the response from the operators is very positive because they feel that top management really care about them. So the working atmosphere here is very very good. Because, when having these values it is easy to have a solid teamwork and unity. It is very different from my previous working place, because here we all talk positive about each other and we focus on solutions and work together. It is two different worlds." (Anonymous Manager)*

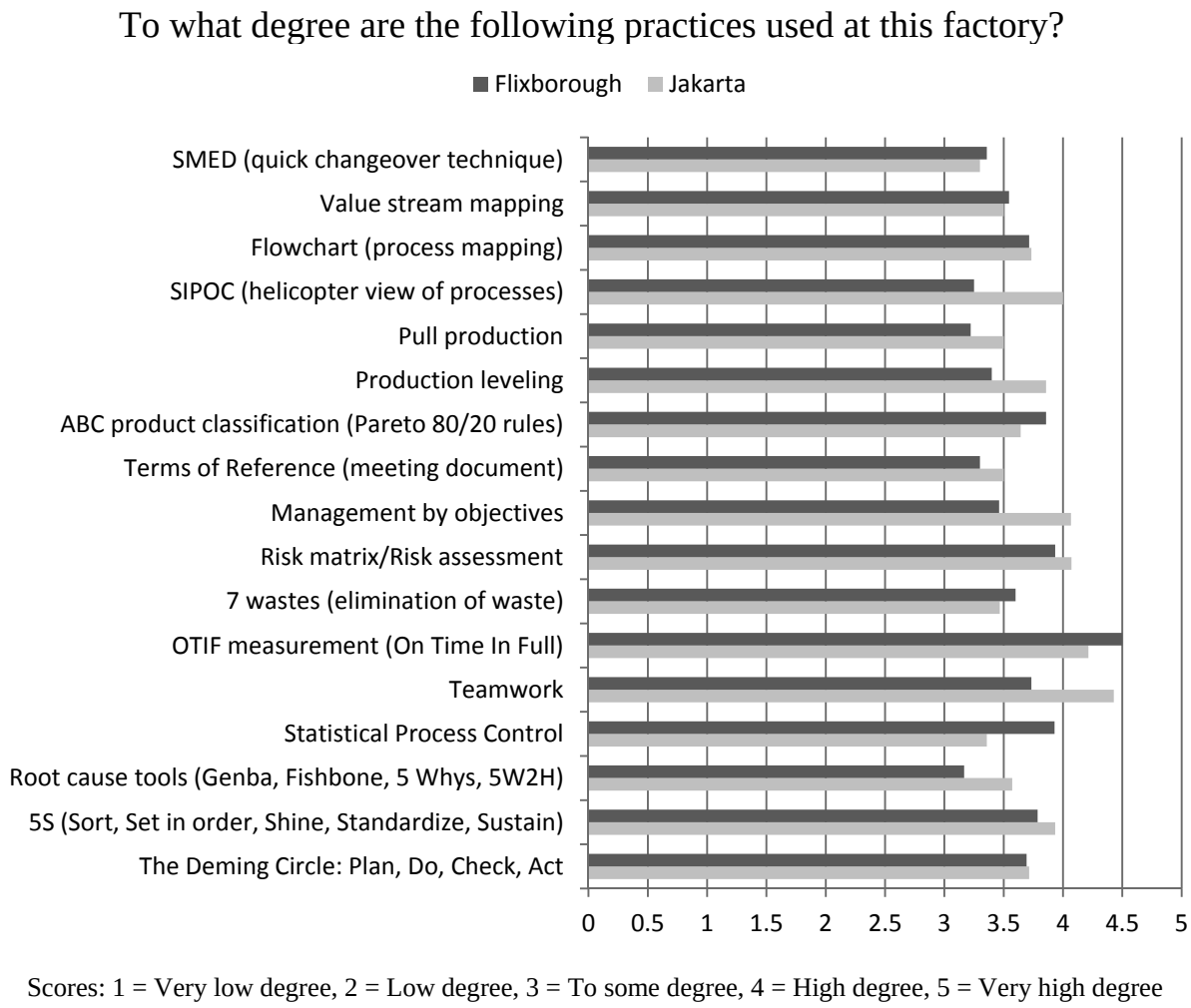
It also becomes evident that Jotun Indonesia feels as part of the Jotun Corporation; in several of the interviews it was been expressed a wish to see and learn of what is done in other Jotun plants in the corporation. Some employees also suggested that HQ should arrange a competition where one could award the best subunit in the corporation. They argue that it would motivate subunits to deliver good results and make improvements. In general, the employees appear to acknowledge and value the Jotun culture.

> *"Yes, I feel that we are a part of the penguin culture." (Achriano Toyang, Production and Laboratory Manager)*

5.3 Survey results

In addition to the qualitative findings, this study also includes a survey concerning the use of best practices communicated through JOA. The following section illustrates the findings, and comments on the sample and key findings.

The average scores concerning the perceived use of practices in Flixborough and Indonesia are displayed in figure 9. The question was formulated as the following: "To what degree are the following practices used at this factory?" The sample of the survey is based on 15 responses from each location. However, due to practicalities during the data collection discussed in chapter *3.3.3 Limitations due to practicalities,* the sample from each case is non-representative for the population of employees. In Jakarta, the sample consists exclusively from staff and management. The sample from Flixborough includes also some operators.



Scores: 1 = Very low degree, 2 = Low degree, 3 = To some degree, 4 = High degree, 5 = Very high degree

Figure 9: Survey results: use of best practices

Key findings

Despite the limitations of the sample of the survey, it is interesting to observe how similar the responses are in each of the locations. Despite some variances, it appears that employees at both plants perceive that all of the practices are used at least to some degree. Still, it should be stressed that this is how the employees themselves *perceive* that the practices are used, not necessarily *how* they are used. A further interpretation of the findings from the survey is included in the discussion of the degree of practice implication in chapter *6.1.Degree of best practice implementation*

5.4 Other empirical findings

Some empirical findings are also found to be relevant for the study which has been collected by other entities than the authors. These include: the findings from the GLOBE-study which relate geographical locations to cultural dimensions, and Key Performance Indicators collected by the Jotun Group about the two investigated factories.

5.4.1 Data from the GLOBE-study

Comparison of cultural scores from the Nordic, South Asian and Anglo cultures on the nine dimensions of culture are presented in table 8. This is data from the GLOBE study (Global Leadership and Organizational Behaviour Effectiveness) presented by Javidan et al.,(2005).The Nordic Cluster consists of Denmark, Finland and Sweden; the Anglo cluster consists of Ireland and UK and the Southern Asia Cluster consists of India, Indonesia, Iran, Malaysia, Philippines and Thailand (Javidan et al., 2005). The location of Flixborough falls in under the Anglo culture, while the location in Jakarta belongs to the South Asian culture. The values for the Nordic culture, which is the culture of Sandefjord where headquarters is located, are included for means of comparison.

In the GLOBE-study, data have been collected for both the current cultural practice (As Is) and the cultural visions (Should Be) (Javidan et al., 2005). In this study it is considered most beneficial to use data about the current cultural practice (As Is). These findings are presented in table 8.

	Nordic		**South Asia**		**Anglo**	
Dimension	Value	Rank	Value	Rank	Value	Rank
Power Distance	4.5	10	5.4	1	5.0	8
In-Group Collectivism	3.7	10	5.9	1	4.3	8
Institutional Collectivism	4.9	1	4.3	4	4.5	3
Uncertainty Avoidance	5.2	1	4.1	7	4.5	3
Future Orientation	4.4	2	4.0	5	4.2	3
Gender Egalitarianism	3.7	2	3.3	5	3.4	4
Assertiveness	3.7	10	3.9	9	4.2	4
Humane Orientation	4.2	4	4.7	1	4.2	5
Performance Orientation	3.9	7	4.3	4	3.9	5

Table 8: Comparison of cultural clusters, modified table from (Javidan et al., 2005)

Key findings

Following the theoretical framework developed in chapter 2, this study discusses the impact of power distance, in-group collectivism, assertiveness, and uncertainty avoidance on operations best practice implementation. The findings from the GLOBE-study indicate that the South Asian culture has a very high power distance and uncertainty avoidance, achieving the highest scores of all cultures on these two parameters. The assertiveness and uncertainty avoidance are both quite low. In contrast, the Anglo culture scores low on both power distance and in-group collectivism, and relatively higher on assertiveness and uncertainty avoidance.

5.4.2 Key Performance Indicators

This study discusses the Key Performance Indicators (KPIs) collected by the Jotun Group. The collected indicators are: production volume, number of units produced, number of batches produced, man hours in production, volume/man hours, litres/batch, average can size, and OTIF (On Time In Full) delivery. A graphical presentation of the historical development of the KPIs for the two investigated cases is presented in Appendix C.

Key findings

According to Project Manager Idar Larsen from GOI, the KPIs clearly illustrate a reduction of batch size in Flixborough. Larsen explains that by reducing the batch size, the plant has been able to reduce the stock levels by aligning production closer to actual customer demand. The KPI's also illustrate a strong growth in production volume in Jakarta, reflecting the positive development in the Indonesian market. Other than this, Larsen comments that the KPIs indicate only modest operational improvements in the Indonesian plant.

Although the KPIs reflect important indicators of the two plants' operational performance, they are not related specifically to the best practices communicated by Jotun Operations Academy. As there are a multitude of factors which might influence an indicator such as volume/man hour, it is the authors' opinion that the KPIs are slightly unspecific in order to say anything about the degree of best practice implementation in particular.

6. Discussion of empirical findings

In this chapter the empirical findings are discussed in the light of the theory presented in chapter 2. The chapter begins with a discussion concerning to which degree the operations best practices have been implementation in the two investigated subsidiaries. Thereafter follows a lengthier discussion of the factors that have influenced the implementation, and what their impact has been in the two cases. The structure of this section follows the theoretical framework developed earlier. Because of the relatively high number of topics in this discussion, a summary including an illustration of main findings is included after each sub-section for the benefits of the reader. In the third section, the main findings of the study are discussed, providing a basis for the final conclusions.

6.1 Degree of implementation

The original justification for choosing to compare the subsidiaries in Flixborough and Jakarta was that these daughter units were contrast when it came to implementation of operations best practices; in Jakarta few improvements had been registered while Flixborough had achieved a lot in this area the recent years. However, the empirical findings suggest that the situation is more nuanced than first assumed. Contradictory to the original assumptions, employees in Jakarta have in fact produced some efforts in order to implement the new practices. First, local managers are able to produce an improvement register consisting of fifty improvements conducted in the factory since their first attendance at JOA in 2008 (the list is included in Appendix E).This indicates that conscious attempts have been made. Second, Lean tools have been applied in the conduction of A3-projects. The graphical descriptions of these on the walls in the factory illustrate that problem-solving techniques communicated in Jotun Operations Academy have been conducted “by the book” to improve the operations. Third, some degree of internal education has also been performed.

Still, further investigations reveal that the use of the practices is limited. In the list of improvements noted in the improvement register, practically all the improvements are suggested and conducted by a group of only four managers – with the factory manager Irene in front. Irene has also the responsibility for running the local JOA-basics courses, and to follow up the A3-improvement projects. These improvement projects seem to stop if the managers beneath her are not regularly reminded, indicating lack of support among middle management. The involvement of operators and their knowledge-level is also limited, displaying low degrees of awareness about the best practices. Attempts have been made to involve operators through small group activities, but the initiative did not sustain. Also the responsible managers admit that they tend to lose focus on the best practices implementation. In general, sustainment of improvement initiatives appears to a big challenge. This kind of situation is typical when the *value* of the practices is not recognized by enough people in the organization (Kostova & Roth, 2002).

In contrast, the plant in Flixborough has a broad team of managers who are focusing on operations improvement – including a dedicated position as Improvement Manager. It seems that

one has also been able to involve operators through the implementation of *small group activities (SGA)* and *mini business areas (MBA)*. The empirical findings suggest that the whole organization has been involved in the improvement initiative, and that the general level of awareness about the new practices is quite high. It seems also that the best practices largely have been accepted and valued, both by managers and operators. There seems to be a common understanding in the organization that the adoption of the new practices is one of the main reasons why one has been able to increase operations performance – avoiding a shut-down of the plant. The findings indicate that operations best practices have not only been implemented in the plant but also *internalized*, i.e. infused with meaning and value (Kostova 1999), by the employees.

In general, the adoption of operations best practices has reached a larger "depth" in Flixborough compared to Jakarta. In the case of Flixborough, practices are widespread and valued in the organization. Related to the institutionalization model of Tolbert and Zucker (1996) it can be argued that they are approaching a state of full institutionalization. In this state the employees are committed to the practices, and the sustainment is therefore good. This is in line with the empirical data from Flixborough. In Jakarta, practices are not yet widely diffused in the organisation, and one is struggling with sustainment of initiatives. This situation seems to correspond with the pre-institutionalisation stage of Tolbert and Zucker (1996) which is characterized by few adopters and limited knowledge about the practices in the organisation. As predicted by Tolbert and Zucker (1996), sustainment of initiatives is challenging in such a situation.

Results from the conducted survey

The discussion above is largely based on information using qualitative methods of data collection. The study has also employed a survey, distributed in both the investigated cases. The results from the study are displayed in chapter 5.3. At first glance, as suggested earlier, the scores from the two plants appear remarkably similar. In fact, the results seem to communicate that practices are used to almost the same degree in both cases. This interpretation stands in clear contrast to the findings revealed by the qualitative research methods – an outcome not expected by the authors.

Still, a plausible explanation seems to present itself. The results of the survey indicate the level of which the respondents *perceive* that the practices are used. It becomes evident that the employees at the two factories do have any objective means to evaluate the degree of usage, meaning that they most likely are employing different frames of reference. In other words, the results do not indicate an objective measure of the actual degree of best practice usage, and the findings are incomparable. Still, although the findings may not directly be compared, they might still say something about how the local employees perceive the level of best practice usage. Taking this perspective, it seems that employees at both plants experience that the practice are being used. It is assessed that this supports the previous finding that the plant in Jakarta has

implemented the practices to some extent. This observation must, however, only be inferred with high caution, as there are limitations of the sample of the survey (see chapter 4.3.2)

Results from the improvement initiatives

Some authors argue that the effects of best practices are contingent on the depth of implementation (Laugen et al., 2005; Morita & Flynn, 1997). This seems to be in line with the findings from the investigated cases. In Flixborough there have been larger improvements on operations-related performance measures compared to Jakarte the last five years. In Flixborough one has reduced both batch-sizes, inventory levels and increased OTIF – while at the same time reduced the number of shifts from 3 to 2. In comparison, the plant in Indonesia has increased the batch sizes, is struggling to increase the OTIF, and has a much higher inventory level than Flixborough.

Still, some results have also been achieved in Jakarta. Although the general cost levels have increased together with the increased sales, the factory has managed to reduce their production costs as a percentage of sales with sales with approximately 20 % during the last five years. The plant has also reduced the number of customer complaints, indicating an improved product quality. These findings support the notion that there *has* been some degree of implementation in Jakarta.

None the less, it seems that that subsidiary in Flixborough have both implemented more operations best practices and achieved better improvements on the operations side the recent years. In addition to supporting the argument of Laugen et al. (2007) that performance is affected by depth of implementation, the findings also suggest that the adoption of operations best practices can lead to *increased performance*. This has been a key question in the best practice-discussion in the literature, outlined in the introduction (see Voss, 2005). Still, as the implementation of the practices by no means is a closed system, the authors will be the first to recognize that there may also be other factors outside the scope of this study which have contributed to the differences in performance.

6.2 Factors influencing the degree of best practice implementation

Based on the previously derived theoretical framework, this section discusses the factors which have affected the implementation of operations best practices in the two investigated cases. The discussion is also concerned with what impact the factors have had. Figure 10 illustrates the structure of the discussion. As previously mentioned, the discussion covers multiple topics. A summary including an illustration of main findings is therefore included after each topic.

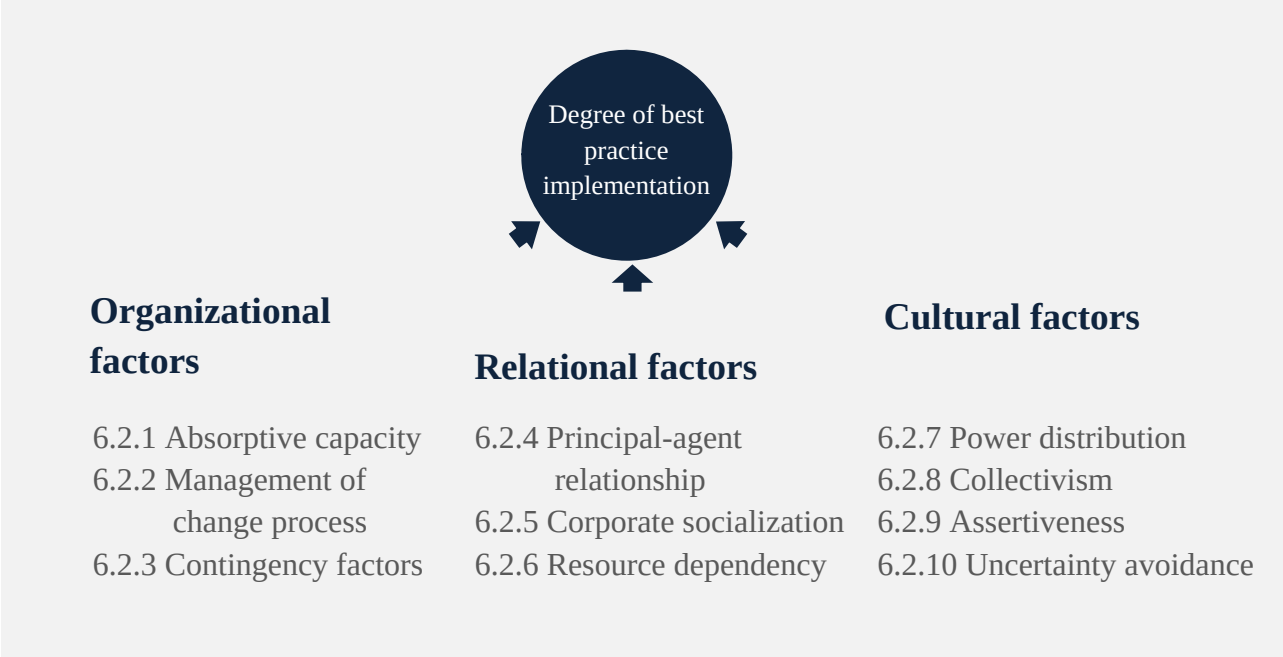


Figure 10: Structure of discussion

Organizational factors

The following sections investigate how conditions within the boundaries of the subsidiaries have affected best practice implementation. Identified classes of factors in the theoretical framework are: absorptive capacity, management of change process, and contingency factors

6.2.1 Absorptive Capacity

The topic of this section is the absorptive capacity of the two subsidiaries. The discussion draws on Absorptive Capacity Theory, presented in chapter 2.1.1.

Prior relevant knowledge in the organization

According to Cohen and Levinthal (1990), prior relevant knowledge in the organization should increase a units ability to value, assimilate and apply new related practices. The empirical findings indicate that there are clear differences between the cases when it comes to prior knowledge concerning operations best practices. Flixborough had acquired more relevant

knowledge through PICKME, MBQ-courses, and similar Lean initiatives before JOA. In Jakarta, the level of prior relevant knowledge was low. Few had heard about Lean principles before the JOA, and the organization does not seem to have had what Szulanski (1996) refers to as a common language.

Consistent with Cohen and Levinthal (1990), the lack of prior knowledge in Jakarta appears to have been a major barrier to implementation. Internal training of the organization has been a time consuming activity, slowing down the implementation process. Low familiarity with the practices appears to have limited employees' impression of the value of the practices as they keep "forgetting" to use them. As such, the lack of prior knowledge seems to have made it harder to create lasting changes in the organization. A link between knowledge and implementation is also apparent in Flixborough. The empirical findings indicate that the resistance against implementation lessened as the level of knowledge increased. As the operators learned that the new practices in fact made their work easier, they were much more willing to accept the changes in the organization. It seems therefore that the degree of prior knowledge in the organizations has had a great impact on the valuation of the new practices, and that this has affected both the speed of implementation and the resistance against the practices among operators.

Prior experience in the organization

The Flixborough plant also had higher degrees of prior *experience* than Jakarta; the new managers who came into the subsidiary brought with them practical experience with similar practices from other factories. According to Zahra and George (2002) a higher degree of knowledge increases a unit's ability to realize the potential of new practices. The new managers in Flixborough did not only have theoretical knowledge, but also real life experience about how to make them work in practice. This appears to have provided them with opportunities for "easy wins", as the empirical findings indicate that one was able to display results from the new practices already after a couple of weeks. In comparison, employees in Jakarta appear to be struggling to achieve results from the practices. They are – after three years – "still in the process". It seems, as suggested by the factory manager, that a lack of experience is causing them troubles as they have been given the tools but not the solutions. Consistent with this observation, the employees at the plant are appealing for greater sharing of how things are done at other plants in Jotun Group. A general observation is therefore that prior experience with similar practices seems to have made it easier to achieve results from the new practices - supporting with the prediction of Zahra and George (2002)

Effort of knowledge acquisition

The organizations effort to acquire foreign practices and their interface towards external knowledge is an important dimension of absorptive capacity (Cohen & Levinthal, 1990; Kim, 1998). In Flixborough, the interface to external knowledge appears to have been increased through the plants participation in external courses about operations best practices. As a result of the Flixborough managers' active use of information from external sources, most of the practices communicated through JOA were already known to the organization before any employees had

attended the academy. According to Improvement-manager Stewart Mackay, external input "kick-started" what one sees today. The interface with external sources of knowledge has clearly been a positive contribution to the good results achieved at this factory.

In Jakarta, the findings suggest that the limited levels of prior knowledge may be caused by managers' lack of conscious efforts to acquire external knowledge. As the manufacturing plant is located in a cluster of many international manufacturing companies with traditions for Lean (or similar) techniques, there appears to be several potential sources of external input about operations. Still, only a couple of the managers had visited these firms, indicating that this opportunity for knowledge acquisition has been exploited only to a limited degree. The fact that both subsidiaries have had accessible sources for operations input, but only one of them have made a conscious effort to exploit this knowledge, supports the theoretical arguments regarding importance of *effort* in knowledge acquisition. In general, it appears that a larger conscious effort has been positive in order to increase the collective level of knowledge in the organizations.

Organizational resistance against change

The empirical findings suggest that there have been large differences in the organizational inertia of the two investigated plants. Organizational inertia, i.e. organizational resistance towards change, is a common obstacle to use of transferred knowledge (Daghfous, 2004; Strebel, 1996). This kind of resistance has clearly been a major challenge in Flixborough; resistance from the workforce was mentioned by several as the biggest barrier towards implementation of new operational practices. Opposition from the workforce completely halted the first Lean initiative, and it took six years to convince the workforce to get the operators on board. In contrast, the situation in Jakarta seems to be quite another story. In this case, resistance towards change was never mentioned as any problem at all. The findings suggest that the employees were open for change, and that organizational inertia was not a major issue in this case. Interestingly, the perspective of Absorptive Capacity Theory does not seem to offer any apparent explanations for why these differences in organizational inertia occur. However, it is clear that this factor represented a formidable barrier when it was present.

Delegation of responsibilities

A notable difference between Jakarta and Flixborough is the way the improvement work has been organized. Szulanski (1996) argues that the delegation of responsibilities in the implementation process affects an organizations ability to absorb new practices. In Flixborough one has a dedicated manager who has the responsibility for operations improvements - including monitoring and follow-up. One has also exploited external expertise for courses and education of the workforce. In contrast, the Indonesian factory manager both has the responsibility to follow-up the improvements, running JOA basics, and conducting her job as factory leader. She expresses frustration about the situation and states that lack of time is negatively affecting both the efficiency of the training program and the time she has to monitor the progression of the change initiative. As previously discussed, the lack of internal training is delaying the absorption of new practices communicated through JOA. It seems therefore the lack of designated personnel

has had a negative effect on both the sustainment of the improvement initiative and the speed of best practice adoption.

Internal communication

Cross-functional communication is important for the ability to assimilate and exploit new knowledge and practices (Cohen & Levinthal, 1990; Daghfous, 2004; Szulanski, 1996). Empirical data from Jakarta shows that improvement initiatives were negatively affected by lack of inter-department communication. Several departments were involved in the same improvement projects, but lack of communication between those departments made it difficult to conduct the initiatives as planned. This illustrates that lack of internal communication slowed down the implementation process, in line with the arguments within Absorptive Capacity Theory.

Absorptive Capacity: Key findings

The discussion above reveals that the English subsidiary had an advantage over the plant in Jakarta on most parameters of Absorptive Capacity Theory. At this plant one had acquired more prior knowledge from external sources, and had more prior practical experience. The way one organized the implementation and follow-up also seems to be more efficient. This work was seemingly made even more challenging in Jakarta due to a lack of internal communication. However, the discussion also shows that that organizational inertia was a major challenge in Flixborough, while it was hardly any at all in Jakarta. The identified factors and their impact are summarized in the table 9.

Organizational factors

6.2.1 Absorptive capacity
6.2.2 Change management
6.2.3 Contingency factors

Identified factors	Impact
Level of relevant knowledge	Increased knowledge lead to an increased valuation of the new practices in Flixborough, which in turn decreased resistance and increased speed of implementation. Lack of prior relevant knowledge provoked time consuming internal education in Jakarta, and made it harder to create lasting changes as employees did not see the value of the practices.
Level of relevant practical experience	Higher levels of practical experience of managers in Flixborough positively affected their ability to achieve results from initiated improvement projects compared to manager in Jakarta.
Interface towards external knowledge sources	Exploitation of external knowledge sources increased the collective knowledge level in Flixborough. This kind of sources were only limitedly exploited in Jakarta.
Organizational inertia	Opposition towards change made it difficult to initiate and sustain the operations best practices in Flixborough. Such opposition was not present in Jakarta.
Delegation of responsibilities	In Flixborough there was a dedicated position solely for contiuous improvement. In Jakarta there was no such position, reducing the time spent on internal training and monitoring – which in turn negatively affected sustainment of improvement initiatives and speed of absorption.
Lack of cross-dep. communication	Lack of communication between departments was a barrier against monitoring and sustainment of improvement projects in Jakarta.

Table 9: Factors identified using Absorptive Capacity Theory

6.2.2 Change Management

In this section, theory from chapter 2.1.2 regarding organizational change is used in order to analyse and discuss the empirical findings from Flixborough and Jakarta.

Top management support

Several authors highlight the importance of top management support and involvement in order to succeed with implementation of new operations best practices (e.g. Angell, 2001; Mefford & Bruun, 1998). The empirical data from Flixborough shows that top management support has been crucial in order to overcome the resistance against the best practice implementation. During the first Lean-initiative, managers did not sustain focus more than a few weeks because of

considerable resistance from the workforce. Consequently, the initiatives gradually faded away. In the second attempt, new management came in and heavily emphasized the operations improvements. The managers made it clear that this time the Lean-initiative would be sustained and they kept pushing *for several years*. This approach clearly paid off as the employees realized that "these guys were not kidding". The strong involvement from senior managers seems to be one of the main reasons why the organization was able to implement the new practices at all.

In Indonesia, top management has also been positive, but the managing director has not been a driving force in the same way as In Flixborough. The managing director has apparently always supported the initiative, but only to a limited degree pushed it forward. Also other JOA-participants state that their focus drifts from the change initiative as they are drawn towards other responsibilities. This appears to have consequences for the sustainment of the initiative further down in the organization. Middle managers lose focus on the practice implementation as their attention wanders to other tasks and responsibilities – a lack of focus which appears to go unchecked without a consistent pressure from top management. Comparing with the Flixborough case, it seems that top management being positive is not necessarily enough. In order to sustain the initiative it appears to be critical to have a top manager who clearly pushes the initiative. In line with Mefford and Bruun (1998), the empirical findings support the importance of having personally involved chief executives.

Sense of urgency

Literature regarding Change Management describes creating a sense of urgency as important in order to motivate for change (Kim, 1998; Kotter, 1995). The degree to which such a sense of urgency has been communicated clearly differs between Flixborough and Jakarta. In Flixborough, the empirical data shows that management was able to make the workforce understand that change was necessary; the performance at the middle of the 2000s was bad, and the new management made it clear that the plant was in danger of being closed if they didn't improve their operations. Several employees state that fear of losing their job worked as major motivation for the implementation of improvements initiatives, clearly showing that the sense of urgency has had a positive impact on the organizations ability to carry out change initiatives.

In Indonesia, a feeling of a crisis was not apparent in the same way as in Flixborough. In the recent years, the market for paint in Indonesia has expanded sharply, and the subsidiary has managed to increase sales by 200 %. Fear of losing jobs was understandably not an issue at all. The worries of the employees seemed more directed towards reaching the yearly sales target, and daily sales targets were prioritized higher than improvement projects – indicating that one did not feel a pressing urge to pursue this endeavour. It appears that managers has not been able to communicate the same urgency for change as those in Flixborough, consequently not gaining the same positive contribution to the motivation of employees.

Achieving results on initiatives

One of the main differences between the investigated units is that Flixborough has been able to display results from the initiated improvement initiative, while Jakarta has had problems with doing the same. Several authors emphasize that the creation of short term wins is important in order to stimulate and inspire for improvements, and to convince the opposition force that the initiatives are worthwhile (Martin & Beaumont, 1999; Shaffer & Thomson, 1992). As previously discussed, results were evident in Flixborough after only a couple of weeks. It appears that when the operators experienced that the new practices had positive effects, the resistance against the changes was gradually reduced. This is perfectly in line with the theoretical propositions. In contrast, the management in Jakarta has initiated quite a lot of improvement projects, but few of the employees are able to pin point any actually changes in results from these initiatives. In general, the achievement of results appears to have had a positive influence in motivation among employees on Flixborough, while this effect was absent in Jakarta.

Involvement of employees

As discussed in chapter 6.1, a difference between the plants is the degree of involvement of operators. Involvement of employees is argued to be favourable in order to gain commitment from the workforce during change processes (Beer & Nohria, 2001) and to create a continuous improvement culture (Womack et al., 1990). Increased involvement of operators and reduction of barriers between management and their subordinates have been one of the main contributions to the successful operational changes in Flixborough. When the operators were more involved they felt more included as an active part of the change process – making them more positive towards it. This supports the theoretical arguments. In Indonesia, the operators have not been included to the same degree, as most of the improvement activities have been driven by middle management. It seems therefore that a higher involvement of employees is yet another area where the change management in Flixborough is more in line with the management in Jakarta.

Change Management: Key findings

The change management in Flixborough appears to be in line with theory within this stream of literature. New top managers came in and pushed the improvement initiative, sustaining the pressure over long period of time. They were also able to communicate a sense of urgency for operations improvements. Achievement of early results appears to have motivated the workforce, and inclusion of operators has reduced the resistance against the change initiative. In Indonesia one had problems with sustaining the initiatives. Lack of pushing from top management differentiate them from Flixborough and may be one of the main reasons for different outcomes in the two cases. It seems also that the urgency for operations improvements has not been communicated well enough in order for it to be prioritized, and one has not managed to involve the employees in the change process. The identified factors and impact is presented in table 10.

Organizational factors

6.2.1 Absorptive capacity
6.2.2 Change management
6.2.3 Contingency factors

Identified factors	Impact
Top management as a driving force	The efforts of top managers in Flixborough was a main reason for the sustainment of the change initiative in Flixborough. This was critical in order to overcome internal resistance.
Creation of a sense of urgency	In Flixborough there was established a perception that increased use of the best practices would secure the future of the plant. This worked as a major motivation for conducting changes.
Involvement of employees	Positively affected the attitude for changes in Flixborough, and was important for creating a continuous improvements environment.
Creation of short term wins	When opeartors in Flixborough experienced positive effects from the new practices, the resistance was gradually reduced.

Table 10: Factors identified using Change Management Theory

6.2.3 Contingency factors

This section applies theory from chapter 2.1.2 regarding contingency theory in order to analyse and discuss the empirical findings from Flixborough and Jakarta.

Fit with organisational characteristics

Authors within Contingency Theory state that varying degree of fit with operational characteristics may make some practices more suitable for some units than others (Maffin & Braiden, 2001; Sousa & Voss, 2008). The empirical findings indicate that this has not been a major issue in the investigated cases. Rather, employees in both cases perceive the practices to be well suited for their factory. At Flixborough, the employees state that the practices were highly relevant for the daily work. Employees in Indonesia are of a similar opinion, focusing especially on the contribution to a more structured approach to problem solving.

The similar outcomes may be explained by the many similarities in the operational characteristics. Leseure (2000) states that companies sharing similar properties belong to the same "firm species", and that factories within a firm species may successfully adopt similar practices. Comparing the operational properties of the two plants, these appear to be largely similar: They both belong to the same industry, producing more or less the same products. Both factories offer a considerable range of product variants, allowing some degree of customer specification. The plants employ approximately the same number of employees, with a slightly higher number in Indoneisa from 2010. Further, the production process is quite similar. The total

production volume of both the plants is relatively high. Using the vocabulary of Leseure (2000), the plants may be considered belonging to the same firm species. The similar outcomes of the plants are in line with the findings of Leseure (2002) that similar organizations may apply similar practices.

Existing practice infrastructure

Even if employees in both cases perceive that the practices are suited for their factories, different results have been achieved from the implementation. Davis and Kochhar (2002) argue that a unit must have in place an appropriate practice infrastructure before benefits can be reaped from more sophisticated practices. One major difference between the two cases is the degree of measurement of operational indicators. In Flixborough, extensive measurement of lead times and capacity over longer periods of time appears to have functioned as a foundation for the improvement work, guiding the improvement work through identification of problematic areas. The measurements also played a vital role in the documentation of results achieved through the improvement initiative. In contrast, the degree of measurement in Jakarta has been much lower. This becomes evident through the observation that few employees in Jakarta were able to point to any specific changes or results achieved through the implementation of the practices. Further, the lack of measurement may be a reason that employees in Jakarta are solving problems outside the "bottleneck", an observation pointed out by Marianne Terland Nilsen. It seems in general that measurement of operational indicators is a practice that has influenced the ability of the units to achieve and communicate results from the other best practices. The importance of a supporting practice infrastructure is in line with Davis and Kochhars' (2000) reasoning.

There are also examples were the misfit with existing practices has limited or stopped the implementation of practices entirely. During the interviews in Flixborough it was stated that the factory had not adopted JIT production at least partially because of the lack of a forecasting system. Today, the factory relies exclusively on historical data for production planning. Further, the identification of root causes through process control was restricted due to limited raw material tracking. It appears in general that the existing practices in the two cases have a greater impact on the best practice transfer than operational characteristics.

Adaption to local conditions

Szulanski (1996) states that adaption to local conditions increases the stickiness of the transfer of best practices. In Flixborough, the implementation of the new ERP-system has demanded a considerable amount of adjustments to local conditions. This process demanded efforts from local managers, and the misfits between the system and local conditions irritated operators. According to Szulanski's (1996) definition, this has contributed to an increased eventfulness of the practices transfer, i.e. an increased stickiness. The observation that the need for local adaption has represented a challenge for the implementation is in line with the arguments of Szulanski (1996). However, it is worth noting that the increased stickiness has not prevented the subsidiary from implementing the practice. Further, the implementation of the ERP-system was more the exception than the rule. Previous technical manager at Flixborough states that adaption

of practices to local condition was only a minor challenge in the big picture, once the implementation got started. This indicates a relatively low impact of this factor on best practice implementation.

Contingency factors: Key findings

The discussion above indicates that the *existing practice infrastructure* in the two units, and the *need for adaption* to local conditions, both have had an impact on the transfer of best practices. The operational characteristics of the two plants are not found to have any substantial impact on the suitability of the practices.

Organizational factors	6.2.1 Absorptive capacity 6.2.2 Change management **6.2.3 Contingency theory**

Identified factors	Impact
Existing practice infrastructure	The general use of measurement of operational indicators in Flixborough provided a foundation for other practices, and helped document changes. The lack of a forecasting system prevented employees from implementing JIT. Limited raw material tracking reduced the effect of process control.
Adaption to local conditions	Challenges with adapting an ERP-system to local conditions in Flixborough increased the workload of local managers and irritated operators.

Table 11: Factors identified using Contingency Theory

Relational Factors

The following sections are concerned with the interaction between headquarters and the subsidiaries, i.e. factors concerning the relation between these two parties. Three classes of factors were derived from the previous theoretical discussion which can have an impact on the best practices transfer: the principal-agent relationship, corporate socialization, and resource dependency.

6.2.4 Principal-agent relationship

When Jotun wanted to implement new practices in the company's subsidiaries, Agency Theory states that there are two types of problems which arise in the principal-agent relationship: pre-contractual and post-contractual problems (Bergen et al., 1992)

Incentives of local management

When it comes to post-contractual problems, Agency Theory states that misaligned incentives between the principal and the agent may cause the agent to behave in a way that deviates from the wishes of the principal (Eisenhardt, 1985). In Jakarta, the managers appear to have strong incentives for increasing the production volume in order to reach the yearly sales target, as reaching this target triggers an outcome-based bonus in the form of a collective vacation to Lombok. Headquarters perceives that the best way to increase production capacity is to make use of the suggested best practices. However, local managers appear to be of a different opinion. They perceive the sales target to be a short term goal, while the implementation of best practices is a long term goal. The managers therefore perceive that the utility for performing their daily jobs is higher than working to implement the practices. As an effect, they lose focus on the implementation initiative – a behaviour which is unaligned with the intentions of headquarters. It seems therefore that the high sales target creates conflicting incentives between the headquarters and local managers, leading to *misdirected efforts* from local managers (see: Bergen et al., 1992). The fact that problems arise because of unaligned incentives between principal and agent are perfectly in line with the predictions of Agency Theory as described by Eisenhardt (1985). As discussed in chapter *6.1.2 Change Management*, it seems that the reduced focus from managers has had a negative impact on the ability to function as a driving force for the change initiative – negatively influencing the implementation.

In the case of the Flixborough plant, the employees appear to be driven by their own agenda. Best practices are implemented because they are perceived to increase the performance of the factory. In this way, employees are securing their jobs in the high cost environment of England. Even though this behaviour appears to be self-driven, the agenda is coherent with the wishes of headquarters. From an agency theory perspective, this corresponds to a situation where the incentives between the principal and the agent are aligned- a condition that reduces the threat of moral hazard (Bergen et al., 1992). The findings in Flixborough are in line with this, indicating that aligned incentives have had a positive effect on the efforts of local management.

Monitoring

Agency Theory proposes monitoring as an alternative to outcome-based rewards as a way of dealing with misaligned incentives (Alchian & Demsetz, 1972). It appears that the general level of supervision from headquarters regarding the practices is quite low. After JOA, the subsidiary units are followed up and controlled by headquarters the first six months. However, after this the monitoring of best practice implementation decreases, partly due to limited resources in the department of Group Operations Improvement. Apart from the monitoring of best practice implementation, the subsidiary units in Jotun Group are regularly measured on more general KPIs (Appendix C). As commented in chapter 5.4.2 *Key Performance Indicators*, it is assessed that these KPI's are general of nature, and only to a limited extent capable of reflecting the true state of best practice implementation.

Agency Theory proposes that if the degree of monitoring is decreased and the incentives are misaligned, the agents actions can be expected to deviate from the intentions of the principal (Bergen et al., 1992). The observations in Jakarta are in line with Agency Theory on this matter. Although the local managers are working towards reaching the sales target, they are doing this in other ways than intended by headquarters. Due to the limited monitoring from headquarters, the behaviour of the local management is not redirected. It seems therefore that a lack of monitoring makes room for misdirected efforts from managers.

Screening of agents

Regarding pre-contractual problems, HQ sent a representative to observe the local conditions in Flixborough prior to the improvement program. From an agency theory perspective, this is a way of buying information about the agents' abilities called screening; an activity which according to Agency Theory should increase the likelihood that the agents are suitable for the intended task (Bergen et al., 1992). The conclusions of the screening process in Flixborough were that the existing managers were both unwilling and unable to perform the intended tasks. The managers were consequently replaced with candidates viewed to be more suitable for the purpose. The success of these new managers with implementing the new practices indicates that this was a wise decision, in line with the predictions of Agency Theory. In Jakarta there was no similar screening process.

Principal-Agent Relationship: Key findings

The discussion using Agency Theory indicates that misaligned incentives had a major negative impact on managers' motivation. The low degree of monitoring failed to correct the actions of the agent. Screening led to higher suitability of the change agents. The findings are summed up in table 12.

Relational factors	6.2.4 Principal-agent relationship 6.2.5 Corporate socialization 6.2.6 Resource dependency

Identified factors	Impact
Misaligned incentives	Focus on reaching a high sales target in Jakarta drew attention away from best practice implementation, significantly influencing behaviour of local management.
Lack of monitoring	As monitoring from headquarters did not directly measure implementation of best practices, there was room for misdirected effort from managers in Jakarta.
Screening of change agents	Obtaining information about the suitability of management in Flixborough prior to the improvement initiative led to selection of more suited agents.

Table 12: Factors identified using Principal-Agent Theory

6.2.5 Corporate Socialization

In this section, theory from chapter 2.1.2 Corporate Socialization Theory will be used in order to analyse and discuss the empirical findings from Flixborough and Jakarta.

Shared values; the penguin spirit

As described in the case description, Jotun Group has consciously promoted their core values: Loyalty, respect, care and boldness in the corporation. These values is the fundament for their so called “penguin spirit”. In order to spread these values in the corporation, they have trained people to become “true penguins” – employees which are sent out to subsidiaries worldwide. This is also the case for the current top managers in Flixborough and Jakarta. Training and rotation of people is a typical socialization mechanism mentioned by Nohria and Ghoshal (1994), which shows that Jotun is actively using corporate socialization mechanisms in order to create a coherent company culture.

Dolan and Garcia (2002) states that promotion of company values is an effective management tool in organisational change processes. In Flixborough, the corporate values of Jotun Group have been promoted by the new management. The most notable effect is a more open communication between management and operators. The barriers between management and operators have been significantly reduced the recent years, and several of the operators argue that this is one of the main for contributions for the successful operational change in Flixborough. It appears therefore that implementation of Jotun values has had a positive effect on this change process, supporting Dolan and Garcia (2002).

In Indonesia, there seems to be developed a highly collaborative culture in the organization. The term “family culture” was mentioned frequently, and it was stated by several that the employees care about each other. There seems to be open communication between managers, staff and operators, and the fact that everyone eats in the same canteen with the same menu is highlighted as positive. In general, the Jotun values, or the **“**Penguin Spirit”, seem better integrated in Jakarta than in Flixborough. Ouchi (1979) states that higher degree of socialization will align the goals of individuals with the goals of the organization. This reduces the threat of opportunism, thereby reducing the need for structural control mechanisms (Ouchi, 1979). Although it seems that the plant in Jakarta has developed such a high degree of socialization, the efforts of employees to take the new practices into use appear to be limited. Despite the positive working environment created by this culture, the socialization efforts do not appear to be directly related to increased commitment to best practice implementation. It seems that there might be other factors in play which are overriding the impact of the positive culture, indicating a limitation for the use of corporate socialization as a tool for control in this situation.

Attitudinal Relationships

Kostova (1999) proposes that the attitudinal relationship with headquarters will influence the motivation of key actors of the receiving unit to actively engage in the transfer process. Prior to the change of management in Flixborough, the interaction between the local managers and headquarters was low. Employees at the site avoided attention at the time, at least partly due to the factories bad performance. Using the definition of Szulanski (1995) it seems that the relationship can be classified as an *arduous relationship*. The empirical findings show that the local managers were unwilling to cooperate when headquarters proposed a new change initiative. This is in line with Kostova’s (1999) proposal about attitudinal factors effect on managers’ motivation. Further, the empirical findings suggest that headquarters experienced the unwillingness from local managers as a serious threat to the success of improvement initiative, contributing to the decision of replacing the old management. This perception from headquarters supports the findings of Szulanski (1996) that an arduous relationship makes transfer of practices more difficult.

Leyland (2005) points to the impact of the attitudinal relationship on the *communication* during the transfer process, proposing that the levels of trust will impact the involved parties’ willingness to engage in information transfer. In Jakarta, the factory manager Irene has developed closer relationships with representatives from headquarters through the participation in JOA. There has been established trust between Irene and the leader of Group Operations Improvement, apparently making it easier for Irene to make contact and seek support. A related observation can be made in Flixborough. During the improvement initiative process, a lot of new relations were established between the plant and headquarters. In this period, the degree of communication has increased. One employee states that communication is made easier after having made face-to-face contact. This is in line with Hansen (2002) who argues that direct relations and short path lengths are increases knowledge sharing. Both the findings in

Flixborough and Jakarta are in line with the argument of Leyland (2005) that the relationships developed through interaction with colleges increases what information employees can access. These findings indicate that an improved attitudinal relationship has a positive influence on the degree of communication in the transfer process.

Geographical distance

Despite the positive attitudinal relationship, Marianne Terland Nilsen expresses that the frequency on interaction between headquarters and Jakarta is too low in order to fully support the implementation. Both Leyland (2005) and Szulanski (1995) describe the transfer process as one of continuous interaction and feedback. Local employees in Indonesia state that they rather use chat programs instead of audio or video communication because the costs of these tools are perceived to be too high. The frequency of interaction has also been hampered by the time differences between the sites. It appears therefore that the geographical distance, and the perceived costs of technology for direct communication, has had a restraining effect on the communication between the two parties.

Corporate Socialization: Key findings

This section identifies that implementation of corporate values, the attitudinal relationship and geographical distance between headquarter and subsidiary unit have influenced the implementation of operations best practices. The findings are summarized in table 13.

Relational factors	6.2.4 Principal-agent relationship **6.2.5 Corporate socialization** 6.2.6 Resource dependency
Identified factors	Impact
Implementation of corporate values	Led to reduced barriers between operators and management in Flixborough, something which had a positive impact on implementation of operational best practices. Has had a positive impact on the working environment in Jakarta, but does not seem to have increased commitment to implementation of operations best practices directly.
Attitudinal relationship	An arduous relationship with headquarters contributed to opposition from previous managers in Flixborough. An improved relationship stimulated increased communication in both cases.
Geographical distance	A combination of large geographical distance, different time zones and high perceived costs of using direct communication technology restrained the communication between headquarters and Jakarta.

Table 13: Factors identified using Corporate Socialization theory

6.2.6 Resource dependency and power

In this section, theory from chapter 2.2.2 Corporate Socialization theory will be used in order to analyse and discuss the empirical findings from Flixborough and Jakarta.

Competition for funding

Resource Dependency Theory assumes that the power relationship between two organizational units is influenced by the degree to which one unit controls resources the other units depends on (Medcof, 2001). In Jotun, the plants are competing for funding from headquarters. In the case of Flixborough, it appears to be established an understanding among the employees that a high degree of best practice implementation contributes to an increase of funding from headquarters, as indicated by the relocation of production from Fredrikstad. This awareness appears to have been reinforced by the time when headquarters threatened to close down the factory due to the poor performance. All employees now seem perfectly aware that the factory must perform well in order to secure its' existence, and that increased use of the best practices is an important contributor to this agenda. The finding that the managers in Flixborough are motivated to implement best practices in order to secure valuable resources is perfectly in line with Resource Dependency Theory. Further, as the factory values the funding, this increases the relative power of headquarters.

The managers in Jakarta are also appealing to headquarters for funding. The managers wish to invest in new production equipment in order to meet the increasing demand in the market. However, in this case, it appears that the managers do not share the same experience that funding is influenced by the degree to which the plant implements new practices. As presented in chapter 4.4 *Jotun Factory in Jakarta*, headquarters has declined the application because the plant is operating far from the maximum theoretical capacity – and that one of the reasons for this is an underuse of the suggested best practices. However, this message appears not to be sufficiently communicated to the local managers, and the application for corporate funding does not seem to motivate managers to implement best practices in the same way as in Flixborough. The link between funding and best practice implementation appears therefore to depend on the perception of local managers.

Power of headquarters

Geppert and Williams (2006) find that an increased bargaining power of headquarters reduces the likelihood of a "battlefield situation", i.e. a lengthy power struggle, during top-down driven transfer of best practices from a parent company to a daughter unit. A factor which seems to greatly improve the bargaining power of headquarters is the high number of plants in the Jotun Group. As the threat to close down the plant in Flixborough reveals, headquarters appears to be so independent of the resources of any individual plant that it is capable of shutting the plant down. The consequent high power enabled headquarters to overcome political resistance at the Flixborough plant. When headquarters first wanted to initiate improvement initiatives in Flixborough, the previous managers were unwilling to follow instructions. Using the categorization of Martin and Beaumont (1999), the managers displayed "o*vert resistance"*.

However, making use of the high bargaining power, Jotun was able to replace the opposing managers with people who were positive to the improvement initiative, avoiding a "battlefield" situation as described by Geppert and Williams (2006). It seems therefore that the high power of headquarters had a positive impact on the transfer process in Flixborough.

Strategic importance

The strategic importance of the subsidiary in Flixborough has increased since the change of management. The plant now functions as a hub in Europe, and receives additional production from the plant in Fredrikstad. Concerning the plant in Jakarta, the strategic importance of that plant is lower, as the hub in Asia lies in Malaysia. According to the findings of Geppert and Williams (2006), this should imply that the ability of the English subsidiary to resist standardization is higher than its' Indonesian counterpart. However, the empirical findings of this study do not support this. Even though the new ERP-system represented a clear break with the existing Kanban-practice in the warehouse, and that it was commented that it might have put the factory back in time, it seems clear that the plant had no choice but to agree with the implementation. The previous discussion of the power of headquarters may explain why this is the case. It appears that despite any increase in bargaining power of the factory in Flixborough, this is overshadowed by the power wielded by headquarters. The relative strategic importance of the subsidiaries therefore seems to have a low impact in the investigated cases.

Resource Dependency: Key findings

It appears from the discussion that a high power of headquarters has a positive effect on the ability of headquarters to remove resistance against implementation of new practices. Further, if managers experience that the competition for funding is related to compliance with the best practices, this increases their motivation to implement the practices.

Relational factors	6.2.4 Principal-agent relationship 6.2.5 Corporate socialization **6.2.6 Resource dependency**

Identified factors	Impact
Competition for corporate funding	Managers at the plant in Flixborough were motivated to comply with the new best practices as they perceived that this increased the likelihood of funding from headquarters
High power of headquarters	Headquarters had the power to remove resisting managers in Flixborough, effectively avoiding political struggles.

Table 14: Factors identified using Resource Dependency Theory

Cultural factors

In the following section, the influence of national culture is analysed and discussed, building on theory from section 2.3.1.

6.2.7 Power distance

Involvement of operators has been a problem in Jakarta, and factory manager Irene H. suspects that this is influenced by the national culture. According to Mefford and Brunn (1998) high degree of power distance in the national culture will make it difficult to empower and involve operators. The empirics from GLOBE show that the south Asian cluster has the highest degree of power distance in the world, which implies that workers do not normally engage in dialogue with their superiors (Kull & Wacker, 2009). This seems to be in line with the experience in Jakarta, where operators almost solely follow instructions instead of engaging in the improvement processes. These challenges exist even though the organizational culture encourages open communication and expression of ideas from operators to superiors. It therefore seems plausible that the cultural power-distance is an influencing factor on the problem with involving operators, supporting both the theoretical propositions of Mefford and Bruun (1998) and the notion of factory manager, Irene H.

In Flixborough the situation appears to be the opposite of Jakarta. In this case, the historical company culture appears to have created a barrier between operators and managers, restraining the communication between the hierarchical levels. However, when new managers recently opened for more inclusion and involvement of operators, the engagement from operators has been good. In this location, subordinates are not afraid to state their opinions to superiors. This is in line with the predictions from GLOBE where the Anglo culture comes out as one of the cultures with lowest power distance. Together, the findings from Indonesia and Flixborough indicate that low power distance is favorable in order to empower operators in production, supporting the theoretical propositions.

6.2.8 In-group collectivism

According to Power et al. (2009), an in-group collectivistic national culture will positively affect the exploitation of operations best practices involving teamwork. According to empirics from GLOBE, the south-Asian cluster is the most in-group collectivistic culture in the world, while the Anglo cluster is among the least collectivistic. This difference seems to be reflected in the empirical data of this study. The Indonesian organization appears to be much more united and oriented towards the collective than the plant in Flixborough. This is evident trough statements like “we are like a big family here” or “we all care about each other”. Similar statements where never expressed in Flixborough. In this location operators complained about lack of unity between members of different shifts. This absence of team spirit appears to have caused suboptimal behavior. Some operators did for example leave problems to the next shift. This suggests that they care more about themselves than the collective – a negative trait for the

exploitation of team based practices. In Jakarta one has not experienced similar problems, suggesting that their collectivistic culture is giving them an advantage compared to Flixborough on this area. In general, the findings seem to support the theoretical propositions from Power et al. (2009) that a national culture with high in-group collectivism is favorable for best practices based on teamwork.

National culture vs. Company culture

In Indonesia, the managing director is credited for his commitment towards Jotun values and his contributions in order to create a "penguin spirit" in the organization. It can therefore be questioned whether the highly united organizational environment in Jakarta is the product of characteristics of national culture or the company values of Jotun Group. Hofstede (1990) argues that the company culture affects the *practices* in the organization, while the national culture affects the underlying *values*. Further, Newman and Nollen (1996) argues that the effect of management practices is best when there is a fit between the values implied by the practices and the underlying values of the national culture.

In this case, the values of Jotun Group have been promoted in both organizations, but the identified cultures are still significantly different. An explanation may be that the Jotun values of loyalty, care, respect and boldness may correspond differently to the underlying national cultural values of the respective units. In the case of Jakarta it seems the combination of the Jotun values and a highly collectivistic national culture have formed the characteristic "family culture". It could be questioned whether the same kind of "family" environment could be created in a location with such an individualistic national culture as in Flixborough. The empirical data in this study does not suffice in order to conclude on this question, but the characteristic differences may be basis for further investigation.

6.2.9 Assertiveness

According to Kull and Wacker (2009), a high degree of assertiveness in the national culture can inhibit cooperation and therefore negatively affect quality management practices. This is perfectly in line with experiences In Flixborough. There one has experienced that operators with clear opinions and stubborn behavior are opposing change initiatives. Statements like "I have made paint for twenty years, so don't tell me how to do it" shows that the assertiveness is high. This is also in line with the predictions of GLOBE where the Anglo culture comes out among the more assertive. In Indonesia, at the contrary, confrontational behavior is never mentioned as an issue at all. Rather, the operators in the production do as they are told. These findings also match empirics from the GLOBE-study. Here, the South Asia cluster comes out as the least *assertive* culture in the world, implying that confrontational behavior is less likely to occur. It seems that assertiveness has made introduction of new practices more difficult.

Cultural explanations on resistance towards local change initiatives

Taking a more holistic view on the findings regarding the culture in the two investigated cases, it appears that the characteristics of the national culture may provide some explanations about why

the resistance towards changes has been more problematic in Flixborough compared to Jakarta. As discussed, the assertiveness in the cultures differs, which may explain differences in oppositional behavior. It is also found that workers in Jakarta are both more loyal towards the company-collective, and that they are more likely to follow instructions from superiors without question due to a higher power distance. It is assessed that the combination of all these factors may explain why the plant in Jakarta is not experiencing the same amount of resistance from their workforce as one has registered in Flixborough.

6.2.10 Uncertainty avoidance

The dimension of uncertainty avoidance is proposed by Kull and Wacker (2009) to have an influence on operations practices. The empirical findings of this study do not appear to contribute to any further understanding of the impact of uncertainty avoidance on best practice implementation.

Cultural Factors: Key findings

From the perspective of national culture, it has been identified that *collectivism*, *power distance* and *assertiveness* has been influential for the implementation of operations best practices. The observed factors and their influence are presented in table 15.

Cultural factors

Identified factors	Impact
In-group collectivism	Higher levels of in-group collectivism seem to have contributed to a "family culture" in Jakarta, positively affecting teamwork.
Power distance	High degree of power distance negatively affect empowerment and involvement of operators in Jakarta.
Assertiveness	High degree of assertiveness seems to contribute to larger degree of oppositional behavior in Flixborough compared to Jakarta.

Table 15: Factors identified using the Cultural Dimensions of GLOBE

6.3: Summary of identified factors influencing implementation of operations best practices

ID	Identified factor	Impact
OF1	Level of relevant knowledge	Increased knowledge lead to an increased valuation of the new practices in Flixborough, which in turn decreased resistance and increased speed of implementation. Lack of prior relevant knowledge provoked time consuming internal education in Jakarta, and made it harder to create lasting changes as employees did not see the value of the practices.
OF2	Level of relevant practical experience	Higher levels of practical experience of managers in Flixborough positively affected their ability to achieve results from initiated improvement projects compared to manager in Jakarta.
OF3	Interface towards external knowledge sources	Exploitation of external knowledge sources increased the collective knowledge level in Flixborough. This kind of sources were only limitedly exploited in Jakarta.
OF4	Organizational Inertia	Opposition towards change made it difficult to initiate and sustain the operations best practices in Flixborough. Such opposition was not present in Jakarta.
OF5	Delegation of responsibilities	In Flixborough there was a dedicated position solely for contiuous improvement. In Jakarta there was no such position, reducing the time spent on internal training and monitoring – which in turn negatively affected sustainment of improvement initiatives and speed of absorption.
OF6	Cross-departmental communication	Lack of communication between departments was a barrier against monitoring and sustainment of improvement projects in Jakarta.
OF7	Top management as a driving force	The efforts of top managers in Flixborough was a main reason for the sustainment of the change initiative in Flixborough. This was critical in order to overcome internal resistance.
OF8	Creation of a sense of urgency	In Flixborough there was established a perception that increased use of the best practices would secure the future of the plant. This worked as a major motivation for conducting changes.
OF9	Involvement of employees	Positively affected the attitude for changes in Flixborough, and was important for creating a continuous improvements environment.
OF10	Creation of short term wins	When opeartors in Flixborough experienced positive effects from the new practices, the resistance was gradually reduced.
OF11	Existing practice infrastructure	The general use of measurement of operational indicators in Flixborough provided a foundation for other practices, and helped document changes. The lack of a forecasting system prevented

		employees from implementing JIT. Limited raw material tracking reduced the effect of process control.
OF12	Adaption to local condition	Challenges with adapting an ERP-system to local conditions in Flixborough increased the workload of local managers and irritated operators.
RF1	Misaligned incentives	Focus on reaching a high sales target in Jakarta drew attention away from best practice implementation, significantly influencing behaviour of local management.
RF2	Lack of monitoring	As monitoring from headquarters did not directly measure implementation of best practices, there was room for misdirected effort from managers in Jakarta.
RF3	Screening of change agents	Obtaining information about the suitability of management in Flixborough prior to the improvement initiative led to selection of more suited agents.
RF4	Implementation of corporate values	Led to reduced barriers between operators and management in Flixborough, something which had a positive impact on implementation of operational best practices. Has had a positive impact on the working environment in Jakarta, but does not seem to have increased commitment to implementation of operations best practices directly.
RF5	Attitudinal relationship	An arduous relationship with headquarters contributed to opposition from previous managers in Flixborough. An improved relationship stimulated increased communication in both cases.
RF6	Geographical distance	A combination of large geographical distance, different time zones and high perceived costs of using direct communication technology restrained the communication between headquarters and Jakarta.
RF7	Competition for corporate funding	Managers at the plant in Flixborough were motivated to comply with the new best practices as they perceived that this increased the likelihood of funding from headquarters.
RF8	High power of headquarters	Headquarters had the power to remove resisting managers in Flixborough, effectively avoiding political struggles.
CF1	In-group collectivism	Higher levels of in-group collectivism seem to have contributed to a "family culture" in Jakarta, positively affecting teamwork.
CF2	Power distance	High degree of power distance negatively affected empowerment and involvement of operators in Jakarta.
CF3	Assertiveness	High degree of assertiveness seems to contribute to a larger degree of oppositional behavior in Flixborough compared to Jakarta.

Table 16: Summary of findings

6.4 Proposing a theoretical model

As described in the introduction, the empirical findings of the study are used to develop a theoretical model for factors influencing implementation of best practices of subsidiaries in a multinational context. This model builds on the logic employed when constructing the theoretical framework, making use of the three different levels of analysis: subsidiary level, company level and national level. Multiple theoretical perspectives have been employed in order to discuss the empirical findings, producing the proposed factors of the model. Figure 11 illustrates the model, displaying factors which are proposed to influence the implementation of best practices in subsidiaries of a multinational.

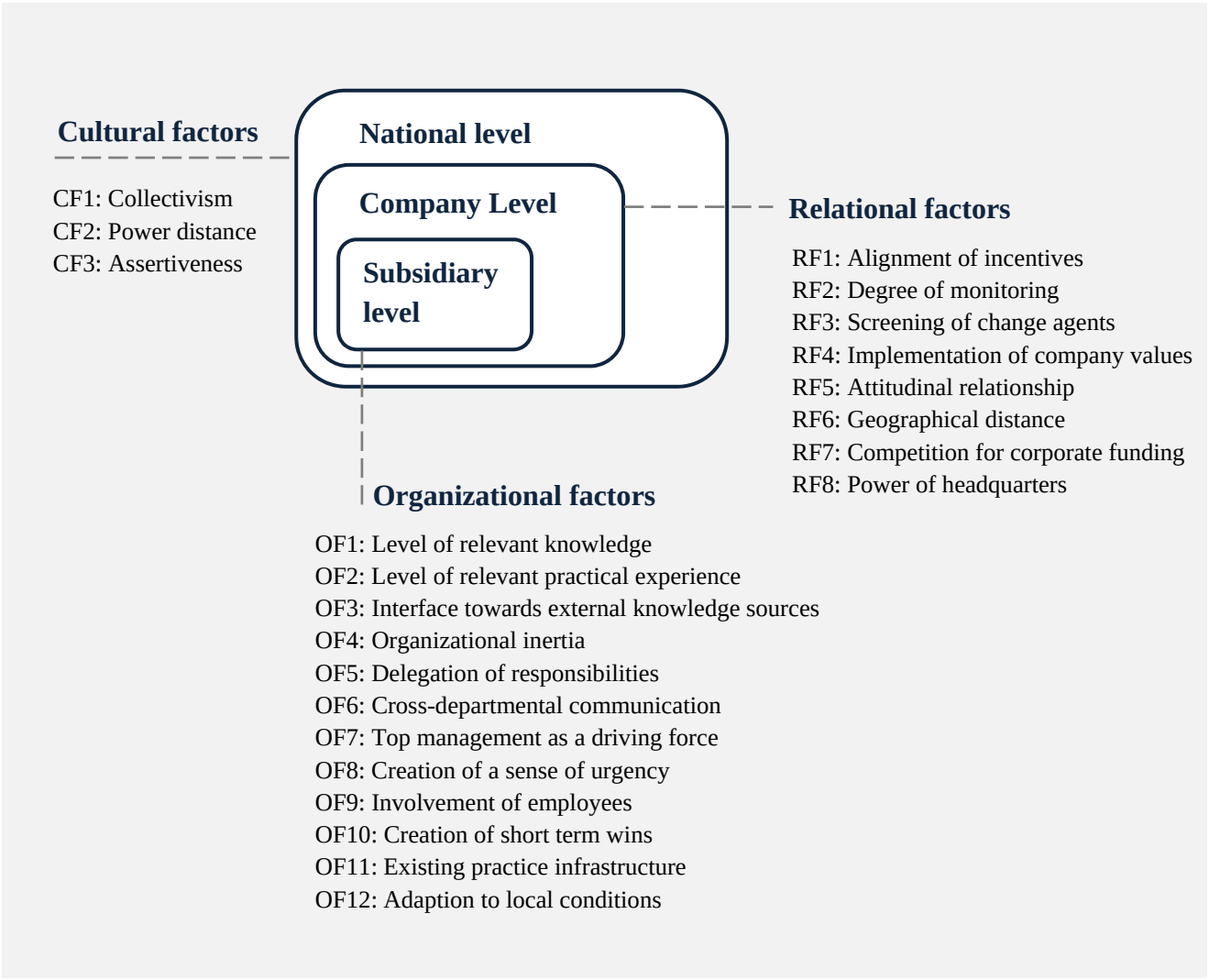


Figure 11: A model for factors influencing implementation of best practices in subsidiaries of multinational companies.

6.5 Discussion of main findings

The previous analysis has revealed a wide range of factors which has affected transfer of the best practices in the two cases. Until now, these have been treated individually. However, when employing such a segregated approach it may be difficult to maintain the necessary overview in order to produce an explanation for the differences in the two cases. The intention of this discussion is therefore to highlight the main findings of the investigation, and to discuss how different factors have interrelated in order to produce a holistic perspective on the cases for the different outcomes in the two investigated cases.

Barriers to internalization

It appears that the largest barriers in the two cases were distinctly different. In Flixborough, *organizational inertia* through the resistance from employees stands out as the main challenge in order to achieve internalization of the best practices. First, *screening* of the previous management revealed that these managers were unwilling to comply with the suggested changes – a condition to which the poor *attitudinal relationship* between headquarters and local management appears to have contributed. In order to overcome the resistance, the high *power of headquarters* has played a critical role; by leveraging its' high bargaining power, headquarters efficiently eliminated the political resistance by replacing the existing managers with individuals who were positive to the change initiative. Yet, even though the resistance from managers was overcome, there was still considerable resistance among operators. The process of getting the operators on board was a considerable barrier which took many years to overcome.

Curiously enough, opposition from local employees seems hardly to have been any problem at all in Jakarta. Potential explanations for this are the high degree of *implementation of company values*, and the combination of a low degree of *assertiveness*, high degree of *collectivism* and high degree of *power distance* in the national culture. In Jakarta, a bigger challenge appears to be an underdeveloped appreciation of the value of the new practices among employees. Because of this, local managers struggle in order to create lasting changes in the organization; the fact that employees "forget" to use the new practices triggers a need for supervision the current *delegation of responsibilities* does not permit. The supervision is also made more difficult by the lack of *inter-departmental communication*. The employees' limited appreciation appears to be caused by low levels of *prior knowledge* with the practices. Internal education of the workforce has been a slow process, reducing the speed of internalization of the practices. In this respect, Flixborough has had an advantage through both the previous training through PICKME, MBQ-courses and the *prior experience* of managers – knowledge obtained through the unit's *interface with external sources of knowledge*.

Despite the different main challenges, the efforts of local management appear to be key issue in both cases. In Flixborough, a major contribution to the positive outcome was the fact that *top management acted as a driving force* for the change initiative, applying a sustained pressure over many years. The managers managed to create a *sense of urgency* among employees,

communicating that they would perhaps be without a job if changes were not made. At the same time they managed to achieve *short term wins*, and to *involve employees* through small group activities. The implementation of the practices appears now to be self-driven, stimulated by the agenda of securing the future survival of the plant in a high cost environment. The motivation appears to be further enhanced by the perception that use of the practices improves the plant's chances in the internal *competition for funding* among the company's subsidiaries.

In stark contrast, the managers in Jakarta have not been equally focused on the change initiative. Rather, their focus seems to drift to other daily tasks. This appears to be caused by *misaligned incentives* between the managers in Jakarta and the best practice initiative. The misaligned incentives seem to occur because local management are unable to translate higher use of the best practices into increased performance at the rate of the expanding market. Reaching the local sales target is perceived to be of utmost importance as employees would be rewarded with a collective vacation to Lombok if the target is achieved. Regarding the ability to realized results, two factors stand out. First, measurement of operational indicators like cycle times and machine availability were only conducted to a limited extent, i.e. not part of the *existing practice infrastructure*. Measurement of such indicators was indeed the first activity the newly assigned GOI-representative initiated when deployed in Indonesia. In Flixborough, extensive use of measurement functioned as a foundation for the improvement work. Second, the *relevant practical experience* the Indonesian managers had with the best practices from before was low. In Jakarta, the organization started more or less from scratch, making the small incremental steps of continuous improvement a time-consuming and slow activity. In contrast, the managers in Flixborough possessed this experience from prior assignments, providing more opportunities for "easy wins".

The behaviour of headquarters also appears to have an influence on the outcome in Jakarta. The findings reveal that there was only limited *monitoring* of the progression of practice implementation in the subsidiaries; most indicators which were reported to headquarters are either related to other areas or too unspecific in order to describe the true state at the subsidiary. This means that the behaviour of the local managers was not observed by headquarters, and was consequently not redirected.

7. Discussion of theoretical perspectives

This study employs a wide range of theoretical perspectives, providing a rare opportunity to compare and discuss the contribution of each of the theories. As indicated by the previous discussion, the explanation for the different outcomes appears to be a complex interaction of different factors revealed through the multitude of theoretical perspectives employed in this study. Several of the theoretical perspectives seem to have explanatory power by themselves, but a more complete understanding appears to have been reached by using the perspectives in combination. This chapter discusses the contributions and limitations of the theoretical perspectives themselves.

Absorptive capacity

Theory regarding absorptive capacity has proved to be very useful as a holistic tool in order to identify mayor challenges in each of the investigated cases. As discussed, a main challenge in the Indonesian subsidiary appears to have been the organization's lack of prior relevant knowledge. This is a core topic within Absorptive Capacity Theory, and the findings in this paper support the relevance of using the theory when investigating best practice transfer.

In the case of the Flixborough plant, organizational inertia, in the form of resistance from employees, proved to be a much greater problem. It is interesting to observe the importance of this factor, as it appears to have completely stopped the first implementation attempt. Absorptive Capacity mentions organizational inertia as a barrier to implementation, but is wage when it comes to how this can be overcome. The perspective appears unable to explain *why* the degree of resistance was so high in Flixborough and not in Jakarta, and *how* this resistance was overcome.

Change management

Concerning the question of *how* the resistance among operators was overcome, the perspective of Change Management appears to be a key perspective. The efforts of management during the change process in Flixborough were perhaps the greatest contribution to internalization of the new practices. The discussion reveals that the management of the change process was highly aligned with the recommendations within this stream of literature. In contrast, the behaviour of management in Jakarta appears to be far from it, strongly indicating why the progress has been slower in this case. The empirical findings therefore suggest that the way change management is conducted has a large influence on the change initiative, supporting theory within this stream of research. In general, the predictive power of this perspective appears to be high.

GLOBE dimensions

The discussion of the cultural dimensions of GLOBE seems to offer an explanation for *why* resistance against change have been a far smaller problem in Jakarta than in Flixborough. The study indicates that high degree of collectivism and power distance, combined with low degree of assertiveness, has made the workforce in Jakarta less oppositional towards change initiatives from their superiors. The GLOBE-dimensions also have some explanatory power when it comes to the limited degree of operator involvement in Jakarta, as the predicted high power distance in the national culture appears to have restricted their participation in continuous improvements.

In general, the identified factors in this study support the relevance of studying the impact of national culture on cross-national transfer of best practices. However: Although the cultural dimensions appear to have been unfavourable in Flixborough compared to Jakarta, the positive outcome in this case indicates that the impact of culture is more like a restraint than a critical determinant of the final outcome. It appears also that the local culture might be influenced through the active use of mechanisms for corporate socialization, as discussed next.

Corporate socialization

From the discussion of corporate socialization it becomes clear that the active use of top leaders as ambassadors for the Jotun Values has had significant impact on the local cultures in the subsidiaries. The main impact on best practice implementation appears to be a reduction in the barriers between managers and operators, positively influencing the communication between the hierarchical levels. These findings suggest that corporate socialization is a potential tool for improving the outcome of best practice implementation. Further, the study also indicates that the attitudinal relationship with headquarters can have a large influence on local managers' willingness to comply with instructions.

Still, the case of the Indonesian plant illustrates that a high degree of corporate socialization does not necessarily guarantee that local managers will work with the implementation. The values in Jakarta appear to be in line with the Jotun values, and that the attitudinal relationship with headquarters appears to be good. From the perspective of corporate socialization, all the conditions should imply that the management should be motivated to comply with the instructions from headquarters. Literature within this stream of research does not seem able to explain why the managers in Jakarta appear to lose focus on the task of implementing the practices. For an explanation of these findings, Agency Theory appears to be better suited.

Agency theory

Agency theory appears to be able to produce a plausible explanation for why the local managers in the two cases act in the way they do. As discussed, the findings indicate that the responsible change agents in Jakarta – although *willing* to implement the practices – perceive that they have even higher incentives to perform other activities in order to reach the sales target. When headquarters at the same time has a strongly limited monitoring of the degree of implementation and internalization, the findings are perfectly in line with the predictions of Agency Theory.

Agency Theory provides an explanation also for this positive behaviour of managers in Flixborough. It appears that the managers are acting in the own interest when they are using the practices, securing their jobs through increasing the performance of the factory. This resembles a situation in Agency Theory when the incentives of the agent and principal are aligned. In general, it appears that the explanatory power of Agency Theory is high when it comes to the motivation of the responsible local management.

However, there are also findings which Agency Theory cannot explain. First: the initial negative responses from managers in Flixborough. At this point in time, the degree of monitoring by headquarters was high, meaning that the information asymmetry was low. In such a situation, Agency Theory predicts that the change agent should comply with the instructions of the principal. As previously discussed, the negative reactions appear to be better explained by the arduous relationship with headquarters highlighted during the discussion of corporate socialization in chapter 6.2.5. Second, Agency Theory does not seem to offer any explanations

for how the unwillingness among managers was eventually overcome when monitoring did not help. Resource Dependency Theory appears to be better suited for this purpose.

Resource Dependency Theory

The main contribution of Resource Dependency Theory for this study appears to be the explanation for the high bargaining power of headquarters. As earlier discussed, this high power seems to be the explanation for how one was able to replace the resisting managers in Flixborough with leaders who supported the improvement initiative. The high power should therefore be considered a major contributor for the success in this case. Although the perspective also provides an explanation for why managers in Flixborough are motivated to implement practices in order to receive funding from headquarters, the perspective of Resource Dependency Theory seems most valuable to explain a situation where managers are unwilling to comply with instructions from headquarters. The perspective is for example less able to explain why the plant in Jakarta did not make better use of the practices even if managers were positive to the change initiative and willing to comply with instructions. In this respect, Contingency Theory has higher explanatory power.

Contingency Theory

In general, the greatest contribution of Contingency Theory in this study is an increased understanding of the subsidiaries *ability* to make use of the practices. The discussion has revealed that the existing practice infrastructure had an impact on the ability to achieve and document results from the new practices. Detailed measurement of indicators in operations appears to be an important supporting practice in order to reap benefits from more sophisticated practices. Another advantageous practice appears to be cross-departmental communication. Taking a more holistic perspective, it appears that many of the factors identified using other theoretical perspectives may be regarded as a part of the existing practice infrastructure. For example: During the analysis of corporate socialization it was discovered that a reduction of barriers between management of operators was positive for the implementation. The degree of communication between different hierarchical levels in an organization might therefore also be considered a part of the existing practice infrastructure

The observant reader may recognize the link between practices regarding internal communication and the attention to this topic in Absorptive Capacity Theory. In general, there seems to be much common ground between the thoughts in Contingency Theory concerning *existing practice infrastructure* and the notion of a units' absorptive capacity. Concerning another central topic within Contingency Theory, the fit between a practice and the operational characteristics of an organization, no major impact was found in the two investigated cases. This limits the explanatory power of the perspective in this study.

7.1 Overview of the employed theoretical perspectives

It appears from the discussion above that all of the employed perspectives have some degree of explanatory power. Of these, it is assessed that Absorptive Capacity Theory, Change Management and Agency Theory are the perspectives which contribute the most to an explanation of the different outcomes in the two cases. Still, it also appears that none of the perspectives are capable of explaining the outcomes alone; a more holistic understanding appears to be reached when using the perspectives in combination.

It is also possible to see a pattern in how the different streams of literature have interacted with each other in order to produce such a holistic explanation. Several of the perspectives seem to contribute to a greater understanding of the absorptive capacity of a subsidiary unit. Both the way the change process is managed (Change Management), the existing practice infrastructure (Contingency Theory), the cultural values of local employees (GLOBE dimensions), and the organizational environment (Corporate Socialization) appears to affect the likelihood of a subsidiary to make absorb new practices, i.e. to achieving higher levels of best practice implementation. The perspectives Agency Theory and Resource Dependency Theory stand out as they first and foremost explain the *motivation* of local management to conduct change management. As such, their relevance for the subsidiaries absorptive capacity seems to be indirect, mediated by the way the change management is conducted. Combined, the reasoning above can be illustrated as in figure 12 below. This figure illustrates how the authors experience that the streams of literature have been used in combination in order to produce an answer for the research questions of the study.

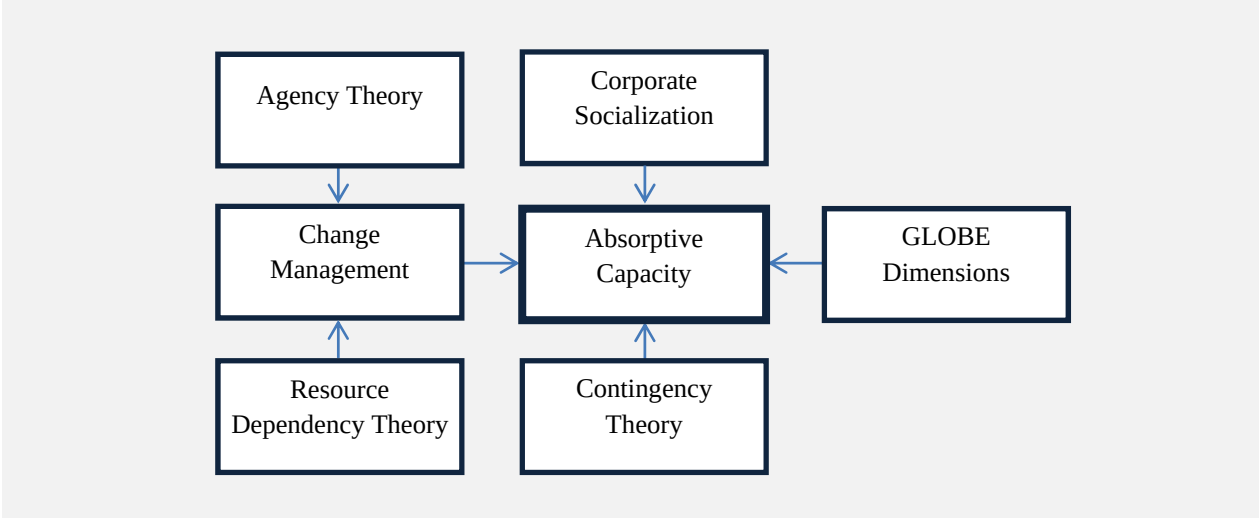


Figure 12: Interrelations between the employed theoretical perspectives

8. Conclusions

The aim of this chapter is to answer the research questions in the light of the empirical findings and subsequent discussions.

RQ1: To what degree have operations best practices been implemented by the investigated subsidiaries?

The background for the comparative study was a perception that the Flixborough-plant had achieved major improvements through employment of the new practices, while not much had happened in Jakarta. The conducted investigation shows that the situation is more nuanced than first assumed; managers at the Indonesian plant have in fact produced efforts in order to improve their operations. The findings suggest that most of the practices from Jotun Operations Academy have been adopted by the plant to a certain extent.

However, the discussion shows that there are clear differences in the *depth* of practice implementation in the two units. In Flixborough, operations best practices are widespread in the organization – both operators and managers are involved in the improvement work. The employees perceive that the new practices are valuable for the improvement of the factory's performance, and one has – despite a considerable amount of historical resistance – been able to sustain the improvement initiatives. The discussion indicates that Flixborough is approaching a state of full institutionalization (see Tolbert and Zucker, 1996). In Jakarta, operations best practices are not as widespread in the organization. Improvement initiatives are mainly driven by management, and one has struggled to sustain changes in practices. The discussion shows that although the practices are adopted, they are not properly internalized (see Kostova and Roth, 2002). Based on the findings it can be concluded that while the plant in Jakarta has achieved some degree of *implementation*, the plant in Flixborough is much closer to a full *internalization* of the operations best practices.

RQ2: Which factors have influenced the investigated subsidiaries' implementation of operations best practices?

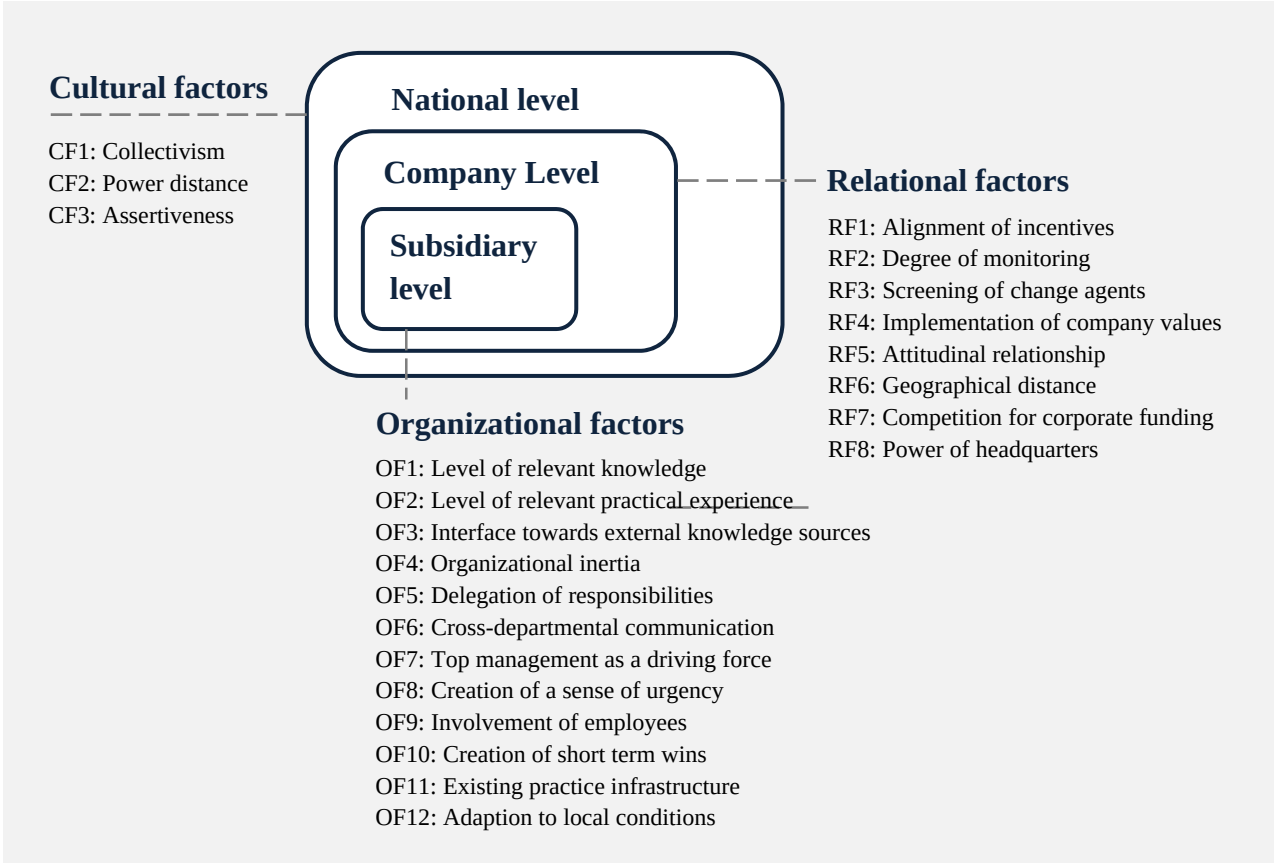
In order to answer this question, a multilevel and multidisciplinary approach has been applied. The previous analysis and discussion reveals a high number of factors appearing on three levels of analysis: *subsidiary level*, *company level*, and *national level*. Below follows a brief presentation of the factors which have been identified. A more detailed overview of each of the factors' influence on the investigated cases is presented in table 16 on page 78.

On a *subsidiary level*, the organizational units' absorptive capacity was found to be highly affected by the levels of prior knowledge and relevant experience, driven by the interface towards external sources of knowledge. It was also found to be influenced by organizational inertia, delegation of responsibilities, and communication across departments. Concerning management of the change process, implementation was positively affected by a top

management acting as a driving force, creation of a sense of urgency, involvement of employees, and ability to achieve short term wins. Regarding factors of contingency, implementation was dependent on the existing practice infrastructure, and to a lesser extent: adaption to local conditions.

On a *company level*, the motivation of local managers to produce efforts for the change initiative was found to be influenced by the alignment of incentives between headquarters and local managers, the degree of monitoring from headquarters, the perceived competition for corporate funding, and the attitudinal relationship between individuals in local management and headquarters. The efficiency of the improvement initiative was found to depend on the power of headquarters, screening of change agents, the implementation of corporate values, and the geographical distance between headquarters and the subsidiary.

On a *national level*, the degree of power distance in the national culture appears to have affected the ability to involve operators. The degree of assertiveness had a great impact on expressed resistance against the change initiative. Degree of collectivism had a more narrow impact on the levels of teamwork supporting the implemented practices. On the basis of the identified factors, a theoretical model was proposed for factors influencing implementation of best practices in subsidiaries of multinational companies. The model is reproduced in figure below.



RQ3: Why has the implementation of operations best practices varied between the investigated subsidiaries of the Jotun Group?

As illustrated in the proposed model, a wide range of factors have been identified which have influenced the outcomes in the two investigated cases. The discussion of main findings in chapter 6.5 reveals a complex interplay between these factors, showing how they have influenced each other. In order to produce a holistic overview of the two cases, all these interrelations should be taken into account. Still, it is also possible to identify some factors which have acted as the major determinants of the different outcomes.

In line with Absorptive Capacity Theory, the plant in Flixborough clearly had a large advantage over the one in Jakarta due to higher levels of prior knowledge and practical experience with the practices. The discussion shows how these factors had a great impact on the speed of implementation, the subsidiaries ability to internalize the practices, and the ability to translate them into increased performance. Another major determinant of the outcome appears to be the way the implementation process has been managed. Management in Flixborough is found to be in line with the stream of literature concerning change management, with the most critical issue being that top management functioned as a driving force for the change initiative. In contrast, management in Jakarta was not in line with the recommendations in the literature. The Indonesian managers' lack of focus and sustained pressure on the best practice implementation is a major difference between the two cases, appearing to be vital component of the explanation for the different outcomes.

A discussion drawing on Agency Theory goes a long way to explain the lack of focus from managers in Jakarta, revealing that there are misaligned incentives between local managers and the implementation initiative. The misaligned incentives seem not to appear because the local management are unwilling to follow instructions from headquarters. Rather, they appear because managers are unable to translate the new practices into increased performance at a rate which is required in order to reach the subsidiaries yearly sales target – a high target reflecting an expanding Indonesian market. Combined with a low degree of monitoring from headquarters related to the best practice implementation, the occurrence of misdirected behaviour is perfectly in line with the predictions of Agency Theory. In contrast, the employees at the plant in Flixborough appear to be self-motivated to use the practices as they perceive this as a positive contribution to the factory's future survival in a high cost location.

In general, it appears that the major determinants of the deviating outcomes between the two investigated cases are: the prior levels of relevant knowledge and practical experience, the way the local change process was conducted, the incentives of local management to devote time and resources to the implementation initiative, combined with the limited degree of monitoring from headquarters.

8.1. Implications for managers

This study identifies multiple factors which may affect the implementation of operations best practices in a multi-plant manufacturing network – many of which may be influenced by managers of the parent company. First, the ***collective knowledge level*** about the best practices among employees in the subsidiaries is found to be highly important. The more employees know about the operations practices, the more likely they are to see the value of them. This in turn positively affects their attitude towards the implementation initiatives. It seems that as the level of collective knowledge increases, it is easier to roll out new practices in the organization. Education of the workforce therefore appears to be a key issue.

However, the findings of the study indicate that providing courses and training of employees is not enough by itself. The ability to produce lasting changes in the organization is found to be highly dependent on ***local manager's ability to lead change processes***. In order to internalize practices, the local management should function as a driving force that sustains the implementation initiative over a long period of time. In this endeavour they will require knowledge about how to conduct such a change process in an efficient manner. It should also be recognized that the process will demand considerable efforts from the managers.

Taking the efforts of managers into consideration, the findings suggest that it is vital to ensure that local managers have ***incentives to produce the required efforts***. The study shows that a lack of incentives and a lack of monitoring negatively the affected the improvement initiative. Alignment of incentives can be achieved by structural mechanisms (e.g. outcome-based rewards), or socialisation mechanisms (e.g. the creation of a coherent company culture through distribution of company values). Findings in this study indicate that effects from corporate socialisation have not been sufficient in order to ensure focus on best practice implementation. More structural approaches, such as direct supervision of improvement efforts or performance-related rewards may therefore be necessary.

The findings also indicate that the motivation of the local managers largely depends on their ability to translate use of the practices into results. In this respect it appears to be a major advantage with ***relevant practical experience***. Literature concerning best practices has stressed the practical "know how" as something that distinguishes *practices* from *knowledge* in general. In line with this, the findings from this study indicate that learning theoretical principles is not necessarily enough to be able to achieve results from new practices. Headquarters should therefore consider mechanisms for internal sharing of practical experience as a supplement to training and courses containing theoretical knowledge.

This study also addresses challenges caused by the locations of subsidiaries in different countries. The findings indicate that the investigated national cultures may have an effect on best practice implementation, for example influencing the degree of resistance against change, or the employees' willingness to participate actively in continuous improvement activities. Managers are therefore recommended to be aware that national conditions may impact the implementation

process, adding to efforts required by local management. However, the findings of this study indicate that culture was more a restraining than a determining factor for the outcome, implying that implementation of best practices across a set of multinational subsidiaries is an agenda which is possible to achieve.

Based on the findings, the following issues are proposed as key concerns for managers when implementing operations best practices across a multi-plant manufacturing network.

- Provide training and courses to increase the collective knowledge level among employees in the subsidiaries.
- Ensure that local managers have incentives to dedicate time and resources to the implementation.
- Provide local managers with knowledge about how to lead a change process in an efficient manner.
- Facilitate sharing of practical experience as a supplement to theoretical knowledge.

8.2. Implications for theory

A central tenet of the best practice paradigm is that adoption of best practices will lead to better performance (Voss 1995). This study shows that considerable challenges occur in the process of implementing such practices. The plants in Indonesia and Flixborough had adopted many of the same practices, but the "depth" of implementation varied substantially. These differences greatly influenced the respective unit's exploitation of the practices. These findings support scholars who advocate that degree of use must be taken into account when judging effects of best practices (Laugen et al., 2005, Morita and Flynn, 1997).

Further, there is a growing attention in the literature to the complexity and challenges attached to transfer of practices between organisational units (e.g. Jensen & Szulanski, 2004; Kostova & Roth, 2002; Perrin et al., 2007; Szulanski & Winter, 2002). In line with this stream of literature, findings from this study shows that transfer of practices may be affected by multiple factors. However, this study especially underpins the importance of the recipient unit's ability to implement new practices. Here, prior knowledge and experience, along with abilities to manage change processes, appear to be essential. The findings of the study therefore support authors who argue that absorptive capacity is a determinant of the outcome of best practice transfer (Ferdows, 2006; Kostova, 1999; Szulanski, 1996).

This study also provides a novel contribution to theory. By integrating several streams of literature, a multidisciplinary model for factors influencing cross-national transfer of operations best practices is proposed. Further, the use of multiple streams of literature has provided an opportunity to evaluate the contribution of each theoretical perspective. The previous discussion reveals that all the employed theoretical perspectives appear to have explanatory power by themselves, with Absorptive Capacity Theory, Agency Theory and Change Management providing the greatest contributions. Still, it is equally apparent that none of the perspectives can

explain the whole development alone. The discussion of the perspectives reveals a high number of interconnections between the different streams of literature, with one perspective explaining what another cannot. It seems therefore that different perspectives may be combined in order to establish a more holistic understanding of the influences on best practice implementation. It is assessed that this represents a great opportunity for future theory generation, as a higher degree of integration between different fields of study may provide new insights in the determinants for successful employment of best practices. However, the findings also represent a challenge, as the complexity is experienced to increase as several theoretical perspectives are applied.

8.3. Suggestions for future research

This study proposes a model for factors which may influence best practice implementation in subsidiaries of multinational corporations. As this model was developed using only a limited number of cases, future research is encouraged to conduct similar studies on a higher level of cases in order to increase the level of generalizability. The model is not proposed to represent an exhaustive collection of influencing factors, and future studies will undoubtedly identify a higher number of factors.

It is also perceived to be relevant to investigate the approach of parent companies (e.g. a coercive versus non-coercive approach to implementation) which best may be employed in order to improve the likelihood of successful internalization in subsidiary units. This topic is only limitedly treated in the conducted study, as both the investigated subsidiaries belong to the same parent company – consequently being exposed of approximately the same responses from headquarters. Finally, this study has employed a multidisciplinary and multilevel approach. This approach is assessed to be fruitful in order to create a more holistic understanding of the studied phenomenon, and is therefore also recommended for future studies.

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Appendix A: Definitions of best practice in the literature

Definition of the term ”best practice”	Source	Published in
“Any practice, knowledge and know-how that has proven to be valuable or effective within one organization that may have applicability to another”	O`Dell and Grayson (1998)	Journal of Knowledge Management
“a good practice that has been determined to be the best approach for many organizations, based on analysis of process performance data”	Chevron through O'Dell and Grayson (1998)	California Management Review
A “best practice” is an important practice within the purview of the organization for which there exist reasonable proof of superiority both with respect to other alternate practices and with respect to known alternatives outside the company”	Szulanski (1995)	Academy of Management Journal
A *best practice* is a set of interrelated work activities repeatedly utilized by individuals or groups that a body of knowledge demonstrates will yield an optimal result – good patient outcomes	Tucker *et al*. (2007)	Management Science
“those practices that will lead to the superior performance of a company	Camp (1989)	ASQC-Quality Press
“the best ways to perform a business process”	Heibeler *et al.* (1998)	Simon & Chuster, New York
“an activity or action which is performed to a standard which is better or equal to the standard achieved by other companies in circumstances that are sufficiently similar to make meaningful comparison possible”.	Hughes and Smart (1994b) through Davies & Kochhar (2002)	International Journal of operations & production management
“those practices that have aided the lower performing organizations to improve to medium performance, medium performers improve to higher performers, and higher performers to stay on top and achieve further benefits.”	IQS study (1993) through Davies & Kochhar (2002)	International Journal of Operations & Production Management
“best practices are always better than other practices and should be applied everywhere, regardless of industry or geography”	Delery and Doty (1996) through Lui *et al*	Management International Review.
“The practices used by, and having significant effect on performance of, the best performing companies. “	Laugen *et al*.(2008)	International Journal of operations & production management

Appendix B: Case study protocol

The purpose of this protocol is to guide the inquiries of the researchers during field investigations. First, a short introduction of the study is given, followed by the theoretical framework that is developed for the study. Third, a general overview of the data collection procedures is provided. Fourth, an outline of the case study report is given. Fifth, an interview guide is described, including questions for structuring the conducted interviews. Finally, a survey that is to be used in data collection is described.

1. Short introduction of the study

This study is conducted as the concluding part of a master degree in Industrial Economics and Technology Management. The work is conducted over the course of one semester, and the findings will be presented in a diploma paper. The study is performed on the behalf of, and in collaboration with, Jotun.

The aim of the study is to achieve a greater understanding of the processes surrounding implementation of operational "best practices" (e.g. Lean manufacturing) in multinational companies. There is a trend that multinational manufacturing companies seek to standardize operational practices across multiple local subsidiary units in order to achieve manufacturing "best practice". However, findings in the literature indicated that there are considerable challenges when such practices are to be implemented in new locations. These challenges are the main focus area of this study.

In the case of Jotun, the focus will be implementation of best practices in the factories in Flixborough (UK) and Jakarta (Indonesia) Trough Jotun Operations Academy, Jotun wishes to communicate a certain set of best practices to their subsidiary units. The subsidiaries are then encouraged to implement these practices in their home countries. However, the impact of the academy has been found to vary greatly between the different units. This study seeks to examine and compare the outcomes in two of Jotuns' factories: one in England (Flixborough), and one in Indonesia. The following research questions are proposed:

RQ1: To what degree have operations best practices been implemented by the studied subsidiaries?

RQ2: Which factors have influenced the implementation of operations best practices?

RQ3*:* Why have the implementation of operations best practices varied between the investigated subsidiaries?

Based on these findings, suggestions will be developed for how Jotun Group can achieve increased efficiency of best practice implementation. Theoretical framework follow on next page

Authors	*Cause of unsuccessful implementation*	*Reasoning*	*Theoretical Discipline*	*Source*
Organizational factors	Lack of Absorptive Capasity	Lack of ability to recognize, value and acquire new knowledge will negatively affect transfer of practices. Potential influencing factors are: lack of relevant knowledge, lack of effort in knowledge acquisition, organizational inertia, lack of interdepartmental communication, insufficient technical competence.	Absorptive capacity theory	(Cohen and Levinthal, Kedia Bhagat 1988, Ferdows 2006, Kim 1998 Szulanski 1996, Daghfous, 2004)
	Unsuccessful Change Management	The change process may not have been managed in a proper way. Influencing factors: Lack of top management support, not creating an urgency, limited involvement of employees, lack of focus, unable to create results, weak change coalition.	Change Management	(Martin and Beamont 1998, Angell and Cobett 2008, Scaffer and Thompson (1992) Mefford and Bruun 1998, Kotter 1995
	Misfit between practice and operational characteristics	The proposed practices might not be compatible with the operational characteristics of the subsidiary, e.g. volume of production and product range, leading to disappointing performance outcomes or resistance from the subsidiary	Contingency theory	Davis and Kochhar (2002)
	Misfit between new and existing practices	The proposed practices might not be compatible with the operational characteristics of the subsidiary, e.g. volume of production and product range, leading to disappointing performance outcomes or resistance from the subsidiary	Contingency theory	Sousa and Voss (2007), Maffin and Braiden (2001), Leseure (2000)
Relational factors	Misaligned incentives	Misaligned incentives between headquarters and local management, for example due to effort aversion, might cause sub-optimal or misdirected efforts from local managers	Agency theory	Eisenhardt (1985, 1988), Jensen and Meckling (1976) , Alchian and Demsetz (1972), Bergen et al. (1992)

	Inappropriate control and rewarding systems	Problems of moral hazard, i.e. sub-optimal or misdirected efforts, are not treated with appropriate degrees of control or rewarding systems	Agency theory	Eisenhardt (1985, 1988), Jensen and Meckling (1976) Alchian and
	Lack of inclusion in company culture	A greater inclusion of a subsidiary in the company culture will align incentives and thereby reduce problems of sub-optimal or misdirected efforts	Corporate Socialisation	Ouchi (1979), Nohria and Goshal (1994), Dolan and Garcia (2002)
	A strained relationship with headquarters	Implementation is hampered by lack of knowledge sharing between headquarters and subsidiary, caused by a lack of trust or a negative reputation	Corporate Socialisation	Szulanski (1995, 1996), Kostova (1999), Leyland (2005)
Cultural factors	A high degree of assertiveness	A high degree of assertiveness in the national culture of the subsidiary will increase competition between employees and hamper teamwork and collaboration-initiatives which important in most operations-improvement practices.	GLOBE cultural dimensions	(Kull and Wacker 2010).
	A low degree of uncertainty avoidance	The desire to control future events, with improvements initiatives and statistic process control is central in Operations "best practices" In a culture with low degree of uncertainty avoidance, the motivation for such a structural approach will be low, which negatively affects implementation of Operations	GLOBE cultural dimensions	Hofstede, 1980, Kull and Wacker 2010
	A low degree of in-group collectivism	A low degree of collectivism makes workers less inclined to participate in team-oriented practices	GLOBE cultural dimensions	Hofstede 1980, 1980, Power et al. 2010
	High degree of power distribution	In cultures with high degree of power-distribution, empowerment of employees in lower level of the organization is challenging, which may hamper the implementation of operational improvements practices.	GLOBE cultural dimensions	(Javidan 2005, Mefford and Bruun 1998)

3. Data collection procedures

The following section describes the sites to be visited, including contact persons, the types of data to be collected, and the expected prior preparations.

Sites to be visited

Factory in Flixborough	Factory in Indonesia
Head Office, Factory, Customer Services, Protective and Decorative Enquiries Jotun Paints (Europe) Ltd. Stather Road, Flixborough, Scunthorpe, North Lincolnshire, DN15 8RR Tel: +44 (0)1724 400000 Fax: +44 (0)1724 400100 e-mail: enquiries@jotun.co.uk	Factory, Sales office PT. Jotun Indonesia Kawasan Industri MM2100 Jalan Irian III, Blok KK1 Cikarang Barat, Bekasi 17520 Indonesia Indonesia
Contact person:	Contact person:
Alan Roden, Technical Manager, Jotun Paints (Europe) Ltd. Flixborough, U.K. Tel: +44 0 1724 400149 Mobile: +44 (0) 7810 376890 alan.roden@jotun.co.uk http://www.jotun.com	Irene H Factory Department PT. JOTUN Indonesia Jl. Irian III Blok KK 2 No.1 Kawasan Industri MM2100 Cikarang Bekasi Mobile : + 62 813 1003 1490 Office : + 62 21 8998 2657 irene.h@jotun.com http://www.jotun.com/ap

Data collection plan

During the visit at the site, the following types of data are expected to be collected:

1) Minimum 4-5 interviews with people with different roles in the factory: one with a change agent, one with a production manager, one with a line manager, one with a cell/team leader.
2) Observation of the paint production. These observations should be supported by unstructured interviews/conversations with operators in the production.
3) A survey concerning opinions about the degree of practice implementation, see chapter 6 for the questionnaire.

4) Other documentation that will increase our understanding of the conditions at, or history of, the visited factory.

Expected prior preparations

Prior to the field investigations, the researcher is expected to:

1) Establish contact with the contact person at the site to be visited.
2) Send interview questions to the designated contact person so that interview objects can make necessary preparations.
3) Become familiar with the purpose of the study, the proposed research questions, the established theoretical foundation, and the described interview questions.
4) Make available necessary equipment: a tape recorder for interview sessions, printouts of the questionnaire, and writing material for field notes

4. Outline of case study report

Presented under is a general structure of the case study report.

1) Introduction
2) Theoretical background
3) Methodology
4) Description of Jotun and Jotun Operations Academy
5) The case of Flixborough
   a) Description of the case
   b) Description of empirical findings
   c) Analysis of empirical findings
6) The case of Indonesia
   a) Description of the case
   b) Description of empirical findings
   c) Analysis of empirical findings
7) Comparative analysis
8) Conclusion

5. Interview guide

About the interview

The interview is to be conducted in a semi-structured form, meaning that the interviewee is encouraged to speak freely. However, the discussion should at least visit the topics proposed later. At the interviewees' permission, the interview will be recorded. Subsequently, the interview will be transcribed. The interviewee will be offered the opportunity of revising the transcriptions.

Introduction

The first 5-10 minutes will be used for a brief introduction to the study, and to make sure key data on the interviewee are collected.

Structure of the interview

1. Introduction of the study
2. Collection of interviewee data
3. Topics for discussion
    a. The impact of Jotun Operations Academy
    b. Properties of the factory
    c. Perceptions about Jotun Operations Academy
4. Further progression
5. Contact information

Interviewee data

1) Name
2) E-mail address
3) Position
4) Education
5) Years in Jotun
6) Any other important information

The impact of Jotun Operations Academy

The following questions are concerned with the impact of Jotun Operations Academy. All interviewees will be asked to elaborate on them, but we do not expect all to be able to answer all of the questions in detail.

Effects of Jotun Operations Academy

a) Can you give a general description of your factories participation in Jotun Operations Academy (JOA)?
b) Which impact has JOA had on the factory? Has JOA led to changes in practices? Any improvements in performance outcomes?
a) How do you perceive the fit between the suggested practices and the operational characteristics (size, volume, product range) of your factory?
c) If you have experienced any results after participation in JOA, how long did it take before you saw the first results?
d) To what degree would you say that the practices of the factory are in line with JOA today?

The implementation process

a) Can you describe, in as much detail as possible, the change process after participation in JOA? What was done to implement the teachings of JOA? What were the results?
b) What have, in your opinion, been the major contributions to the outcomes of this process?
a) How did the workers respond to the new initiatives? Why do you think they reacted in this way?
b) How was the process supported by managers?
c) In your experience, has it been communicated clearly *why* the new practices should be implemented, and *how* this will impact performance outcomes?

Properties of the factory

The following questions are concerned with the properties of the factory. They are needed to provide us with the necessary insight and understanding of factors which might affect practice implementation.

Prior experience

a) How would you describe the educational level of the workforce in this unit?
b) To what degree were the workers and managers familiar with (heard of, knowledge about) the practices that were communicated through JOA, *prior to* participation in the academy?

Relationship to headquarters

a) How would you describe your units' relationship to headquarters?
b) To what degree is this unit a part of the "Penguin culture" of Jotun?

Control and reward systems

a) What are your incentives to comply with JOA?
b) Are workers on different levels rewarded for taking the new practices into use?
c) Has headquarters controlled or measured the degree of implementation of practices/compliance with JOA?

Perceptions about Jotun Operations Academy

The central issue in the following three questions is <u>your</u> opinion.

a) What are your opinions about the usefulness of JOA?
b) What are your opinions about the way that JOA is or was conducted?
c) Do you have any suggestions for improvement?

Additional information

a) Please feel free to provide any additional information
b) Are there any written reports, documents or similar we should have insight into?

Further progression

We will contact you again when the interview has been transcribed.

Once again, thank you for participating in this research project!

Henning Sirevaag Anthonsen
Mail: henninganthonsen@gmail.com
Tlf: +47 97 77 97 10

Ole Andre Aa
Mail: aa@stud.ntnu.no
Tlf: +47 48 24 99 23

Survey : "Implementation of operational practices"

Thank you for participating in this survey. You answers are highly appreciated and valuable

Position	
Years employed at this factory	

To what degree are the following practices[9] used at this factory?	Very low degree	Low degree	To some degree	High degree	Very High degree	Unsure
The Deming Circle: Plan, Do, Check, Act	☐	☐	☐	☐	☐	☐
5S (Sort, Set in order, Shine, Standardize, Sustain)	☐	☐	☐	☐	☐	☐
Root cause tools (Genba, Fishbone, 5 Whys, 5W2H)	☐	☐	☐	☐	☐	☐
Statistical Process Control	☐	☐	☐	☐	☐	☐
Teamwork	☐	☐	☐	☐	☐	☐
OTIF measurement (On Time In Full)	☐	☐	☐	☐	☐	☐
7 wastes (elimination of waste)	☐	☐	☐	☐	☐	☐
Risk matrix/Risk assessment	☐	☐	☐	☐	☐	☐
Management by objectives	☐	☐	☐	☐	☐	☐
Terms of Reference (meeting document)	☐	☐	☐	☐	☐	☐
ABC product classification (Pareto 80/20 rules)	☐	☐	☐	☐	☐	☐
Production leveling	☐	☐	☐	☐	☐	☐
Pull production	☐	☐	☐	☐	☐	☐
SIPOC (helicopter view of processes)	☐	☐	☐	☐	☐	☐
Flowchart (process mapping)	☐	☐	☐	☐	☐	☐
Value stream mapping	☐	☐	☐	☐	☐	☐
SMED (quick changeover technique)	☐	☐	☐	☐	☐	☐

for our research.

[9] The word **practice** is meant as an organisational routine, and can be interpreted as: "the way things are done". Examples are: production methods, improvement techniques and management procedures.

Appendix C: Key Performance Indicators

Figure 1: Production volume

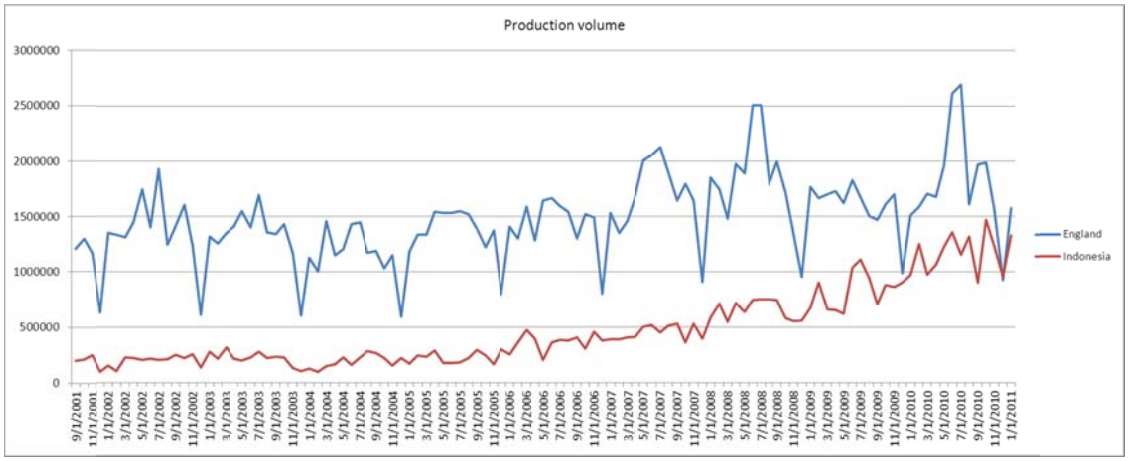


Figure 2: Number of units

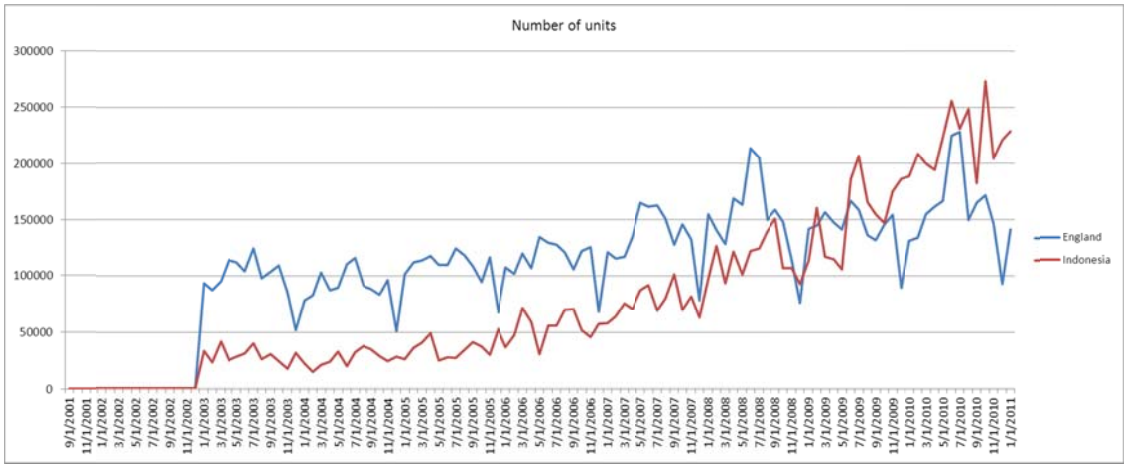


Figure 3: Number of batches produced

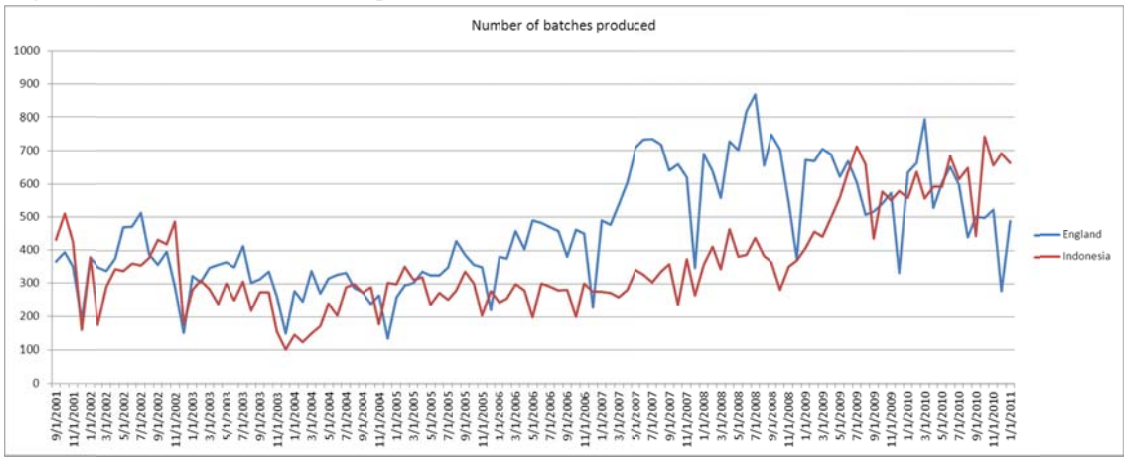


Figure 4: Man hours in production

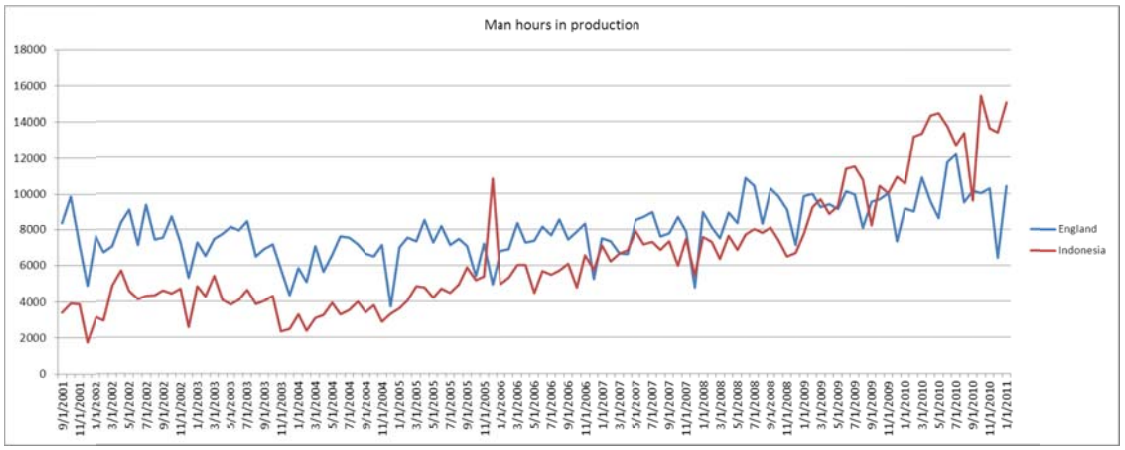


Figure 5: Volume/Man hours

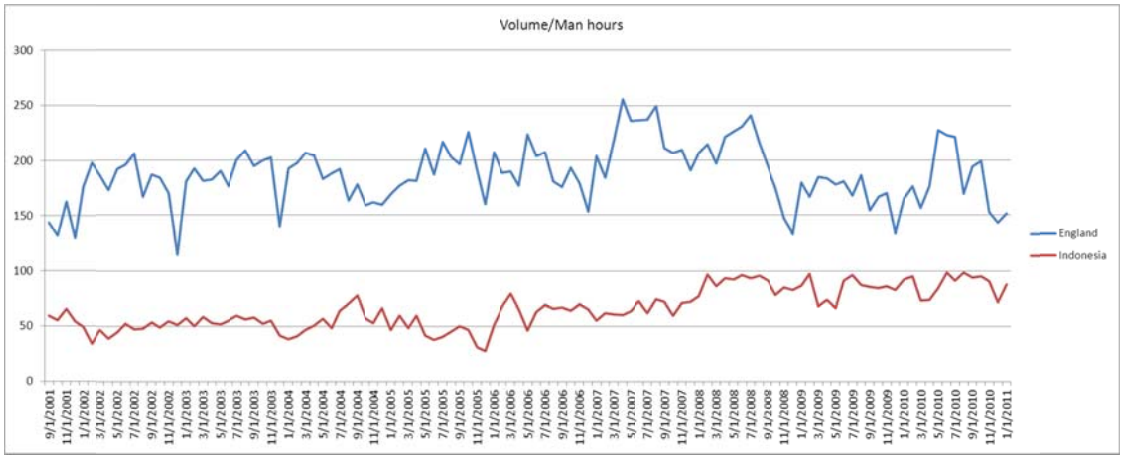


Figure 6: Liters/Batch

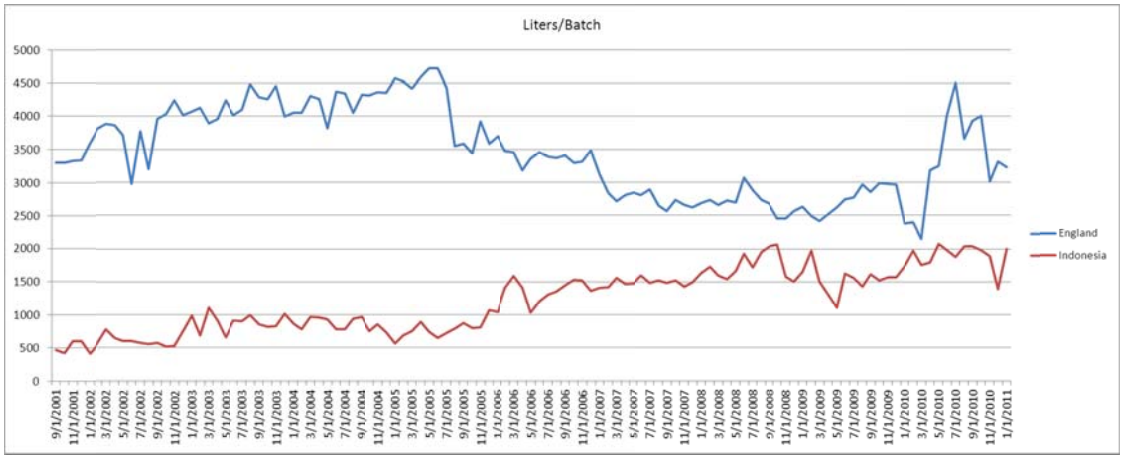


Figure 7: Average cansize

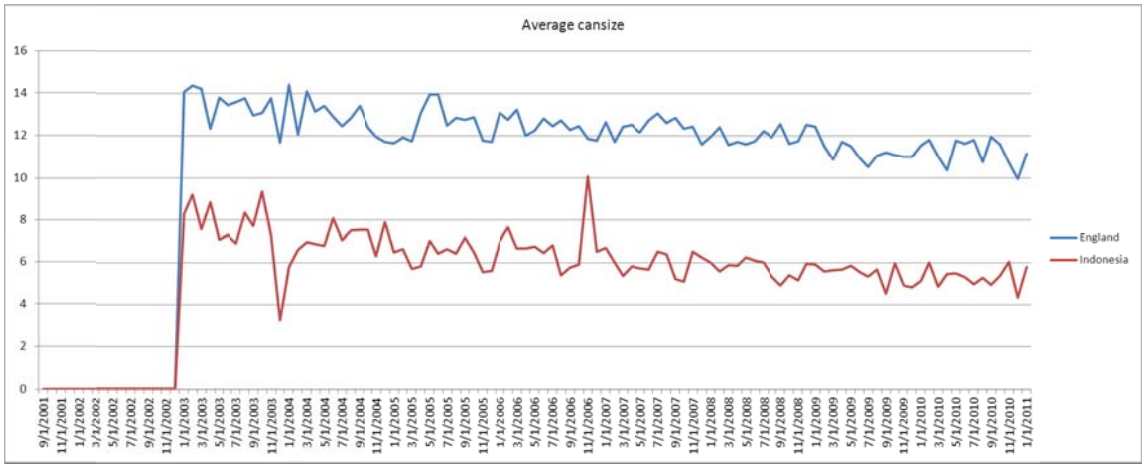
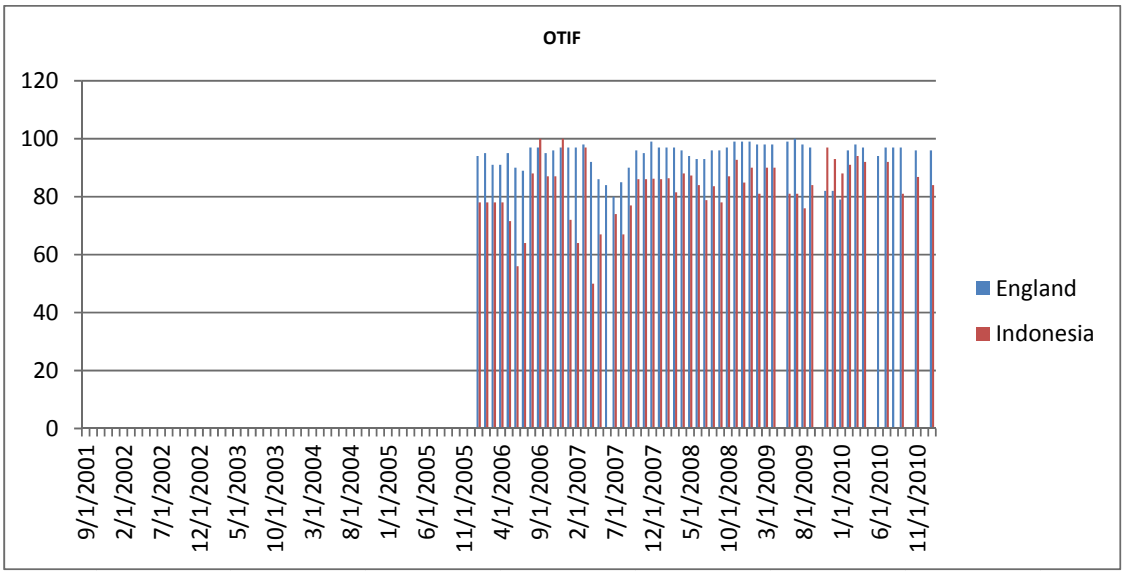


Figure 8: OTIF



Appendix D: Preconceptions about the investigated plants

The following subsections the authors' preconceptions about the plants in Jakarta and Flixborough. These were written after the establishment of the theoretical framework.

Flixborough, Henning Anthonsen

Personally, I still have some doubts about whether the factory actually has managed to integrate a large portion of the suggested best practices from JOA. I believe, that although management might present it otherwise, there are only a selected few of the practices that are really implemented and internalized on lower levels. However, if the practices indeed are implemented, it will be due to a combination of the following conditions:

- Managers have a close relationship with HQ in Sandefjord, making them motivated to support the process
- The previous practices used in the factory were quite similar to the JOS, so not very many changes had to be made
- Employees have been well integrated in the company culture, making them motivated to use new practices/improve

Jakarta, Henning Anthonsen

I believe that the factory in Indonesia is pretty far from using the best practices communicated through JOA. Therefore, the required effort from management is likely to be very high. I believe that the managers have too few incentives to undertake this mission, and that they will have abandoned any greater attempts after meeting initial resistance.

I believe that the competence of the workers in Indonesia will be lower than in England, and that they therefore have a harder time learning and seeing the value of new practices. Because of the geographical distance I think this factory feels more separated from the HQ, and the perceived obligation to implement practices is therefore lower. I also believe that they feel less supervised. In addition to this, I believe the production in the two factories are quite similar, and that contingency issues will be of less relevance. I believe that education and competence has a greater impact on implementation than culture.

Flixborough, Ole Andre

In the meeting with Jotun in Sandefjord they told us that the plant in Flixborough has achieved a lot. I therefore believe they have been able to implement many of the practices communicated through Jotun Operations Academy. However, I am curious to know if they have been able to include operators in improvement work. From my previous work at a ship-building factory, I know that introducing new "fancy" ideas may not be easy. Therefore I expect that there are some operators with a negative attitude.

Jakarta, Ole Andre

Because the Jotun representatives from Headquarter had seen few results in Indonesia, I think they have not tried to implement many practices. Because of cheap labor I think they are not too bothered with production efficiency. I also think that because of the geographical distance to Norway, they have not been provided with enough support from Group Operations Improvement

Appendix E: List of improvements in Jakarta

✓ some recorded

List of Improvement 2008 — 2010

Tanggal	Area	Purpose	Action	Measurement	Requested by	PIC	Planned	Actual
2-Dec-08	Mixing B-07	Reduce dust on floor and air	Provide plastic supporting + B3 label	Time's needed		Erman K	15-Dec-08	Feb09
2-Dec-08	Mixing B-07 & -08	Reduce dust on floor and air	Folding the empty bag after discharge	Time's needed		Erman K	15-Dec-08	Feb09
2-Dec-08	Additive	Reduce loss and 5S on small drums	Provide valve for each drum			Tumpal		23-Mar-09
30-Jan-09	Additive B-07	Easier filling process by using pastic pump	Lower table for scale		Irene	Tumpal		20-Feb-09
3-Feb-09	Filling area B-08 & 07	Improve the lid doser performance, 5lts below	Propose design (2 options) of modification, utilize existing material		Irene	Tumpal		11 Mei'09
3-Feb-09	Filling area B-08 & 07	Repair the roller table in workshop	Make it permanent		Irene	Tumpal		20 Feb'09
3-Feb-09	Filling area B-08 & 07	Make the machine setting information's clear	Change the list with new one		Irene	Erman K		Done
3-Feb-09	Laboratory	To fasten the Colour Strangth testing of HPVC products	Do the comparison testing by reduce the QC lead tim	Time consumption	Yano	Yano		Done
5-Feb-09	Filling area B-08	Tidy up waste ex label during labelling	Modify the label roller combined with pail and compactor stick	2nd R (rapi)	Herman			Done
6-Feb-09	Filling area B-08 Level 1 (008-201-01/02 dan 008-202-01/02)	Maximize the exhausting system during filling process. Existing LEV only 1 unit LEV for 2 tanks	add the ducting for cover another tanks for each mac	safety on VOC	Herman			Done
6-Feb-09	Office	Maximize the Timer function on AC with Power line Cut off with Timer Controller	Design the control System complete with the protection system	accuration of Power line Cut off	Herman			Done
10-Feb-09	Compressor Room	Electricity reduce and reduce wate operational	Turn Off Air Compressor after Shift II	Electricity Cost	Herman			Done
11-Feb-09	Filling Area B-08	Speed up filling process of thinner for 1 litre	Set T2 on the oullet of drums combined with 1/2"valv	Filling Time	Herman			Done
12-Feb-09	Charging Area B-07	To set up the scharging system for powder better and safe	Modify the Hopper, utilize until bigger powder bag to 40 kg (kaolin/ML)	ergonomic and safe works	Herman			Done
12-Feb-09	Spray Room	Reduce and prevent anti static	grounding the Fume hood (provide anti static filter	safe works	Herman			Done
19-Feb-09	Mixing B-07	Reduce the risk of drum lid fall to the tank	install valve for drum	safe works	Herman			Done
20-Feb-09	Building 6	Simple way to trace the location of Drums	re-improve sunu, index lay out for the drums locations based on site marking	Time consumption	Herman			Done
24-Feb-09	Mixing B-07	Safety Procedure of Crane Operation (reminde	Additional Equipment for handling Big Bag	safe works	Herman			Done
25-Feb-09	Mixing B-07	Safety Procedure of Crane Operation (reminde	alternative design with Wire Rope, More easy to handle, not too weight, simple place, low price	safe works	Juwito			14 Mei09
25-Feb-09	Filling B-07	Maximise the Roler Caper usage for non plastic Can	Design lid closer integrated with the roller caper (electrical system)	Time consumption	Herman			Done
26-Feb-09	Panel Control AC Office	AC running well with Genset	Modifikasi Control panel AC Office interlock with Ger	safe works	Herman			Done
28-Feb-09	Factory Area	Tempat kacamata dan masker	Utilize lemari yang ada di 7 dan 8 level 1 untuk tempat kacamata dan masker (setting sesuai dengan jumlah operator yang ada)	5S	Juwito			Done
5-Mar-09	Filling and Charging	Tidak tergantung dengan Almega, parts mahal	Modifikasi Harness Assembly Power Digital Scales	Reduce Cost	Juwito			Done
19-Mar-09	Mixing B7	Red Label on Mounting Agitator	Easy to control visual	Visual checking	Herman			Done
19-Mar-09	Factory level 2	Reduce waiting time, reduce stress level, sufficient traffic area, 5S	Organize area for placing preweighing raw material for charging, prepare as per-needed	RM flow & house keeping	Irene	Erman K		23-Mar-09
27-Mar-09	Charging Area B-08, additive	Earthing clamp pate, to make sure good connection	Install stainless plate on graco pump. Bad contact generate when ckamping on drum	safe works	Herman			Done
2-Apr-09	Platform Crane B7 & B8	Make sure the door around the platform level 2 always close/normally close	information board on the door as a Warning	safe works	Herman			Done
23-Apr-09	Factory	To make sure the air pressure for all of equipment was on specification	Standarcisation of Pressure measurement and identification	safe works	Herman			Done
24-Apr-09	Mixing	Make the liquid additive preparation faster & to eliminate error.	Assign Narubah as assistant of mixing team, to prepare liquid additive.	NCR & nr of Batches	Irene	Erman K		Done
1-May-09	Planning	Reduce left over for **non-SKUs**	Set the batch size exactly as per order quantity.	Left Over-monthly	Erman K	stri&Hend	1-May-09	1-May-09
27-Apr-09	Production	Improve the equipment efficiency	measure OEE	OEE	Tumpal	Tumpal		
27-Apr-09	Mixing	Reduce left over of **non-SKUs.**	Provide blade and drums to produce 100 L volume.	Left Over-monthly	Tumpal	Tumpal	11-May-09	11-May-09
11-May-09	RM	Improve the availability of Solvent	Levelling order for 1990,2000,2110,1100	On Time	Irene	Erman K	11-May-09	11-May-09
12-May-09	Build. 7 & 8	To fasten the filling Process	make the table on the lid closser 5 Ltr	ergonomic and safe works	Tumpal	Tumpal	20-May-09	28 May09
10-Jul-09	Build.08	To Minimize the particel in the Vollenda	Make the filter in the main hole of the tank		Tumpal	Tumpal	20-Jul-09	22 Jul '09
23-July-2009		Sipport for IBC tank during Emtying	Set the bracket safe and ergonomic	safe works	Juwito	Juwito		Done
07-Dec-09	Filling Solvent based	Reduce Uncontrolled Vapour	Modify the Filling Tray	safe works	Herman	Herman		Done
2009	FO	Impove PDP	Partial BF	Effective	Erman K	Erman K	2009	Done
2009	Bld 4/6	Improvement data stock,safety,accuracy	Card stock	effective	Erman K	Erman K	2009	Done
2009	Bld 6	Solvent	Levelling order for 1990,2000,2110,1100	stock terkontrol	Irene	Erman K	2009	Done
2009	Bld 6	Emultion	Levelling order for 1990,2000,2110,1100	stock terkontrol	Irene	Erman K	2009	Done
2010	Bld 7/1	Area scale charging tidak effective	Ganti meja charger untuk timngan	safe cost, 5s	Erman K	Erman K	2010	Done
2009	Bld7/8 lvl 1	Tutup kaleng tdk termonitor	Buat rack untuk tutup	tutup bisa dimonitor,5s	Iren	Erman K	2009	Done
2009	Bld 7/8 lvl 1	Process stick label lama	dibuatkan mal untuk can 2.5 lt and 1 lt	tidak butuh waktu penghitungan	Erman K	Erman K	2009	Done
2010	Bld 4	RM office tidak rapi	5s	suasana kerja jadi nyaman	Irene	Erman K	2010	Done
2010	Bld 6	Can Consumption	akan di buat levelling	stock terkontrol	Irene	Erman K	2010	Done
2010	Bld7/8 lvl 1	Lack ban berantakan	dibuatkan tempat nya	effective	Erman K	Erman K	2010	Done
2010	Bld 7/2	Improve production process,safety,cost of mtc,	change equipment	safe cost,works,more faster,safet	Irene	Mtc	2010	Done
2010	Bld 10	Maintenance Workshop tidak bersih dan rapih.	5S Activity	5S	Tumpal	Tumpal	2010	Done
2010	Bld 13	Level Solar Genset sulit untuk di ketahui.	Memasang sight glass di tangki Genset.	pat mengkontrol solar dalam tan	Tumpal	Tumpal	2010	Done
2010	Bld 12	Bracket pompa hydrant sering bergeser.	Membuat support pada dudukan pompa.	Pompa aman untuk dioperasikan	Tumpal	Tumpal	2010	Done