CHALMERS

The 4-by-10 Ruler of Change
A Practical Framework for Managing Change

Master of Science Thesis
in the Management and Economics of Innovation Programme

MARTIN BRANDT

PETER SOMMER

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MARTIN BRANDT

PETER SOMMER

Tutor, Chalmers: Maria Elmquist

Tutor, Triathlon Consulting Group: Filip Sandung

Department of Technology Management and Economics
Division of Innovation Engineering and Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden 2013

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Martin Brandt and Peter Sommer

Abstract

How to manage change is one of the most important challenges for companies in today's fast-paced business environment, and as a natural consequence the topic of change management receives an extensive amount of interest from both researcher and practitioners. Yet, despite the extensive research and attention given to the topic there still exist a need to explore the change process as well as key influencing factors in further detail. Furthermore, there appears to be a demand for more practical tools for managing change.

The purpose of this study is therefore to contribute to a better understanding of different approaches to change management, the change management process and the most important factors influencing the success or failure of change efforts. The change management process and important influencing factors will also be combined into a practical framework that can be used to manage change efforts.

To address this purpose an abductive research approach was applied, combining literature studies with an explorative interview study. Foremost qualitative research methods were used and in total 28 interviews were held with experienced practitioners from R&D functions in the industry. The study included several interlinked phases were the understanding of the topic as well as the framework was gradually developed.

Considering the change management process a fairly unified view was obtained throughout the study. The final change management process includes the following four phases; Exploration and initiation, Individualization and design, Implementation and sustaining momentum, and Integration and institutionalization.

Concerning key factors influencing the success or failure of change initiatives a more scattered view was obtained. Out of the 15 key influential factors derived from the literature ten were kept after the interview study. The key influential factors included in the final framework are; A well-established change process, Change related communication, A developed strategy plan, Employee involvement, Ensured capabilities of change team, Support from key stakeholders, Evaluation and continuous reviews, Change related training, Aligned HR practices, and Aligned structure and control processer.

Based on these four phases and ten influential factors the final framework called "The 4-by-10 Ruler of Change" was developed by linking each factor to the different phases. In total 27 linkages were done; explaining what activities that should be performed for each factor in each related phase, and what result these activities will generate.

Keywords: Change management, Change initiative, Approaches to change management, Change process, Key influential factor, Framework for change management.

Acknowledgements

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1. Introduction

The opening chapter commences with a background to the concept of change management as well as a motivation to why the study is relevant. Thereafter, the research purpose is presented and broken down into explicit research questions. Finally, the limitations of the study are described followed by a disposition of the report.

1.1. Background

John F Kennedy once said "Change is the law of life. And those who look only to the past or present are certain to miss the future" (Kennedy, 1963). This succinct quote highlights the ever-present nature of change and the integral part it plays in life. Farris and Ellis (1990, p. 33) argued back in 1990 that "change has become a way of life for many companies in the United States and other developed countries". This argument is even more valid today since the increased globalization and harshened competition has made the pace of change greater than ever (By, 2005). In addition, Lawson and Price (2003) explain that change programs[1] aimed at enhancing organizational performance is becoming increasingly popular. Despite their "popularity", successful and efficient change efforts[2] are according to Armenakis and Harris (2009) rare. Keller and Aiken (2009) draw upon a recent survey of business executives and show that approximately 70 percent of all change efforts in organizations fail.

The Oxford dictionary states that the verb change means "make or become different" (Oxford Dictionary, 2013). When turning to management of change within organizations, Moran and Brightman (2001, p. 66) define change management as "the process of continually renewing an organizations direction, structures, and capabilities to serve the ever-changing needs of external and internal customers".

Change is difficult, which can be highlighted by the low success rate described by Keller and Aiken (2009). This difficulty can be explained by the notion that people are inherently resistant to change. As argued by Mento, Jones, and Dirndorfer (2002, p. 53) "It has been observed that it does not matter whether the change is perceived as being positive or negative. Resistance is generated because the status quo will be affected. People are comfortable with knowns". Further, Lawrence (1969) explain that employees resistance to change may lead to a reduction in output, drawn-out conflicts and an increased number of transfer requests.

Sirkin, Keenan, and Jackson (2005) agree that change is tough and add that another problem is that multiple viewpoints exist. This has according to them led to an extensive investigation of change management by multiple authors. Sirkin et al. (2005) illustrate this by showing that a search on the topic of change management provided more than 6,153 titles, each with a unique viewpoint. Keller and Aiken (2009) report similar results on the topic of organizational change and state that in 2008 there were over 1800 books under this topic available on Amazon.com.

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[1] Within this study the concept of *change programs* refers to a significant change in organizations, which concerns several people and demands some degree of planning and preparation.

[2] Within this study the concepts of *change efforts* refers to changes in processes, work methods or organization which concern more than one person and consume a considerable time period.

According to Burnes (2004) the pioneering researcher within the field of change management was Kurt Lewin. In the late 1940s he introduced the "planned approach" to change management which dominated for several decades (Burnes, 2004). The planned approach to change sees change as moving from one static state of being to another, by going through a series of planned and pre-determined steps (Bamford & Forrester, 2003). However, in the 1980s this rather regimented approach to change was being increasingly challenged, leading to the rise of the "emergent approach" to change (Burnes, 1996). The emergent approach sees change as driven from the bottom-up rather than top down, where change is so rapid that it is impossible to plan and execute change by senior managers (By, 2005). According to By (2005) a scholar favoring the emergent approach is Kotter (1996) who made a seminal contribution to the change management literature with his book 'Leading change'. Several others have also made important contributions to the more recent change management literature. According to Mento et al. (2002) some notable contributions, besides Kotter (1996), include Jick's 10 steps for implementing change and GE's Change Model.

One area which receives widespread attention in academia is the change process. For instance, Kotter (1995, p. 59) states that "The most general lesson to be learnt from the more successful cases is that the change process goes through a series of phases that, in total, usually requires a considerable length of time." Furthermore, Bullock and Batten (1985) draws upon 30 previous phase models which all argues that change should be regarded as a process.

Another area which receives a lot of attention from academia is the assessment of important factors affecting the success or failure of change efforts. Within theory different authors use different terminology such as critical mistakes or errors in the change process (Kotter, 1995), silent killers of strategy implementation (Beer & Eisenstadt, 2000) or inconvenient truths of change management (Keller & Aiken, 2009). None the less, most of these concepts could arguably be categorized as key influential factors affecting the success or failure or change efforts.

Within the literature there are also attempts aimed at linking the change process with important factors. One of the latest attempts is done by Whelan-Berry and Somerville (2010) who link seven change drivers to a five phase change process.

However, after more than 60 years of extensive research Hughes (2007) argues that there still exist contradictions related to the gap in terminology between theory and practice, and that the literature related to tools and techniques for managing change is fragmented. The few general agreements that do exist is illustrated by the following statement from By (2005, p. 370) "Even though it is difficult to identify any consensus regarding a framework for organizational change management, there seems to be an agreement on two important issues. Firstly, it is agreed that the pace of change has never been greater than in the current business environment. Secondly, there is a consensus that change, being triggered by internal or external factors, comes in all shapes, forms and sizes, and, therefore, affects all organizations in all industries."

Additionally, the importance of change management is arguably higher in today's world as a great importance is placed on organizations innovative power. Swann (2009) explains that the reason companies innovate is to enhance their competiveness. Although the term innovation is broad, technical development within R&D functions constitute a major part of what is traditionally meant by innovation (Dutta, 2012). Swann's (2009) reasoning is reflected in, for example, Alfa Laval's Annual Report (2012, p. 4) where it is stated that "Maintaining a high rate of new development boosts competitiveness and enables the company to maintain its leading position." Furthermore, as stated by Nelson and Winter (1982, p. 128) "innovation involves change in routine." Thus, the ability to change routines and processes within R&D functions appears a crucial capability for today's organizations.

In summation, despite the extensive research and attention given to the topic of change management there still exists a need to explore the change process as well as key influencing factors in order to create a framework for managing change.

1.2. Purpose

In light of the above, the purpose of this study is therefore to contribute to a better understanding of different approaches to change management, the change management process and the most important factors influencing the success or failure of change efforts in R&D functions. This study will be conducted on Nordic based industrial companies. The change management process and important influencing factors will be combined into a practical framework that can be used to manage change efforts within R&D functions.

1.3. Problem Breakdown and Research Questions

The purpose suggests three somewhat sequential areas of investigation. First, general approaches for dealing with change will be investigated. Second, the main phases of the change management process needs to be identified. Third, key influential factors will be outlined. Accordingly, three research questions have been formulated as follows:

1. *What are the main approaches for managing different types of change?*
2. *What are the main phases of the change management process?*
3. *What are the most important factors influencing the success or failure of change efforts?*

Once these research questions have been investigated each key influential factor will be linked to the phases of the change process, thereby creating the basis for the development of a practical framework for change management and thus fulfilling the purpose.

On an aggregated level, an evolving and explorative study approach including several interrelated phases will be applied to fully address the research questions. The study will commence with a review of existing literature, where previous descriptions of different types of change, the change process and key influential factors will be investigated. The findings from this review will then be analyzed in order to develop a literature framework for change management. In the next phase an empirical interview study will be conducted to obtain the perspective of practitioners with regards to approaches for dealing with change, the change process and key influential factors. Finally, the theoretical and empirical findings will be combined in order to develop a final framework for change management within R&D

functions. A more detailed description of the applied research design can be found in chapter *2*

1.4. Limitations of Study

This study will address Nordic based industrial companies and their change management efforts within R&D functions. The focus will be on the management of changes in culture, organization, processes and work methods within R&D. Even though the development of new products or concepts may demand changes to take place, these activities will not be included in this study.

1.5. Disposition

Chapter 2 presents the research design and motivates the methodological choices. In chapter 3, a review of relevant literature is conducted and in chapter 4 the literature is analyzed in order for a literature framework to be developed. Chapter 5 presents the empirical findings related to how Nordic based industrial companies work with change management within R&D functions. Subsequently, chapter 6 analyzes and compares the theoretical and empirical findings with the purpose to create a final framework, which can be used for managing change within R&D functions. Finally, chapter 7 discusses the findings and analysis and the directions for future research his highlighted.

2. Method

This chapter elaborates on the chosen research strategy and applied research design as well as the methods used to collect and analyze data. The chapter also contains a discussion on the validity and reliability of the research.

2.1. Research Strategy and Design

Within this study the abductive reasoning-approach has been applied. According to Reichertz (2004) abduction is a cerebral process where relationships are identified and explained by new combinations of features. Furthermore, Dubois and Gadde (2002, p. 559) state that "The abductive approach is to be seen as different from a mixture of deductive and inductive approaches. An abductive approach is fruitful if the researcher's objective is to discover new things – other variables and other relationships." Hence, the abductive approach appeared suitable for this particular study as the aim was to develop a framework by combining novel insights. Furthermore, the study can in line with Bryman and Bell's (2011) explanation be categorized as mainly qualitative, as the emphasis was on the generation of knowledge by understanding how individuals interpret the way their companies manage change. A schematic illustration of the applied research design can be found in Figure 1.
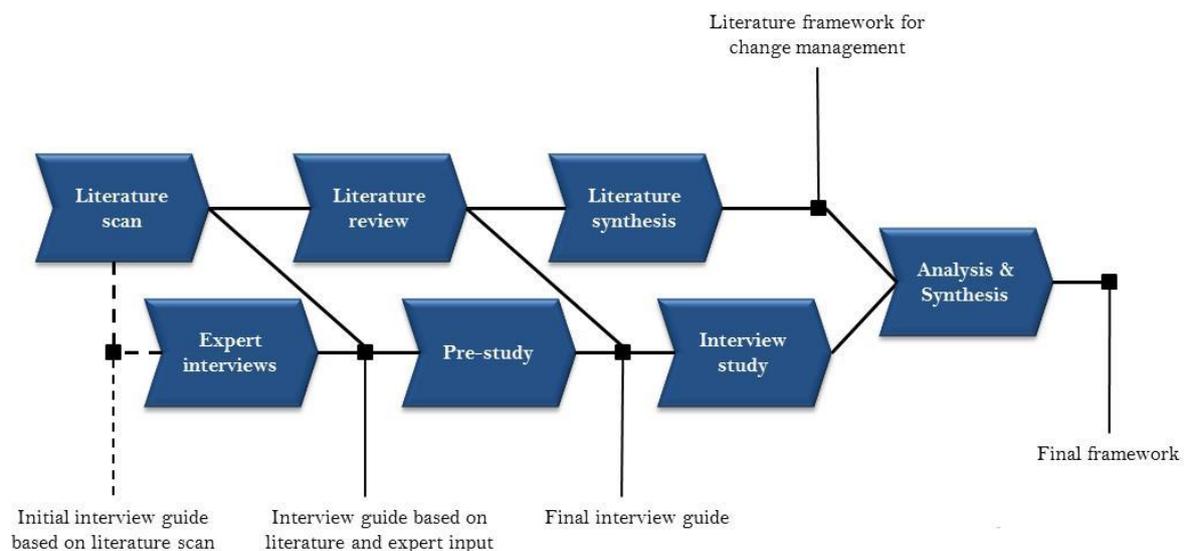
Figure 1. Schematic illustration of the research design (Source: Authors).

The applied research design incorporates several phases were findings from one phase has been used as input for subsequent phases. The starting point of the study was a literature scan where previous reputable research on the topic of change management was identified and overlooked, leading to an initial understanding of the topic. These insights, in combination with findings from semi-structured interviews with experts, were used as input for the interview guide. Subsequently, the interview guide was refined within a pre-study and by using insights obtained when reviewing the literature. The final guide was then used throughout the interview study. Parallel to the empirical work an in-depth study of the literature was conducted, leading to a literature framework being developed. Finally, the literature framework was analyzed and synthesized with the empirical findings into one final

framework. This framework presents a synthetized view of the change process and key influential factors, which could be used hereinafter for guidance when managing change initiatives.

2.2. Methods for Data Collection and Sampling

Within this study all data have been collected using qualitative techniques. The theoretical information has been drawn from previous research and can thereby be categorized as secondary data whereas the empirical data has been obtained from primary sources using foremost semi-structured interviews.

2.2.1. Literature Study

According to Bryman and Bell (2011) the literature review constitutes one of the most important tasks within any research project as it justifies the research questions, informs on means for data collection and facilitates the analysis of empirical data. Within this particular study some initial literature was obtained by drawing on the authors previous experiences. According to Easterby-Smith, Thorpe, Jackson, and Lowe (2008) starting with easy available sources is the most obvious way of finding relevant literature and the next step should be to expand and specify the need for information successively.

Bryman and Bell (2011) explains that the predominant forums to use for finding literature are online databases, such as ABI/INFORM, which are navigated using keywords and predefined search parameters. Therefore the majority of literature has been obtained via structured searches of databases at the library of Chalmers University of Technology and the economics library at University of Gothenburg. The most frequently used databases were ABI/INFORM, Web of Sciences and Emerald, and the most commonly used search-phrases were "change management", "organizational change", "change process", "factors for change" and "change management framework".

To find the most recognized theory the extent to which different articles or books had been cited were compared. This was done using the citation functions either in the database Web or Sciences or in Google Scholars. Also, if a particular piece of research was deemed to provide relevant and valuable information the bibliometrics of that article or book was reviewed to find further related research.

2.2.2. Empirical Study

The empirical part of this study included three different phases; expert interviews, a pre-study and an interview study. The expert interviews aimed at obtaining an initial insight to the view of practitioners and facilitate the development of the interview guide. The pre-study aimed at ensuring that the research instrument worked according to expectations. The aim of the interview study was to create a rich understanding for how companies work with change management, and thereby enable the development of a framework for change management.

When accessing respondents to the expert interviews convenience sampling was applied, whereas a mixture of convenience sampling and snowball sampling was applied for accessing respondents to the pre-study and the interview study. According to Bryman and Bell (2011)

convinience sampling and snowball sampling are commonly used techniques for qualitative interviews. Convenience sampling is when the sample is selected based on availability to researchers whereas snowball sampling uses established contacts to find new potential respondents (Bryman & Bell, 2011). For example, during interactions with potential interviewees the interviewee could recommend a person within their organization that would be a more suitable respondent.

All interviews were semi-structured and set-up in accordance with Bryman and Bell's (2011) recommendations. This interview type was chosen since it according to Bryman and Bell (2011) is advantageous if more specific issues are to be addressed and if the interviewing is to be carried out by more than one person

The ambition was that all interviews were to be performed in person. When this was not possible the interview were held over phone. Depending on the time that the respondent could reserve, interviews spanned 30-90 minutes. Both researchers participated in all interviews and the responsibility was divided so that one researcher led the interview and asked the questions whereas the other took notes and, if deemed suitable, asked clarifying questions and further probes. When approved by the respondent the interviews were recorded and transcribed afterwards.

The interview guide was developed in three stages. First, an initial guide was developed based on the literature scan which was used for the expert interviews. Second, the guide was tested and refined through the expert interviews as well as through additional readings of the literature. The insights obtained from literature proved useful as they facilitated the structuring of questions and enabled the development of relevant probes by considering the identified key influential factors. Third and last, the final interview guide was developed through the pre-study and pre-test of the interview guide. According to Bryman and Bell (2011) a pilot study may assist in ensuring that the questions works accordingly and that the research instrument functions well. The final interview guide included 16 main questions and 37 probes related to these. The logic was that a main question was asked and then the related probes were only used if not covered by the initial response. Additionally, eight closed contextual questions were asked in the end. As all interviews were anonymized these contextual questions were occasionally used to categorize the responses and facilitate the analysis.

The expert interviews consisted of five senior consultants or partners at Triathlon Consulting Group and one member of Industry Senior Advisors. These respondents were chosen since they had had experience of managing change and possessed knowledge on the topic of change management.

The interview study, including pre-study, included 28 interviews with people from 26 different companies. On two occasions two persons from the same company was interviewed at different times. Additionally, on two occasions interviews were held with two respondents simultaneously. These two cases have been considered as one interview since a shared response was received. The included companies spanned several industries such as industry equipment, consumer goods, pharmaceutical, medical technology and automotive. The common denominators were that they at least had 400 employees, that R&D constituted an

important function and that they had significant operations within the Nordic countries. Respondents had to fulfill two criteria. First, they had to be senior members of the organization with experience from R&D operations. Second, they had to hold positions as managers and been involved in change efforts. The majority of respondents were senior members of R&D departments, including functions such as Research & Development, Concept Development, Product Development, Systems Engineering and Technical Development. They normally held positions such as R&D managers, VPs R&D or Directors of R&D with responsibility for between 15 and several thousand employees. The remaining respondents held management positions at central functions such as Program Offices, Process Improvement Units, or in-house Management Consulting or were members of top management.

The pre-study consisted of the first four interviews. Once the interview guide was finalized the results from the pre-study were transferred into the new interview guide. Even though not all questions were fully answered, significant parts of the interview guide were covered. On one occasion a brief follow-up interview was conducted to enhance the number of questions answered. Table 1 provides a compilation of all interviews.

Table 1. List of all interviewed companies including date for interview, interview type, length of interview and number of respondents participating in interview (Source: Interview study).

Company	Date	Interview Type	Approx. Time	No. Respondents
ABB	2013-04-02	Telephone	1h	1
ABB	2013-04-22	Telephone	1h	1
Akzo Nobel	2013-03-21	In person	1h	1
Alfa Laval	2013-03-07	In person	1,5h	1
Arkivator	2013-03-28	In person	1h	1
Ascom	2013-03-25	In person	1h	1
Ascom	2013-03-25	In person	1h	1
Astra Zeneca	2013-04-02	In person	1,5h	1
Atlas Copco	2013-04-10	In person	1h	1
Autoliv	2013-03-26	In person	1,5h	1
Electrolux	2013-04-12	In person	0,5h	1
Ericsson	2013-04-11	In person	1,5h	1
ESAB	2013-04-16	In person	1h	1
Getinge	2013-04-04	In person	1h	1
Husqvarna	2013-04-22	In person	1h	1
Höganäs	2013-04-12	In person	1h	2
Mölnlycke Health Care	2013-04-30	In person	1h	2
Perstorp	2013-04-08	In person	1h	1
Plastal	2013-04-03	In person	1h	1
Saab EDS	2013-03-21	In person	1h	1
SCA	2013-03-13	In person	1h	1
SKF	2013-03-15	In person	1h	1
Swedish Match	2013-03-06	In person	1h	1

TetraPak	2013-04-12	In person	1h	1
Thule	2013-04-15	In person	1h	1
Medtech Company	2013-03-26	In person	1h	1
Volvo Cars	2013-04-08	Telephone	0,5h	1
Volvo Trucks	2013-04-23	In person	1h	1

2.3. Methods for Data Analysis

In this study the data analysis has been conducted much in line with a grounded theory strategy, which Strauss and Corbin (1998) describe as theory derived from systematically gathered data with strong linkages between data collection, analysis, and eventual theory. Furthermore, Bryman and Bell (2011) explain that grounded theory has two central features; an iterative approach where collection and analysis of data is conducted simultaneously and the development of theory based on the data. Both these features have been present in the conducted research as the research process has been iterative and aimed at generating a framework for change management.

The analysis methods applied for both literature and empiricism have been visual inspection and coding, with the coding being influenced by Bryman and Bell's (2011) recommendations. Coding is an important tool and key process within grounded theory, and means that data is broken down into components and categorized (Bryman & Bell, 2011)

The coding of the literature was performed in two steps. First, the retrieved articles were categorized depending on whether they related to different types of changes, the change management process or key influential factors. Second, in creation of the literature framework, theory related to both the change process and important factors were further categorized according to common themes. Thereby the analysis was facilitated and a generic change process and list of influential factors could be derived.

With regards to the empirical data, coding constituted a key activity for the analysis. Initially the transcripts were analyzed using visual inspection. Based on this inspection aggregated trends were identified and more generic response alternatives were developed. Subsequently, all interview transcripts were compiled into one excel-file with the different questions as column-headers. Each individual response was appointed to one of the pre-defined alternatives; thereby a more refined analysis and identification of common themes and trends was enabled. Finally, if a specific theme was deemed interesting the original transcripts were reviewed again and representative quotes were collected.

2.4. Reflections on Research Quality

There are several interesting aspects to reflect upon with regards to the quality and trustworthiness of this study. To start with, the phased research approach and the interview format enabled high consistency during the data gathering. Three aspects that, in accordance with Bryman and Bell (2011), can be argued to enhance the consistency are that the researchers conducted the interviews together, that all interviews were semi-structured and that the interviews normally spanned an equal amount of time.

On a different note, during the expert interviews it became apparent that respondents were influenced by the questions asked. Several actions were taken to reduce this tendency and thereby increase the validity. The actions taken included; altering the formulation of questions, altering the order of questions and including control questions. The effects of these actions were tested again during the pre-test. Arguably this relatively extensive pre-testing lead to a high measurement validity, as defined by Bryman and Bell (2011).

Another aspect which may impact the quality of the research is the fact that generally one person was interviewed at each company. By interviewing only one person it may be questioned whether a true description of how the company work with change management was received, an aspect that Eriksson and Wiedersheim-Paul (2006) refers to as objectivity. However, there are two traits which support the objectivity of the research. First, it is argued that respondents had no self-interest in providing false answers. Second, most interviews were performed in person. By having the interviews face-to-face in the respondents' natural setting it was easier to distinguish nuances in the answers and ensure that correct and detailed descriptions were obtained. The last trait may also increase what Bryman and Bell (2011) define as ecological validity.

A final aspect to consider concerns the generalizability of the findings. According to Bryman and Bell (2011) qualitative research normally has low external validity and generalizability, yet for this particular research there are two traits which favors a higher generalizability. First, given the amount of Nordic based industrial companies a sample size of 26 companies is fairly extensive. Thereby it is argued that a proper generalizable description of how companies work with change management has been obtained. Second, given the structured research methodology and extensive usage of previous research it is argued that the results provide generalizable recommendations for companies on how to manage change initiatives.

3. Literature Review

In this chapter a review of previous research within three key areas of change management will be presented; different types of change, the change management process and key influential factors on the change management progress.

3.1. Different Types of Change and Change Management

Despite the vast amount of research within the field of change management there appears to be no universally accepted framework for how to deal with change and change management. In an attempt to create a first step towards a new framework for change management By (2005) performs a critical review of organizational change literature. The review is performed using Senior's (2002) three categories of change – change defined by how it comes about, change defined by rate of occurrence and change defined by scale – as a structure to assess the different approaches and theories of change management.

3.1.1. Change Defined by How it Comes About

According to By (2005) there are four major categories of how to define change depending on how it comes about; the planned, the emergent, the contingency and the choice approach.

The planned approach to change sees change as moving from one static state of being to another, by going through a series of planned and pre-determined steps (Bamford & Forrester, 2003). Lewin is regarded as the forefather of the planned approach to change (Burnes, 1996) and according to Burnes (2004)[3], Lewin's approach to planned change consist of four themes; field theory, group dynamics, action research and the three-step model to change.

Field theory is a way to increase the understanding of group behavior by analyzing the conditions or forces in which a certain behavior takes place. Group dynamics deals with the perception that group behavior should be the focus of any change effort. Lewin argued that there is no point in just focusing change efforts to individuals, since these are under pressure from their peers to behave in a certain way. Action research acknowledges that in order for change to take place the right actions have to be taken to reach a desired new position. To achieve this a correct assessment of the situation has to be made where all possible solutions have to be identified, the most appropriate one prioritized and the need to change have to be felt by the individuals subject to the change. The three-step model is derived from the perception that all successful change projects goes through three phases (Burnes, 2004), see section 3.2.1 for a detailed description.

These four themes – field theory, group dynamics, action research and the three-step model to change – should be considered together as they support each other (Burnes, 2004). Despite this, some authors still handle these as separate approaches to planned change. One example of this is found in Bamford and Forrester (2003). First they argue that the planned change approach can be analyzed by using Lewin's action research model and later they state that another planned approach to change is Lewin's three-step model. Burnes (2004) further highlights this when he explicitly states that the three-step model is often cited as

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[3] Lewin's original work has not been found despite an extensive search effort.

Lewin's largest contribution to the area of organizational change but that it is important to remember that it was not originally intended to be a stand-alone concept or to only embody organizational change, but also change on group and societal level.

In the early 1980s the criticism towards the planned approach to change started to increase. Some of the more re-occurring criticism included that the planned approach assumes that an organization functions under constant conditions and can transfer itself from one stable state of being to another (Burnes, 1996). Burnes (1996) argues that this is unlikely in the dynamic and turbulent business environment of today. According to Burnes (1996) further critics stated that it was mostly applicable to small and incremental changes and that it cannot be applied to radical situations were a more directive way is needed, for example in crisis management. Lastly, the planned approach to change has been accused of ignoring the natural conflicts within an organization and the effect of political behavior (Burnes, 1996) as well as seeing change being driven from the top down rather than the opposite (Burnes, 2004). However, Burnes (2004, p. 997) states that: "…though Lewin's contribution to organizational change has come under increasing criticism since the 1980s, much of this appears to be unfounded and/or based on a narrow interpretation of his work".

The criticism of the planned approach to change led to the development of the emergent approach (Burnes, 1996). By (2005) state that the emergent approach describes change as driven from the bottom-up rather than top down. His main argument for this is that in the turbulent environment in which companies operate, change is so rapid that it is impossible to plan and execute change by senior managers. Change cannot be portrayed as a series of fully linear events; rather it is an open-ended process that interacts with its environment and multiple other variables in an unpredictable way. In order for a company to successfully handle the uncertainty it is suggested that it should become a learning systems and gain vast understanding for how different functions, processes, structures and strategies can help or block change initiatives. Since change according to the emergent approach is difficult to execute with detailed plans and is more about creating an understanding for the complexities of change it can be argued that change according to the emergent approach is more about creating change readiness (By, 2005).

Lastly, there are two more approaches mentioned in the literature; the contingency approach and the choice approach (By, 2005). These two are more recent and do not have several years of research behind them. According to Burnes (1996) the contingency approach is based on the assumption that all organizations are influenced by multiple situational variables and that the best performance can be reached by aligning the organization to these variables. Since no organization faces exactly the same situation as another the contingency approach emphasizes that there is not a standard model to change but rather a one best model for each. Burnes (1996) further explains that since an organization can influence the situation in which they operate the choice approach was developed as an alternative. The choice approach merely reflects that organizations should not solely be seen as victims of their environment but rather as actors that have control over their own situations (Burnes, 1996).

3.1.2. Change Defined by Rate of Occurrence

According to By (2005) there has been an argument between scholars regarding what rate of change that is optimal. On one hand, scholars argued that organizations could not increase their efficiency or performance if they were constantly changing. On the other, scholars argued that change can be a routine on its own and therefore become a natural part of day to day operations (By, 2005). The latter view can be argued to lie close to efficiency philosophies. For instance, Liker and Convis (2012) describe how an organization can become more efficient by institutionalizing continuous improvements as part of the Lean-philosophy. Further, By (2005) identifies five different types of change depending on their rate of occurrence; discontinuous change, continuous change, bumpy continuous change, incremental change and bumpy incremental change.

Discontinuous change can be described as quick and large shifts in an organizations structure, strategy or culture, or in all three. These are normally represented as one-time events that are executed through multiple separate initiatives followed by long periods of tranquility, where the change can settle. This type has previously been seen as an efficient way to execute change but it is now, according to By (2005), considered to be an inefficient approach since change executed this way has difficulty to be sustained. In order to make change last some authors consider it better for organizations to constantly evaluate the need for change and adapt to changes in the internal and external environment; this is referred to as continuous change. Continuous change lies close to incremental change, which can be described as dealing with one issue and goal at a time and thereby create small and negotiated shifts. The main difference between incremental and continuous change is that the former tends to be organization wide strategies while the latter is normally more decentralized and executed on departmental and operational level. Lastly, bumpy incremental and bumpy continuous change are based on the observation that the rate of change is not constant over time, but rather it is characterized by periods of calmness followed by discrete periods of accelerated rate of change (By, 2005).

3.1.3. Change Defined by Scale

When discussing change defined by scale there is a larger agreement of how to classify change initiatives among academia. According to By (2005) there exist four categories of change initiatives dependent on scale; fine-tuning, incremental adjustments, modular transformation and corporate transformation.

Fine-tuning is when an organization continuously adapts processes, on a departmental level, to the strategy and structures of the organization. The purpose of this is to increase performance through cost and quality control as well as adaption of procedures. Incremental adjustment is when the management processes and the strategies on a departmental level changes, but the change is not regarded as radical. Modular transformation is represented by larger shifts in departments or divisions. These can in contrast to incremental change be radical. When the change initiative affects the whole organization, and is radical in its appearance, then it can be regarded as a corporate transformation (By, 2005).

3.2. The Process of Change

The concept of planned organizational change implies that an organization can be described as different constellations at different points in time. However, to describe the movement between these states is a fundamental problem of organizational development (Bullock & Batten, 1985). Between authors representing the planned approach there seems to be an agreement that the movement between states could be describes as a process. In the following section first Lewin's, in Burnes (2004), 3-step model to change will be reviewed. Second, Bullock and Batten's (1985) four-phase model based on important change processes up until 1985 will be presented. The last change process linked to the planned approach to change presented is Whelan-Berry and Somerville (2010). Whelan-Berry and Somerville (2010) do not explicitly assign themselves as supporters of the planned approach to change.

Turning to authors representing the emergent approach of change they also seem to suggest a phase model. Kotter (1995, p. 59), who according to By (2005) is a supporter of the emergent approach states that: "The most general lesson to be learned from the more successful cases is that the change process goes through a series of phases that, in total, usually require a considerable length of time". The last change process reviewed in this section is presented by Mento et al. (2002), who use Kotter (1995) to create a twelve step process to change.

Bullock and Batten (1985) suggests seven criteria that needs to be fulfilled for a phase model to appropriately describe the change process. First, it should see change longitudinally meaning that the change might take several months or years to complete. Second, models should be continuous, where the change is dynamic and happens gradually. Third, the model ought to have fluidity between phases, which implies that a clear distinction between phases is difficult to find. Fourth, the process should be linear meaning that it cannot be reversed. Fifth, the progress is appropriately based on actions through change related activities. Sixth, the model has to be generalizable across multiple situations. Seventh, it ought to be possible to use the same model for describing multiple change efforts.

3.2.1. The Three-Step Model to Change

Burnes (2004) review the work of Kurt Lewin with the purpose to contest some of the criticism towards the planned approach to change. As previously noted, Lewin's three-step model to change is often cited as Lewin's greatest contribution to the area of organizational change even though it was not originally intended to be a stand-alone concept.
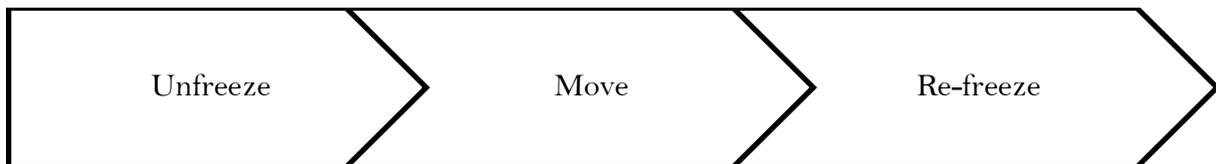
Figure 2. Lewin's three-step model to change (Burnes, 2004).

According to Burnes (2004) the three-step model is derived from the perception that all successful change project goes through three phases; unfreezing, moving and re-freezing. First, current behavior has to be unlearnt or *unfrozen* before new behavior can be adopted successfully. The unfreezing process naturally looks different depending on the situation,

but a common denominator is that it is a psychological and dynamic process. Sometimes emotional discomfort has to be present for the old behavior to be disregarded. In addition, individuals have to feel that they will not lose things important to them or get humiliated if they are to accept new behavior. Second, the individual behavior has to be *moved*. The movement has to be made since the unfreezing merely creates the motivation for change and is not an end in itself. Since changing individual behavior is a complex process it is difficult to fully control the outcome. To handle this it is suggested to use an iterative approach with trial and error. Third and last, the new behavior has to be institutionalized or *re-frozen* and become a natural part of the individual's daily behavior. In order for this to happen, the change has to be compatible with the environment of the learner. Therefore, change efforts should not only be focused on the individual but also the peers, group norms, routines and activities in order for the change not to regress (Burnes, 2004).

3.2.2. A Four-Phase Model to Change

From a review of more than 30 previously suggested phase models, Bullock and Batten (1985) derive a four-phase model to change, where each phase contains specific processes, see Table 2. According to Bullock and Batten (1985) a phase refers to an organizational state and a process refers to the mechanisms needed to move from one state to another.

Table 2. The four-phase model to change (Bullock & Batten, 1985).

Phases		Processes	
1. Exploration	1.1		Need awareness
	1.2		Search
	1.3		Contracting
2. Planning	2.1		Diagnosis
	2.2		Design
	2.3		Decision
3. Action	3.1		Implementation
	3.2		Evaluation
4. Integration	4.1		Stabilization
	4.2		Diffusion
	4.3		Renewal

According to Bullock and Batten (1985) the change starts with the awareness of a need, which often leads to search for consulting assistance and external support as well as the establishment of both physical and emotional contracts. Once these key resources have been committed to the change project, the diagnosis of the problem starts through a data collection effort. By sharing and discussing the data a joint diagnosis of the problem can be made. After goals and priorities are set action plans and interventions strategies are created, which needs approval of decision makers. Once the action plan is approved the implementation can start. The progress of the implementation should be reviewed continuously through data feedback and testing. These continuous reviews are important since the organization almost always experiences declining performance during the transition. Once the program has been implemented it has to be integrated into the organization, the people responsible for driving the change have to be within the organization. The change also has to be institutionalized, meaning that the organization shifts from the change initiative to continuous improvements (Bullock & Batten, 1985).

3.2.3. A Five-Phase Model to Change

As part of their study Whelan-Berry and Somerville (2010) summarizes the most frequently identified steps in the change process. The result of this work is a five phase process to change, see Figure 3.

Figure 3. Schematic presentation of the change process (Whelan-Berry & Somerville, 2010).

According to Whelan-Berry and Somerville (2010) the first step of the change process is creating a clear and compelling vision. The vision should stress the reasons to change with the purpose of creating a sense of urgency regarding the need to change as well as describe the desired future state. The second step is to move the change initiative to the whole organization. In order to achieve this, the vision has to be broken down and adapted to each specific part of the organization. In the third step, the vision is broken down further to make the individuals change their values, behaviors and adopt the change. The difference between step two and three is that the latter focuses on the individual since this is where the change ultimately happens. Four stages are identified that reflects the change process on the individual level – contemplation, preparation, action and maintenance. The fourth step of Whelan-Berry and Somerville's (2010) change process is sustaining the momentum of the change. In order for the momentum to be sustained sufficient resources has to be obtained and enough attention has to be given to the project so daily operations do not take over. It is often that implementations receive too little resources, which results in early failure of the whole change initiative. Sustaining the change is particularly important for extensive change efforts where loosing track of progress is easy. The fifth and last step of the process refers to institutionalizing the change. By institutionalizing it is meant that the change becomes part of the organizations culture and daily operations (Whelan-Berry & Somerville, 2010).

3.2.4. A Change Management Process Grounded in Both Theory and Practice

Mento et al. (2002) combines three of the most well-known recent change models - Kotter's (1995) eight steps, GE's 7-step acceleration process (Garvin, 2000) and Jick's (1991) 10-steps - with empirical insights from a fortune 500 defense company into a new change management process containing twelve steps, see a joint representation in Table 3.

Table 3. Synthesis of the change management process (Mento et al., 2002).

Step	Kotter (1995)	Garvin (2000)	Jick (1991)	Mento et al. (2002)
1	Establishing a sense of urgency	Leading change	Analyze the organization and its need for change	The idea and it's context
2	Forming a powerful guiding coalition	Creating a shared need	Create a shared vision and common direction	Define the change initiative
3	Creating a vision	Shaping a vision	Separate from the past	Evaluate the climate for change
4	Communicating the vision	Mobilizing commitment	Create a sense of urgency	Develop a change plan
5	Empowering others to act on the vision	Making change last	Support a strong leader role	Find and cultivate a sponsor
6	Planning for and creating short term	Monitoring progress	Line up political sponsorship	Prepare your target audience, the recipients

	wins			of change
7	Consolidating improvements and producing still more change	Changing systems and structures	Craft an implementation plan	Create a cultural fit
8	Institutionalizing new approaches		Develop enabling structures	Develop and choose a change leader team
9			Communicate, involve people, and be honest	Create small wins for motivation
10			Reinforce and institutionalize the change.	Constantly and strategically communicate change
11				Measure progress of the change effort
12				Integrate lessons learned

According to Mento et al. (2002), the column furthers to the right in Table 3, the first step is the idea and its context; it is important to give rise to ideas through something called creative tension. Creative tension is when the organization clearly establishes a perception of where they want to be, and creates an understanding that the current way of doing things will not take them there. According to Mento et al. (2002) managing change initiatives around creative tension is far easier than reactive problem solving. Second, the change initiative has to be defined. Roles have to be defined for the three categories of key players; change strategist, implementers and recipients. If any of these groups fail to understand their roles and their importance, the initiative will fail. In the third step the climate for change should be evaluated. As argued by Mento et al. (2002) both change implementers and strategist has to understand the strengths and weaknesses of the organization and how it functions in the surrounding environment. They state that one way of doing this is using Beer's (1980) matrix for assessing the impact of change. Forth, a change plan has to be developed that at the minimum contains specific goals as well as roles and responsibilities. A clear plan adapted to the recipients of change also has to be developed before implementation can start. Fifth, a sponsor for the change needs to be found and cultivated. Mento et al. (2002) explains that this sponsor can be senior management, powerful line-managers or informal leaders. These individuals should help create the critical mass needed for the change to become adopted and need to walk the talk. In the sixth step, the recipients of change have to be prepared. According to Mento et al. (2002) it is important to note that there will be resistance whether or not the change is perceived as positive or negative for the change recipients. One suggestion they give is to use focus groups, surveys and individual face to face meetings to obtain direct feedback from the recipients. Mento et al. (2002) further states that in order for the change to last, it has to become a part of the company culture. Therefore, in the seventh step a cultural fit has to be created through staffing, training, communication and alignment of incentive systems. Eight, a change leader team has to be developed. The leader team inspires people to embrace the vision and creates an organization that will support the change. The team should be committed, competent and all have the same purpose with the change. Ninth, small wins should be created to keep the motivation for change high. By showing short term wins employees will stay motivated and it will be easier to attain additional resources if there are clear objectives and milestones that have been achieved. In Mento et al.'s (2002) tenth step, the emphasis is on constantly and strategically communicate the change. With change related communication an

understanding for the commitment can be created, confusion can be reduced and employees will be prepared both for the positive and the negative effects of the change. In the eleventh step, the emphasis lies on continuous measurement of the change effort. Metrics has to be installed and continuously reviewed as the project unfolds. By being result driven at all stages it will be easier to create a cultural fit and keep motivation high. It also helps clarify goals and responsibilities. The twelfth and last step is to integrate lessons learned. By doing so learning's will be passed on to the next change project and pitfalls can be avoided (Mento et al., 2002).

3.3. Factors Influencing Change Initiatives

Reviewing the literature multiple factors that influence the outcome of change initiatives are found. The following sections revisits in chronological order: Farris and Ellis's (1990) "factors related to success in managing change", Kanter, Stein, and Jick's (1992) "ten commandments for executing change", Beer and Eisenstadt's (2000) "silent killers", Bamford and Forrester's (2003) "key lessons", Sirkin, Keenan, and Jackson's (2005) "four hard factors", Oakland and Tanner's (2007) "key insights", Keller and Aiken's (2009) "inconvenient truth's about change management" and Whelan-Berry and Somerville's (2010) "change drivers".

3.3.1. Factors Related to Success in Change Management within R&D

Through a survey of 150 companies in the United States Farris and Ellis (1990) identifies some factors that are either positively or negatively related to the outcome of a change initiatives. All identified factors can be found in Table 4 below. The factors are sorted in an order ranging from large to low impact, with positive impact in the left column and negative in the right column.

Table 4. Factors Related to Success in Change Management (Farris & Ellis, 1990).

Positive Impact	Negative Impact
Top management recognition	Time required to implement
Top management commitment	New attitudes
Champions	Power loss
Teams	Time expected to implement
Participation	Past success
Necessity of R&D response	
R&D management recognition	

3.3.2. Ten Commandments for Executing Change

Kanter et al. (1992) outline a set of tactics that organizations should apply when they are looking to create organizational change. These tactics constitute the "Ten Commandments" for implementing change, see Table 5.

Table 5. The Ten Commandments for Implementing Change (Kanter et al., 1992).

1.	Analyze the organization and its need for change
2.	Create a shared vision and common direction
3.	Separate from the past
4.	Create a sense of urgency
5.	Support a strong leader role
6.	Line up political sponsorship
7.	Craft an implementation plan
8.	Develop enabling structures
9.	Communicate, involve people, and be honest
10.	Reinforce and institutionalize change

According to Kanter et al. (1992) the first commandment relates to the importance for managers to have a deep organizational understanding and the capability to analyze how the organization will be affected by the implementation of change. The second commandment highlights that creating a shared vision or painting a compelling picture of the future helps uniting the organization and increases the motivation for employees. The third commandment states that if people are to accept the new vision it is important to unfreeze the old routines and structures. The fourth commandment elucidates that change is easy if all employees are aware that the company is close to going bankrupt. If the need for change is not clear to everyone, a real sense of urgency has to be created in order to get the organization to support the change initiative. The fifth commandment explains the importance of having a great change leader. The leader should escort, drive and enthuse the change. A strong leader is important in the creation and communication of a vision as well as in building organizational structures that support the change. The sixth commandment states that no matter how good the change leader is change will not happen if the initiative does not have a large support from people walking the talk and co-owning the change. There are two categories of supporters needed; power sources and stakeholders. Power sources are those who can allocate resources to the change effort whereas stakeholders are those that are affected by the change and might gain or lose something from the initiative. The seventh commandment highlights the importance of having a plan for how to reach the goals of the change. This plan should be detailed and include everything from location of first meetings to what date the respective goals are to be reached. The eighth commandment explains how enabling structures such as reward systems, training programs, off-site workshops, pilot tests or relocation of staff help the change to excel both directly through each activity and indirectly through symbolical value. The ninth commandment elucidates how clear communication with, and involvement of employees can help overcome the resistance to change that normally resides within the organization. The tenth and last commandment states that managers and leaders should help reinforce and institutionalize the change by constantly making it their top priority and incorporating it into the behavior of the organization.

3.3.3. The Silent Killers of Strategy Implementation and Learning

According to Beer and Eisenstadt (2000) not all problems that an organization might experience are easily detectable and obvious. Rather there are barriers that block the implementation of new strategy that, just like cholesterol that block arteries without any outward symptom, are difficult to identify. Over more than a decade Beer and Eisenstadt

(2000) worked to find the root causes to why even the most sound strategies were difficult to implement, resulting in six silent killers as presented in Table 6. These six silent killers hinder the quality of learning, implementation and direction within the company and thereby block the new strategy.

Table 6. Six Silent Killers of Strategy Implementation and Learning (Beer & Eisenstadt, 2000).

1.	Top-down or laissez-faire senior management style
2.	Unclear strategy and conflicting priorities
3.	An ineffective senior management team
4.	Poor vertical communication
5.	Poor coordination across functions, businesses or borders
6.	Inadequate down-the-line leadership skills and development

Beer and Eisenstadt (2000) state that a company can only become fast and agile if these six silent killers are overcome. First, the leadership has to provide clear top-down direction but still be open-minded and listen to the organization. This means learning from feedback provided by line managers. Second, senior management should formulate a clear strategy without conflicting interests and discuss this in depth with managers down the line. Third, the senior management team should through constructive conflict create a common voice and maintains the organizational context of the implementation. Fourth, open vertical communication about the company's performance is needed between top and lower level management. Fifth, coordination across functions, businesses and localities should be built around teamwork activities. Sixth and last, managers further down the hierarchy should have clear responsibilities and authority to execute decisions.

3.3.4. Key Lessons from Managing Change

By tracking multiple change initiatives across two sites in a UK-based manufacturing company Bamford and Forrester (2003) evaluates what has worked and what has not with the goal to deepen the understanding of change management within an operations management environment. As part of their outcome Bamford and Forrester (2003) propose four key lessons for managers that are about to undertake change initiatives, see Table 7.

Table 7. Four Key Lessons for Managing Change (Bamford & Forrester, 2003).

1.	In organizations where accounting measures are predominant, change is difficult
2.	When project champions are removed too soon they leave behind initiatives that decay
3.	Socio-economic factors in the local area exert a strong influence and should not be underestimated
4.	Even an ineffective change program can bind and steer an organization if managed correctly

The first key lesson explains that persistent change may be hindered if the financial reporting system operates on a month to month basis since the focus of most initiatives will be short-term, and the long-term effects will be difficult to reach. The second key lesson states that some employees can act as drivers or catalysts of change. These individuals are generally successful and often get promoted quickly, leaving behind a change project

without a champion. Without a champion there is rarely anyone else to see the change through which results in a degeneration of the change. The third key lesson is that the social context of the change initiative might have a strong influence on its success. If the context is "too" stable, change might be difficult since individuals are too comfortable. Contrary, if an organization has undergone large changes recently individuals might be more positive to change. The fourth and last key lesson is that poor change initiatives which only force manages to produce limited results might jeopardize other change projects since individuals will be fatigued.

3.3.5. Four Hard Factors of Change Management

Sirkin et al. (2005) argue that a lot of focus has been put on "soft" issues related to change management; such as culture, motivation and change leaders that walk the talk and communicate the change vision. Sirkin et al. (2005) then note that despite this focus, change initiatives still show a high failure rate. According to them, there is therefore a need to turn to the "hard" factors related to change management. By studying 225 companies Sirkin et al. (2005) identified four "hard" factors that influence the success of a change initiatives, see Table 8.

Table 8. Four hard factors of change management (Sirkin et al., 2005).

1.	Duration
2.	Integrity
3.	Commitment
4.	Effort

According to Sirkin et al. (2005) the first hard factor is the total time that a project takes to complete, from start to end. If it is a time-consuming project, that takes more than two months to complete, the time between project reviews has to be considered. The longer the duration between reviews the less likely the project will be to finish on time. Furthermore, Sirkin et al. (2005, p. 111) state that "Scheduling milestones and assessing their impact are the best way by which executives can review the execution of projects, identify gaps, and spot new risks.". The second factor relates to the performance integrity, or what can be described as the abilities of the team that is responsible for the change initiative. This is dependent on multiple factors but mostly the skills and traits of the team members related to the requirements of the actual project should be considered. An underlying paradox is that to succeed with change initiatives top performers are needed but these are rarely released from their daily operations since direct results might suffer. In the ideal world the change is led by a capable leader with competent team members that have more than 50 percent of their time dedicated to the change project. The third factor is the commitment that is shown both by senior management and employees down the line, who will be affected by the change. Senior management has to have a consistent and convincing message that tells the importance of the change and allocate enough resources to the change initiative. If the employees are eager to change, success is much more likely compared to if they are strongly reluctant. The fourth and last factor is the effort employees are willing to put into the change project on top of their day-to-day activities. If the additional effort required is less than ten percent of employees' day-to-day activities, the change project has a high chance of

success. Contrary, if it is more than 40 percent the likelihood of the project succeeding will diminish.

Furthermore, Sirkin et al. (2005) takes these four factors and creates a framework for assessing the likelihood of a change initiative succeeding. The framework consists of a couple of questions related to each factors. One example is "Do formal project reviews occur regularly? If the project will take more than two months to complete, what is the average time between reviews?" (Sirkin et al., 2005, p. 114). Depending on the answer to each question a specific score is given. In this case, one point if the time between reviews is less than two months, two point if it is between two and four months, three points if it is between four and eight months and four points if it is more than eight months between reviews. In the end an overall score is calculated using a specific formula. Depending on the score, the project can be identified as a win, worry or woe; thereby determining the likelihood of success and provide ideas for corrective actions to move from worry or woe to win.

3.3.6. Key Insights to Change

Over a period of six months Oakland and Tanner (2007) interviewed 28 individuals in senior management positions from a large variety of industries. As outcome of their research Oakland and Tanner (2007) identified nine key insights to change, see Table 9.

Table 9. Key insights to change (Oakland & Tanner, 2007).

1.	The agenda for change is driven by external events
2.	Leaders set a clear direction and manage change
3.	The need for change must be aligned with operational issues
4.	A process approach is central to successful change
5.	Performance measurement has a key role in supporting change
6.	A project-based approach increases the chance of success
7.	External support adds value in managing change and the transfer of knowledge
8.	Aligning the culture to support changes in peoples' behavior
9.	Continuous reviews

First, Oakland and Tanner (2007) state that the agenda for change is mostly driven by external events. This means that organizations have to change due to shifts in the environment in which they operate; such as regulatory changes and competition. Despite that some of the triggers for change might be seen as internal and proactive most were linked to external pressure and reactive. Second, Oakland and Tanner (2007) argue that it is leaders in the organization who identify and prioritize change initiatives. A clear prioritization help increase the success of change programs and the acceptance of risks related to the initiative. Third, all change initiatives should be translated into the operational issues of the organization. If the link is broken between the overall strategic goals and the operational the initiative might decay since employees do not understand how they will be affected and what actions they should take to overcome the challenges. In addition it might also lead to little or no bottom-line benefits. According to Oakland and Tanner (2007) a process approach is important since it helps translate strategic goals into actions and thereby increases the understanding of how value is created and how to deliver improvements. By understanding, measuring and improving processes the performance can be increased. Further they state that measuring performance both before during and after

the change is of key importance in successful change efforts since it creates target areas for improvement and tangible data for communication. In addition, a project-based approach will help increase the chance of success since it includes clear activities such as planning, communication, target setting and learning from the change. A project approach also helps keep the focus on delivering all the value that was originally intended. Under the theme of having the right team for delivering the change, Oakland and Tanner (2007) found that external consultants can have a large impact on change initiatives since they provide a unique source of both technical and project management expertise that do not reside within organizations. Moreover, they state that the culture of the organization can act as both enabler and barrier depending on how well the change is aligned with the organization. For example, improving customer service in an organization was reinforced by the overall culture being customer oriented. Finally, Oakland and Tanner (2007) states that continuous reviews are important to make sure that they are enabling the right behaviors and in the end delivering the desired values.

3.3.7. Inconvenient Truths about Change Management

In 2008 Keller and Aiken (2009) observed, through a McKinsey Survey, that only 30 percent of all change initiatives succeed. This result was by the authors interpreted as if little had change within the subject of change management since Kotter (1995) observed a similar success rate. By digging deeper into why change programs fail Keller and Aiken (2009) found that four basic conditions needs to be in place for success; creating a compelling story, role modeling, reinforcing mechanisms and capability building. These four basic conditions then acted as categories for a total of nine inconvenient truths that they discovered, see Table 10.

Table 10. Nine inconvenient truth's about change management (Keller & Aiken, 2009).

Basic Conditions	Inconvenient Truths
Creating a compelling story	1. What motivates you does not motivate most of your employees
	2. You are better off letting them write their own story
	3. It takes both "+" and "-" to create real energy
Role Modeling	4. Your leaders believe they already are the change
	5. Influence leaders are not that influential
Reinforcing Mechanisms	6. Money is the most expensive way to motivate people
	7. A fair process is as important as a fair outcome
Capability Building	8. Employees are what they think
	9. Good intentions are not enough

According to Keller and Aiken (2009) the first inconvenient truth states that employees have five main sources of meaning, which makes them motivated. These are the customer, the company, the working team, the impact on society and the employee him/herself. Further, different employees have different sources of meaning as their prime motivates. Thus, only by triggering all these five meanings at once can the full potential of positive energy within the organization be released. The second inconvenient truth argues that employees get more committed, by a factor five, if they can choose for themselves rather than being told what to do. Therefore listening is an extremely important part of change management, which should be focused on rather than telling. The third inconvenient truth is that both positive and negative aspects should be included in the management of change. Constructionist

approaches leads to positive energy but can also lead to unnecessary risk-taking behavior, therefore a balance is needed.

Under the basic condition of role modeling, Keller and Aiken (2009) identifies two inconvenient truths. The first argues that leaders need to become more aware of how they act in order to support the change. This can for example be achieved through 360-degree behavior feedback. The second shows that the effect an influential leader or early adopter of the change has on the rest of the adopting population is overestimated. Therefore, overinvesting in these leaders should be avoided and more focus put on the receptiveness of the whole adopting population.

Further Keller and Aiken (2009) describes that money is the most expensive way to motivate people. Even though compensation should be linked to the goals of the change program the main reason for this is to avoid sending mixed messages. When motivation is to be achieved small unexpected rewards can create disproportionate effects. Under the same basic condition of reinforcing mechanisms the authors state that a fair process can be more important than self-interest, since employees risk to turn against the program if they believe that the process is unjust despite their own personal rewards. The last two inconvenient truths identified by Keller and Aiken (2009) highlights that employees are what they think, meaning that change in the mindset may be needed; and that good intentions are not enough if the barriers to change are not removed. To overcome these inconvenient truths Keller and Aiken (2009) states that it is important to shift the underlying mindset and build technical capability for example by providing training both in a classroom and on-the-job environment, as well as follow up through quantifiable goals and individual accountability.

3.3.8. Change-Drivers for Organizational Change

Through a literature review Whelan-Berry and Somerville (2010) identifies seven change drivers. They define a change driver as "…events, activities, or behaviors that facilitate the implementation of change" (Whelan-Berry & Somerville, 2010, p. 176). The most frequently identified change drivers according to Whelan-Berry and Somerville (2010) are presented in Table 11.

Table 11. Drivers of change (Whelan-Berry & Somerville, 2010).

1.	Accepted change vision
2.	Leaders change related action
3.	Change related communication
4.	Change related training
5.	Employee participation in change related activities
6.	Changes in human resource practices
7.	Changes in organizational structure and processes

According to Whelan-Berry and Somerville (2010) the first change driver is an accepted change vision. This driver is defined as the acceptance of the change vision being positive for both the individual and the organization; the vision should be accepted both by employees and all other relevant stakeholders. In order for this to happen the vision needs to be clear and compelling and create the possibility for buy-in. This can for example be created by involving employees in the creation of the vision. The second change driver described by Whelan-Berry and Somerville (2010) is the leaders change related actions. Leadership is not

only needed from top management but also from leaders throughout the whole organization across different teams, departments and locations. Important to note is that leaders has to "walk-the-talk" for their actions to be effective. In addition leaders play an important role since they help the allocation of resources and create the possibility for multiple other change drivers. The third change driver identified by Whelan-Berry and Somerville (2010) is change related communication. The change related communication should focus on the need for change, why the current approach will not achieve the needed results, what actions that has to be taken and how these will be achieved. This communication shows that the change is needed, monitored and is progressing. In addition, communication has to be bi-directional with both telling and listening to uncover potential resistance to change. The fourth change driver is change related training. Training in new technologies, routines, processes and behaviors provide employees with the needed knowledge and skills to support the change. According to Whelan-Berry and Somerville (2010) this is particularly important when the change initiative has an abstract change vision which is not intuitive for the employees. The fifth change driver identified by Whelan-Berry and Somerville (2010) is employee participation in change related activities. According to Whelan-Berry and Somerville (2010) involving employees in activities such as focus groups, implementation, planning and pilot programs can increase the understanding for the change initiative and increase commitment. The sixth driver is change is human resource practices. As explained by Whelan-Berry and Somerville (2010) this can include anything from training, recruitment, selection of new employees to changes in incentives, rewards and performance appraisals. By aligning both formal and informal appraisals and incentives with the change vision the change have a higher likelihood of succeeding. The same goes for hiring and retaining the right employees that support the change. The seventh and last change driver described by Whelan-Berry and Somerville (2010) is changes in organizational structure and processes. This driver goes beyond the human resource practices since it involves organizational structures and processes such as reporting, hierarchies, technology systems, planning and budgeting. Systems to monitor and control the change are important since they signal that the change initiative has high priority. Sometimes budgeting systems, planning routines and information systems has to be altered to support the change initiative.

In addition to the change drivers described above and the change process described in section 3.2.3, Whelan-Berry and Somerville (2010) also links each change driver to the change process and thereby creates a framework for managing change, see Table 12.

Table 12. Brief overview of a framework for change management (Whelan-Berry & Somerville, 2010).

Drivers	Move the change vision to group and individual level	Enable the individual employee adoption of change	Sustain the momentum of change implementation	Institutionalize the change
Accepted change vision	Specifies the meaning of the vision for groups and individuals over the organization.	Starting point of moving employees towards change since an accepted vision means awareness and consideration of changing. In addition, it might lower resistance to change.		
Leaders change related action	Acts as a signal to employees of the importance of driving the change forward.	Increases likelihood of change adoption and the awareness about why the change is needed.	Act as signal to employees that the change is important since it is focused on by leaders.	Creates the possibility for the change to become the new status quo.
Change related communication	Creates understanding for change and engagement.	Creates the possibility for employees to stay committed and helps identifying and removing potential barriers of change.	Acts as signal that the organization is committed to the change through ongoing communication of successes and challenges.	
Change related training	Creates understanding for the change on a job or role level through providing new knowledge and skills.			
Employee participation in change related activities	Increases the understanding of the change and makes it specific to a certain individual or group.	Creates the possibility to fully experience what the change means to certain groups or individuals.		
Changes in human resource practices		Act as signal that management is committed to the change by reinforcing behaviors and new work that support the change.	Act as signal that change is crucial for overall success and that all HR-related activities support the change.	The change vision and the goal of the change should become norm and reflected in all HR activities.
Changes in organizational structure and processes	Demonstrate that management is committed to the change.	Creates employee acceptance and increases likelihood of adoption.	Facilitates the overall implementation of the change.	Makes sure that employees to not revert to old behaviors

3.4. Reflections on the Literature

Despite the vast amount of research conducted on the topic of change management during the last 70 years it was surprising to see the similarities between research over the years and how little actually seemed to have happened. For example, on an aggregated level all authors seem to have a similar view to what the change management process looks like and there are no significant contradictions between the authors' views. Rather, the ambiguities exist in the way authors describe the change process and how thorough their respective descriptions are.

During the literature review a lack of distinction between research areas was found. Much research has been conducted on the change process, different factors that influence the outcome of change initiatives and frameworks for how to manage change. However, despite that these three areas can be seen as separate it does not seem that authors make a clear distinction or assign themselves to a specific area. One example of this lack of distinction is Mento et al. (2002) who describes a twelve step process with clear numbered steps. In addition, each step also acts as a factor that influences the outcome of the change. To increase the quality of the research (Mento et al., 2002) therefore have been considered as both a change process and as multiple factors influencing change. Whelan-Berry and Somerville (2010) handles this confusion efficiently by firstly identifying the change process, secondly identifying change drivers and lastly linking each change driver to the change process, thus creating a framework for change.

In addition there also seem to be a plethora of notions regarding factors influencing change. For example Kotter (1995) presents "errors" that affect the outcome, Beer and Eisenstadt (2000) present "silent killers", Farris and Ellis (1990) surveys "factors related to success in managing change" whereas Oakland and Tanner (2007) discusses "enablers and barriers to change". This confusion regarding terminology is further highlighted by Whelan-Berry and Somerville (2010, pp. 179-180) who states that what they define as a change driver, "events, activities, or behaviors that facilitate the implementation of change", by other authors is referred to as tactics, catalysts and accelerators. Since multiple words exist for virtually the same thing this research has included multiple definitions of what is referred to as key influential factors. These are: factors related to success in managing change, ten commandments for executing change, silent killers, key lessons, four hard factors, key insights, inconvenient truth's about change management and change drivers.

Lastly, it was interesting to see how little of the research that seemed easily applicable in an organizational setting. The main issue is argued to be the abstract level of analysis presented by multiple authors and the lack of clear activities that can be performed to fulfill a specific factor. This may explain the low success rate of change initiatives described by multiple authors such as Kotter (1995) and Sirkin et al. (2005).

4. Developing Literature Framework for Change Management

In this chapter a literature framework for change management will be developed. This will be done by first synthesizing previous research related to the change management process. Following, factors influencing the success or failure of change initiatives will be synthesized. Lastly, a framework for change will be created by linking each factor to the change management process.

4.1. Synthesis of the Change Management Process

The synthesis of the change management process has been performed by assessing how Lewin's three-phase model to change (Burnes, 2004), Bullock and Batten's (1985) four-phase model, Whelan-Berry and Somerville's (2010) five-phase model and Mento, Jones and Dirndorfer's (2002) twelve-step process to change, all previously explained in section 3.2, relate to each other. Based on this understanding a synthesized description of the change process has been created. The outcome of the analysis is presented in Table 13.

Table 13. Synthesis of the change management process (Source: Authors)

Synthesized Phase Model	Three phase model (Lewin inBurnes, 2004)	Four phase model (Bullock & Batten, 1985)	Five-phase model (Whelan-Berry & Somerville, 2010)	Twelve-step model (Mento et al., 2002)
Exploration and Initiation.	– Unfreeze	– Exploration	– Create clear and compelling vision	– The idea and its context. – Define the change initiative
Planning and individualization	– Unfreeze	– Planning	– Move the change to group level – Enable individual employee adoption	– Evaluate the climate for change – Develop a change plan – Find and cultivate a sponsor – Prepare your target audience – Create cultural fit – Develop and choose a change leader team
Move change and sustain momentum	– Move	– Action	– Sustain momentum	– Create small wins for motivation – Constantly and strategically communicate change – Measure progress of the change effort
Integration and institutionalization	– Refreeze	– Integration	– Institutionalize change	– Integrate lessons learned

As can be seen in Table 13, the suggested phase model describing the change process contains four phases; exploration and contextualization, planning and individualization, move change and sustain momentum and finally integration and institutionalization. The presented change management process fulfills all seven criteria prescribed by Bullock and Batten (1985) for how to evaluate phase models. Thus, it is argued that the presented model is a credible description of the change process.

4.1.1. Phase One – Exploration and Initiation

The first phase has been named exploration and initiation. This name has been chosen since the activities in this phase mainly aims at creating a better understanding of the problem and initiating the change effort. What Lewin (in Burnes, 2004) describes as unfreezing of previous learnt behavior starts already in this phase.

Both Mento et al. (2002) and Whelan-Berry and Somerville (2010) have a similar views on the first steps of a change initiative. Mento et al. (2002) states that the first step is to use creative tension to create an idea and understand its context whereas Whelan-Berry and Somerville (2010) state that the first step of the change process is to create a clear and compelling vision. Hence, both authors highlight the importance of creating an idea or vision for the change based on the conception that something has to change in order for a desired future state to be achieved. This suggestion bare similarities with Lewin's (in Burnes, 2004) view that for unfreezing to take place emotional discomfort sometimes has to be present.

According to Bullock and Batten (1985) the change initiative starts with the awareness of a need. Further, both Mento et al. (2002) and Bullock and Batten (1985) state that that the change initiative has to be further defined. Mento et al. (2002) calls for the definition of roles for three categories of key players; change strategist, implementers and recipients. Bullock and Batten (1985) states that both physical and emotional contracts should be established with key stakeholders, including external stakeholders such as consultants.

4.1.2. Phase Two – Planning and Individualization

In the second phase the change is further planned and moved out into the organization. Since this phase mainly contains actions aimed at preparing the change initiative the unfreezing started in phase one and described by Lewin (in Burnes, 2004) is continued.

Mento et al. (2002) states that the climate for change should be evaluated and that both change strategist and implementers need to understand the strengths and weaknesses of the organization. Bullock and Batten (1985) take a more problem focused approach, stating that once the key resources have been committed the diagnosis of the problem starts through a data collection effort. By discussing the findings from the data collection a joint diagnosis of the problem can be made within the change team. According to Bullock and Batten (1985) this problem diagnosis will then become the basis for the planning of goals and the creation of an action plan, which has to be approved by decision makers. Mento et al. (2002) seem to share this view upon planning. They explain that a change plan has to be developed, which at a minimum contains specific goals as well as roles and responsibilities adapted to the recipients of change, before implementation can start. Whelan-Berry and Somerville (2010) seem to have slightly more abstract approach, stating that the vision should be adapted to each specific part of the organization. This might not intuitively seem as a planning related activity but by breaking down the vision into tangible activities on a departmental level it is argued that it becomes clear what the next steps will be.

Further, Mento et al. (2002) highlight some steps not specifically recognized by the other authors. The first step is that a sponsor for the change effort needs to be found and cultivated. This sponsor can be senior management, powerful line-managers or informal

leaders. The second step states that the recipients of change have to be prepared and it has to be recognized that resistance to change will exist regardless if the change is positive or negative. Similarly, Whelan-Berry and Somerville (2010) note that the vision has to be broken down further on the individual level to enable the change. Further, Mento et al. (2002) explain that the change initiative has to be aligned with the culture by using means such as staffing, training and communication as well as alignment of incentive systems. Depending on if this means changing the systems and structures or merely planning for the change it might be contested if these activities should belong to this phase or the next. The interpretation made is that changing incentive systems and recruiting new employees does not happen overnight and that the planning for these activities therefore has to happen early. Lastly, Mento et al. (2002) state that a change leader team has to be developed that inspire employees to embrace the vision and create an organization that will support the change.

4.1.3. Phase Three – Move Change and Sustain Momentum

In phase three the individual behavior is altered and the change is implemented, just as described by Lewin (in Burnes, 2004). Since changing individual behavior is a complex process, Lewin (in Burnes, 2004) suggests using an iterative approach with room for trial and error. This suggestion is much in line with Bullock and Batten (1985) who argues that the progress of the implementation should be reviewed continuously through data feedback and testing. Whelan-Berry and Somerville's (2010) argues that the momentum of the change has to be sustained by ensuring sufficient resources and keeping attention on the change project. It is argued that attention is kept by constantly reviewing the initiative meaning that Whelan-Berry and Somerville's (2010) and Bullock and Batten (1985) have a similar view on how to implement change. This view is also shared by Mento et al. (2002) who states that metrics should be installed and constantly reviewed as the project unfolds since this keeps motivation high. In addition Mento et al. (2002) state that creating small wins are important, both to keep motivation high and to gain additional resources when milestones are achieved. Lastly, change related communication highlighting both positive and negative effects of the change will help reduce confusion and increase commitment (Mento et al., 2002).

4.1.4. Phase Four –Integration and Institutionalization

In the fourth phase the new behavior has to be institutionalized or re-frozen and become a natural part of the individuals' daily behavior (Lewin in Burnes, 2004). According to Lewin (in Burnes, 2004) this is to be achieved by not only be focusing on the individual but also the peers, group norms, routines and activities. Both Bullock and Batten (1985) and Whelan-Berry and Somerville (2010) seem to share this view and state that the change has to be integrated into the organization and be institutionalized as a natural part of the organization. Mento et al. (2002) argues that lessons learned should be incorporated so that knowledge may be passed on to the next change project, and thereby pitfalls can be avoided.

4.2. Synthesis of Factors Influencing Change Initiatives

The synthesis of factors influencing the outcome of change initiatives has been performed by trying to find consistencies between factors, see Table 14. Out of the multiple influential

factors presented in section 3.3, only Bamford and Forrester's (2003) third key lesson for managing change, socio-economic factors in the local area exert a strong influence and should not be underestimated, and Oakland and Tanner's (2007) first key insight to change, the agenda for change is driven by external events, have been excluded. In the case of Oakland and Tanner (2007) the reason for exclusion was that it can be regarded as a trigger for change, which is not a part of the change management process. In the case of Bamford and Forrester (2003) it was excluded since it was not identified as an important factor by any of the other authors.

Table 14. Synthesis of factors influencing the success of change efforts (Source: Authors)

	Keller & Aiken (2009)	Bamford & Forrester (2003)	Farris & Ellis (1990)	Oakland & Tanner (2007)	Beer & Eisenstadt (2000)	Whelan-Berry & Somerville (2010)	Mento et al. (2002)	Kanter et al. (1992)	Sirkin et al. (2005)
A fair change process	X	X	X	X					
Change related communication					X	X	X	X	
Sense of urgency felt			X				X	X	
Approved strategy plan				X	X		X	X	
Accepted change vision	X					X	X	X	
Employee involvement	X		X		X	X		X	
Capabilities of change team ensured	X		X	X	X	X	X	X	X
Support from key stakeholders obtained			X	X	X		X	X	X
Approved implementation plan							X	X	
Resistance to change addressed			X				X		X
Continuous reviews performed			X	X			X		X
Change related training	X					X	X	X	
Aligned HR practices	X	X				X	X	X	
Aligned structure and control processer		X				X	X		
Reinforce change				X			X	X	

4.2.1. A Fair Change Process

Keller and Aiken (2009) state that an important reinforcing mechanism for change projects is a fair process. The fairness of the process is important since employees might turn against the project if they believe that the process is unjust, regardless if they might gain personally. It can be argued that a basic condition for having a fair process is having an overall process approach. A process approach will according to Oakland and Tanner (2007) help translate strategic goals into actions and increase the understanding for value creation, delivery and how to increase performance. Oakland and Tanner (2007) further argues that change should be executed using a project-based approach since it includes clear activities such as planning, communication, target setting, lessons learned and thereby helps sustain the focus on delivering all the values that was originally intended. These benefits are argued to help create a fair change process since the structure it provides decreases the risk for unprompted unjust behavior.

Further, Bamford and Forrester (2003) argues that one poor change initiative might jeopardize other change projects, since employees involved in the change will be fatigued. On a similar note Farris and Ellis (1990) have found that passed success of change efforts affects the chances of future success. Since a failure does not only affect the actual project but also the possibilities for future successes, the arguments for a fair change process are further strengthened.

4.2.2. Change Related Communication

Several authors focus on the importance of communication within change management. For instance, Beer and Eisenstadt (2000) have identified poor vertical communication between top and lower level management as one of their six silent killers of strategy implementation whereas Kanter et al.'s (1992) ninth commandment elucidates how clear communication may facilitate change efforts. Furthermore, Mento et al. (2002) elaborate on how change related communication may create an understanding for the commitment, prepare the organization for what to come as well as reduce confusion.

Whelan-Berry and Somerville (2010) have arguably an even more holistic perspective on the importance of communication. They state that communication is a driver for change which should be bi-directional. Further, the communication should focus on the need for change, why the current approach will not achieve the needed results, what actions that have to be taken and how these will be achieved.

4.2.3. Sense of Urgency Felt

The notion of sense of urgency in relation to change management is arguably an underlying theme within most literature. Two authors that explicitly elaborate upon sense of urgency are Farris and Ellis (1990) and Kanter et al. (1992). Through their survey Farris and Ellis (1990) identified the feel of necessity for a response as a key factor when managing change within R&D. Additionally, Kanter et al.'s (1992) fourth commandment to change is strongly related to the creation of a sense of urgency. They argue that if all employees are aware of how severe the situation is and a real need for change is apparent, then a true sense of urgency is created. Thereby the organization will support the change initiative. In addition, Mento et al.'s (2002) argumentation about how change initiatives should be built around

creative tension could be regarded as closely interlinked with the notion of sense of urgency felt.

4.2.4. Approved Strategy Plan

Before a change initiative can start Beer and Eisenstadt (2000) state that a clear strategy has to be formulated. The strategy cannot contain conflicting interest and should therefore be discussed in depth by senior managers (Beer & Eisenstadt, 2000). Mento et al. (2002) further highlight the importance of developing a plan that at minimum contains goals for the change initiatives as well as clear roles and responsibilities. Roles have to be defined for the three categories of key players – change strategist, implementers and recipients – and if any of these groups fail to understand their roles and their importance, the initiative will fail. Oakland and Tanner (2007) seem to agree on this when they state that using a project based approach increases the likelihood of success since it includes important activities such as planning and target setting.

Furthermore, the change strategist and implementers need to understand the strengths and weaknesses of the organization and how it functions in its environment in order to assess the climate for change. This assessment of the climate for change is also highlighted by Kanter et al. (1992), who state that managers need to have a deep organizational understanding and the capability to analyze how the organization will be affected by the implementation of change.

Lastly, Oakland and Tanner (2007) highlight an important part of the strategy plan; it has to be aligned to operational issues. They state that if the link between strategy and operations are broken, employees will not understand the need for change and the change will not produce any tangible results.

4.2.5. Accepted Change Vision

Kanter et al. (1992) argue that creating a shared and compelling vision is important since it helps unite the organization and increases employee motivation. According to Whelan-Berry and Somerville (2010) the change vision has to be accepted as being positive for the individual and the organization. However, Keller and Aiken (2009) argue that employees get triggered by five meanings; the customer, the company, the working team, the impact on society and the employee him/herself, and that all of these have to be triggered to create true motivation within an organization. Further, Whelan-Berry and Somerville (2010) argue that a clear and compelling vision which employees will buy into can be achieved by including employees in the vision creation. According to Keller and Aiken (2009) involving employees in the vision creation will increase their commitment with a factor of five.

Further, Keller and Aiken (2009) argue that both positive and negative aspects have to be taken into consideration in order to develop a compelling vision that creates true energy within the change effort. This is much in line with Mento et al. (2002) who argues that change initiatives should be built around creative tension, meaning that a perception of future position is created together with an understanding that the current way of doing things will not take you there. Kanter et al. (1992) seem to agree on this point and state that it is important to separate from the past by creating an understanding that old behavior has to be unlearnt before new can be adopted.

4.2.6. Employee Involvement

Keller and Aiken (2009) state that employees get five times more motivated if they can choose by themselves instead of being told what to do, and therefore listening is an important part of change management. This notion is shared by Beer and Eisenstadt (2000) who argues that change leaders need to be open-minded and listen to the organization.

Whelan-Berry and Somerville (2010) goes a bit further than listening and argue that employee participation in change related activities is a driver for change. They state that involving employees in activities ranging from problem analysis and planning to implementation and piloting can increase the understanding for the change initiative and thereby increase commitment. The importance of employee involvement is shared by both Farris and Ellis (1990) who identify participant as an aspect which has positive impact on change efforts, and Kanter et al. (1992) who argues that involvement of employees can help overcome the resistance to change that normally resides within the organization.

4.2.7. Capabilities of Change Team Ensured

Multiple authors mention the importance of ensuring the capabilities of the team responsible for driving the change. Sirkin et al. (2005) refer to this as performance integrity and argue that the skills and traits of the team members related to the requirements of the actual project should be considered. This is a slightly different focus compared to other authors, who have a more leader centric emphasis. For example, Oakland and Tanner (2007) argue that leaders play an important role since they both identify potential change initiatives and increase the chances of success by prioritizing between change initiatives. Further, Farris and Ellis (1990) have found that champions are a key success factor whereas Kanter et al. (1992) state that it is important to have leaders that drive the change through communication of vision and building of organizational structures that support the change. Mento et al. (2002) seem to agree on this point and state that a change leader team that inspires people to embrace the vision and develop an organization that will support the change should be created. Furthermore, Mento et al. (2002) add that the team should be committed, competent and that all members should see the same purpose with the change. On the characteristics of the team Whelan-Berry and Somerville (2010) add that it is important for leaders to walk the talk, and that one important task is to allocate resources to the right parts of the project. With regards commitment Kanter et al. (1992) also advise that leaders should walk the talk and co-own the change initiative. Keller and Aiken (2009) further elucidates the importance of this by highlighting two inconvenient truths related to change leaders. First, they argue that leaders are not that influential and that they need to become more aware of how they act in order to support the change. Second, overinvesting in these leaders should be avoided and more focus put on the receptiveness of the whole adopting population.

In addition, Farris and Ellis (1990) has found that teams are a key success factor for change. The reason for this might be, as argued by Beer and Eisenstadt (2000), that coordination across functions and localities are built around teamwork activities. Further, Sirkin et al. (2005) states that staffing change projects creates a difficult paradox; to succeed with change initiatives top-performers are needed but these are rarely released from their daily operations since direct results might suffer. Therefore they state that the change should be

led by competent team members that have more than 50 percent of their time specifically dedicated to the change project.

Lastly, Oakland and Tanner (2007) have found that external consultants can have a large impact on change initiatives and these should therefore be included as important for ensuring the right capabilities.

4.2.8. Support from Key Stakeholders Obtained

Several authors highlight the need for support from key stakeholders; especially it is the commitment and engagement from top management which is advised. For instance, Farris and Ellis (1990) argue that top management has to recognize the need for change as well as commit to the change initiative. The importance placed on committed top management is shared by Beer and Eisenstadt (2000).

Sirkin et al. (2005) also highlight the importance of commitment but take a slightly broader perspective when arguing that both senior management and key employees down the line need to support and commit to the change initiative. Beer and Eisenstadt (2000) argue that managers down the line should be given the authority to execute decisions in change initiatives. Therefore it is argued that these also are key stakeholders. This broader perspective is reflected in Mento et al.'s (2002) argumentation that sponsors of change initiatives can be senior management or powerful line managers as well as informal leaders.

When contemplating on ways to manage stakeholders Kanter et al. (1992) make an interesting distinction between the two categories power sources and stakeholders. They explain that power sources are those who can allocate resources to the change initiative whereas stakeholders are those affected by the change. Arguably both groups can be regarded as stakeholders in a broader sense, and that for change to take place the initiative needs political sponsorship from both categories.

4.2.9. Approved Implementation Plan

Mento et al. (2002) argue that a clear plan, which is adapted to the employees who are the recipients of the change, should be developed before an implementation can start. This is argued to be what here is called an implementation plan, meaning planning for how to implement the change. According to Kanter et al. (1992) it is important to have a plan that shows how to reach the goals of the change initiative. The plan should be detailed and contain everything from the location of meetings to when respective goals are to be fulfilled (Kanter et al., 1992). Since this is on such a detailed level it is argued that this could be seen as a plan for how to implement the change. Mento et al. (2002) further highlight the importance of creating small wins to keep the motivation high during an extended change project. Since small wins rarely happen by chance it is argued that these should be planned for before starting the implementation.

4.2.10. Resistance to Change Addressed

The notion of peoples' inherent resistance to change is an important factor to consider when managing change initiatives (Lawrence, 1969). For instance, Farris and Ellis (1990) identify the demand for new attitudes as well as power losses for employees as aspects having negative impact on change efforts.

With regards to how one can address this resistance one of Mento et al.'s (2002) twelve steps to change management are worth considering. In their sixth step they highlight that there will be resistance whether or not the change is perceived as positive or negative. None the less, the recipients of change have to be prepared and this preparation can suggestively be done through focus groups, surveys or face to face meetings. Thereby the perspective of the recipients can be obtained, considered and integrated into the change initiative.

A final viewpoint on how to deal with resistance to change is provided by Sirkin et al. (2005). They elucidate on the fact that change efforts often become a burden for employees, as it constitutes an additional activity added on top of their ordinary work-load. Therefore it is argued that the change related activities should require less than ten percent of employees' day-to-day activities in order to have a high chance of success.

4.2.11. Continuous Reviews Performed

According to Oakland and Tanner (2007) continuous reviews help ensure the right behaviors and the delivery of desired values within change initiatives. Furthermore they argue that measuring performance both during and after the change creates tangible data for communication and helps identify areas for improvement. In-line with this reasoning Mento et al. (2002) explain that change efforts should make use of metrics and review these continuously. By being result driven motivation is kept high and a better cultural fit may be achieved (Mento et al., 2002).

Sirkin et al. (2005) put forward a more direct motive to why continuous reviews are needed. In general, they argue that the longer the duration of a change project the less likely it is to be finished on time. Arguably, Farris and Ellis (1990) support this view when they state that both the time required and the time expected to implement can have a negative impact on the change initiative. Although, Sirkin et al. (2005) provides a recommendation for how to increase the chances for success. They state that for change projects longer than two months continuous reviews should be used, ensuring proper follow-up as well as identification of gaps and new risks. In summation, all four authors could be argued to consider continuous reviews as a way to sustain focus on the change initiative and ensure that tangible results are obtained.

4.2.12. Change Related Training

Whelan-Berry and Somerville (2010) highlight the specific importance of training in change efforts which have non-intuitive and abstract visions. They argue that training in new technologies, processes; routines and behaviors provide employees with the knowledge and skills needed to support the change. The general importance of training is supported by Keller and Aiken's (2009). They argue that for change to take place an alteration in the mindset of employees and the development of technical capabilities is needed, things which can be achieved by training. Finally, both Kanter et al. (1992) and Mento et al. (2002) suggest training as an activity that may facilitate change efforts.

4.2.13. Aligned HR Practices

Whelan-Berry and Somerville (2010) state that changes in human resource practices is an important change driver. The rationale is that by aligning both formal and informal appraisals and incentives with the change vision the change has a higher likelihood of

succeeding (Whelan-Berry & Somerville, 2010). However, Keller and Aiken (2009) seem to disagree that formal incentive systems is a good way to motivate individuals when they state that money is the most expensive way to motivate people. Instead, they argue that unexpected rewards create a disproportionate effect on employees. These unexpected awards might be the same as Whelan-Berry and Somerville's (2010) informal rewards, making these two views complementary rather than contradictory, especially since Keller and Aiken (2009) seem to agree that compensation should be linked to the goals of the change initiatives even if this might send mixed messages. Further, Kanter et al. (1992) argue that it is important to use enabling structures to facilitate the change and the examples include changing reward systems, training programs, offsite workshops and relocation of staff. Kanter et al. (1992) adds that these efforts have a direct impact on the change through the activity itself as well as an indirect impact since it also acts as a symbol that the change is being focused on.

Furthermore, Whelan-Berry and Somerville (2010) argue that hiring and retaining the right employees who support the change is important. Bamford and Forrester (2003) seem to agree on this when they state that removing individuals that act as catalyst of the change can cause the project to decay, something which can be a problem with a high turnover of departmental managers. Lastly, Mento et al. (2002) explain that in order to make the change last it must become rooted in the existing culture through altering staffing, training, appraisals and reward systems.

4.2.14. Aligned Structure and Control Processer

Whelan-Berry and Somerville (2010) state that it is important for organizational structures and control processes to support the change. This includes aligning reporting configurations, hierarchies, technology systems, planning and budgeting systems to support the change. The importance of structures are further highlighted by Bamford and Forrester (2003) who gives an example of how a financial reporting system that focused on short term goals hindered the change to happen since the change initiative had more long-term focus. Mento et al. (2002) further supports this when they state that to help the change last, roles and reporting relationships can be changed. Whelan-Berry and Somerville (2010) specifically note that structure and control processes go beyond human resource practices since they also include technologies and routines.

4.2.15. Reinforce the change

Kanter et al. (1992) state that managers should institutionalize the change by constantly making it a top priority and integrate it into the behaviors of the organization. A slightly different approach is suggested by Mento et al. (2002) who argues that the last step should be to integrate lessons learnt. This activity may not be considered directly linked to the institutionalization of the change, although by passing on knowledge to subsequent projects some sort of reinforcement of the change may arguably be obtained. Finally, Oakland and Tanner (2007) elaborates on a more proactive approach to the institutionalization by stating that the culture of the organization may act as both enabler and barrier of change. Therefore, it may be argued that change initiatives well aligned to the overall organization may be easier to institutionalize. It is argued that all these three ways of looking upon the future lasting of the change are methods to reinforce the change and make it last.

4.3. Literature Framework for Change

In this section each influential factor has been aligned with the phases of the change process. This has been done by trying to identify where in the change process each factor has the largest impact on the outcome of the change process. It is recognized that multiple factors might have an impact in more than one phase. Where it was obvious this has been taken into consideration, but when the support for a specific alignment was lacking in the reviewed literature it has been left out. It should also be noted that Whelan-Berry and Somerville (2010) have had large influence on the alignment, due to the similarities between their research and this study. The outcome of the analysis is presented in Table 15.

Table 15. Synthesized literature framework for change management (Source: Authors)

	Phase 1: Exploration and Initiation	Phase 2: Planning and individualization	Phase 3: Move change and sustain momentum	Phase 4: Integration and institutionalization
A fair change process	X	X	X	X
Change related communication	X	X	X	X
Sense of urgency felt	X			
Approved strategy plan	X			
Accepted change vision	X	X		
Employee involvement	X	X	X	
Capabilities of change team ensured	X	X	X	
Support from key stakeholders obtained	X	X	X	
Approved implementation plan		X		
Resistance to change addressed		X	X	
Continuous reviews performed		X	X	X
Change related training			X	
Aligned HR practices			X	X
Aligned structure and control processer			X	X
Reinforce the change				X

As can be seen in Table 15 a fair change process spans all phases of the change process. No evidence has been found that a fair change process is particularly important in a specific phase. Since Oakland and Tanner (2007) suggest a project and process approach to the change this approach should span the whole initiative.

According to Mento et al. (2002) the purpose of change related communication is to create an understanding and prepare the organization for the change. However, change related communication is according to Whelan-Berry and Somerville (2010) important in all phases of the change except the last. None the less, since Whelan-Berry and Somerville (2010, p. 181) also state that change related communication "Signals the organization's ongoing commitment to the change initiative, communicates successes and challenges, and ongoing change implementation" it is argued that in order to make the change last within the organization, it should also be focused on in the last phase. Therefore change related communication spans all four phases.

According to Kanter et al. (1992) it is important to create a true sense of urgency which get employees to support the change initiative. It is argued that support for the change is espacially important in the early phases of the change process and that it is the individuals who initaite the change who need to create this sense of urgency. This view is supported by Mento et al. (2002) who states that change initiatives should be built around creative tension. Therefore creating a sense of urgency should be done already in phase one.

Beer and Eisenstadt (2000) state that a clear strategy has to be created before the change initiative can start. If the strategy aims at avoiding conflicting interests, as suggested by Beer and Eisenstadt (2000), it is clear that it has to be developed early in the change process. Therefore, an approved strategy plan should be linked to phase one.

According to Whelan-Berry and Somerville (2010), having an accepted change vision is mostly important in the first half of a change initiative. Since the main purpose of an accepted change vision is, according to Kanter et al. (1992), to unite the organization and increase motivation it is argued that this has to happen early in the process. In addition, Mento et al. (2002) has this as his first step in the change process. Therefore is an accepted change vision mostly important in the first two phases.

According to Whelan-Berry and Somerville (2010) employee involvement is important in the first two phases of the change initaitve since it allows employees' to understand and fully experience the change. There are further support for that employee participation is important in the early parts of the change process. For example, Keller and Aiken (2009) argue that employees should be involved already in the vision creation since this will make them more motivated. Since the purpose of involving employees is to keep motivation high (Keller & Aiken, 2009), remove resistance to change (Kanter et al., 1992) and foster the actual change (Whelan-Berry & Somerville, 2010) it is argued that the involvement of employees should continure throughout the implementation as well. Therefore employee involvement stretches over phase one, two and three.

When ensuring the capabilities of the change team authors such as Oakland and Tanner (2007), Mento et al. (2002) and (Keller & Aiken, 2009) seem to focus on the change leader.

The leader naturally plays an important role in the first two phases of the change initiative, especially since Oakland and Tanner (2007) highlight the role leaders have in the prioritization between change initiatives. However, Mento et al. (2002) argue that change leaders play an important role in inspiring people to adopt the change, which is much in line with Kanter et al. (1992) who state that the role of the leaders are to drive the change. This is also supported by Whelan-Berry and Somerville (2010) who argue that change leaders are important throughout the whole change process. Due to the extensive focus on leaders action in the beginning of the change effort, the capabilities of the change team is most important in the first three phases.

Support from key stakeholders are important early in the change process since, as explained by Kanter et al. (1992), sufficient resources need to be attained from top management. In addition to this, Beer and Eisenstadt (2000) as well as Sirkin et al. (2005) argue that key employees down the line also need to be involved and have the authority to make change related decisions to help facilitate the change. Therefore support from key stakeholders is important throughout step one, two and three.

According to Mento et al. (2002) a clear implementation plan needs to be in place before the implementation can start. Since implementation happens in phase three the implementation plan should be developed and approved already in phase two.

Addressing the resistance to change mostly seem to be an issue during the implemtation of the actual change, when new behaviours need to be adopted. For example, Mento et al. (2002) argue that employees resist change since it means disturbing the comfortable status quo. Sirkin et al. (2005) has a more practical focus in the sense that change may be resisted since change related activities come on top of regular day-to-day activites. It is therefore clear that addressing the resistance to change must be done in phase three. However, since freeing people from day-to-day activites requires planning, the resistance to change is adressed in phase two as well.

Regarding continuous reviews most authors seem to argue that these are most important in the last two phases of the change process. For instance, Oakland and Tanner (2007) argue that continuous reviews help deliver the right behavior and Mento et al. (2002) that continuous reviews help keep motivation high and creates a better cultural fit. However, Sirkin et al. (2005) seem to have a more holistic perspective on reviews stating that it should be reviewed continously throughout the whole project. Since little reviweing can be done in the first phase of the change process continuous reviews therefore should be done in phase two, three and four.

There seem to be little disagreement between authors that change related training is most important in phase three. Whelan-Berry and Somerville (2010), Keller and Aiken (2009), Kanter et al. (1992) and Mento et al. (2002) all state that the training is important to facilitate the change effort and to provide employees with the needed skills to adopt the change.

Aligning the HR practices is mostly important in the last two phases of the change process. The reason for this is that Mento et al. (2002) argue that the purpose of changing HR

practices is to make the change stick. This is much in line with Whelan-Berry and Somerville (2010) who argue that changing HR practices is mainly important in the last phases of the change process, since it signals that new behaviors are rewarded and that the progress of the change is monitored closely.

Further, Whelan-Berry and Somerville (2010) argue that aligning structure and control processes has an effect throughout the whole change process. However, Bamford and Forrester (2003) seem to believe that the highest risk with not aligning structures is that it might hinder long-term change to take place. This is supported by Mento et al. (2002) who argue that reporting relations can be altered to make the change stick. Therefore aligning structure and control processer are mostly important in the last two phases, where the focus is on making change happen as well as making the change stick.

The reinforcement of the change initiative is closely linked to the last phase of the change process since Kanter et al. (1992) and Oakland and Tanner (2007) state that the change should be institutionalized by integrating it into the culture of the organization. As suggested by Mento et al. (2002) lessons learned should be the last step in the change process.

5. Empirical Results

The following chapter presents the findings from the empirical investigation of how Nordic based industrial companies work with change management. To start with triggers for change and the most common types of changes conducted will be presented. Following, the approaches and organizations companies use for dealing with change will be explained. Subsequently, further findings related to the generic phases of change efforts will be described. This will be done by explaining how companies handle different aspects connected to the initiation, implementation and finalization of change initiatives. Thereafter the topic of how companies evaluate change initiatives as well as deal with resistance to change will be discussed. The chapter finishes with the description of the key influential factors for change initiatives.

5.1. Triggers to Change

The interviews revealed two broad categories of why companies feel the need to change. These categories are based on if the triggers of change are internal or external. Internal triggers include: indication in KPI's, employees' ideas for improvements, internal changes driven top-down, and a continuous focus on efficiency, see the top four triggers presented in Table 16. Multiple respondents stated that KPI's can trigger change when a specific KPI get below a predetermined minimum-level or when there is a general feeling that a certain KPI should be improved. For instance, one large industry equipment manufacturer identified that their delivery precision dropped due to an increase in volume sales. This in turn triggered a change program aimed at addressing delivery precision. According to a large number of respondents change can also be triggered by ideas from employees. Most respondents stated that these ideas derive from an employee who sees a potential area of improvement, due to a specific problem they have experienced in their daily work. According to one respondent, ideas from employees can also be used in a more structured way by identifying lead thinkers within the organizations, whose demand normally lie three to five years before others, and use their ideas as triggers for change. Another common trigger for change is improvement demands that arrive top-down to the R&D division. These demands generally seem to be the effect of a new CEO who wants to create a foot-print within the organization, new result demands from the steering committee or changes that have happened in other parts of the organization or in the management structure. The last internal trigger is a continuous efficiency focus within the organization. Almost half of the companies stated that there is always a continuous pressure to do more with fewer resources. This pressure appears to be both institutionalized through improvement philosophies such as lean as well be more abstract and not incorporated in certain processes or routines.

Examples of external triggers mentioned are market pull, external events and competition. Companies stated that demand from current customers and markets trigger change initiatives. Some specific examples that were given include; changes in customer specifications, new demand from customer and general trends in customer preferences. Closely related to market pull are changes triggered by external events. Some respondent stated this on a very abstract level while others were more specific; stating that changes in laws, environmental regulations and natural disasters can trigger change. Lastly six

respondents stated that competitive pressure such as innovation and price battles as well as benchmarks with competitors trigger change.

Table 16. Most common triggers for change (Source: Interview study).

Trigger for change	Explanation
Indication in KPI's	KPI's show the need for change; both on a corporate-wide level or process level.
Internal ideas	Ideas for improvements identified by employees, often leading thinkers within organization.
Internal top-down	Driven top-down from management. For example new CEO, changes in management structure or new result demands.
Continuous efficiency focus	Continuous pressure to do more with less or improvement focus as part of corporate culture.
Market pull	Demand from current markets.
External events	Can be a natural disasters, new laws and regulations, environmental issues, new university research or general trends.
Competition	Harsh competition such as price battles or innovation battles as well as benchmarks.

5.2. Different Types of Change

On an aggregated level there appears to be a consensus among respondents that changes initiatives affecting R&D include organizational changes, alterations in existing processes or work-methods as well as the introduction of new processes, work-methods and tools. Furthermore, even though a lot of respondents highlighted R&D specific changes several also emphasized the interrelatedness between changes in different functions of an organization. Some respondents argued that many changes made within R&D functions were caused by changes made in other divisions. An overview of the eight most commonly mentioned categories of changes can be seen in Table 17.

Table 17. Common types of changes performed within R&D (Source: Interview study).

Common types of changes
Lean R&D and continuous improvements
Major organizational changes
Consolidation, integration and centralization of businesses
Efficiency improvements & Lead-time reductions
Changed reporting and quality systems
Stronger customer and market focus
Changes in the development process
Standardization of processes and work-methods

The most common type of change is the broad category of initiatives related to Lean R&D[4] and continuous improvements. This category includes everything from extensive programs aimed at transforming the corporate culture to smaller efforts conducted solely within R&D

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[4] Within this study the concept of *lean R&D* refers to a process improvement concept where lean thinking is adapted to product development by maximizing the utilization of people and processes, as described by Liker and Morgan (2006).

functions. For example, one respondent explained that in-line with their overall strive for continuous improvements they had introduced a tool called A3[5].

The next category incorporates both alterations in the specific R&D organization as well as corporate-wide organizational changes, which in turn affect R&D. For instance, one respondent explained that the company had recently undergone an extensive organizational restructuring which had led to the need for a complete re-structuring of the R&D organization.

The third category entails both changes aimed at physically re-locating facilities to obtain synergies and cultural transformation aimed at increasing the integration of disparate development sites. Often these changes are closely interlinked with major organizational changes.

The fourth category, changes aimed at increasing efficiency or reducing lead-times, is also interrelated with the other categories. For example, two out of the six respondents who stated that they had made specific changes aimed at increasing the efficiency also explained that they have started working according to lean R&D. The three subsequent categories are a bit more discrete and normally contain relatively extensive change initiatives. For instance, one respondent explained how they had conducted a three year long change program aimed at completely redefining their product development process. Finally, the last category concerns efforts aimed at standardizing processes and work-methods, a need often derived from other types of changes. One respondent argued that to fully implement their new lean philosophy they needed to have standardized processes applied throughout the organization whereas another respondent argued that the consolidation that had been undertaken demanded an increased standardization of processes, work-methods and tools.

On an aggregated level, there appears to be three levels or different types of change. First, there are corporate wide change initiatives which are handled via specific projects initiated by top-management. These normally include multiple functions and span a time-periods of multiple years. Second, there are department-level changes which are handled via a structured approach for continuous improvement, a specific change management model or a project management model. These are mostly handled within the department with some cross-functional elements and a time period of one to two years. Third, there exist group-level changes that are handled ad-hoc or through continuous improvements. These have rarely any cross-functional elements and the timespan is typically less than one year. Even though not all respondents were this explicit when discussing different types of change efforts, it still appears that there exist different levels of change and that these are related to size and cross-functionality.

Lastly, when discussing different types of change, 82 percent of the respondents make a clear distinction between "normal" projects and change initiatives. Companies who did not make a distinction stated that change is a natural part of everyday operations and not something handled within particular initiatives. Some also believed that all projects include change.

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[5] Within this study the concept of *A3* refers to a structured problem solving approach, which emphasis a thorough definition and understanding of the issue and an iterative process for addressing the improvements.

This can be highlighted by one R&D Director who stated that "you could almost say that if a project does not include any change, then it is no use in doing that project."

Concerning future trends and respondents view on what areas their up-coming change initiatives would focus on there appeared to be six main areas of focus. First challenges related to globalization were mentioned as important. One respondent stated "common good before local good" as an explanation to who they relate to globalization. Second a continued focus of efficiency improvements and Lean R&D. Third, better processes for prioritization and resource allocation. This can be highlighted by the following statement from a R&D manager: "We need to work in smarter ways. We have to make better prioritizations and put our resources on the right things, basically we must dare to choose". Fourth, multiple companies will continue to use virtual simulation and model tools for their development. Fifth and last, some companies would try to incorporate a stronger market focus in their product development.

5.3. Approaches and Models for Change Management

This section will first describe what different approaches exist for change management within organizations. Subsequently, specific models for change management will be described. Lastly, project management models applied by companies for managing change initiatives will be described.

5.3.1. Approaches for Change Management

When considering approaches for dealing with change there appear to be two main aspects which describe how companies deal with change; the degree of structure and whether or not the change is initiated top-down or bottom-up. With regards to structure the investigated companies span the whole spectra from those always managing change more or less ad-hoc to those who always apply a specific process for change management. Yet, most companies are emplaced somewhere in the middle. Considering whether changes are mainly initiated bottom-up or top-down, a general comment is that companies that have a bottom-up approach to change are to a higher degree applying a Lean philosophy with focus on continuous improvement. For instance, one responded explained that basically all changes are initiated bottom-up and if they received a lot of attention they grow and may eventually become a company-wide change program. A different approach described by some respondents explained that it is up to the managers on different levels within the organization to initiate and manage the changes they deem appropriate.

Based on these two aspects six main approaches for change management have been identified, although two of them are combinations of the other four. An illustration of which approach companies apply can be seen in Figure 4.

Main approaches for change management

- Ad-hoc
- Ad-hoc & Project Management Model
- Continous improvements
- Project Management Model
- Specific change management model
- Project Management Model & Continous improvements
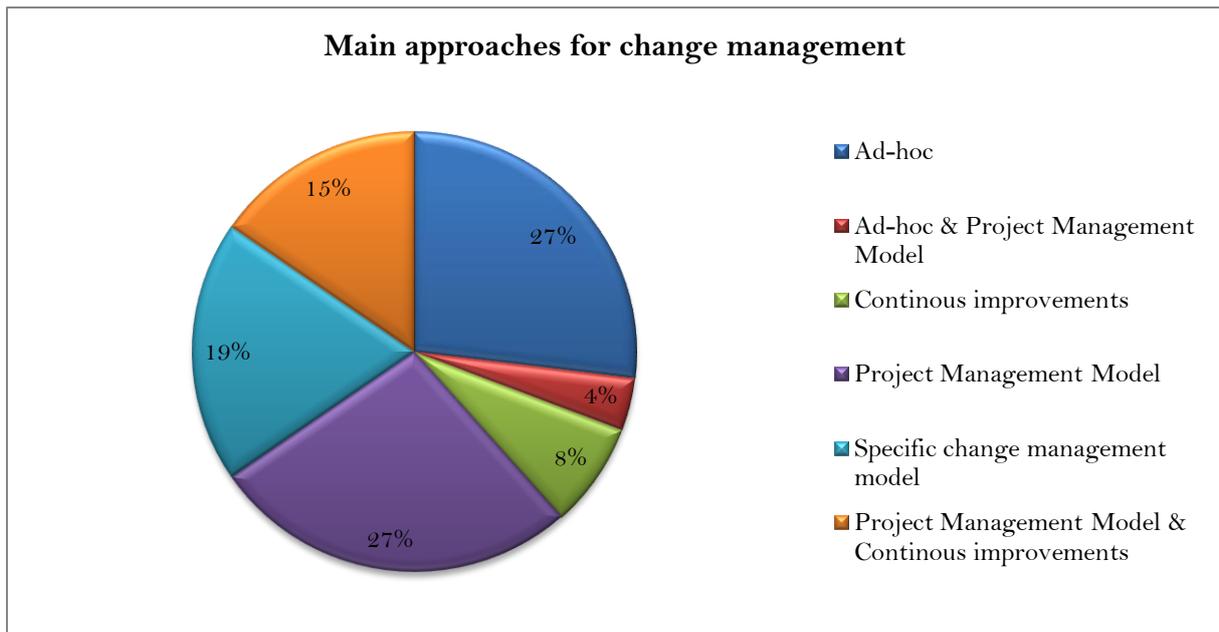
Figure 4. Schematic illustration of the main approaches applied by companies for managing change (Source: Interview study).

As seen, 15 percent of the companies have a dedicated process for managing change. This process has been specifically developed for managing change initiatives. For a description of these models and how they are applied see section 5.3.2. 27 percent of the companies apply a normal project management model that is not specifically developed for change initiatives, see section 5.3.3. Further, eight percent drive and manage all types of change initiatives as part of a continuous improvement philosophy. This implies that companies drive and manage most of their change initiatives bottom-up as part of an overall philosophy for continuous improvements. One respondent explained that changes are driven bottom-up and they they use tools such as A3 for managing change. It should be noted that only two companies argued that they drive and manage all types of changes as part of their continuous improvement philosophy. Additionally, 15 percent of the companies use a mix of continuous improvements and a standard project management model. One respondent explained that smaller changes are driven continuously via Lean initiatives whereas bigger changes most often apply a project management model. Furthermore, another company explained how they managed many changes via a continuous corporate-wide business development program. Yet, they still used a project structure and a project management model for managing the largest and strategic change initiatives. Finally, 27 percent of the companies have no given process at all and instead manage change efforts ad-hoc. Generally, the respondents argued that the best way to structure initiatvies is very dependent on the type of change. Thus, a standard structure is not suitable and it is therefore up to the person responsible for the change initiative to determine what structure and approach to apply. For instance, one respondent stated "It depends on the change but usually it is up to the respondible person to set up the structure and processes he deems suitable." Furthermore, five out of the seven organizations that have a more ad-hoc based approach and structure for managing change are smaller and thereby they argue that they have a lower need for structure. For example, one respondent explained how structure could hinder creativity and thereby make change initatives perish.

Finally, one company instead apply a combination of ad-hoc based structing and a project management model. The respondent explained that changes were normally structured along the way, yet for major corporate-wide change initatives he argued that a more stringent project-based model was needed

5.3.2. Specific Change Management Model

In total there were five companies who stated that they have a dedicated process or model for change management. All five respondents argued that the model is foremost used for larger change initiatives and that the models pay's specific attention to change management aspects. For instance, one respondent explained how their model, called the Business Transformation Process, is used exclusively for change projects and is highly influenced by Kotter's (1996) work. The respondent further explained that this process mainly is used when introducing new work methods and that an interactive model including standard documents, activities, and suggested governance structure exist on the intranet. A top-level illustration of the Business Transformation Process can be seen in Figure 5.

Figure 5. Schematic illustration of the Business Transformation Process (Source: Interview study).

Another respondent explained that their model mainly was applied for major changes within engineering functions and product lifecycle management. The model, which is illustrated in Table 18, had only been used for two years but had been successively developed for 20 years as it derive from their normal model for customer projects.

Table 18. Aggregated example of model applied for managing change projects (Source: Interview study).

Phases	Steps	Activities
Create	Investigation	Create issue
Assign	Business evaluation	Validate request
	Requirement definition	Create/validate specification
Active	Technical review	Technical review
	Go/No-go decision	Priority review
	Implementation planning	Rollout package preparation
	Development	Rollout coordination
		Programming
Review	Testing	Perform testing
	Documentation	Create documentation
	Rollout	Perform testing
	Post rollout testing	
Closed		

The next respondent explained how they within his company apply a specific model for change management, even though he argued that it is mainly used as guidance. The model is called DMAIC and is originally a five-phased improvement cycle derived from the Six Sigma methodology. An aggregated illustration of the cycle can be seen in Figure 6.

| Define | Measure | Analyze | Improve | Control |

Figure 6. Aggregated illustration of the DMAIC cycle used for change management (Source: Interview study).

The fourth example of a dedicated model for change management was a relatively newly developed interactive web-based framework for managers of change projects. The framework is intended to provide a consistent and flexible approach to change projects, which enables both financial and non-financial benefits to be captured. The framework contains of a change process as well as the two components change leadership and change management. Change leadership has eight modules, which are based on Kotter's (1996) eight steps whereas change management is intended to provide a robust methodology for driving and managing change, and includes the five elements Business case & Benefits management, Change planning, Change network management, Stakeholder engagement and Organizational design. Furthermore, the framework relates activities associated with these five elements to each of the seven phases of the change process; pre-justify, justify, initiate, plan, execute, close and realize benefits, see Figure 7.

| Pre-justify | Justify | Inititate | Plan | Execute | Close | Realize Benefits |
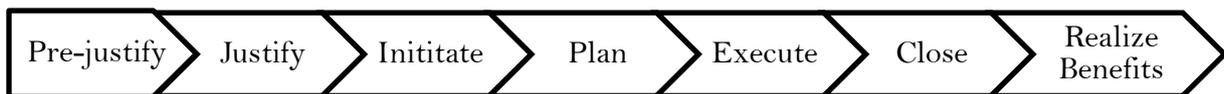
Figure 7. Change management process incorporate in change management framework at one company (Source: Interview study).

Finally, the last example of a specific framework for change management was also recently developed. The purpose of the framework was according to the company to support individuals within the organization to create sustainable change and transition from one state to another. In addition, it was specifically highlighted that it is an iterative model and that it should be seen as a complement to the organizations regular project management model. The model had four main phases; justify, plan, execute and embed, as seen in Figure 8.

| Justify | Plan | Execute | Embed |
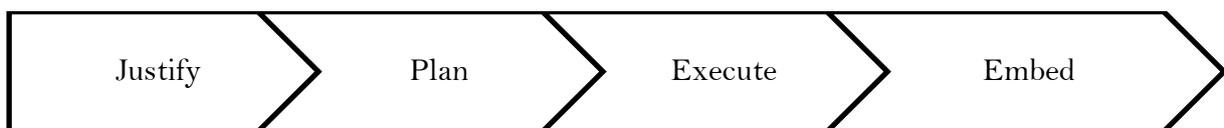
Figure 8. Aggregated illustration of change management framework at one company (Source: Interview study).

In addition to these phases the framework consisted of sub-activates that should be completed as the project evolves. The first sub-activity was a decision if a change project was needed and this review was performed with the use of a grading system. The second sub-activity was to build a change team capable of managing the change. Third, set a change vision and develop a strategic plan. Four, analyze different stakeholders and understand their needs in relation to the change. Five, plan and realize benefits and make sure to break-down the top level goals into measurable improvements. Six, engage stakeholders by defining what change means for each of the stakeholders. Seven, define responsibilities and set up a proper handover to ensure that the change gets embedded in the organization.

5.3.3. Project Management Model

Turning to the companies that did not have a dedicated model for change management 27 percent of these instead apply a normal project management model, most frequently a derivative of the stage-gate model they use for product development. The reasoning behind using the normal product development process are that it provides structure to the change initiative as well as is easy to use, since the team members are accustomed to it. For instance, one respondent explained that they have a general project handbook and platform which provide guidance to all sorts of project work, including change projects. Another respondent instead explained how they use a project management model from their IT department for change projects. An aggregated description of four different project management processes used by companies can be seen in Table 19.

Table 19. Schematic illustration of four project management models used for change management (Source: Interview study & Authors).

Model 1 ('PCP')	Model 2 ('ISGDP')	Model 3	Model 4
Specification	Pre-study	Business case development	Agree on objectives & Define project organization
Definition & Design	Analysis & Solution development	Concept development	Develop project plan
Implementation	Detailed design	Implementation	Evaluate progress and make decision regarding continued work
(Follow-up & Evaluation)	Piloting	Start of usage	Evaluation
	Implementation	Roll-out to other sites	Finalization
	Evaluation		

5.4. The Organization around Change Initiative

From the interview study it is clear that companies that have a more structured approach to change initiatives, using project management models or specific change management models, also have a more standardized approach to the organization around change initiatives. In total nine respondents stated that they have a standardized organization around change initiatives that they use either always, for continuous improvement efforts or only for large change initiatives. For companies not having a standardized organization the team seemed to be set up more ad-hoc by the project leader who identified suitable individuals. The most commonly identified key roles in change initiatives were project leader, sponsor, steering committee, team with special competence, central functions.

From the interviews it was found that the project leader is normally someone with project management experience or someone educated within project management. These individuals usually are line managers or group executives but can also come from a central pool of project managers. While some respondents stated that the leader can be an external consultant, others argued that this can be dangerous since the change then will not receive the same credibility within the organization. Respondents stated that common tasks for the project leader include; scoping, bringing the initiative forward, picking the change team, coordinating activities and act on behalf of the sponsor to drive the business case forward.

One respondent explained how it is common that leaders sit in a meeting talking about how great change is for the employees, however never reflecting this talk in their own behavior. This is further highlighted by other respondents who state that it is important that leaders "walk-the-talk".

The sponsors generally are someone with experience and mandate or a manager of the department affected by the change. Commonly mentioned positions that have this role are department managers, CEOs or R&D Directors. One respondent stated that sponsors have a "money-role" meaning that they should allocate resources. Other activities mentioned, which are performed by the sponsor, include ensuring that there are no barriers hindering the continuation of the initiative and being responsible or the delivery of end-benefits.

The steering committee mainly seems to consist of senior individuals and managers above the affected unit. Commonly mentioned responsibilities of the steering committee include decision making, monitoring, budgeting, creating mandate for the project leader and removing obstacles.

Further, multiple respondent mentioned the change team and the importance of having the right competences within the team as vital for the change initiative. The members of the change team can be experts, cross-functional manager and people with specific knowledge or authority.

Some central functions that were mentioned include HR, IT and process development units. HR seemed to be particularly important since they have specific competence within re-organizations, people management and negotiation with unions. Some employees that might be affected and should be included are process owners and change agents that legitimate line authority by supporting the change.

Further, seven companies stated that they have individuals with specific competence within change management. Four stated that these were working in process or business development units within the organization, whereas two respondents instead stated that they might have this competence within their human resources department. The last of the seven respondents which argued that they had individuals with specific competences stated that they recently had assigned dedicated change management coaches. 16 companies said they had no employees with specific competence regarding change management. Some of these explained that this was to some extent given in the leadership training provided to managers and that there were multiple individuals with long experience related to change management. Additionally, half of the respondents stated that they had a central function that supports change initiatives. These mostly seem to be human resources functions that help handle organizational stress, business excellence offices, management consultants and project management offices.

In addition, all companies except two stated that they use external help such as consultants in change initiatives. The main use for consultants seems to be for analysis, solution development and as horsepower to keep the initiative up to speed. Yet, seven respondents stated that they use consultants seldom since they like to keep them at an arms lengths distance. The reasons for this seem to be cost and that it is important to handle change

initiatives internally to increase knowledge within the organization and show that managers care about the change project enough to execute it themselves.

5.5. Description of the Generic Phases of Change Management

The subsequent sections will further describe the process of change management. This will be done in relation to three very generic and abstract phases; initiation, implementation and finalization of change. Some specific questions that will be addressed include initiators of change initiatives, evaluation of change initiatives and how to ensure that change sticks within the organization.

5.5.1. Initiation of Change

There appears to be four ways to go from the indication of a need to change to the initiation of a change project. The most common way is that change is initiated through discussions by top managers or within the steering committee. Exactly how these discussions are performed was rarely explained by respondents. The second most common way to go from a need to an initiative seems to be through institutionalized continuous improvement processes. These seem to be fairly structured and ideas are brought up and discussed in continuous improvement meetings as part of daily operations and in forums specifically focusing on the improvement of processes and organizational development. One commonly mentioned tool was the previously described A3 methodology for discussion around potential improvement ideas. Third, change also seems to be initiated ad-hoc. Six respondents described how managers in an unstructured way meet to discuss specific problems and what to do about them. Lastly change projects are also initiated through the normal hierarchy within the organization. One respondent described how anyone who sees a problem and take a discussion with next level manager on how to go about to solve it. Additionally, when companies were asked who it is that normally initiates change projects it became evident that most changes seem to be initiated top-down from senior managers.

Specific change initiatives were almost always chosen due to their alignment with the overall organization strategy. The way the strategy affected the prioritization differed between companies. For example, multiple companies stated that there is a discussion within the company's management team on what to focus on. Others stated that financial KPI's and business cases are common to use for prioritization. Some examples of tools that could with help the prioritization process that were mentioned include; SWOT, priority lists, value vs. effort charts, scenario analysis and pure investment calculations.

Further, respondents were asked if they create a joint understanding of the problem and how this understanding is created. In general there appeared to be three views upon this. First, those who conduct a pre-study, root cause analysis or a thorough review of the current state. Second, those who seemed to have a more ad-hoc approach to this stating that this is created through discussion either between managers or within the project team. Third, those who stated that this is automatically created since they have a bottom-up approach and when the need for change is directly connected to the problems of the organization there is no need.

When respondents were asked how they anchor change within the organization there appeared to be five approaches. First, respondents stated that they anchor change initiatives by getting managers one or two levels above and or across in the hierarchy to support the change. Mostly this seemed to be an approval or go-ahead decision needed while a few seemed to have a more vague approach just getting an ok and create awareness. Second, respondents stated that there is both a need of anchoring the change high in the organization as well as below in the organization. The anchoring below in the organization seemed most to be made through communication around goals and through dialogue with employees. In addition, while two respondents stated that involvement can help anchor the change. Third, a handful of respondents argued that this is naturally created since the problems arrive from below in the organization through their bottom-up approach to change. Fifth and last some respondents argued that the anchoring is made by including the right individuals in the change team. By having support both from managers higher up in the hierarchy as well as same-level managers across the organization they argued that the change initiative receives a natural anchoring.

Before the change initiative can start most companies create a plan for how to execute the change. Approximately half of the respondents stated that they create a plan. The level of details of the plan differed significantly between companies. For numerous companies it was part of the natural process and it was specified exactly what the plan should contain; from business case, risk analysis and goals to team members, time plan to specific activities. For others the plan seemed to be more informal and just containing time and roles. Some respondents said that they very rarely create a plan and that it is more ad-hoc or in the mind of the project leader. The differentiator for when these create a plan seemed to be the size of the project in terms of time and resources. Large initiatives generally had to contain a plan whereas smaller ones did not.

5.5.2. Implementation of Change

Most respondent explained that the solution to the identified need for change was developed within the team managing the change, foremost by using structured tools and frameworks for analysis or by gathering input from competent employees. Some specific methods for analysis include; root cause analysis, brainstorming, as-is mapping, gap analysis, 4Q and the DMAIC cycle. Many respondents provided relatively abstract descriptions to how the solution development process looked like. For instance, one respondent stated that "There is no specific methodology that is applied within our company. Usually you gather a team with different competences and discuss and after a while arrive to an appropriate solution." Yet, some respondents provided more detailed descriptions to how the solution to the identified need for change was developed. For example, one respondent explained how process related changes usually applied Lean- or Six Sigma-based tools for analysis whereas organizational changes were developed using root cause analysis.

In general almost all of the companies seemed to involve the people affected by the change, although several respondents explained that not all employees could be involved. Rather, the change team targeted and used input from formal leaders on all levels in the organization, knowledgeable employees and informal leaders which acted as opinion leaders. By involving these employees it was argued that a better solution could be developed. Furthermore, four

of the respondents who said they involved employees explained that it was not possible to involve people when it concerned organizational changes, since these changes are too sensitive and must be handled with consideration. Finally, four companies appeared to be very selective about involving employees in change initiatives.

Further, it appears that the way to implement change is highly dependent on what the change initiative sought out to achieve. None the less, most respondents mentioned activities such as communication, information, training, piloting, and planning as important with regards to implementing a change. With regards to communication, several respondents highlighted the importance of communicating the results and degree of implementation as a way to signal continued management commitment and keep momentum. Additionally, several respondents highlighted how implementation was facilitated if there existed supporting IT systems.

One apparent distinction between different approaches for implementation is between large organization wide change initiatives and smaller less cross-functional. For instance, even though all respondent argue that the implementation of change has to be planned, most argue that it is foremost larger and cross-functional change initiatives that demand detailed planning. One respondent stated that "It is only the larger change projects that need an implementation plan, especially when it concerns IT-systems that have to be adopted to the change." Furthermore, several respondents highlight the need for involvement of line managers and the concerned departments for the implementation of bigger changes. For example, one respondent explained that they wanted line managers to be responsible for the implementation and communication within their department so that these could act as ambassadors for the change initiative.

On a few occasions respondent also described a generic process which they applied for implementing change, see Table 20 below for two examples.

Table 20. Two generic processes for implementing change (Source: Interview study).

Continuous improvements	Project management model
Information	Testing
Training	Refinement
Follow-up	Roll-out

Almost all companies argue that they frequently, or at least occasionally, perform pilots when implementing change. Especially major changes that include a roll-out on several sites or the implementation of a new IT-system get tested. For instance, one respondent explained how they during two years had developed and refined a new methodology for continuous improvements on one of their Swedish sites and once they felt that the methodology was good enough they started implementing it on other sites world-wide. Another respondent stated that "you cannot sit around and work on a perfect solution, it is better to get started and try". Additionally, many respondents highlighted the difficulties of piloting organizational changes.

All respondents also recognized the need for training and education regarding the solution during the implementation. However, it appears that only some types of changes such as the

implementation of a new process, tool or IT-system demand training. Furthermore, one respondent argued the training could focus more on other aspects, such as guidelines on what to do with those that do not want to change and how to work around these people. Additionally, few respondents highlighted on the topic of train the trainer as important in change initiatives. They argued that by focusing on training a few individuals they could later on act as change ambassadors within the organization. Additionally, six respondents indicated that employees and especially managers also receive specific training in change management. By given such training it was argued that managers will be better prepared to handle employees while making organizational changes as well as be more efficient in their change management leadership role.

When asked if they adjusted recruitment or incentives systems when implementing change the responses were fairly scattered. With regards to economic incentives system approximately one fourth of the respondents said they aligned incentives systems to the change initiative and additionally four respondents used it indirectly. For instance, one respondent explained that they did not use incentives systems as such, yet they had aggregated KPIs which could be related to a particular change. Noteworthy, some respondent that used incentives systems did not perceive these as beneficial. One respondent explained that there are drawbacks with an incentives system, for example if the change is managed top-down and fails this could then afflict the whole organization. Turning to recruitment systems approximately one third of the companies explicitly said they align recruiting systems or structures to support the change. One generalizable explanation was that recruitment is used if there is a need to fill new roles or positions created by the change, and the needed competence is not available in-house. Furthermore, among the companies that did not use recruitment as a mean for creating change five respondents still argued that they used recruitment to facilitate change in the long-term perspective. For instance, one respondent saw benefits by bringing in young people that are willing to change.

Finally, a question that caused a lot of interest from the respondents concerned when a change is implemented. The most frequently noted answers were that a change is implemented when people work according to the new processes or methods, or when you see the effects of the change in the results. Four respondents also elaborated upon the fact that you often have to settle for a "good enough" level for change initiatives. For example, one respondent explained that you can never reach a 100 percent implementation and therefore you should set your goals at, for example, 90 percent penetration. Furthermore, several respondents explained that changes in processes are implemented once they are signed-off and introduced into the existing standards.

5.5.3. Finalization of Change Initiatives

When asked how companies finished change initiative approximately half of the respondents stated that there is a handover to the normal organization or the line managers. Some added that this does not always mean that the change is fully implemented; rather there still is work to do to make it fully stick in the organization. Seven respondents stated that they do a lessons learned where they review the change initiative and after that the change team is dismissed. Two respondents stated that they end the change projects when the KPI's are reached while three other respondents argued that you cannot finalize change initiatives

since they go on forever, especially cultural changes. Another respondent elaborated on a similar note that he thought you should have clear criteria when a change is finished but that this is difficult due to the soft issues often related to change. Lastly, two respondents stated that changes are finalized by making them part of quality systems or IT systems and two other respondents stated that they sometimes celebrate.

Further, there appeared to be multiple ways to make change stick within the organization. Multiple respondents stated that they make change stick by including the change in formal processes and routines such as quality systems it systems and controlling input into other systems. Thirteen respondents stated that you need to follow-up the change or keep management focus. This could be achieved through follow-ups, identifying a new role or group that has the purpose to keep the focus, audits, KPI-reviews and discussions within the governance structure. One company, that had a specific change management framework, stated that they use a specific maturity assessment tool to evaluate to what degree the change had been implemented and if any post-implementation were needed. This tool did not measure only the KPI's but rather more soft values such as how many managers that had been trained etc. One respondent stated that culture can help support the change while two other stated that you need patience and let it takes time. Some respondents stated that communication of end-results is important and that training can help as well as making sure that the right stakeholders responsible for maintaining the change are involved early. Two respondents did not seem to see this as an issue since they work with continuous improvements. Lastly, one respondent concluded that a change is finalized and truly integrated into the organization if "the boss resigns but the change lasts".

5.6. Evaluation of Change Initiatives

To begin with almost all of the companies, except two, stated that they normally set goals related to the change initiative. What kind of goals and how these were set differed slightly between companies. Some companies created an abstract picture of where they wanted to be in the future while others seemed to be very detailed. Generally the goals seemed to be connected to the outcome of the change initiatives and sometimes connected to measurable KPI's. Some companies stated that the goal setting was a natural part of their project management models and should be completed early as part of the business case, after the pre-study or as part of the first gates in their models. Others were slightly vaguer stating that this was up to the initiator or that this could be handled within the project team. The general feeling was that all people directly involved in the change initiative were aware of the exact goals with the change. In addition, most respondents stated that at least the overall goals or the vision with the change is communicated to all the recipients of change.

Further, approximately half of the respondents stated that they evaluate change initiatives. What the respondents evaluated differed. Ten respondents seemed to be very results oriented and evaluated the change project according to goals, KPI's, results or the expected benefits of the change. Two stated that they have yearly audits to evaluate if everything works accordingly and two stated that it depends on the change initiative. When in the change initiative the evaluations takes place differed between respondents. Six stated that they do reviews both continuously during the initiative and after. Four stated that they do it continuously throughout the project on a monthly basis or as part of the gates in their

change model. Four stated that they do it after or as part of their yearly or half-yearly reviews. Further, two respondents stated that they do not evaluate change programs at all. Seven respondents stated that they sometimes or when suitable evaluated change projects. Generally if they evaluated the change seemed to be depending on the size of the initiative or if the outcome was easy to measure. Five respondents did not clearly say yes, no or sometimes but answered the question vaguely.

On a similar note, respondents were asked how they transfer the knowledge created via change initiatives back to the organization. Several respondents stated that this is achieved naturally since the people involved in the change initiative will increase their knowledge base, whereas approximately half of the respondents stated that they do a lessons learned at the end of the change initiative. Lastly some respondents had no structured way of how to transfer knowledge from change initiatives to individuals.

5.7. Handling Resistance to Change

To understand how companies handle resistance to change mainly two questions were asked. The first was: "how do you make employees understand the need for change?". Almost all respondents stated that communication is key to create and understanding for the need. One example of communication needed was tell the story why individuals need to change and how it will affect them. This could be done through everything from one day conferences, daily meetings, companywide presentations, individual reviews, through a constructive dialogue. Two respondents stated that there is no need for this since it has become a part of the company's continuous improvement culture or because change is natural to employees working within research and development. While two others stated that this is created automatically by including the right individuals in the change team.

The second question asked was: "how do you handle potential resistance to change". Companies generally seemed to have trouble answering this question very explicitly. However, there appeared to be similar methods to handle this resistance as to create an understanding for the need to change. Almost all respondents stated that communication in one way or another is important to overcome this resistance. Some stated that having logical motivation and explanation to why they should change was important. In addition, there was a larger focus on two way communication. Multiple respondents specifically stated that having a dialogue with involved stakeholders was important. On a similar note, approximately seven companies stated that it is important to involve the recipients of change early in the change process to remove the resistance. Some companies mentioned that they do a stakeholder analysis to better understand what potential resistance that might reside within the organization. In addition, it was noted that multiple respondents seemed to think this was an important part in succeeding with a change initiatives.

5.8. Key Influential Factors

When discussing what factors that influence the success of change initiatives, a multitude of answers were received. The key success factors that appeared to be most common are presented in Table 21.

Table 21. Most frequently mentioned key success factors for change initiatives
(Source: Interview study).

Key success factors
Clear motive (why?)
Communication
Clear vision
Clear goals
Let it take time
Employee involvement
Employee motivation
Buy-in from key stakeholders
Top-management support
Committed change leader (champion)
Leaders that "walk the talk"

The key influential factor that was most frequently mentioned was having a clear motive to why the organization has to change. This includes making employees' understand the need for change and that actions has to be taken to get away from the current position. The general feeling was that this is especially important in order to be able to sell the change and gain the needed support from all levels of the organization. Multiple respondents stated that the arguments have to be supported by data in order to build a solid case. One specific respondent pointed out that this is particularly important in R&D organizations since they have scientist and researchers that are used to analyze data and draw their own conclusions. The same respondent further argued that by having a solid case you can gain understanding for the change effort and receive replies such as: "I do not like the changes you are making but I understand why you have to do them", which is considered good enough for changes that are regarded as negative to some employees.

Furthermore, eleven respondents mentioned that communication is important. Multiple respondents were not particularly explicit in what they actually understood as communication. However, some more explicit examples were; a clear communication strategy needs to be in place, the communication from individuals leading the change has to be consistent, communication has to be continuous and long lasting, you can perform a stakeholder analysis to better understand what communication different individuals expect, hire a communicator and that communication should be positive. One respondent explained in detail how they achieved a clear communication. They let all the managers leading a large corporate transformation act as if they were at the end of the change initiative, and then record a speech where the managers were telling their employees what had been achieved. These recordings were then played back during a meeting with the other managers to help unify the future communication. In addition, a clear picture of what vision all the managers had with the change was created.

Having a clear vision was something that four respondents mentioned as an important influencing factor. One individual argued that having a clear vision and direction where to be in the future is particularly important within evolutionary change, because then you can take every chance you get to get one step closer to that vision. For instance, if someone

retires you can take that chance to acquire the new competence needed to fulfill the vision. Another respondent stated that a vision should be extremely explicit about what the change aims to achieve, and be very short so that it is easy to grasp. Closely related to the change vision is having clear goals. Five respondents referred to clear goals as measureable objectives with the change or KPI's that could be measured. The general view was that clear goals are needed in order to be able to know exactly why you conduct a certain change and to track and follow-up progress.

Further, four respondents stated that you have to let change initiatives take time. One respondent said this in the sense that people involved have to have time available to work with the change initiative, while others seemed to regard the time aspect as being patient during implementation. The reason was that individuals need time to change and by being patient and persistent change will slowly happen within the organization.

Another commonly mentioned key success factor was that employees should be involved. There appeared to be two main reasons for involving employees. First, involvement is needed in order to make employees aware that change was happening and get them onboard on the change initiative early on. Second, employees often have unique expertise within a process or function that can be very useful when developing a solution to the identified need. Closely linked to this is also employee motivation. Four respondents stated that when employees are motivated to change it is much easier. Some respondents argued that it was important for the individuals driving the change to be motivated while others argued that motivation was important for the recipients of the change initiative.

Eight respondents stated that buy-in from key stakeholders is crucial for the success of change initiatives. This means that the change has to be anchored with multiple stakeholders within the organization. Several respondents mentioned middle managers or line managers, which will be responsible for the change after the project has finished, as important stakeholders. In addition to this, multiple respondents mentioned the recipients of change as stakeholders from which a project can benefit from their buy-in. One specific type of stakeholder is top management. Since multiple respondents stated this as an individual category it has been kept this way. Five persons mentioned that top management support is a key success factor. The main reasons for this seem to be to attain credibility for the change initiative, secure sufficient resources and get the authority to execute decisions. On the topic of support from key stakeholders, at least three respondents explicitly highlighted the importance of having managers that are responsible for the results or will handle the implementation committed to the change initiative. The main reason for this is ensure that the benefits will be realized and that having internal support is important for creating credibility for the change initiative.

Lastly, seven respondents stated that committed change leaders influence the change in a positive way. The leader's role seems to be to see the change through and with commitment drive the project forward. One respondent argued that the project leader should be 100 percent committed and be able to choose his own team. Additionally, a few respondents highlighted the importance of having leaders that "walk the talk".

Further, when discussing what factors that had influenced projects where the desired result were not achieved the most common answer was the opposite from the key success factors previously discussed. However, some explicitly identified pitfalls that affect change initiatives negatively are, change overload, lack of definition, no "real" commitment from managers and unrealistic planning. Change overload means that organization can become fatigued when exposed to too much change. The main reason for this seems to be that change initiatives always come on top of daily operations. Having a lack of definition means, according to one respondent, that it is important to be clear about what is going to be achieved and what the boundaries of the change initiative are. No "real" commitment from managers means that having the formal commitment from managers is not enough if the managers do not live the change themselves. One example was that managers performing change often say that everyone has to change but rarely reflect this in their own behavior. Unrealistic planning means assigning resources and timing to change initiatives inappropriately.

6. Development of Framework for Change Management

In this chapter a framework for change management will be developed. This will be done by analyzing the different approaches for change management, the change management process and factors influencing change initiatives. The analysis has been done by combining, comparing and synthesizing empirical results with theoretical findings; leading up to the final framework for change management.

6.1. Types of Changes and Approaches for Change Management

In order to take a first step towards a framework for change management By (2005) reviews previous literature within change management using Senior's (2002) three different categories of change; change defined by how it comes about, change defined by rate of occurrence and change defined by scale. However, this research does not fully support Senior's (2002) categorization. The main argument for this is that the approaches for managing change applied in the industry do not fit into these categories.

Through the interview study it was found that there exist six main approaches for how companies manage change initiatives; ad-hoc, continuous improvements, specific change management models, project management models, ad-hoc and project management models, and lastly project management models and continuous improvements.

First, By (2005) argues that change depending on how it comes about mainly is characterized by two separate approaches; the planned and the emergent approach. This is to some extent supported by our interview study, which showed that companies can be characterized depending on to what extent they execute change top-down or bottom-up. However, rather than being two separate categories these views represented two ends of a continuum; ranging from a fully bottom-up approach where all changes were executed bottom-up, through companies applying a continuous improvements approach for the smaller changes and a project based approach for larger, to companies who applied a specific change management framework for all change initiatives. These findings confirm that defining change by how it comes about is an appropriate categorization of change initiatives, yet it also highlight that the sub-categories planned and emergent might not be fully appropriate since combinations exist.

This leads to an interesting finding regarding the interrelatedness of categories. During the interviews multiple respondents described how small changes were normally initiated via a bottom-up approach while the larger initiatives where initiated and executed top-down. However, two respondents argued that they virtually executed all change initiatives bottom-up, yet this is regarded as a unique exception and potentially a different answer might have been received if asking a next level manager. This aggregated finding suggests that having separate categories for scale and how it comes about is unnecessary. In addition, the category of change depending on rate of occurrence is argued to be redundant as well, since it is related to the scale of the change initiatives. Smaller change initiatives are most likely executed at a higher frequency, while large corporate transformations take years to execute.

Therefore it is argued that change initiatives can be categorized along a continuum with two ends. First, change initiatives only affecting one function that are initiated bottom-up and occur fairly often. Second, change initiatives affecting multiple functions that are initiated top-down and that rarely are executed. This is supported multiple respondents, who explained that there exist three levels of change. First, there are corporate-wide change initiatives initiated by top-management which are handled via specific projects. Second, there are departmental-level changes which are handled within the department via a structured approach for continuous improvement, a specific change management model or a project management model. Third, there exist group-level changes that are handled ad-hoc or through continuous improvements.

This categorization gives clearer directions for what approach that can be regarded as appropriate and how to develop the framework. Small changes are argued to more easily be handled via continuous improvements initiatives. Medium size changes as well as larger change initiatives instead should be executed using a specific framework for change management.

6.2. The Change Management Process

To develop a comprehensive understanding of the main phases in the change management process, the previously developed literature based phase model has been compared and combined with the encountered specific change management models as well as the four processes from project management models. The comparison is illustrated in Table 22, where the eight empirically based processes have been related to the literature based one. Thus, depending on the content and activities included in each phase, the empirical processes have been related to the corresponding phase of the literature based phase model.

It should be noted that the previously described DMAIC cycle used by one company for managing change has been left out from this synthesis. The reason is that the DMAIC cycle foremost is used as a tool for Six Sigma projects and continuous improvement efforts within business processes. Several respondents also mentioned the DMAIC cycle as a separate tool they used solely for the analysis and solution development. Thus, it may be argued that it is too limited to be considered as a process for managing all types of changes.

After Table 22 the models are evaluated with regards to whether they appropriately describe the change process, using Bullock and Batten's (1985) seven criteria. Subsequently, the models are compared with regards to similarities and differences. Lastly, the final synthesized change manage process is presented.

Table 22. Mapping of different change management processes applied in the industry to the literature based change process (Source: Interview study & Authors).

Literature Framework Phase Model	Specific change management model #1	Specific change management model #2	Specific change management model #3	Specific change management model #4	Project management model #1	Project management model #2	Project management model #3	Project management model #4
Exploration and Initiation	- Initiate - Analyze	- Create - Assign	- Pre-justify - Justify	- Justify	- Specification	- Pre-study	- Business case development	- Agree on objectives & Define project organization
Planning and individualization	- Design - Plan - Develop	- Active	- Plan	- Plan	- Definition & Design	- Analysis & Solution development - Detailed design	- Concept development	- Develop project plan
Move change and sustain momentum	- Implement	- Review	- Execute	- Execute	- Implementation	- Piloting - Implementation	- Implementation - Start of usage - Roll-out to other sites	- Evaluate progress and make decision regarding continued work
Integration and institutionalization		- Closed	- Close - Realize benefits	- Embed	- (Follow-up & Evaluation)	- Evaluation		- Evaluation - Finalization

6.2.1. Evaluation of the Change Management Processes

As a starting point for comparing the different processes used for change management it is interesting to consider whether or not they fulfill Bullock and Batten's (1985) seven criteria. To start with, all models appear to meet the first criteria as there are no indications that any of the models do not see change longitudinally. Second, it is not clear if all the models are truly continuous. For instance, the first specific change management model finishes quite abruptly after implementation; hence it is hard to appreciate whether or not change then is meant to happen gradually. Contrary, the third project management model clearly indicates the gradual change progress via the steps implementation, start of usage and roll-out to other sites. Third, not all models appear to have fluidity between the different phases. For instance, project management model number one has arguably quite distinct phases. Fourth, all processes appear to be liner and irreversible, at least after reaching the implementation or execution phase. Fifth, due to the project management models not taking specific consideration of change related aspects they arguably do not meet the criteria of progress through change related activities. Sixth, it appears that all the models have relatively high generalizability and thereby can be used for multiple situations. Seventh, similar as to the generalizability, the different processes appear to be able to describe multiple types of change efforts. Although, the second project management model was explained to be developed for managing IT-projects and thereby its generalizability may be questioned. In summation, it appears that the second, third and fourth specific change management models meet Bullock and Batten's (1985) seven criteria.

6.2.2. Comparison of the Change Management Processes

It is clear that the different processes share many generic features. As explained above, all models regard change as a longitudinal process which is linear and irreversible. Furthermore, in accordance to the argumentations provided by respondents all the different models are applied to multiple situations and multiple different types of change efforts. Yet, even though all processes share a set of basic characteristics there still exists apparent and important differences.

A first general difference is the emphasis on people management in the literature based model and the specific change management models, compared to the project management models. For example, the literature based model denominates the second phase 'Planning and individualization' as it incorporates Mento et al.'s (2002) explanation about how the organization has to be prepared for the change as well as Whelan-Berry and Somerville's (2010) note that the vision has to be broken down further on the individual level to enable the change. This focus is also reflected in the specific change management models. For instance, the third specific change management model included the elements stakeholder engagement and change network management, which both focus on the people management aspects of change throughout the process. This focus is not reflected within the normal project management models. Rather these processes focus more on tangible project management aspects, which arguably is a consequence of deriving from models used for managing product development.

With regards to the different phases it is apparent that different aspects are emphasized in the literature based model, the specific change management models and the project

management models. In the first phase both the literature based model and the specific change management models focus more explicitly on the need awareness and vision creation. The 'Exploration and initiation' phase of the literature process include Bullock and Batten's (1985) argument that a change initiative starts with the awareness of a need and Whelan-Berry and Somerville's (2010) statement that the first step of the change process is to create a clear and compelling vision. This focus is also reflected in the specific change management models. For example, the third change management model incorporates a pre-justification and justification in the first phase. Arguably these activities focus on addressing the need for change. These somewhat soft aspects of a change project are not as obviously reflected in the normal project management models. Rather the first phase in these processes focuses more on tangible objectives, such as financial metrics included in business cases. None the less, the name 'Exploration and initiation' is kept for the first phase as it appears suitable for a specific change management model.

The second phases in the different models are relatively similar. Even though there are some slight variations in titles the second phase generally includes activities such as analysis, planning and solution development. However, it may be argued that the name 'Planning and individualization' used in the literature framework is slightly misleading. Planning appears to be one of several activities performed, and therefore the name should be changed to the more general 'Individualization and design' in the refined change management process.

The third phase also appears to be fairly similar between the different models. However, one slight difference concerns whether or not the processes incorporate piloting. In the third phase of the literature based process, Lewin (in Burnes, 2004) suggests using an iterative approach with room for trial and error. This approach is only reflected in two of the processes described in Table 22. Although, 25 out of 26 companies stated that they at least occasionally use piloting for implementing change and thereby this difference may not exist in reality. Arguably people working within R&D are accustomed to a trial and error based approach and thereby testing and piloting is the natural way forward. The reason it is not included in the specific change management processes may be that not all types of changes are possible to pilot. As described by multiple respondents organizational changes are often impossible to pilot. Another minor difference between the empirically encountered models and the literature based process is the use of the word implementation. Half of the models use this word to describe the third phase and therefore it is argued that the name of the third phase should be changed from 'Move change and sustain momentum' to 'Implementation and sustaining momentum'.

The most apparent differences concern the end-point of the different processes. Two distinct differences exist; the lacks of a finalization phase in one of the specific change management models and the emphasis on evaluation in three of the project management models and one of the specific change management models. Concerning the finalization phase, the literature based model includes a phase called 'Integration and institutionalization' were authors such as Bullock and Batten (1985), Whelan-Berry and Somerville (2010) and Mento et al. (2002) highlight the importance of integrating the change into the organizations normal way of operating and performing lessons learned to transfer knowledge back into the organization. Thereby the change can be institutionalized as a natural part of the organization. These

activities are not described in the first specific change management model. Arguably a dedicated process for change management should include a last phase with such activities whereby the name 'Integration and institutionalization' appears suitable.

Furthermore, the processes encountered in the empirical study appear to have a stronger focus on evaluation. Three of the models explicitly mentioned evaluation as the last activity. Further, the respondent describing the first specific change management model explained how they used a maturity assessment tool for follow-up. Yet, the activity of evaluation is not as distinct in the literature based phase model. However, the concept of evaluation constitutes a discrete activity and therefore evaluation can be regarded as a sub-part of integration and institutionalization. Thus, the name 'Integration and institutionalization' is kept for the last phase.

6.2.3. Final Change Management Process

Given the analysis of the differences and similarities between the described processes a refined top-level process for change management has been developed, as illustrated in Figure 9.
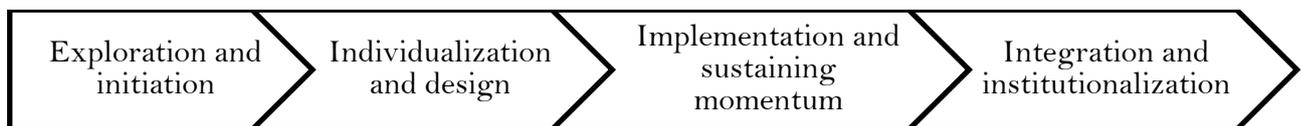

Figure 9. Synthesized change management process (Source: Authors).

Compared to the previously developed literature based process the second and third phases have changed names. With regards to the second phase, it is argued that the concept of design better describes the different activities performed than planning did. Concerning the third phase the wording 'Move change and sustain momentum' was altered to 'Implementation and sustaining momentum' to better reflect the findings made within the interview study. The changes made in the top-level process may seem minor, yet the provided analysis induces further refinements in the different key influential factors described below.

6.3. Factors Influencing Change Initiatives

This section will elaborate on the most important factors that influence the success or failure of change initiatives. First, a gap analysis will be performed by comparing the key success factors and common pitfalls explicitly mentioned during the interview study with the key success factors included in the literature framework. Second, each factor identified in the literature framework will be addressed by considering it in relation to the empirical findings. Even though a factor was not explicitly mentioned by respondents it may still be supported by their arguments. Based on this comparison a final set of factors to be included in the framework will be derived. Also, the naming of the factors will be discussed. Third, each of the factors included in the final framework will be analyzed in greater detail and where possible a more practical description of the factor will be provided. Each factor will also be linked to the change management process. Thereby a better explanation of how each influential factor operates and impacts the specific phases will be provided.

6.3.1. Gap Analysis of Influential Factors

In Table 23 the influential factors for which there exist a direct overlap between the literature framework and the empirical findings are presented. With direct overlap it is meant that the factors were explicitly mentioned by respondents when asked about factors influencing the success or failure of change initiatives.

Table 23. Gap analysis of factors influencing change initiative (Source: Authors).

Literature Framework	Empirical Findings
A fair change process	Change overload
Change related communication	Communication Clear Motive (why?)
Approved strategy plan	Clear Goals Lack of definition Unrealistic planning
Accepted change vision	Clear Vision
Employee involvement	Employee Involvement
Capabilities of change team ensured	Committed Change Leader (champion) No "real" commitment from managers
Support from key stakeholders obtained	Buy-in from key stakeholders Top-Management Support

First, change overload, which was identified as a pitfall by three respondents, is clearly overlapping with the literature based influential factor a fair change process. As argued by Bamford and Forrester (2003) one change initiatives might jeopardize the success of other since employees involved in the change will be tired due to the additional workload. Second, the importance of communication has been highlighted by multiple authors in the literature framework as well as by multiple respondents during the interviews. Third, having a clear motive to why you need to change was the most identified key success factors. This is, as highlighted by Whelan-Berry and Somerville (2010), argued to be an important part of change related communication. Fourth, both having clear goals and a proper definition and plan for the change initiative are part of having an appropriate strategy plan. This is highlighted by both Beer and Eisenstadt (2000), who state that the change initiative has to be discussed in depth by senior managers and cannot contain conflicting interests, and Mento et al. (2002), who highlight the importance of developing a plan that at minimum contains goals for the change initiatives as well as clear roles and responsibilities. Fifth, having a clear and compelling vision of where you are heading was identified as important by three respondents and by multiple authors, such as Kanter et al. (1992) Whelan-Berry and Somerville (2010) and Keller and Aiken (2009). Sixth, as explained by Whelan-Berry and Somerville (2010) and Keller and Aiken (2009) multiple respondents also argued that employee involvement had a large influence of the change process. Seventh, several respondents emphasized the importance of having a committed change leader, which authors such as Oakland and Tanner (2007), Farris and Ellis (1990) and Kanter et al. (1992) agree with. Additionally, no "real" commitment from managers is described by multiple respondents in the interviews and this is also highlighted by Kanter et al. (1992) who state that leaders have to "walk-the-talk" and co-own the change. Lastly, support from key stakeholders has been highlighted by multiple authors such as Farris and Ellis (1990) and Beer and Eisenstadt (2000). The empirically identified influential factors concerning support

and buy-in from key stakeholders are argued to have exactly the same meaning. Furthermore, top-management is one category of important stakeholders and should therefore be included in the factor concerning support from key stakeholders.

Concerning factors identified in the empirical findings which were not identified in the literature framework, two factors were found; employee motivation and let it take time. However, none of these factors have been included in the final framework due to different reasons. First, employee motivation is argued to be an effect of other activities. For example, it may be argued that employee motivation comes as an effect of a well-established strategy plan and adequate communication in relation to the change initiative. Thus, employee motivation should not be included as an important influencing factor. Second, let it take time is arguably very passive in the sense that you cannot do anything to affect it other than wait. Therefore it is argued not to be a stand-alone factor but rather an important aspect to consider in relation to evaluation and follow-up of the change initiative.

6.3.2. Assessment of Influential Factors from Literature Framework

Seven factors were identified in the literature framework but were not explicitly mentioned by respondents as key influential factors. These seven factors are; resistance to change addressed, continuous reviews performed, change related training, aligned HR practices, aligned structure and control processer, approved implementation plan, reinforce the change. However, even if a factor was not explicitly mentioned by respondents it may still be supported by their arguments. For instance, some of the seven factors were mentioned as important in relation to other questions during the interviews. Thus, not all of these seven factors should be excluded from the final framework.

Table 24 provides an overview to which of the factors in the literature framework that have been included in the final framework. Five factors have been removed; sense of urgency felt, accepted change vision, reinforces the change, implementation plan and resistance to change addressed. Motivations to why they have been excluded are also provided in Table 24.

Table 24. Presentations of which factors from the literature framework that have been included in the final framework, including reasons for removal (Source: Authors).

Factor	Included or excluded?	Reason for removal
A fair change process	✔	
Change related communication	✔	
Sense of urgency felt	✘	Incorporated into change related communication since it was found during the interviews that this is the way to create sense of urgency.
Approved strategy plan	✔	
Accepted change vision	✘	Incorporated into change related communication since it was found during the interviews that this is the way to achieve an accepted change vision.
Employee involvement	✔	
Capabilities of change team ensured	✔	
Support from key stakeholders obtained	✔	

Approved implementation plan	✗	Incorporated into approved strategy plan since no explicit support could be found that an implementation needed to be separate from other plans.
Resistance to change addressed	✗	Resistance to change has been removed for two reasons. First, since Mento et al. (2002) argue that it is addressed through communication something which is supported by the interview study. Second, since the resistance to change that comes from change overload, described by Sirkin et al. (2005) is handled under a fair change process.
Continuous reviews performed	✔	
Change related training	✔	
Aligned HR practices	✔	
Aligned structure and control processer	✔	
Reinforce the change	✗	Incorporated in continuous reviews performed since it was found during the interviews that this is an effect of continuous reviews.

Before further describing and analyzing the factors still included in the framework some name changes have been made. These changes have been made based on two criteria. First, all factors were written to fit naturally after the sentence "In a change initiative it is important to have …", in order to increase the distinctiveness in terminology. Second, some changes have been made to the naming since the content entailed in the factor has changed. Where this is the case clear reasoning is provided under that detailed description of the factor in the following sections. See Table 25 for presentation of final factors including name changes.

Table 25. Presentation final factors with name changes (Source: Authors).

Previous Name	Altered?	New name
A fair change process	Yes	A well-established change process
Change related communication	No	Change related communication
Approved strategy plan	Yes	A developed strategy plan
Employee involvement	No	Employee involvement
Capabilities of change team ensured	Yes	Ensured capabilities of change team
Support from key stakeholders obtained	Yes	Support from key stakeholders
Continuous reviews performed	Yes	Evaluation and continuous reviews
Change related training	No	Change related training
Aligned HR practices	No	Aligned HR practices
Aligned structure and control processer	No	Aligned structure and control processes

6.3.3. A Well-Established Change Process

The factor denoted 'A fair change process' in the literature framework constitutes of two parts. The first part is having an appropriate approach to change, meaning an approach that is process-oriented, project-based, (Oakland & Tanner, 2007) and fair to all people involved (Keller & Aiken, 2009). As previously explained a majority of the interviewed companies used a structured approach, such as a project management model or a specific change management model, to execute large change initiatives. Therefore it is interpreted that there exist a clear need for having a structured approach towards change management, and that

this approach should be project and process based. The support for having a project based approach is further strengthened as most of the interviewed companies create a plan for how to execute the change initiative before they start. Planning is according to Oakland and Tanner (2007) an important part of a project-based approach. Another benefit of having a structured approach is since it aids the solution development. Most respondents during the interviews stated that they use structured problem solving tools to develop the solution.

Regarding the importance of having a change process that is fair to all individuals' involved, no explicit support has been found in the interview study. However, it is difficult to argue against fairness in a civilized manner. Since little explanation of what fairness within change initiatives actually means, this part of the factor will be kept but more as a reminder of the importance of being fair rather than as an actionable factor. Additionally, it is argued that by having a clear standardized approach to change which is available to multiple parties, the risk of handling one specific individual unjust is reduced.

The second part of having a fair change process is related to thinking twice before initiating the change and evaluating if the change is truly needed. This reason for this is that a poor change initiative might, as highlighted by Bamford and Forrester (2003), jeopardize other change projects since it fatigue employees by implying an additional workload. This aspect was identified as important by three respondents and should therefore be kept. As highlighted by three of the companies that have a structured approach to change management, the first phase is always to justify the case or build a business case. By having a clear business case and justification to why the change is needed it is argued that the risk for pursuing unnecessary change projects are reduced. Additionally, some respondents explained that change projects should not impose too much of an additional burden on employees. Rather it was deemed better to allocate dedicated resources to change initiatives. This reasoning is in-line with Sirkin et al. (2005), who argue that change initiative should not impose more than ten percent extra workload for employees during implementation.

Given the analysis provided it is argued that the name 'A fair change process' should be altered to 'A well-established change process'. This name better entails the benefits of having a standardized and structured approach which is recognized by employees, and place less emphasis on the aspect of fairness.

Link to the Change Management Process
It is natural that having a well-established change process is important throughout the change initiative. However, the importance of this factor should be highlighted especially in phase one, two and three of the change management process. In phase one a clear business justification is needed in order to avoid fatigue. Phase two contains coordination of multiple individuals and activities as well as problem solving, both which are facilitated by a structured approach. Lastly, in phase three employees have to be handled fair since this is where the implementation takes place and where the highest risk for having people turn against the change initiative resides. Also, if the change initiative demands more than ten percent extra workload for employees during implementation additional and dedicated resources should be allocated to the change initiative.

6.3.4. Change Related Communication

As already highlighted, the importance of change related communication has been evident both when reviewing the literature and throughout the whole interview study. The concept of communication has multiple purposes. Beer and Eisenstadt (2000) state that poor communication between managers in the hierarchy hinder strategy implementation whereas Kanter et al. (1992) explain how communication, especially regular two-way communication, help overcome resistance to change. In addition, Kanter et al. (1992) also describes how communication around the vision helps unite the organization and increase employee motivation. Whelan-Berry and Somerville (2010) describe how change related communication facilitate understanding for the change program, increase commitment, remove obstacles, and signals the organizations ongoing commitment. During the interview study especially the importance of communicating a clear motive to why the change was needed was highlighted. Respondents explained that when trying to change an R&D organization it is more important than normally to have a logical chain of thoughts and data to support the case. One respondent argued that if you have a clear enough logic you can reach a point where employees being faced with a negative change can say "I do not like the changes you are making but I understand why you have to do them".

Multiple respondents mentioned that a good way to work with communication is to perform a stakeholder analysis and adapt communication after the recipients. Therefore this seems like a first logical step. Two respondents also argued that you can hire a communicator to help facilitate communication. Since this seems fairly expensive and not needed for all change initiatives it should not be included in the framework.

With regards to communicating the change vision support for this factor has been found in the interview study. Whelan-Berry and Somerville (2010) argues that the vision should be clear something that is supported by multiple respondents. One argued that it should be so clear that it can be expressed in one sentence. Further, another respondent highlighted that it should be univocal, something that is argued to be in line with Kanter et al. (1992) who states that the vision should be shared. This can for example as previously described be achieved through cross-functional collaboration facilitated by video recordings.

Mento et al. (2002) argued that change initiatives should be built around creative tension, incorporating both positive and negative aspects of the change. No support has been found for this during the interview study. However, since communication should be about why the organization need to change and the vision of the change initiative this is considered to be indirectly achieved.

Beer and Eisenstadt (2000) state that poor communication between managers in the hierarchy hinder strategy implementation; no support for this problem has been found. Instead, multiple respondents stated that communication with competent employees, facilitated by problem solving tools, is important to develop the solution. Therefore this factor should be added as an important factor for change management.

Both Kanter et al. (1992) and Whelan-Berry and Somerville (2010) state that regular two-way communication is important to uncover potential barriers to change and facilitate implementation. Multiple companies stated that communication is important when

implementing change, but they gave little examples exactly how. Therefore this factor is still considered valid. Some companies gave explicit examples how communication around the results and degree of implementation was important to signal management commitment and keep momentum in the implementation. This is supported by Whelan-Berry and Somerville (2010) who argue in a similar manner.

The argument that change related communication should be considered also in phase four was supported by some respondents who stated that communication of end-results was also mentioned as an important factor to make the change stick within the organization.

Link to the Change Management Process
As already highlighted in the literature framework, change related communication is important in all phases of the change management process. This has been supported throughout the interview study.

In phase one, a stakeholder analysis should be performed to be able to tailor communication to different individuals. Communication is also important to create an understanding of the need for change, and the communication should therefore focus on why there is a need. It should also be supported by solid data and be logic in the chain of thought. A clear and compelling vision should also be created through cross-functional collaboration to create creative tension. In phase two, communication facilitated by problem solving tools should be performed to aid the development of a solution. In phase three communications is important in order to remove obstacles and facilitate the implementation of change. This communication seems to contain both two-way dialogues and communication around results and degree of implementation. Lastly, change related communication is important in phase four to make the change stick and should focus on signaling management commitment to the change initiative by communicating end-results.

6.3.5. A Developed Strategy Plan
As highlighted by Beer and Eisenstadt (2000) it is important to develop a clear strategy for the change initiative, and this strategy should be discussed in depth by senior managers. In addition, Mento et al. (2002) argue that it is important to develop a plan that at minimum contains goals for the change initiative. Since most of the interviewed companies stated that they create an overall plan for the change initiative, clear support for this factor is found. The main purpose of having a clear strategy seems to be that the risk of important activities not being performed is reduced. Additionally it is important, as described by Beer and Eisenstadt (2000), to uncover conflicting interest and, as described by Mento et al. (2002), to remove potential misunderstandings around the roles and responsibilities.

Some important parts of the plan identified by respondents included business case, risk analysis, goals to team members, time plan, and specific key activities. Mento et al. (2002) argue that a definition of roles and responsibilities should also be included. Additionally, several respondents highlighted the importance of planning the implementation. The need for a detailed implementation plan appeared espacially important for major change initatives affecting several separate sites. Arguably this implementation plan should also be a part of the strategy plan.

Beer and Eisenstadt (2000) suggest that the change strategy should be created through in-depth discussion with managers. From the empirical findings no information has been found that can disconfirm this, therefore in-depth discussion appears the appropriate method for strategy creation. However, since authors like Whelan-Berry and Somerville (2010) and Keller and Aiken (2009) argue that it is important to involve employees in the creation of the vision, it seems natural that input to the strategy plan can be taken from other parts of the organization as well.

On a different note, the empirical findings do not explicitly highlight the need for the strategy plan to be approved. The approval of the plan is of course important for the progress of the change initative, yet it is rather the development of the plan which influences the success or failure of the change initative. Thus the name of this factor has been changed to 'A developed strategy plan' instead of 'Approved strategy plan'.

Link to the Change Management Process
The factor 'Approved strategy plan' is, as described in the literature framework, mostly important in the first phase of the change management process. However, since phase two contains planning and breakdown of the overall change initiative into the organization it should extended to the second phase as well.

In phase one focus should be on building the business case, making a risk analysis, building an overall time plan, defining roles and responsibilities to ensure no key activities are omitted and to remove conflicting interest. In phase two, a detailed plan for implementation should be developed to support the roll-out of the change.

6.3.6. Employee Involvement
As already noted by Keller and Aiken (2009), Whelan-Berry and Somerville (2010), Kanter et al. (1992) and Farris and Ellis (1990) involvning employees in change efforts is important. This has been confirmed during the interview study, where multiple respondents stated that employee involvement is a key success factor. In addition, 85 percent of the respondents stated that they involved employees when they developed solutions to potential problems.

The main purpose of involving employees is to increase motivation (Keller & Aiken, 2009), increase understanding for the change initiative (Whelan-Berry & Somerville, 2010) and remove potential resistance to change (Kanter et al., 1992). Furthermore, based on the interview study it seems like there are two main ways to involve employees. For those companies who use continuous improvements as their main approach to change the involvement comes naturally from need awareness to solution implementation. For change initiatives executed via a structured approach involvement have to be taken in at discrete parts of the process. Companies using a continuous improvement approach seemed to regard involvement as something easy. All changes are already anchored at the bottom of the organization since the need was discovered by employees. Yet, since anchoring of the need is so important it is argued that employees should be involved in the clarification of the problem as well.

Another area were companies explain that they involve employees is in the solution development to be able to create the best solution. Additionally, piloting the solution

arguably constitute an important activity for involving employees. Almost all companies stated that they use piloting, at least occasionally, for implementing change and most probably piloting demands some sort of employee involvement.

Link to the Change Management Process

As argued in the literature framework, involving employees is mostly important in phase one, two and three of the change management process. For instance, Whelan-Berry and Somerville (2010) state that employees should be involved in activities ranging from problem analysis and planning to implementation and piloting. During phase one the employees should be involved in the clarification of the problem and in the creation of the vision. In phase two employees should be involved in solution development to create the best possible solution and reduce resistance to change. In phase three employees should participate in pilot piloting the solution to facilitate implementation and reduce resistance to change.

6.3.7. Ensured Capabilities of Change Team

Clear support for the importance of having a capable team that runs the change has been found both in the literature and in the empirical results. First, as argued by Sirkin et al. (2005) it is important to have appropriate skills and traits of the team members related to the requirements of the actual project. As much as twelve companies argued that key roles in a change initiative included having a competent team with special knowledge suitable for the task. Second, authors such as Farris and Ellis (1990), Kanter et al. (1992) and Mento et al. (2002) have a more leader centric focus. This focus is also supported empirically since 15 companies argued that the project leader has a crucial role in change initiatives and since a competent project leader was mentioned as a key success factor.

Some of the companies used a standardized organization which they always use for executing change initiatives. However, this approach appears more suitable for ensuring that support has been obtained from key stakeholders than for ensuring the exact capabilities of the individuals. Companies which did not use a standardized organization had a more ad-hoc approach to staffing, and it was most often up to the project leader to identify suitable individuals.

As argued by Farris and Ellis (1990), Kanter et al. (1992) and Mento et al. (2002) the leader is crucial to drive the change forward and to inspire individuals to embrace the vision. This is confirmed by multiple respondents who states that is important for the leader to bring the whole initiative forward. An important thing to be aware of is that leaders do not only have to be part of the change initiative, they should also walk the talk and change themselves. This aspect is highlighted by Whelan-Berry and Somerville (2010) as well as multiple respondents in the interview study. For instance, one respondent explained how it is common that leaders sit in a meeting and talk about how great the change is for employees, yet they never reflect upon their own behavior. This leads to mixed messages being sent and the implementation might be hindered. Thus, leaders have to walk the talk and be the change.

As explained by Oakland and Tanner (2007) consultants can be an important addition to the project team. This has been confirmed during the interview study where all companies

except three stated that they use consultants for analysis, solution development and to get some extra horsepower.

Link to the Change Management Process
Ensuring the appropriate capabilities of the change team has previously been mentioned as mostly important in phase one, two and three of the change management process. After the interview study the opinion is that this priority is appropriate. During phase one an engaged change leader have to be attained that can inspire others and make sure that the change progresses. In the second phase the capabilities and knowledge of the change team are used, with the potential help of external consultant, to solve the problem at hand. In phase three leaders should walk-the-talk to avoid sending mixed messages and hinder implementation.

6.3.8. Support from Key Stakeholder
In the literature authors such as Kanter et al. (1992) explain that there are two major categories of stakeholders; those who allocate resources to change initiatives and those who are, in one way or another, affected by the change. The main purpose for having top-management support found in the literature seem to be to signal importance to the change (Farris & Ellis, 1990) and to attain sufficient resources (Kanter et al., 1992). This has been confirmed in the interviews since multiple respondents stated that top-management support is important to attain credibility for the change initiative and secure sufficient resources. In addition, several respondents stated that top-management support is needed in order to get the authority to execute decisions.

Having the appropriate key stakeholders committed also helps coordinate activities across functions, something which is highlighted by both Beer and Eisenstadt (2000) and respondents. Some respondents specifically highlighted the important of involving employees across functions for solution development, to ensure that you arrive at a solution appropriate for all stakeholders. Furthermore, Sirkin et al. (2005) and Beer and Eisenstadt (2000) highlight the importance of commitment from key employees down the line. This has also been highlighted by multiple respondents as an important factor. If the managers that will be responsible for driving the change are not part of the change team, the initiative runs at great risk of falling through the cracks and never be implemented.

The main method for securing the appropriate support from key stakeholders seemed to be through the natural hierarchy, where a decision to go ahead had to be taken by a manager higher up in the organization. In addition, some of the companies used a standardized organization which they always use for executing change initiatives. By staffing a steering committee, owner and sponsor for the change initiative with the appropriate individuals at the appropriate level in the organizational hierarchy the initiative received automatic support.

Link to the Change Management Process
The interview study confirmed that having support from key stakeholders is mostly important in phase one, two and three of the change management process. In phase one the main purpose seems to be to signal the importance of the change initiative. In phase two it seemed to be to attain sufficient resources for executing the change and ensure cross-

functionality in the solution development. In phase three, commitment from the appropriate managers is important in order to ensure that the implementation actually takes place.

6.3.9. Evaluations and Continuous Reviews

The concept of continuous reviews is recognized as important both within the literature and the interview study. In the literature authors such as Oakland and Tanner (2007) and Mento et al. (2002) highlight how continuous reviews help deliver the desired value and identify areas of improvement. Sirkin et al. (2005) specifically explain how continuous reviews help executives to review the execution of change projects, identify gaps and spot new risks.

Ten of the respondents argued that they do evaluations continuously to review the progress of the change initiative. These reviews seemed to be performed as reporting to the steering committee. The remaining 18 respondents appeared to do evaluations foremost after the implementation was done or on demand. This can be exemplified by the fact that one third of the respondents argued that they perform lessons learnt after finalizing change initiatives. The main reason for this was to transfer knowledge back to the organization. That lessons learned is an appropriate last activity is supported by Mento et al. (2002)

Kanter et al. (1992) argued about the importance of keeping the change a high priority issue and integrating it into the behaviors of the organization. The importance of sustained management focus was recognized by multiple respondents who said that this could be achieved through evaluations such audits, KPI-reviews or through a maturity assessment tool. On this topic it also important to highlight that four respondents explained that letting the change take time was necessary as individuals need time to change, and that by being patient and persistent change will slowly happen within the organization.

Thus, it is argued that the influential factor previously denominated 'Continuous reviews performed' should instead be called 'Evaluations and continuous reviews' to better entail the complementing aspects of final evaluation and continuous reviews. With this naming it is clearer that evaluation concerns a follow-up on results and that continuous reviews foremost concerns sustaining focus and identify areas of improvements.

Link to the Change Management Process

Even though final evaluations have been further emphasized this does not impose any alterations in the linkages suggested in the literature framework. Continuous reviews must by definition be performed after the change has been initiated, for instance via meetings with steering committees. Thus the factor 'Evaluations and continuous reviews performed' should be linked to phases two, three and four of the change management process.

In phase two, reviews should be performed to help executives review the execution of change projects, identify gaps and spot new risks. In phase three the change initiative should be continuously reviewed to ensure that the desired value is delivered. In phase four, lessons learned should be performed to transfer knowledge back to organization. In addition, an evaluation of the change initiative should be performed to sustain management focus and ensure that benefits are realized.

6.3.10. Change Related Training

Within the literature study authors such as Whelan-Berry and Somerville (2010), Keller and Aiken (2009) and Kanter et al. (1992) suggested training as an important activity that may facilitate change efforts, and this suggestion was recognized by all respondents in the interview study.

In the literature the concept of change related training mainly contained training in new processes, routines or technical capabilities; thus it appears that it is mainly training in the solution that will be implemented which is required. Even though all respondents recognized this need for training in new tools, processes or IT-systems some also elaborated upon the need for specific training in change management. Respondents especially highlight the need for training managers or change agents in the topic of change management. The main reason for this is to prepare managers to become more efficient in executing change and handling employee conversations during reorganizations.

Link to the Change Management Process

In the literature framework change related training was identified as an influential factor in the third phase of the change management process, and this linkage is endorsed by the interview study. For instance, activities such as training in a new IT-system may be argued to solely derive to the implementation phase. However, the addition of training in change management makes the factor 'Change related training' linked to the second phase as well. Arguably it may be wise to provide managers responsible for the change additional knowledge within change management to handle related challenges.

6.3.11. Aligned HR Practices

From both the literature study and the interview study it is clear that aligned HR practices constitute an influential factor affecting the success or failure of change initiatives. From the argumentations of the different authors it appears that aligned HR practices includes two components; aligned economic incentives systems and aligned recruitment.

Concerning the first component, authors such as Whelan-Berry and Somerville (2010), Kanter et al. (1992) and Keller and Aiken (2009) argue that both formal and informal reward and economic incentives systems need to be aligned with the change initiative. However, there appears to be some slight differences with regards to the usefulness of formal incentives systems and these differences are also reflected in the empirical results. Only one fourth of the respondents state that they use formal bonus or reward systems. Even though the topic of using formal incentive systems is under debate by scholars and since no full support has been found during the interviews, it is still argued that there is a need to ensure that incentive systems do not hinder the change.

Turning to the second component, authors such as Whelan-Berry and Somerville (2010) and Bamford and Forrester (2003) emphasize the importance of hiring and retaining suitable employees who support the change. This view was shared by approximately one third of the respondents, who argued that recruitment was used if there were a specific competence needed to support the change which was not available in-house. Furthermore, several respondents argued that they use recruitment to facilitate change in the long-term perspective. This explanation is much in line with Mento et al. (2002), who argue that to

make the change last it must be rooted in recruitment and incentives systems. Additionally, it should be mentioned that HR's role within change initiatives were emphasized by many respondents due to their specific competence in people management.

Link to the Change Management Process
The interview study provided no clear indications of when the alignment of HR practices were to be conducted, yet it was mainly discussed in relation to implementation and finalization of change initiatives. Hence, the linkage of 'Aligned HR practices' to phase three and four of the change management process as suggested in the literature framework is kept. During the third phase incentives systems should be aligned to the change initiative and the needed competences should be attained, either by using in-house employees or by recruiting new people. In the fourth phase HR practices should be aligned to ensure that change is long-lasting.

6.3.12. Aligned Structures and Control Processes
The importance of aligned structures and control processes were only occasionally mentioned in the interview study, yet it appeared as an underlying theme in many responses. The importance was more explicitly expressed within the literature, where several authors highlighted the need for having organizational structures and control processes that support the change.

For instance, Whelan-Berry and Somerville (2010), Mento et al. (2002) as well as Bamford and Forrester (2003) mentioned the need for aligning reporting configurations and relationships, technology systems, planning and budgeting systems to the change. Only some of these alignments were recognized by respondents. For example, seven respondents explained that for changes to be finalized they should be incorporated into the existing quality systems, control systems or standards. An additional and interesting insight is obtained when considering the following statement from one respondent, a successful change is when "the boss resigns but the change lasts". Arguably, this statement indirectly implies that the change has been incorporated into existing structures and control processes.

Link to the Change Management Process
In the literature framework the influential factor 'Aligned structure and control processes' are connected to the third and fourth phase of the change management process. However, based on the interview responses it is argued that this factor is mostly relevant to consider in the fourth phase since most of the reasoning from respondents on the topic relates to finalizing the change initiative and making it stick. Thus, it is argued that 'Aligned structures and control processes' – including activities such as incorporating the change into standards and quality systems – are only related to the fourth phase of the change management process.

6.4. Final Framework for Change Management

In Table 26 the synthesized framework for change management is presented. The top row contains the four phases of the change management process, including a short description to the main activities performed in each phase. The left column presents the ten influential factors with a short explanatory description. The influential factors are presented in a logic

order with the two aggregated factors 'A well-established change process' and 'Change related communication' presented first and thereafter the remaining factor presented according to their relation with the change process. In the body of the table the linkages between the different factors and the four phases are presented. These linkages are done by briefly explaining what activities that should be performed for each factor in each related phase, and what result these activities will generate.

Table 26. The 4-by-10 ruler of change: A practical framework for managing change (Source: Authors).

	Phase 1: **Exploration and initiation** *Identify and explore the need to change and take the first steps towards a change initiative.*	Phase 2: **Individualization and design** *Break down the change initiative to parts of the organization and start develop the solution.*	Phase 3: **Implementation and sustaining momentum** *Roll out the change into the organization and maintain focus.*	Phase 4: **Integration and institutionalization** *Integrate the change into daily operations and make it a natural part of the organization.*
A well-established change process *Use a project and process approach and be aware of change overload.*	• Provide a clear business justification to avoid unnecessary change initiatives.	• Use a structured approach to coordinate activities and develop the solution.	• Have a clear and standardized approach to handle all individuals fair. • Allocate dedicated resources to ensure that the change do not impose too much of an additional burden.	
Change related communication *Communicate continuously, clearly and univocally around the change initiative.*	• Perform stakeholder analysis to adapt communication to individuals. • Use logic and data driven communication to create an understanding of the need for change. • Create a vision through cross- functional collaboration and communicate it univocally.	• Communicate, using by problem solving tools, to gain input for solution development.	• Have frequent dialogues with employees to uncover potential barriers to change. • Continuously communicate results and degree of implementation to signal management commitment.	• Communicate end-results to make the change stick.
A developed strategy plan *Plan the change initiative thoroughly and discuss the plan.*	• Create a strategy plan including clear goals, time plans, risk analysis, and roles and responsibilities to ensure no key activities are omitted. • Discuss the strategy plan thoroughly to remove conflicting interests.	• Create a detailed implementation plan to support the roll-out of the change.		
Employee involvement *Involve employees in as many activities as possible.*	• Involve employees in the clarification of the problem and the vision creation to increase understanding for the change initiative.	• Involve employees in the solution development to create a better solution and reduce resistance to change.	• Involve employees in piloting the solution to facilitate implementation and reduce resistance to change.	

Category			
Ensured capabilities of change team *Attain individuals with appropriate capabilities for the change initiative.*	• Attain an engaged leader to inspire others and make sure the change progresses.	• Identify and attain individuals such as knowledgeable employees, consultants and experts to solve problem at hand.	• Ensure individuals in the change team "walk-the-talk" to avoid mixed messages.	
Support from key stakeholders *Get support from important stakeholders.*	• Staff a steering committee and sponsor role with senior managers to signal importance of change.	• Gain support from key employees across functions to help coordinate activities and develop solution.	• Involve key employees down the line to ensure implementation.	
Evaluation and continuous reviews *Evaluate and review the change initiative throughout the process.*		• Perform continuous reviews to sustain management focus and help executives review the execution of change projects, identify gaps and spot new risks.	• Continuously review the progress of the change initiative to ensure delivery of desired value.	• Perform lessons learned to transfer knowledge back to organization • Evaluate change initiative to sustain management focus and ensure benefits are realized.
Change related training *Educate and train individuals in change management and the solution.*		• Educate managers in change management to prepare them for handling challenges with change initiatives.	• Train employees in the solution to enable implementation.	
Aligned HR practices *Align appraisal and recruitment systems.*			• Align appraisal systems to support change. • Recruit personnel with competences needed to implement change.	• Align HR practices to ensure that change is long-lasting.
Aligned structure and control processer *Align reporting configurations, technology systems and planning systems.*				• Incorporate the change into standards and quality systems to make it stick.

7. Discussion and Directions for Future Research

This chapter will discuss how well the research fulfills the purpose of the study as well as some characteristics of the final framework. Also, directions for future research will be provided.

The purpose of this study was to contribute to a better understanding of different approaches to change management, the change management process and the most important factors influencing the success or failure of change efforts; and to combine these into a practical framework that can be used to manage change efforts within R&D functions.

First, regarding the different approaches to change, this research has contributed with some interesting insights regarding what approach that seem appropriate depending on the type of change. Instead of using Senior's (2002) three categories of change as the basis for the creation of a change management framework, as suggested by By (2005), it is argued that a better approach is to define change initiatives depending on how they come about and their degree of cross-functionality. The main reason for this is that it better aligns to the different approaches to change applied in the industry, which would facilitate the development of a framework for change management. This provides three interesting areas for future research. First, the types of change identified in this study should be validated. Second, the approaches applied in the industry have to be further investigated. Third, the connection between different types of change and the appropriate approach for handling change is crucial to understand in order to create the basis for the development of a universal framework.

Second, regarding the change management process it seems like there is little contradiction between scholars. Despite that scholars such as Burnes (2004), Bullock and Batten (1985), Mento et al. (2002) and Whelan-Berry and Somerville (2010) all describe different number of phases with different names, this study has shown that these could easily be synthesized into one change process. In addition, the change processes described by companies reflected that of scholars. Therefore it is argued that the change process provides little interesting areas for future research. Rather a validation of the process described in this research should be performed to create a basis for further research.

Third, regarding factors influencing the success of change initiatives, multiple different suggestions of appropriate factors were provided both in the literature and by the respondents. Despite the vast amount of factors reflecting multiple perspectives it was surprisingly easy to consolidate these into the ten factors presented in this research. The main challenges were rather to address the factors in a similar manner with regards to naming as well as content-wise. Therefore, an interesting area of research would be to better define the concept of a key success factor in relation to change management, and thereby create consensus regarding naming, content and find a standardized way to express these.

Fourth, regarding the framework for change management, this research has developed a framework by combining the change processes and key success factors described in the literature and during the empirical study. On an aggregated basis this is fairly similar to the framework developed by Whelan-Berry and Somerville (2010). However, a big difference is

that this research has taken Whelan-Berry and Somerville's (2010) framework one step further by not only stating the purpose of each change driver in a specific phase but also being more specific around what activities that need to be performed or specific tools that can be used to fulfill each factor. Being this specific has potentially been the most challenging part of developing a practical framework. During the literature review it became obvious that most previous research were fairly abstract and intangible, yet it was assumed that the interview study would contribute to making the framework more practically oriented. Arguably it is a combination of three aspects which makes it especially hard to develop a practical framework for change management. First, change management is closely intertwined with people management which arguably is a very intangible and abstract concept. Second, change management is much about leadership and even though you can educate people in management tactics leadership is arguably very much a natural talent held by individuals. Third, certain tools and methods which might be useful for one company may not be suitable for another. None the less, it is still argued that the developed framework provides a good attempt of making the topic of change management more tangible by including specific key influential factors and concrete examples of tools that can be used but that further research within this area could be beneficial for both academics and practitioners.

Moving on to the generalizability of the developed framework, the study was based on change management efforts within R&D functions and as a consequence the framework was initially intended to be mainly applicable for these types of functions. However, during the study it was found that multiple respondents had difficulty in describing changes that only affected the R&D organization; rather the most common changes seemed to be cross-functional. Therefore it is argued that the applicability of this framework is generalizable across different functions within Nordic based companies. Since much of the literature used have concerned countries outside the Nordic region generalizability across other western countries is highly likely. Further, the focus on R&D organizations helped the identification of an interesting area for future research. Multiple respondents argued that changes are easier to manage within R&D functions than elsewhere. The reasons given were that R&D functions normally have a more change prone culture and that development engineers are used to a trial-and-error based approach. The question of whether or not R&D functions are more change prone than other functions, and if so why, is therefore an intriguing topic for future research.

Lastly, this research has through a comprehensive literature review, in-depth interviews with vast amount of practitioners and careful analysis of the findings created a practically applicable framework for managing change. Even through the framework is primarily developed to facilitate the management of change it is argued that the framework provides a good structure for understanding why a change initiative might not have achieved the desired results. This dualistic view is reflected in the name of the framework; "The 4-by-10 Ruler of Change".

8. References

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