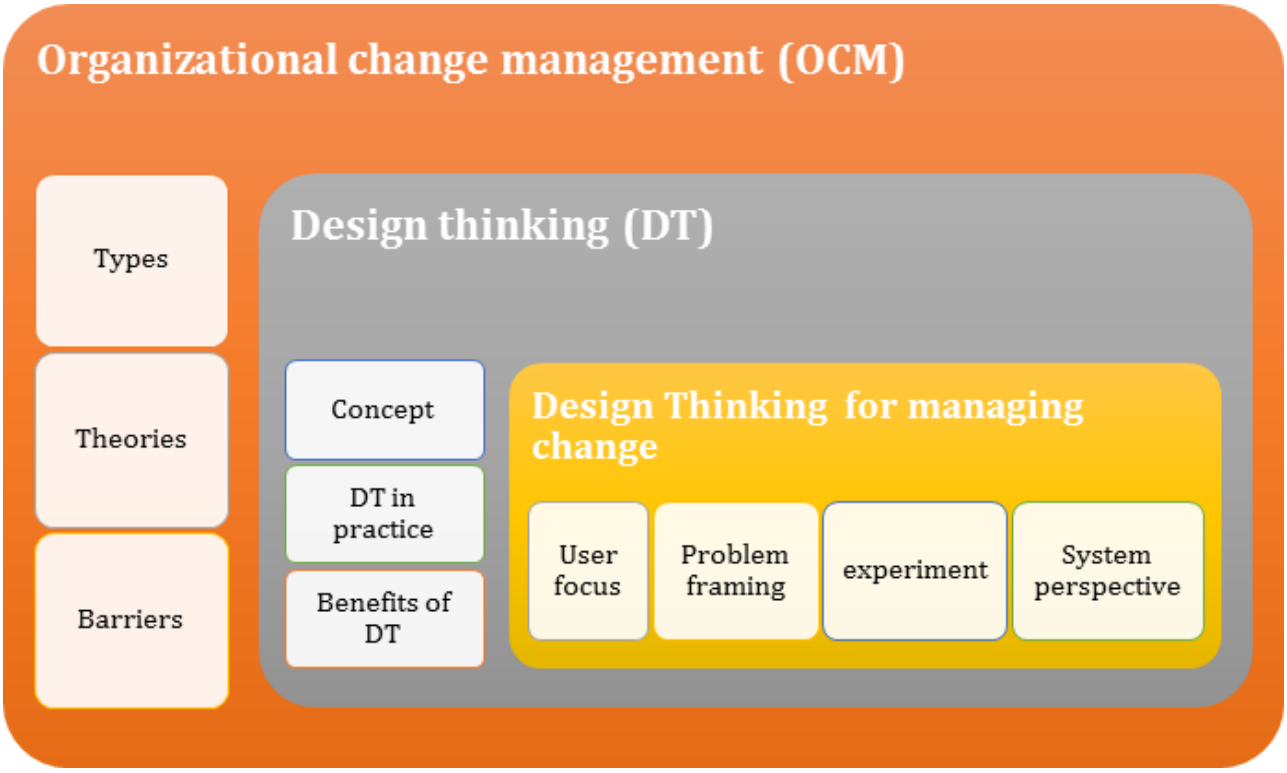
CHALMERS
UNIVERSITY OF TECHNOLOGY



The role of design thinking in managing organizational change

Conceptual Framework from literature study

Master's Thesis in the Master's Programme Quality and Operations Management

ERIKA SUBACIUTE
JANAKI RAGHAVENDRA RAO

Department Technology Management and Economics
Division of Innovation and R&D Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2019
Report No. E2019:096

CHALMERS
UNIVERSITY OF TECHNOLOGY

Department Technology Management and Economics
Division of Innovation and R&D Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2019
Report No. E2019:096

MASTER'S THESIS 2019:096

The role of design thinking in managing organizational change

Conceptual Framework from literature survey

ERIKA SUBACIUTE
JANAKI RAGHAVENDRA RAO

Tutor, Chalmers: LISA CARLGREN

Department of Technology Management and Economics
Division of Innovation and R&D Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden 2019

The role of design thinking in managing organizational change
Conceptual Framework from literature survey

ERIKA SUBACIUTE
JANAKI RAGHAVENDRA RAO

Master's Thesis E 2019:00

Department of Technology Management and Economics
Division of Innovation and R&D Management
Chalmers University of Technology
SE-412 96 Göteborg, Sweden
Telephone: + 46 (0)31-772 1000

Cover:
[A holistic framework combining both theories, sourced from the analysis and discussion chapter of this report.]

Chalmers digitaltryck
Gothenburg, Sweden 2019

ABSTRACT

The concept of change management is gaining increased attention both academically and in organizations, due to the complex and dynamic environment in which they work. Organizations must be vigilant to variations in their ecosystem and respond appropriately. Sometimes organizations embark on a change journey and proactively seek to innovate. There is a significant difference today in perceiving the change phenomena as compared to few decades ago. A number of theories and models have evolved to support companies in managing this transition effectively and achieving their intended objectives. While some organizations succeed in their change initiatives, others do not yield the desired result. Some changes result in unintended consequences due to their complexity and disruptive nature. Since the outcome of these changes affect everyone, strategies are needed to overcome these barriers and ensure that the desired objectives are achieved. While some of these strategies are provided in the change management literature and address some of the issues, there is a need to study alternative disciplines since the change is not merely limited to theories and processes. Here, we introduce Design Thinking as that discipline and explore its potential contribution to managing organizational change. The motivation in selecting Design Thinking is due to its increased popularity as a management concept. The salient features of this discipline are empathy, system's view, prototyping, experimentation and action research which supplements the requirements needed to manage change.

This thesis is an effort to explore individually each of these facets of change management and design thinking through a systematic literature review. The findings from this review are synthesized into an analytic framework that depicts how design thinking may support organizations to manage change at strategic and operational levels. The unique contributions of design thinking are a human centered approach through empathy and building innovative capability through facilitating ambidexterity.

Keywords - organizational change management, design thinking, empathy, framework

ACKNOWLEDGEMENTS

We take this opportunity to thank everyone who contributed to this thesis through their ideas and support in completing our thesis.

First, we would like to thank our supervisor, Dr.Lisa Carlgren who provided an interesting subject to study. Dr.Lisa Carlgren also supported us throughout our work by helping us to frame the problem and provide article suggestions. Her critical review and encouragement has motivated us to perform our best. We also extend our sincere gratitude to our professors
Dr. Ida Gremyr, for her constant support and timely help and Dr. Magnus Persson for guidance and support in completing our thesis.

We also wish to extend our gratitude to the Chalmers Writing Centre for providing us with the resources and guidance to structure the thesis and improve the writing style.

We sincerely thank Mr. Jonathan Gabrielsson and Mr. Alexander Svenstam for their time and interest in reading our thesis and providing critical inputs.

Our sincere thanks to all our friends and family, who helped and supported us in this endeavor.

Table of Contents

1 Introduction

1.1 Background

Change is indispensable and an inevitable phenomenon in the dynamic, competitive environment in which an organization operates. Disruptive technologies, globalization, astute markets, emerging competitors, economic and political conditions are some of the drivers of these changes and set the pace for transformation. These changes can encompass incremental improvements or radical transformations among other types of development efforts. Gill (2018) further mentions that change is viewed either as a process to be implemented or as a competency to sustain the successful outcomes of change. Galli (2018) also informs about the various theories in change management literature and suggests that prior to embarking on the change journey, the management ought to understand these models and choose their suitable model. Further chapters in the literature review introduce change management in organizations and a detailed section on the emerging theories on change management.

The objectives for driving innovation are diverse and specific to individual organizations. It is even possible to encounter improvement initiatives at individual divisions or teams within organizations. While some of these change efforts are successful, most of them do not yield desired outcomes or result in unintended consequences. As several articles such as those of Beer and Nohria (2000), Palmer, Dunford and Akin (2006), Worley and Mohrman (2014), Strebel (1996) and many others state that nearly 70% of the change efforts do not meet their objectives or fail during transformation. As change is described as a complex, dynamic process, which is driven by certain forces, it is important to recognize that there are forces restraining the same. These restraining forces also termed as barriers or hurdles can emanate either from people initiating change or the change recipients. Some barriers or impediments arise due to the inherent nature of the change itself. The chapter 'Barriers to change' explains each of these barriers in detail and also the available strategies to overcome these barriers.

Strategies for overcoming these barriers will be sourced from literature on both change management and design thinking. Theory chapters on design thinking will reveal the salient features of this approach, which is gaining attention due to its emphasis on empathy, problem framing, experimentation and systemic thinking. The theory and cases on application of design thinking will be used to investigate its potential contribution to change management.

1.2 Purpose

The purpose of this thesis is to gain an understanding of the organizational change management and the contemporary change theories prevalent in change management literature. In addition, the barriers encountered during change are also identified. This thesis also explores Design thinking literature to seek any unique benefits to overcome the barriers and provide theoretical contribution to change management.

1.3 Research questions

1. *What are the main challenges organizations face when managing change, and what is the current state-of-the art in CM literature?*

This research question is used to explore the current change theories and alternate paradigms of viewing change. Further, the barriers of change and their sources will also be identified. This is important to learn if there are unique challenges encountered while driving change.

2. *Given these known challenges (as well as challenges in implementing state-of-the-art theories), how could Design thinking theoretically contribute to organizational change management?*

It is also important to seek remedial measures to overcome these barriers and develop strategies for managing organizational change. Hence this question examines the existing measures in change management literature and explore the domain of design thinking to look for any potential and specific benefits that design thinking offers in overcoming barriers and managing organizational change.

3. *What can we learn from how DT has already been applied in change management activities or initiatives in organizations?*

This question helps to discover practical scenarios where design thinking has contributed to change management, which will provide credibility to the findings from the previous research questions and motivate the potential application of design thinking to change management.

1.4 Outcome of study

This thesis will present a holistic framework of both literatures in general and individual frameworks for specific objectives i.e. depicting a generic change process and overcoming barriers. Models are also developed for presenting the change theories. These frameworks are intended for theoretical understanding and recommendations for practitioners.

1.5 Scope

The change process, types and barriers are studied at the organization level and the primary sources of data for this study are scholarly works of other authors, book chapters, academic work present in magazines and articles. This thesis finds most of the change theories interesting, but covers a few of them. The criteria for selecting theories for this study are that they are state of the art, and uncover new perceptions on change management. This is to ensure a focused analysis and a reasonable conclusion. The study limits to discovering the features, benefits and applications of design thinking and does not cover limitations or challenges in implementation.

2 Methodology

2.1 Introduction to research strategy

This chapter describes the research design and research methodology adopted for this study. As Bryman and Bell (2011) emphasize, research questions guide the remainder of the research such as literature review, choice of research design, data collection and analysis and presentation of findings. Qualitative research is found to be a suitable approach for this thesis based on its features of inductive, epistemological and ontological view and primarily concerned with words (Bryman and Bell, 2011). In consideration with the purpose, scope and outcome of this research, outlined in the Introduction chapter, we find that the sources of data i.e. change theories and case studies on design thinking will be rich descriptions of the social world. The social world (organization) and the associated phenomena (change) is influenced by the interpretation of the participants (employees) and also through their interaction. Since the primary objective of this thesis is to investigate the potential contribution of design thinking to manage change, a new theory establishing relationships between the two subjects will be a likely outcome, thereby suggesting an Inductive approach.

Bryman and Bell (2011) compares both the research strategies and concludes that while qualitative and quantitative have similarities, there are contrasts in their methods thereby making them distinct approaches. The authors have also tabulated the differences, in which we recognize a few of them relevant to our purpose.

- Numbers vs words – use words to presentation of the analysis of the society and visual data
- Theory emergent – concepts and theoretical elaboration emerge from data
- Static vs process – social world where events unfold over time and attributed to the interaction
- Contextual understanding – understanding behaviour, values, beliefs in the context of social setting and not generalized
- Rich, deep data – contextual data, elaborate and rich description
- Micro – small scale aspects due to interaction
- Meaning – seek the meaning of action
- Natural setting – people in natural environments – interactions and events occurring in social world. Participants are not isolated for study.

Therefore, this approach is chosen for our study, despite the fact that there are several criticisms mentioned by the same author. These will be discussed in the section on quality considerations of the approach.

2.2 An introduction to literature review and its role in research

The literature' is the body of academic research that has been published and disseminated through publications such as books, academic journals, practitioner journals, websites and other sources (Kiteley and Stogdon, 2013). A literature review is a comprehensive summary of the ideas, issues, approaches and research findings that have been published on a particular subject area or topic (Kiteley and Stogdon, 2013).

According to them, literature review can be used to prepare for the empirical research or be carried out as stand alone research methodology. In such studies, the purpose of literature review according to Kitely and Stogdon (2013) would be to consolidate understanding, collate findings, map out the terrain of findings and highlight the salient feature of the literature. The result of such literature may aid in policy and practice development, aid in future research and facilitate comparative understandings (Kiteley and Stogdon, 2013). This line of reasoning is parallel to that of Jackson (1980) who assets the possibility of research review as an independent scholarly work. According to him, such reviews serve multiple purposes such as sizing up new methodological developments in a given field, verifying existing theories and developing new ones, synthesizing new knowledge from different lines of research and inferring generalizations about substantive issues from a set of studies on those issues.

Randolph (2009) also agrees with this possibility and terms literature review as secondary research. He compares the primary research with secondary research and points out that while the human participants are the units of the former, articles are the units of the latter. His work builds on the earlier guidelines by Cooper (1982) who emphasizes that the inferences made by the secondary review (which he terms 'integrative research review') are as central to the validity of the behavioral science knowledge as that of the primary research and both research approaches demand rigorous methodology.

For our thesis, we chose the integrative research review approach, as our primary task was to explore scientific articles on change management and design thinking. At the detailed level, we were interested in individual topics such as the phenomenon of change in organizations, theories on change - classical and contemporary, obstacles to change, strategies for overcoming change

barriers, overview of design thinking literature, benefits of design thinking. Most of these goals match the purpose outlined by Jackson (1980), including our primary purpose **to infer generalization by way of linking the potential benefits of design thinking to manage organizational change.**

2.3 Integrative research review process in this study

Our method for data collection is similar to the process outlined by Jackson (1980) and Cooper (1982), which we observe fulfills similar objectives, but termed differently. Some of the steps also match the procedure outlined by Bryman and Bell (2011) for searching literature particularly in the initial stages for skimming through the large volumes of information and guide our efforts. Based on the above articles, our process can be:

1. Problem formulation

Our initial efforts were directed towards identifying a research problem in the subject of design thinking and its role in driving innovation in organizations. The suggested readings in our earlier course and a few articles shared by our supervisor helped to understand design thinking and how it builds innovative capabilities in an organization. Further discussions with supervisor helped to refine the purpose and formulate our research questions. We chose to study organizational change and how it differs from innovation and other related terms. Our team was interested to uncover the barriers to managing organizational change and how design thinking helps in addressing this problem. Our purpose also extended to identifying state of the art theories on change management during this study due to the unique opportunity provided by the literature and also establish a conceptual relationship to design thinking.

The crystallization of purpose and scope resulted in a set of keywords corresponding to the individual themes selected for this study. These keywords shown in the Table 1 correspond to the topics:

Topics for study	**Keywords**

Introduction to change management	Organizational change, innovation, organizational development, organizational transformation, organizational renewal.
Types of changes	Types of organizational change, planned change, linear change.
Theories on change management	Change management theories, change management models.
Change management process	Organizational change process.
Barriers to change management	Change management barriers, barriers to organizational change, impediments to organizational change, resistance to change, strategies for overcoming barriers to change.
Design thinking	Design thinking as a management concept, design and design thinking, history of design, explanations of design, design and designerly thinking, benefits of design thinking, design thinking as a human centered approach.
Case studies	Design thinking to improve organizational performance, design thinking in practice, design thinking for organizational transformation, implementation of human centered approach within companies.

We also listed some criteria for filtering the search results with the purpose of including or excluding the literature. These were:

a) Inclusion - matches keywords, helps in answering Research Questions, number of citations, shared findings or observations, deviant yet with a clear rationale.
b) Exclusion criteria - not matching keywords, beyond the scope, findings not relevant to the study.

2. Data collection

Theoretical sampling is used to collect data in this thesis, wherein we select articles, read, code them into specific themes and use them to collect further data, until saturation (Bryman and Bell, 2011). According to them, the hypothesis is generated after attaining theoretical saturation, where no new data emerges regarding a particular category. The source of literature were drawn preliminarily at Chalmers library website, Google scholar and a few other articles initially read prior to undertaking this thesis. The list resulted in book chapters, periodicals, and journal publications. The full text was available for each of the journal articles in Google scholar, which

also indicated the number of citations. The books were available to borrow from the libraries of Chalmers University and Gothenburg University. The periodicals and earlier dissertations were also extracted from the Chalmers library. The bibliography of the selected literature were also helpful in identifying additional articles relevant to this research in a process termed 'ancestry' by Cooper (1982).

3. Evaluation of data points

The selected articles were shortlisted based on the title and their phrasing compared to the keywords. This was followed by the reading of the abstracts to understand the purpose, method and primary findings of the scientific articles. These were helpful to judge if the selected literature will contribute to our findings. A thorough study of the articles was also necessary to establish the context, period of study and the glossary of the terms used. After reading, we took notes of the summary and were careful to include the year of study, claims of the authors, precepts for inferences, principal findings and any other assumption based on the inclusion criteria. We were also compelled to not consider a few of the publications owing to not matching the keywords. Even among the articles we selected, we had to narrow down to publications, which were appropriate for the scope and leave others.

4. Data analysis and interpretation

According to Bryman and Bell (2011), qualitative research results in large volume of rich, unstructured textual data with multiple strategies for analysis. They attribute this to the lack of clear rules as in quantitative data analysis. Therefore we recognize the importance to choose in advance how the vast data will be analyzed and the proposed outcome to arrive at a hypothesis or a new theory. In our thesis, grounded theory is the most suitable strategy.

As defined by Strauss and Corbin (1994), grounded theory is a method for developing theory that is grounded in data systematically gathered and analyzed. They point out that 'theory' implies plausible relationship among a set of concepts and evolves through continuous interplay between data collection and analysis.

Grounded theory uses certain tools for analysis such as coding, theoretical sampling, theoretical saturation and constant comparison. The outcomes of this approach are a set of concepts, developing categories, properties, hypotheses and theories (Bryman and Bell, 2011). Strauss

and Corbin (1990) list some of the procedures and canons, which is important to mention here due to its influence on our work.

- Data collection and analysis are interrelated
- Concepts are the basic units of analysis
- Categories must be developed and related
- Sampling proceeds on theoretical grounds
- Analysis makes use of constant comparisons
- Patterns and variations must be accounted for
- Processes must be built into the theory
- Memos are an integral part of the grounded theory
- Hypotheses about the relationships should be developed and verified constantly through the research process
- Grounded theory is built in a team effort
- Broader structural conditions must be analyzed

At the processual level, this thesis uses coding theoretical sampling as mentioned earlier and the process of coding to develop categories to group the concepts. There are three types of coding - Open coding, axial coding and selective coding (Strauss and Corbin, 1990). In our work, we use open coding, where the events or phenomena described in the literature are compared with each other to label them. Once each of these concepts are labeled, they are next grouped into categories and subcategories, which eventually builds our frameworks shown later in the analysis chapter.

5. Presentation of results

This thesis has been written in the prescribed format using a common structure expected of a Master thesis. The significant contribution of this thesis is the presentation of the change theories in a new format and also the frameworks developed to combine design thinking essence as a remedy for the change management barriers. Since data collection or literature search in this case was of large volume, the two subjects were shared between us. The analysis and the ensuing conclusion were a joint effort to synthesize both change management and design thinking. The findings were presented formally on popular science presentation day at the university, which also helped in gaining additional insights and feedback on our work.

2.4 Quality considerations

Bryman and Bell (2011) identify criteria for evaluating qualitative research and relates them to the similar terms used for quantitative research. For the former to be valid, the findings must be credible, transferable to other contexts, applicable at different time periods and be objective. For our literature search, the articles chosen were not limited to any particular year of study, unique company or a specific methodology. In other words, the literature sampling was based on the concepts and themes, rather than region, industry etc. and ensures sufficient coverage of all factors mentioned above. The varying timeline has helped in understanding the evolving landscape of change theories and did not reveal any significant variations in the other themes (ex. barriers or change processes) unique to any one time or industry. As our analysis reveals, the findings and the conclusion has been singled out after synthesizing the works of many authors. Hence, it is safe to assume that our thesis results in credible results and conclusions, which are transferable to diverse contexts, applicable at different time periods and free from subjectivity. Additionally, each step in this study and the list of references used are clearly spelt out, which also ensures reliability of this study.

Apart from the general criteria, there are other guidelines unique to the literature review approach. Some of them are rubrics described by Boote and Beile (2005) and include *Coverage, Synthesis, Methodology, Significance* and *Rhetoric*. In accordance with the guidelines, we see that the criteria for selecting literature sample is mentioned, the chapters on theory and analysis places the current research in the context of literature, through a discussion of vocabulary, evolving concepts and comparison of findings. Although interesting, a detailed discussion on the methodology in individual literature were not mentioned here, as we were not seeking to replicate the methods. Besides, we were concerned about extending our scope beyond necessary. It would be interesting to reveal how a specific methodology affects the outcome, but that is for another study. The conclusions section indicates the theoretical and practical contributions of this study and the structure and the content is described in a logical and palatable manner.

There are several other criteria for judging dissertations based on literature review, outlined by Randolf (2009) and Cooper (1982). While Randolf (2009) presents a checklist to rule out erroneous practices Cooper (1982) explores the possible threats to validity owing to the process of literature review. Cooper (1982) explains that the validity relates to different target

population and hence omission of any facts or the review process may threaten validity. This is closely synonymous to the reliability discussed above and how it is addressed in our thesis. He discusses that it is possible for authors to omit what readers deem important. In our scenario, supervisor and another team serving as opposition reviewed our report. Their feedback enabled us to gain additional perspectives, which helped us to include definitions, descriptions and elaborations where necessary to avoid ambiguity.

On ethical dimension, since the primary units of data were literature, there is not much scope or possibility of ethical violation discussed in the context of other research methods. As there were no people or organizations participating in the study, we will not discuss the general ethical guidelines in this study. In our thesis, the only ethical consideration was pertaining to the correct and legitimate use of the information available on the Internet. Hence high focus is placed on avoiding plagiarism. During our literature search, we noted the citations for each of the literature and compiled them in our report. As we noted key findings and abstracts, we ensured to include inline citations to ensure correct match and avoid omission of citations. This thesis will also be checked through URKUND, to rule out plagiarism, prior to publication.

3 Literature review

3.1 Change management and related concepts

This section provides a glossary on change management and defines related terms of change management such as innovation, organizational development (OD), organizational transformation and organizational renewal. The individual terms are compared to observe for patterns and dependencies. This section also motivates and guides the use of following keywords interchangeably throughout the course of reviewing the literature.

Change management can be defined as a process of continuous renewal of the organization's direction, structure and capabilities to meet the needs of internal and external customers (Moran and Brightman, 2001).

Organizational innovations are defined as new organizational methods in business practices, workplace organization, or external relations (OECD 2005).

Organizational Development is an organization wide planned change to increase its effectiveness through interventions in the processes. The organizations manage their development and learning by involving change agents (Manual of Organizational Development, 1997).

Organizational transformation is also termed as second order change, which occurs at multiple dimensions and levels. It is discontinuous, qualitative, radical change resulting in a shift in paradigm (Levy and Merry, 1986).

Organizational Renewal is defined as a multifaceted concept consisting of three dimensions of renewal referring to either maintenance, adaptation or innovation type of change i.e. renewal can be used to indicate standardization of existing practices, continuous development and invention of radically new modes of action. (Junell and Ståhle, 2011).

An overview of the above definitions shows intersperse of terms related to change, renewal, innovation etc. This implies transition from a former state to a new desired state. These

definitions are similar in the sense that change occurs throughout the organization, involving multiple dimensions and at multiple levels and lead to a radical shift in the business methods.

Palmer, Dunford and Akin (2006) compares change management with organizational development and states that the former has a broader scope and is carried out by someone who is a part of the team at a strategic level. The organization development practitioner is usually a third-party facilitator or a coach. While organization development considers behavior change as a prelude to changes in organization structure, the opposite is true for change management.

However, a close observation reveals some insights about these terms:

- While Change management is described as a continuous process, organizational transformation is discontinuous.
- Both Organization development and innovation share a common objective to increase performance, but differ in the timeline of implementation. The former indicates the execution of planned change while innovation requires that the implementation of a new method or systems is already complete.

As the definition of change management represents a broader scope and includes multiple typologies, processes, approaches etc., which requires elaboration in the subsequent sections, the keywords such as 'organizational change' and associated terms will be predominantly used for searching literature. In addition, important insights in literature on the other terms will also be used to describe the theory chapter and to contribute to the analysis.

3.2 Different types of change

This section lists and describes the various types of changes in organization and groups organizational change into distinct categories. Some of these changes are similar in context yet uses different terminology. These terms describe what types of changes are prevalent in organizations, the rate at which change occurs, the process and nature of change and people involved in the change. The classification here builds on the works of Todnem (2005) and Lorenzi and Riley (2000), which include change typologies based on the rate of occurrence and process of change. In this thesis, additional typologies will be identified and presented.

3.2.1 Rate of occurrence

Change is said to be *continuous* if it occurs in small measures on an ongoing basis when organizations constantly monitor and respond to internal and external environment. *Discontinuous* change on the other hand is characterized by rapid shifts at strategic level and is caused by major upheavals or considerable disruption. In addition to these, Todnem (2005) also includes *incremental* change, which is concerned when individual departments or a particular business unit focus on addressing specific problems or achieving a unique objective. In today's dynamic environment, it is necessary to encounter all of these changes within the organization simultaneously.

Meyerson (2011) presents a similar approach and explains that organizations change either through *drastic action or evolutionary adaptation*. The former is typically mandated by the top management, discontinuous in nature because of external triggers such as innovations in technology, change in policies, resource availability etc. evolutionary adaptation, in contrast is incremental, decentralized, and stable and causes less disruption.

3.2.2 Magnitude of change

Palmer, Dunford and Akin (2006) classify change into *First and second order change.* The former results in the variation of processes and procedures in a system, such as the introduction of a new method of reporting or analyzing given data in a different way, while the latter results in a change in the whole system as a consequence of a strategic choice. An example of a second order change could be replacing manual maintenance of medical records with electronic records.

Lorenzi and Riley (2000) terms these two types as extreme change types and mentions the existence of middle order change whose magnitude of change is greater than first order change, but is not strategic and does not affect critical factors. Palmer, Dunford and Akin (2006) use the term *tectonic change* for such changes and explain that this change has moderate intensity enough to overcome the inertia to change and yet refrains from undergoing massive upheaval in the organization.

Lorenzi and Riley (2000) also discuss about micro and mega changes to illustrate the magnitude of change. Changes, which are merely differences in the degree of changes between an original

and a new method, are *micro changes*. These may result of enhancements, upgrades or improvements to a product or service. A *mega change* occurs when there is a big difference in kind of working or the manner of conducting a process is replaced. They also mention that these differences can be inferred differently among different people : the magnitude of change is in the eye of the beholder. For example, installing new software for reporting may seem a micro change for managers and perceived as a mega change among employees. This is important to keep in mind when planning a change initiative.

Golembiewski and Billingsley (1980) classify change based on how it occurs and how it is measured. Here, the magnitude of change depends upon the transition between states and how it is measured.

a) *Alpha change* - variation in the level of existential state, with no change in the unit of measuring unit. Example - increase of water temperature from 20 degrees to 50 degree Celsius
b) *Beta change* - variation in the state as well as recalibration of measurement associated with a conceptual domain.
c) *Gamma change* - redefinition or reconceptualization of domain, a major change in perspective or frame of reference used for perceiving the phenomenon. Ex - change of water to gaseous state.

The change model presented by Nadler and Tushman (1990) defines four change types along two dimensions - rate of occurrence and the strategic intent and shown in Table 3.1. Tuning and reorientation are the result of organizations' preordained course of action or decision. While tuning is incremental and affects an individual process or a department, reorientation is applicable throughout the organization. Similarly adapting and recreation are the change efforts initiated as a reaction or response to an event, mostly external to the organization. While adapting is on a smaller scale and limited to fewer modifications, re-creation is on a large scale and affects the entire organization.

	INCREMENTAL	TRANSFORMATIVE
PROACTIVE	TUNING	REORIENTATION
REACTIVE	ADAPTING	RECREATION

Table 3.1: Types of change (source - Nadler and Tushman, 1990)

It is interesting to note how multiple authors adopt different terms to describe the magnitude of change. The works of Lorenzi and Riley (2000), Palmer, Dunford and Akin (2006) focus on description of change. While Golembiewski and Billingsley (1980) present measurement perspective, Nadler and Tushman (1990) illustrate the magnitude as a matrix.

3.2.3 Change on different levels

Lorenzi and Riley (2000) also classify changes based on the organizational levels where change occurs as:

a) *Operational Change* - affects the way ongoing operations of a business are conducted. For example, the automation of a process.
b) *Strategic Change* - occurs in the strategic business direction. For example, the moving from a product centric company to a product service solution system, incorporating servitization.
c) *Cultural Change* - affects the basic organizational philosophies by which the business is conducted, e.g., promoting sustainable practices, CSR.
d) *Political Change* - changes in staffing primarily for political reasons of various types, such as those that occur at top patronage job levels in government agencies.

3.2.4 Planned and emerged change

Planned change assumes that organizations move from one stable state to another in a pre-ordered manner while the emergent model assumes that change occurs due to an interaction between multiple variables such as context, political processes and consultation within an organization. In addition, Todnem (2005) includes contingency change, which implies that since organizations operate in different contexts, it is suggested to choose a unique approach most suited to the purpose rather than choosing a universal model, which may not be consistent with the context. He argues that the organization can choose to modify or influence the external environment instead of adapting to it and exercise a choice approach to maintain intact their current practices.

Orlikowski and Hoffman (1997) provide a similar definition and terms anticipated changes to those which are planned and occur as intended. Emergent changes arise spontaneously as a consequence of executing the plan and are not originally intended or accounted for. There is

also a third type, called the opportunity-based change, which were not originally anticipated, but used as interventions as a response to the emergent changes.

The chapter on change types presents the existing classification from the literature and does not reveal anything departing from them. The objective is to understand how different organizations approach change and will also be related to any specific barriers inherent in a particular type of change.

3.3 Process models of change

Change is inevitable and necessary for growth either at personal or professional level; changes in organizations are complex as it requires accomplishing the objective and helping people to manage change (Galli, 2018). Creasy (2018) adopts a process perspective while defining change management and adds that organizations apply the process and tools to attain their business outcomes. Galli (2018) builds on this definition and reasons that this process can be used repeatedly after implemented and lead the company from the current state to the desired state. However, Galli (2018) adds that change management can be viewed as competency if it ensures effective outcome, majority of the times. In his work, Galli (2018) compares the change models of Lewin, Kotter etc. and suggests adopting one of the models to manage change.

But Styhre (2002) argues that while the organizational change is modeled as linear and assumes a semi stable organizational environment, complexity theories do not assume social or natural systems as linear. On the contrary, Styhre (2002) points out that all changes are disruptive, discontinuous, fluid and fluxing and implementing change is not stepwise, rather it is an adaptation to the emerging conditions. Worley and Mohrman (2014) agree with this description of change in today's scenario and explain that the leap in connectivity, speed, complexity and interdependence over 20-30 years has created a radically different environment and requires a different approach to change.

In our theory chapters to follow, we discuss some of the different approaches to change and their role in managing change. Prior to that, we first attempt to understand how change occurs in organizations and here, a processual approach is helpful. We then move on to alternate theories or lens to view change.

3.3.1 Identifying the need for change

Specific triggers or drivers of change initiate the change process. Some of these drivers may be from external sources such as political, economic, socio cultural and technological factors. The internal drivers of change are mainly initiatives to grow and improve or respond to a crisis (Hayes, 2014). According to Palmer, Dunford & Akin (2006), organizations change as a response to environmental pressures from the environment surrounding it or internal forces driving change. While the external forces mentioned bear resemblance with the Hayes (2014) list, the latter identifies additional internal pressures related to need for integration and collaboration, re-establishing organizational identities in the new era, appointment of new CEOs, power and political changes. These drivers compel an examination of relationship with the customers and stakeholders and also scrutinize the capabilities of the organization, thereby creating a need for change (Cameron & Green, 2015).

3.3.2 Formulating the change vision

The need for change and the resulting future state are formalized by creating a vision statement, which describes the current and the future state, with a methodology to attain the future state (Cameron & Green, 2015). This phase is very important as emphasized by Kotter (2007) since a clearly articulated vision directs the transformation efforts along the right path and aids in effective communication to the employees. In this phase, the focus is on the details involved in the process of conducting tasks and activities and any changes involved in these processes. It is also necessary to consider any role changes of the team members or addition of new responsibilities. Galli (2018) adds that this is also the appropriate time to perform cost and risk analysis to determine the feasibility of change from a resource perspective. Cameron & Green (2015) defines the term ‘attuning’, which implies that the vision of change must be consistent with the organizational values and culture and focus on the people side.

3.3.3 Preparing for change

A well-conceived and organized plan for change requires support and committed efforts from the people participating in the change. Fernandez and Rainey (2018) suggest approaches such as creating a stimulus to urge the need, using rewards, creating psychological safety to involve people and overcome resistance to change. In addition, the success of change implementation requires direction at a strategic level and participation at the operational level. This view is also

supported by Gill (2002) who adds that while change management is essential on a technical level, effective leadership is required to introduce and sustain change as it incorporates an integration of cognitive, emotional, spiritual and behavioral levels.

3.3.4 Implementing change

Implementing a change plan involves developing a plan, communication, training, new processes and systems, reorganization and testing new innovations. Such efforts need planning for adequate resources and its effective utilization to maintain the pace of the implementation. In the event of multiple change efforts, there is also a situation of tradeoffs which can risk of certain efforts taking precedence over others, based on their cost benefits (Fernandez and Rainey , 2018).

In this phase, the transition process is evident and the participants witness the outcomes of the change. It alters the fundamental way of doing tasks and requires considerable time to adapt to the new methods. Since the employees perform and are affected by these transitions, it is very important to manage the people issues and address their anxieties. Hayes (2014) mentions that not providing sufficient attention to soft issues is the reason for change plans being not implemented as intended. Cameron & Green (2015) also supports the argument and adds that successful implementation occurs when a critical mass of people contribute to the process and are aligned with the vision of change.

3.3.5 Sustaining change

Post implementation, change is sustained when the new ways and systems become the norm and are incorporated into the organization's routine. Fernandez and Rainey (2017) emphasize that change is institutionalized when the formal structures, procedures, practices are changed correspondingly and diffused throughout the organization and add that establishing a new order of working on a long term helps in reinforcing new behavior.

The process map of organizational change illustrated in the fig 3.1 is constructed after analyzing the process descriptions from various literatures. The individual phases and the sub phases are similar to the content found in the works of Cameron and Green (2015), Hayes (2014), Creasy (2018) and Fernandez and Rainey (2017). Some processes have been combined based on the similarities in the context, such as inclusion of KPIs, review and monitoring in the last phase

etc., while some are incorporated directly to convey the intended meaning, as in the initial two phases. However, the overall process journey depicted here overlaps with those of former works and differs in the way it is represented.

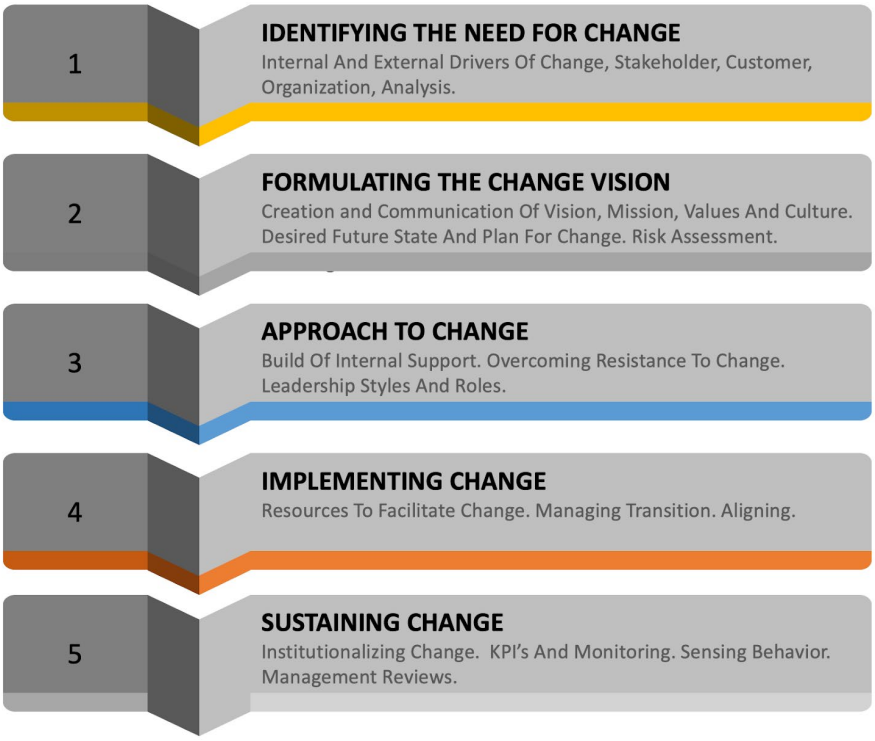


Fig 3.1 A generic process for organizational change based on the summary of Cameron and Green (2015), Hayes (2014), Creasy (2018) and Fernandez and Rainey (2017)

The above process map is based on the theoretical framework and other processes commonly used in the 'old normal' as termed by Worley and Mohrman (2014). As the authors point out, in this scenario, the process was characterized by incremental and continuous changes, alternated by surge of radical transformations – a punctuated equilibrium state. These traditional change models also reflected planned changes, charted down by the top management and used conventional communication and monitoring practices.

The process of organizational change described in Fig 3.1 is an example of a linear change. The individual phases are arranged in a sequence and follow a predecessor-successor relationship. However, Cameron and Green (2015) add that the organization change process, in reality, resemble a depiction in Fig 3.2

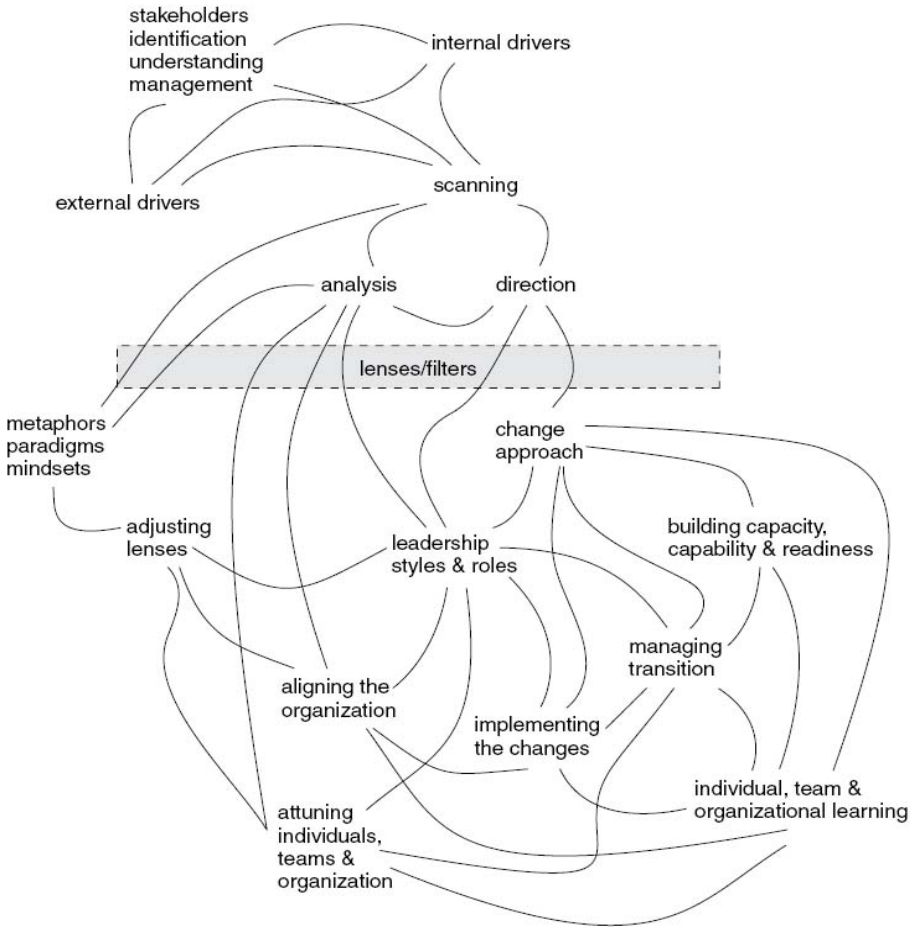


Fig 3.2 organic change (source: Cameron and Green, 2015)

In recent years, the complexity, speed, connectivity and interdependence of change has magnified enormously and created a new landscape of conducting business, and the phenomenon of change also needs to be viewed and studied differently (Worley and Mohrman, 2014). According to them, these new scenarios require new approaches to conceptualize change management and build new capabilities for innovation. They also point out that there is an increasing demand on organizations to focus on driving current performance and develop capabilities for the future. The subsequent chapter on change theories will identify new change models based on a people and system approach, in addition to the traditional processual models. According to Sandra et al (2015), there has been a significant evolution of change management itself from one of managing process within a hierarchical to a more systemic level, where the focus is on developing agility and flexibility through change. To summarize, the entire shift in landscape has led to a different approach to change itself.

3.4 Change management theories

This section lists and explains all the theories used in change management and derived from an extensive literature search. The theories are grouped into various subsections based on the content description and the purpose of the theory. While the models proposed by some of the authors such as Lewin, Kotter and Bridges describe the change process, other models like McKinsey, Pettigrew etc. presents a systemic view of change with all actors. There are other models such as ADKAR, Kubler Ross, which focus on the people side of change.

This way of classification helps us to understand the various theories and their roles in managing organizational change. It is inspired by various other themes of classifications based on old normal scenarios and new normal (Worley and Mohrman, 2014) and comparison based on inherent strengths and weaknesses (Galli, 2018). Cameron and Green (2015) use various metaphors to describe organization and group theories based on their relevance to each metaphor. Though there are several articles and books which elaborates on these theories, our thesis will use matrices, shown in Tables 3.2 to 3.4 to combine several of these theories based on their similarities. In addition, this framework discusses only the comparison and does not repeat the explanation provided in the original literature.

3.4.1 Process approach

In the below framework, all the process models of change are compared with the original description in the earlier chapter. As mentioned earlier, the generic process model, shown in Fig 3.1 builds on the works of authors mentioned in the Table 3.2 and hence displayed in tandem. It can be seen that the individual phases in each of them are similar and follows the same sequence, though they are termed differently. The steps depicted in bold characters shows the onset of a new phase and the italicized characters shows identical stages across different theories. Some distinct points to be mentioned are that though the number of stages varies, it may still be grouped according to the activities undertaken in these stages. While the theories of Lewin, Kotter are linear and are applied in most organizations, the CAP model was specifically derived to manage change at GE and is nonlinear. It can also be noted that apart from other common steps, CAP model advocates assigning a change champion and emphasizes the need for strong leadership to strengthen the change process.

<table>
<tr><th>Bullock and Batten 4 phase model (Bullock and Batten, 1985)</th><th>Lewin's model (Schein , 1996)</th><th>Lippit (Kritsonis, 2005)</th><th>Kotter (Kotter JP, 2007)</th><th>GE's CAP model (Galli, 2018)</th><th>Process model in this thesis (Fig 3.1)</th></tr>
<tr><td rowspan="2">Exploration
Need awareness
Search
Contracting</td><td rowspan="2">Unfreezing
Disconfirmation
Inducing survival anxiety
Creating psychological safety</td><td>Develop need</td><td>Establish a sense of urgency</td><td>Assigning a change champion</td><td rowspan="2">Identifying the need for change</td></tr>
<tr><td>Establish relationship</td><td>Creating a guiding coalition</td><td>Creating a shared need</td></tr>
<tr><td rowspan="2">Planning
Diagnosis
Design
Decision</td><td rowspan="2">--</td><td>Clarify Problem</td><td>Vision and strategy</td><td rowspan="2">Shaping vision</td><td>Formulating a change vision</td></tr>
<tr><td>Examine goals and alternatives</td><td>Develop and communicate</td><td>Approaches to change</td></tr>
<tr><td rowspan="2">Action
Implementation
Evaluation</td><td rowspan="2">Change
Cognitive redefinition
Identification with role model
Scanning - trial and error</td><td rowspan="2">Implement</td><td>Empowering employees for broad based actions</td><td rowspan="2">Mobilizing commitment</td><td rowspan="2">Implementing change</td></tr>
<tr><td>Generating short terms wins</td></tr>
<tr><td rowspan="3">Integration
Stabilization
Diffusion
Renewal</td><td>Refreezing</td><td rowspan="2">Stabilize</td><td rowspan="2">Consolidating gains and producing more change</td><td>Making changes last</td><td rowspan="3">Sustaining change</td></tr>
<tr><td>Personal</td><td>Monitor progress</td></tr>
<tr><td>Relational</td><td>Terminate the relationship</td><td>Anchoring new approaches in the culture</td><td>Changing systems and structure</td></tr>
</table>

Table 3.2 Change theories describing processes

3.4.2 People approach

a) Models focusing on both change processes and people's experience

ADKAR model (Galli, 2018)	Positive model (Worley and Mohrman, 2014)	Engage and Learn model (Worley and Mohrman, 2014)
Description - This model also draws upon the process of changes mainly from employee's perspective. The model describes how they experience and adapt to change in a sequence. The acronym ADKAR represents the goal of each phase of the model.	**Description** - this model represents planned change and based on the social dimension of the organization. This model uses Appreciative inquiry to manage change and envisions that participants share a common vision and use their experiences in an interactive manner.	**Description** - this model presents an emergent view of change and considers the complex, dynamic environment, which influences organization effectiveness. At the core of this model lies the two attributes - Engagement and Learning which connects people to each of the individual phases.
Awareness Need for change, the level of change for a specific project	**Discover -** the organization's positive core attitudes and systems, through involvement	**Awareness** Sensing environment trends, vigilant behavior, need to adapt to changing environment
Desire - motivation to participate and ability to perform necessary actions	**Dream -** the potential future and share the vision	**--**
Knowledge - what does the change involve and how is it executed	**Design -** the action plans to diffuse and strengthen the positive behaviors	**Design in shaping behavior -** coordinated efforts for global and complex changes, developing capabilities,
Ability - skills required to implement change as routine and establish a new order		**Tailoring -** driving change through targeted interventions and utilization of valuable resources
Reinforcement - motivation to sustain the changes and adopting new practices	**Destiny -** realizing the vision	**Monitoring -** inquiry on the impact of change and assessment of the desired outcome. The purposes are to self-regulate and make rapid adjustments.

Table 3.3 Change theories focused on process and people

b) Models focusing on only people's reactions

Kubler and Ross Model (Cameron & Green, 2015)	**Fink Model (Elrod and Tippett, 2002)**	**Meninger's morale Curve (Elrod and Tippett, 2002)**
Description - this model describes the change process as a departure from the original routines and system and recognizes the people's attachment to the past. The individual steps relate to the various reactions from the participants and the strategies to deal with them. It is like helping someone to cope with grief and accept the new way of being.	**Description -** this model represents how people react to crisis which includes loss of limb, relatives or friends and other things (or situations) which they deem import	**Description -** this curve resembles Kubler Ross stages of reaction among people undergoing transition
Denial	Shock	**Arrival -** Anxiety, motivation, apprehension, enthusiasm
Anger	---	
Bargaining	Defensive retreat	**Engagement -** Depression, *realization of losses,* frustration
Preparatory	Acknowledgement	**Acceptance -** anger, activism, expression of resentment
Depression	---	**Reentry -** Anxiety, depression, future *Satisfaction of completion*

Table 3.4 Change theories focused on people's reaction to change

There are many other theories illustrated by Cameron and Green (2015) which closely resemble the Kubler Ross model such as Satir model and Gestalt cycle which initially begins with a state of shock, followed by denial, anger, depression and acceptance. All these cycles are drawn on a timeline as the abscissa and the people's performance or reaction along the ordinate.

3.4.3 Systematic approach

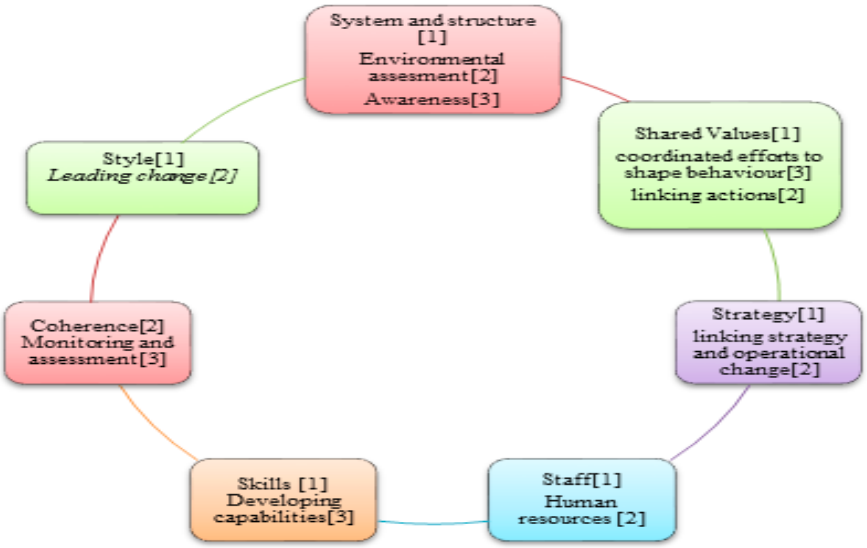


Fig 3.3 System theories of change combining [1] McKinsey model, [2] Pettigrew 5 factors and [3] engage and learn model

This framework attempt to combine the models of McKinsey 7S, Pettigrew 5 factors and the Engage and learn model as shown in Fig 3.3. Each of these models represents a systemic view with multiple factors and their interaction. These factors are namely environment assessment to sense trends and be sensitive to dynamic ecosystem, skills and capabilities of organization, leadership styles, building collaboration and sharing a common vision, developing and linking strategy with operational practices and finally, systems for monitoring and ensuring coherence. The similar terms are grouped together and there are possibilities for overlap. It is also important to note that there is no defined sequence or precedence of these factors.

3.4.4 Other change theories

These change theories adopt a different approach to describe the change processes and also vary in their format and content.

a) Improvisational model of change

The three types of changes recognized by Orlikowski and Hoffman (1997) repeat itself in an iterative manner to form an improvised change model, shown in Fig 4.1. Although it commences with planned change, followed by emergent and consequential opportunity-based change, over several iterations, it may follow a different sequence over the time span.

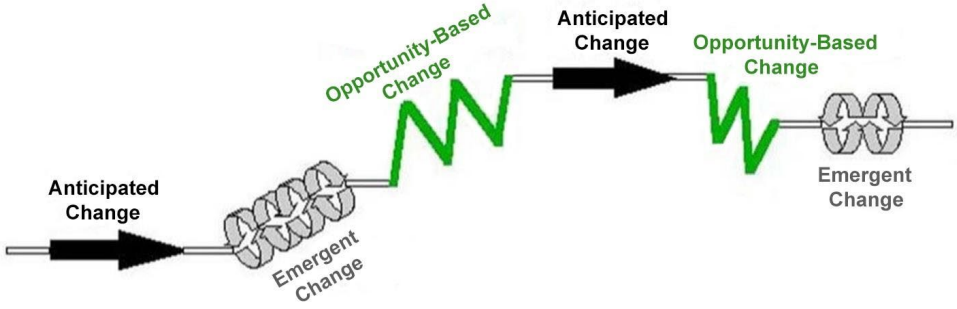


Figure 3.4 Improvisational model of change (Orlikowski and Hoffman, 1997)

b) Theory O and Theory E

Beer and Nohria (2000) define two theories for managing change. Theory E is the hard approach to change, where the measure of success is dependent on the extent of value to the shareholder. These strategies usually include drastic actions such as downsizing, heavy use of economic incentives, layoffs and restructuring. The leadership in this model is top down, with the top management assuming the role similar to that of a commander in chief and the remedies are often painful for the recipients. More emphasis is on developing structures and systems to implement change and consultants play a vital role in providing solutions. The softer approach, known as Theory O, is aimed at developing capabilities and develops a culture, which encourages participation among all levels in the organization. While economic incentives are means of exchange, the primary success of these changes lies in the commitment of the people towards change. Consultants are hired in these theories too, but their role is to support the development of solutions.

c) Social Movement in change management

Social movements are networks with informal relationships at multiple levels sharing a distinctive collective identity and mobilize resources for their causes. (Diani,1992). Social movements targeting organizations employ disruptive and non-disruptive tactics to fulfill the desired objective. While disruptive tactics such as sit-ins, riots etc. prevent organizations to decide contrary to their causes, non-disruptive tactics like rallies and demonstrations are less extreme and increases the probability of organizational change (Rojas, 2006). In addition, the study by Rojas (2006) reveals that non-disruptive tactics are typically led by the belief that decision makers are likely to change their behavior if the social movements consist of masses

of people supporting the cause and illustrates an instance where such tactics were instrumental in creating a new department. This study also reveals the influential nature of social movements, where other organizations follow by example and make similar changes and the availability of resources and increased number of supporters will promote organizational change.

d) Learning theories

Cameron and Green (2015) provide learning perspective to explain individual change. They state that while learning results in a change in behavior, change initiatives also require learning new skills. The authors describe the cycle of learning based on unconscious competence where individuals gain additional competencies during the change process by moving through phases shown in Fig 3.5. They also cite the experiential learning model of David Kolb (1984) and mention that individuals learn by doing and thinking as illustrated in Fig 3.6.

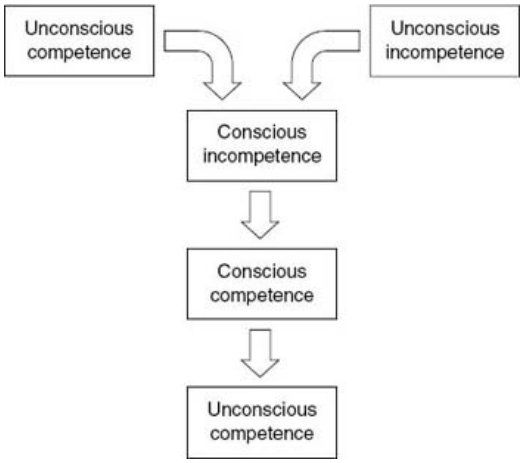


Fig 3.5 Learning cycle based on unconscious competence (Cameron and Green, 2015)

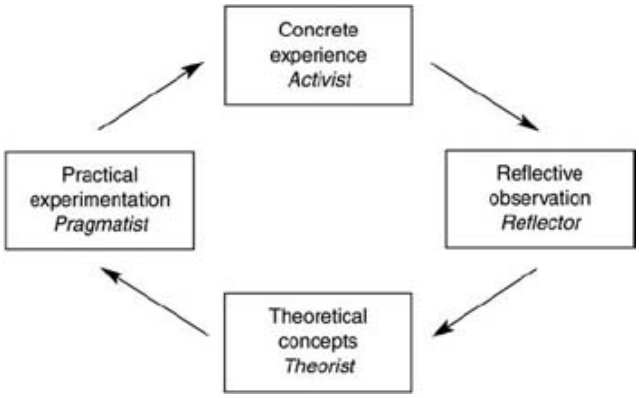


Fig 3.6 Kolb's learning cycle (Cameron and Green, 2015)

The authors also highlight that during the transition from old to new habits, the individuals experience a dip in their performance as they commit mistakes and use them to learn. The

valuable lessons learned are added to their cognitive faculties and leads to improved performance in the next cycle.

It is also noteworthy to present the work of Argyris and Schön (1997) in this context and discuss the single loop and double loop learning in organizations. In single loop learning, improvements are made by minor changes to the strategies of action or assumptions, while preserving the value framework. However, some changes require an inquiry into the desirability or relevance of the values and norms and result in modifying the same to pursue the intended objective. This learning approach is quite similar to the incremental and radical change types, as can be seen from their description.

e) Complexity theory

Organization transformation and design are some of the applications where complexity theories are used to develop organizational theory. Complex systems theories view organizations as social systems as multiplicities of various interacting factors and view change as a complex, integrated and socially dependent process. Hence such theories are useful to analyze the dynamic and emerging patterns of change (Styhre, 2002).

Sandra et al. (2015) also share this view of the organizations and describe them as complex adaptive systems. Further the authors also state that change process can be a wicked problem due to the inherent dynamic and interconnected issues, which affect these social systems. It is also true that systems have a similar influence on these changes as it involves multiple stakeholders with diverse perspectives both to the problem definition and potential resolution of the problem.

f) Project management

Levasseur (2010) listed some of the reasons for the failure of projects and separated those nontechnical causes, including the failure to gain user commitment and lack of process for controlling the change. Therefore, he advocates to use change management principles to address these non technical issues and ensure project success. Horenstein (2015) in his review includes this and other theories to emphasize that both disciplines must be considered in tandem. He argues that change is an inevitable cause of project implementation and its effective management is key to project success. From his work, we see that the project implementation process consists of *initiating, planning, executing, monitoring and control* is similar to the

change management process described previously in this thesis. Crawford and Nahmias (2010) identify that both change managers and project managers require similar competencies such as leadership, planning skills, team development capabilities and communication skills. They also identify similar activities involved in both these subjects such as communicating, stakeholder management and planning. They further note that in practice, change managers and project managers compete for management role and support and emphasize that it is important to overcome this conflict and establish a synergistic approach to fulfill the desired objectives.

3.5 Barriers to change

The forces restraining change, also termed as barriers or hurdles can emanate either from people initiating change or the change recipients. Some barriers or impediments arise due to the inherent nature of the change itself. The following subsections cover these barriers as described in several literatures.

Gill (2002) describes that change in organizations is managerial with focus on planning, monitoring and control, which is essential but not adequate especially if changes involve implementing a new system. According to him, change needs strong leadership to develop a vision to help lead the change efforts, align people and processes and overcome obstacles along the way (Gill, 2002). He further argues that such approaches accompanied by poor planning is the reason for the failure of change initiatives, as the implications of change are not accounted for, leading to unforeseen and undesired consequences. Often organizations embark upon change programs without effecting a corresponding change in policies and systems only to discover that they are incompatible, resulting in irreversible loss of time and resources invested. Sometimes companies also adopt management fads or use change initiatives as a quick fix to address particular issues without understanding the context or realizing its implications on the other parts of the organization.

Sull (1999) points out that even successful organizations fail to respond effectively when faced with a major change due to *active inertia* i.e. not taking appropriate action. According to Sull, companies get stuck in their modes of success and continue to adhere to the habits even amidst the changing business context thereby explaining that these practices tend to be ineffective in a different scenario. He describes four symptoms of active inertia where strategic frameworks become blinders, processes become routines, relationships become shackles and values become

enshrined as dogmas, which hinders adopting any alternative strategy. This is analogous to structural and cultural inertia as described by Tushman and Riley (1996).

Carnall (2007) identifies some of the barriers to change, which may arise at this level such as environmental blocks. Other blocks arise due to cognitive reasons and perceptual blocks. Cultural blocks can also be attributed due to organizational factors. Strebel (1996) introduces the concept of *personal compact* and defines it as "the formal, psychological, and social dimension aspects of the relationship between the organization and employees. It is the mutual obligations and commitments that is stated and implied between both sides" These personal compacts when unrevised and not honored by either of the members leads to an erosion of trust and hinders communication, thereby blocking change.

Nadler and Tushman (1997) mention that organizations as *political systems* are keen on preserving their power and degree of influence on the decisions. When confronted by changes accompanied by shifts in position of power, responsibilities and extent of control, they are likely to resist such situations, which pose an impediment to change.

Some of the barriers have a direct connection to the people involved in change management. They include people initiating change and also the recipients of change and have a significant influence on the outcomes of these initiatives.

Demers et al (1996) state that organizations are good at handling the technical and structural aspects of change and focus less on the guiding the personnel through change. Therefore they overlook the *personal losses involved in the change,* in an attempt to push forth their new plans. This view is also supported by Sanchez (2018), who states that 50% of the executives who initialize change admit that they do not considering their team's sentiments to change. Poor communication can also be attributed to the failure of the change initiatives in organizations. When the objectives, impact of change and the change process is not fully understood by the employees, misinterpretations occur. If these issues are not addressed, it creates an environment of distrust and impairs commitment to change. Hence, as Levasseur (2001) says, most failures during implementation of new technology are due to *lack of effective communication* and *not involving the people affected by change* during the initial phases. As Levasseur (2001) further adds, people's receptiveness to proposed change is proportional to the degree of involvement in it. Morrison and Milliken (2000) mention that *organizational silence* is a potentially dangerous impediment to organizational change and development as the employees choose to

refrain from expressing their opinions on critical issues and withhold their concerns. Organizational silence results when the management does not encourage the people to express their dissent or challenge the policies.

Gill (2002) mentions that a lack of knowing how is a cognitive reason to avoid change. He also adds that people also avoid change due to emotional reasons such as dislike of surprises, imposed change, disturbed practices, lack of confidence, lack of support from the management, lack of respect and trust, self-interest and shift in power. Carnall (2007) lists some barriers such as fear of risks, intolerance to ambiguity and terms them as "emotional blocks".

Garvin and Roberto (2005) state that people are reluctant to alter their habits and theirs past practices, especially the successful ones. They would prefer to continue their existing norm if there is no direct threat or a burning platform. Nadler and Tushman (1997) also support this view and add that an extreme comfort in the old system interferes with a need to seek a new approach, which is saddled with uncertainties and risk, thereby increasing their anxiety. Further, a legacy of past failures and inconsistent management structures with no potential improvement reinforces their belief that any change efforts to the existing equilibrium is disruptive and hence there is a great deal of cynicism and skepticism among the employees towards change.

Lorenzi and Riley (2000) add that change involves loss. It could be as minimal such as a departure of familiar routines or a substantial loss affecting the position, power, networks of friends and colleagues. Todnem (2005) who presented the different types of changes also adds that companies cannot be effective if they constantly change and that they need routines for improving efficiency. But the author also acknowledges the need for continuous change as a response to the external conditions.

Kegan and Lahey (2001) mention that people resist change sometimes due to a competing commitment, which needs their focus and energy. This explains the reason for employees supporting the need for change and yet do not participate.

Tushman and O'Reilly (1996) present the turmoil of the organizations where they must constantly align their strategy, culture and structure in a world of evolutionary changes and deliberately disrupt this alignment and innovate for sustained success in event of revolutionary changes. As both these change types alternate between periods of stability and dynamic transformations, there is an increasing demand to overcome this paradox. Organizations are

expected to both *exploit* – refine their existing capabilities, technologies and paradigms and also *explore* – investigate and pursue new opportunities, develop new knowledge and radically innovate products and services.

As Abrahamson (2000) noted, change initiatives increase workload and temporarily disrupt the processes, affecting those directly involved. This causes resistance among employees and freezing of change plans, described as permafrost organizations by the author. Changes also manifest as wicked problems as noted by Sandra et al. (2015) due to the complex and dynamic nature with multiple stakeholders at large scale. These problems are often difficult to formulate owing to the multiple and diverse perspectives and lack of a specific structure and undefined scope.

In his recent work, Pisano (2019) mentions that innovation cultures are paradoxical in nature,since they require a combination of behaviors, which are contradictory. The article elaborates the balance between creativity and discipline in each of these behaviors and how they reinforce each other. While some of the behaviors are palatable, the accompanying behavior may not be agreeable. For instance, employees supporting consensus to prevent anonymity will not support the need for accountability as it poses risk of blame. As the innovation cultures involve interdependent behavior, they cannot be implemented in isolation.

Austin and Bartunek (2003) presents three major groups of problems linked to change, wherein the first problem is concerned with ***participation.*** The second problem is ***self-reflection***. A lot of companies noticed that in order to ensure an effectively leading change, it is necessary to create an organization where leaders are able to share their experience and have similar understanding in the leadership of organizational transformation in order to reflect on each other's experience and deepen their knowledge. The third issue is related to ***narrative/rhetorical intervention***. It implies that companies noticed that in order to increase their performance, it is necessary to motivate customers to tell stories about their experience and through current and future-oriented stories to uncover what companies have to do in addition to improve their performance, to deliver a better experience for their target customers and which goal has to be set up for the future.

3.6 Overcoming barriers to changes – change management literature

All these articles suggest some measures to overcome these issues. Gill (2002) states that change requires leadership and explains that cognitive dimension of leadership enables one to identify the opportunities to improve, use intuition and comprehend information to make good decisions. Strebel (1996) also supports the argument and illustrates how leadership is essential to create a need and context for change. Levasseur (2001) adds that active communication and participation result in much lower barriers. Demers et al (1996) introduce the self-directed kit, created by Corning's HR department and called Exercises for Managing Change. This kit is a collection of information, activities, resources and handouts based on certain guiding principles, which provides the details of change process. Hence we consider that it is also important that management create a system and a culture where dissent can be freely expressed. However, transition from a scenario of silence and consensus to an outspoken and candid is a transformation in itself and needs senior managers with a different outlook as Morrison and Milliken (2000) notes. They mention that to achieve this, organizations must first understand the complex dynamics, which creates and reinforces the silent behavior among their employees.

The need for communication has also been supported by Garvin and Roberto (2005) who outline a four-part communication strategy a) setting the stage for acceptance; b) presenting the plan with a focus on both purpose and the impact of changes; c) managing the employees' mood during implementation and d) reinforcing the desired behaviors by preventing backsliding. Managers must play an additional role as psychiatrists and examine the underlying assumptions or the competing conflicts, which dissuade participation from people and provide assurance that their revelations will not be used against them (Kegan and Lahey, 2001).

Lorenzi and Riley (2000) add that changes are accompanied by losses and propose rituals of transition to help employees grieve their losses and move on. Sull (1999) agrees that revolution or discontinuous changes can disorient employees and cautions to introduce changes through constant renewals. He further adds that an attempt to change everything at once is not only ineffective but might result in loss of competencies and valuable relationships, which took years to develop. However, Pisano (2019) cautions that merely scaling down of the innovative practices is not effective without diffusion of a strong culture.

Abrahamson (2000) suggests a host of approaches such as creative imitation, appointing a memory officer, internal tinkering and hiring generalists to manage the excess

workload resulting from change initiatives. The author also considers that change is disruptive, especially in the event of major reconfigurations and suggests replacing them with small, continuous change efforts called tinkering to achieve dynamic stability. To help people with change, Sanchez (2018) recommends creating personas of the change recipients in order to conduct interview and listen emphatically to consider their needs and expectations. Since the needs evolve throughout the change process, these personas must be updated correspondingly. The article also emphasizes that employees who are well informed tend to deal well with the changes and that active participation by everyone at all levels creates a motivated team essential for the success of initiatives. Pisano (2019) recommends that the leaders must be transparent about the creative and the rigorous facets of the culture to prepare the participants and be vigilant in observing and regulating the behaviors, which may affect the balance. The organization can also benefit from applying the VIE model from the expectancy theory (Vroom, 1964) to motivate employees. The expectancy element can instill confidence in the employees that they can perform better through their efforts and commitment. The organizations must also provide assurance that they will receive suitable rewards (Instrumentality) and ensure that the rewards are significant to them (valence element).

In response to resolving tensions between exploration and exploitation, Beverland et al (2015), consider building ambidexterity as an alternative to tradeoffs. The authors argue that while tradeoffs between exploitation and exploration creates tension and tend to pull organizations with individuals and processes apart, ambidextrous organizations create a synergistic environment and permits dual structures to coexist in organizations.

Despite finding an abundance of strategies to overcome these barriers in change management literature, the challenge still prevails. While the theories on change management are still relevant and guide the change processes and includes psychological views, we realized that their application still depends largely on four factors. First, the *context of organizational change* is dynamic and continues to evolve against the backdrop of the changing environment and the demands faced by organizations managing change. The theories must be continuously adapted and evolved to suit this context and prove its relevance to the scenario. Second, a great deal of *know-how and explicit knowledge is required during the implementation state*. Third, *the transition process may uncover new opportunities* and challenges and theories must guide the change leaders to realize these opportunities or overcome the opportunities or the efforts may come to a grinding halt. |Fourth and last*, the decision of choosing and institutionalizing the theories* is a choice of the change leaders, who are guided by

certain rationale and their confidence in their outcomes. Compelling evidence is required for decision makers to motivate the application of theories in their change journeys. In order to address the above issues, we need a strategy with a flexible and human based approach, which embraces ambiguity.

3.7 Design science in organization development

Organizational development (OD) is usually influenced by different interventions (activities), which are designed to improve organization's functionality (French and Bell, 1995). According to the authors, there are different types of interventions, which can vary from complexity level till depth (focus only on the individual or an entire system). Simon (1996) adds that to deal with interventions, it is better to use design science instead of natural science. Design science helps to develop new disciplines, which could be used in addition to design any type of solutions to field problems by creating valid knowledge whereas natural science is about developing explanations for already existing things and natural phenomena (Van Aken, 2007). The difference between them is that if the former focuses on the past, how things have been done, while the latter focuses on the current and future state of the things. It leads to that design science is improvement and solution-centered innovations (Trullen and Bartunek, 2007).

3.8 Design thinking

Nowadays, there is an increasing interest in design thinking approach and how it could contribute in improving different companies' performance through organizational change. One of the most significant challenges is "to know how". DT methodology seems as a problem solution to any type of issues as it takes into consideration the full spectrum of practical and management activities with a human-centered design (Brown, 2008). Competitive environment requires to generate and create ideas that meet and satisfy users' needs instead of making already developed concepts more attractive (Brown, 2008).

3.8.1 History of design thinking

The history about DT shows that the concept of design started to evolve from 1957 up till now. In 1957, Johan Arnold has been hired at Stanford University as the need to include design education, which is focused on people's needs, has been recognized. Arnold created the laboratory where engineering students were able to express their skills, competences and

knowledge by experimenting and demonstrating their creativeness. Students could enter into engineering program from different divisions with different backgrounds such as: social sciences, studio art and so on (Katz, 2015). After Arnold's death, the leader of the program became his Phd. student McKim. He continued working on education program and his main goal was to motivate students to express their creativity as much as possible. McKim believed that only through efficient communication students will be able to built an environment where skilled individuals have better control on their actions and reflect easier on what goes on within their experimentation process. McKim proposed a problem solving method, which consist of three major stages: express, test and cycle. The model was built on iterative working together when the problem and strategy is clearly defined (McKim, 1980).

The same year, new student David Kelley enrolled within McKim program and inspired by his mentor decided to become a teaching assistant. He started to work with Professor Larry Leifer. After his graduation in 1978, the Professor suggested enrolling within Pdh. position. Kelly realized that he does not like to spend so much time on reading but he is very interested in mechanical engineering from the practical side (Rauth, 2015). He decided to apply his skills, competence and knowledge by working with his own hands instead of continuing with studies. He quit Phd. studies and opened a small design consultancy with Dean Howey ("Howey-Kelley Design"). McKim introduced Kelley to one of the Stanfords' graduates, who was working for Apple Computer. They had to design computer mouse and the process itself was very focused on human values and their needs (Rauth, 2015). Furthermore, it helped in shaping early IDEO's prototyping process because they were working on constant redesigning (Vanhermert, 2014).

The IDEO ("idea" and "ideology") concept has been developed in 1991 and at that time it did not cover any particular strategies or tools, which could be used within this methodology to design interfaces between different stages. It has been going on a lot of discussions, experience sharing and best practices, which could be helpful to develop further IDEO concept but any standardized methods were not presented. Discourses mainly were based on how IDEO used prototyping techniques to understand better the design by itself, what major steps the process had to pass through, that the end user has to be included within the design process and so on. Eventually the method has been developed, which is based on five major steps: understand the market /client, observe real people in real-life situations, visualize new-to-the-world, evaluate and refine the prototypes, implement new concept for commercialization (Rauth, 2015).

The results of design thinking history shows that the concept by itself has not been developed in one night and it required a lot of decades to come up with a model, which could be the new way of working and being more innovative. A collaboration of huge companies and talented people were working on its development for a long period of time and it took a lot of research and experiments to spread the message around the world. Different factors, practices, techniques, stories, experienced by a variety of actors shaped the entire practice of design thinking. Even though the actors are different their communication and knowledge sharing helped to identify common things, which could be applied for DT approach in general.

3.8.2 Introduction to design and designerly thinking

The design thinking concept seems as a new way of working in today's turbulent environment, which a lot of companies try to apply in addition to improve an organization's performance. The history of design thinking presents that the approach has been evolving through decades but mainly only through design prism. When the management concept has been introduced within the design thinking, it became really complicated to combine design and management into one single concept and communicate such understanding to others especially when design and designerly thinking can be interpreted differently depending on an author and his/her background. Sköldberg et. al (2013) present linkage between two terms "designerly thinking" and "design thinking". The former one is about designers' ability to express themselves in a nonverbal manner by using gained skills and competences within higher education while the latter one requires understanding designers' practices beyond the technical side and from management perspective which can be transferred into a practical or academic work without requiring extensive design knowledge.

3.8.2.1 Discourse about designerly thinking and design thinking from different perspectives

The economist and political science Herbert A. Simon (1916-2001) does not use "design thinking" term. Design by itself cannot be combined with any other social studies but only with engineering. The reason behind is that design is about changing old well-settled habits into preferred ones whereas other sciences deal with something what already exists (Simon, 1996). Strict distinction between two concepts created a lot of discussion among other theorists and practitioners.

Simon's belief that the design meaning is the actual attribute (something, what can be experienced or touched) has been argued by philosopher Klaus Krippendorff, who states that the actual core of the design process is how good meanings are communicated e.g. usage of design methods, sharing of learned lessons, evaluation of consequences and so on. (Sköldberg et. al., 2013). Richard Buchanan, professor of design innovation, presents design and designerly thinking as problem solving activity. It implies that any type of change has to include not only practical experience but the most crucial is how individuals understand each other, if all opinions are taken into consideration. According to the author, processes related to problems' formulation and solutions' creation are parallel processes but not two sequential, which means that communication is the foundation of everything (Sköldberg et. al., 2013).
Pink (2005) believes that design process helps to solve mind issues whereas designerly thinking motivates creativity. Both concepts together stimulate better performance towards productivity and helps to reach better results. Philosopher Schön analysed designers' behaviour in practise and noticed that there is a close relation between creation and reflection-upon-the-creation, which is necessary in improving competences and creating something greater (Sköldberg et. al., 2013). It leads to that delivery of high quality and personal growth does not depend only on a person's competence and skills but individual's ability to look at everything from a slightly different angle in order to evaluate the entire situation not only from a technical perspective. A good example of actions reflection is Edison's approach. The scientist created the electric light bulb and later realized that without a system of electric power generation, the invention does not have so meaningful value as individuals will not be able to use it in everyday life (Brown, 2008). By incorporating the power of his imagination and skills, Edison was able to see outside the box and understand what people want and how they would use it.

The results above show that it is really hard to come up with one unique definition what design thinking is as different people can pursue the concept in a different manner. It is very significant to point out that the majority of literature show that design and designerly thinking have quite close connection with each other and cannot be separated in addition to reach better performance. DT concept definition can vary from case to case, in what circumstances and environment it is used and so on. Economist Herbert A. Simon (1916-2001) separates design from any other social sciences and connects only with engineering, which is directly linked with reconstruction and creation of something new, whereas other authors, who have more knowledge and experience within psychology and social sciences noticed that both concepts have to refill each other.

3.8.3 Design thinking is iterative process

DT concept can be misinterpreted by many organizations because it is presented as a linear process with some well-defined steps, which could be followed in order to deliver high quality performance (Luchs et al., 2015). The reason why a number of organizations can take this view into reality is because individuals' inability to see outside the box. Humans are used to pursue everything as a linear path as it comes from a young age when they start attending schools. Often, primary school teaches people to see everything systematic, disciplined and clear. Knowledge by itself is divided into different disciplines, which has to be completed through a linear path of teaching (Teal, 2010). According to Teal (2010), this leads to students seeing learning as the absorption of "dry" facts, which have to be memorized. Eventually, it ends up that learning and teaching process are both linear, standardized and at the same time students' intelligence is measured by exams or tests, which have only one right answer. It follows that creative thinking would have a hard time surviving or being developed under such circumstances when everybody has one way of thinking. Furthermore, people are afraid to make mistakes because the failure is not accepted when all tasks are defined and the answer is already "written in stone". Individual's personal opinion, reflections, emotions and imagination is on the second place (Teal, 2010). That is why Teal (2010) believes that creativity and the richness of DT is lost because design is viewed as a series of interactions along a linear path.

Bergson (1984) follows the same line of thoughts and states that even though the human mind, from a psychological view, has a tendency to select the answers which are already in their heads and well known, the design and designerly thinking processes require creativity and cannot be seen as a linear and standardized process. The author states that thinking and design processes by themselves are built on creativity and ability to express thoughts (Bergson, 1984). It means that the design, which is standardized and linear does not have any future from practical and theoretical perspectives because it is limited, slow moving and monotonic. If designers would see design in such a view, then an entire project is imagined as already defined and well-structured journey with clear end (Bergson, 1984). This view is totally wrong and that is why design thinking concept became so popular because it is requires finding linkage between practice and theory in addition to create something better what satisfies humans' needs and not just improves already developed products. Hence this approach requires that designers would be not afraid to experiment, try to move things around, explore what is happening, analyze what

is missing and so on (Bergson, 1984). If DT thinking is seen just as a linear process, then it is significant to know that in case of one single failure, everything must start over. It does not matter that it took a lot of time to create something unique, but one single failure puts and entire project into death and new efforts have to be put . Linearity of this model would put you under discipline that every decision has to plan in advance clearly before taking any further decision.

Calgren et al. (2016) study, which was based on experience of DT within five different firms, pointed out that even though shared stories had different content, it was possible to identify five common themes of DT: user focus, framing the problem, experimentation and diversity. The study showed that DT can be used for individual problem solving depending on organization's needs.

Brown (2008) pursues DT as a system of spaces rather than a predefined series of orderly steps. According to the author, companies who use DT for the first time can see this process as a chaotic one but the ones who have experience know that all of it makes sense. It means that each improvement has to go through some sort of "checkpoints", which helps to identify what has to be done next but what activities and what tools you will use in in addition to come to the final checkpoint are not standardized and it depends on companies creativity, knowledge and experience how for example they will collect experience of target customers and so on.

To conclude, design thinking is built on companies' interactions with humans and designers ability to translate customers' needs into the actual product. The theorists proved that linearity does not help in being more creative as it puts a person in already defined frames and failure is not accepted. The DT approach does not restrict somebody neither defines in advance how things have to be done. Designers have a possibility to experiment with a variety of ideas. Failure is seen as a new learning experience and personal growth.

3.9 Design thinking in practise

From the literature above you could see that DT concept is quite popular nowadays as this approach is human-centered. A lot of companies notice that to compete in today's environment, it is very significant to get closer with end-users. It requires not only to discover their needs through building mutually trustful relationship but it also necessary to change peoples' mindset, who are involved within a company, that they would not be afraid of expressing themselves and

showing willingness to change. That is why in this chapter we are going to present some practical cases, where implication of DT methodology helped to make internal transformation within an organization and change the mindset of people who were involved with a company. The purpose of this section is to point out that even though all cases differ from each other, DT methodology and usage of its tools helps to lead an organization through a change by building a closer relationship among participants, who are capable to deal with a variety of new challenges.

3.9.1 Design thinking at Mercedes-Benz

Mercedes-Benz set a goal to be a more innovative organization, which requires to run internal organizational change. The main purpose of it is to teach employees how to change their constructive thinking into a more innovative one through reflection on their own actions. The company believed that the change process would clarify better for participants what impact their thinking and actions can make on internal organization's innovative mechanisms and solutions. Design thinking by Mercedes-Benz has been pursued as a method, which helps to step out from comfort zone and pushes an individual towards critical thinking. That is training of employees to understand the methodology by itself seemed as a good solution to deal with the current situation and see what results it will bring (S.Point, n.d.).

During the journey eighty employees were engaged in the training program to see how their innovative thinking can help to transform organization into a better working environment where all employees working towards better company's performance with more creative solutions (S.Point, n.d.).

All training was built on having some entertaining activities, which could motivate employees to feel more secure, relaxed and not afraid of expressing their real emotions. Innovative process started by asking employees to imitate colleague's gait. This exercise encouraged participants to be more open minded towards a change and feel free to express themselves in front of each other. Mercedes-Benz company was interested that all employees would be capable not only to face changes but also logically and convincingly presenting their solutions and ideas. That is why Elevator Pitch has been introduced within training program. Elevator Pitch means that a random participant is in the elevator together with the boss and has a limited amount of time (60sec) to convince the boss that his/her idea is one of the best concepts, which have to be

implemented. In the beginning, when participants took Elevator Pitch, they did not have a clue what is the point of this task but it actually had its own logical thinking. After leaving Elevator Pitch, all employees had to come back to reality, think for a while about their presented idea within the elevator and answer for themselves why they thought that this idea is the best thing to implement. Eventually, colleagues had to share their ideas among team members, think about everything from theoretical and practical perspectives and make business case, which will be presented for mentors. Mentors (managers and directors) had to involve with colleagues as well in order to help them with developing questionnaires, collecting the necessary information and so on (S.Point, n.d.).

The results: The implication of DT within an organization showed that the method by itself is really helpful during organizational transformation because it is not specifically used for ideas where the end-user is the foundation for everything, but it can be also applicable within an organization for management purposes as the approach is human-centered. It helped the company to build a closer relationship with employees; strong collaboration between all parties showed that they can reach better results working together and sharing knowledge with each other. Mercedes-Benz proved for employees that they have the capacity to resolve problems and enhance management skills. Mentors cooperation with participants reflected that more ideas can be generated if participants have the possibility to engage with company's management using different methods, processes and so on, which they do not have a clue before (S.Point, n.d.).

3.9.2 Lego Serious Play and DT

In 2010 the Lego Company introduced the Lego Serious Play (LSP) methodology, which can be applicable in different areas such as: business, education, commercial contexts and so on. The need for LSP was developed when it was noticed that there is a need for a system, which facilitate creativity and imagination. The concept is built upon participants' ability to use LEGO blocks to generate ideas, physically express their thoughts through visualization and build creative solutions. LSP method and DT are closely tied up concepts, which can help an organization and its participants not to be afraid of facing new issues but instead trying to be more creative and tackle the problem from a different angle. Design thinking requires not only knowing the design process and how to use different tools but it is necessary to incorporate design thinking mindset and critical thinking, which can be reached through a participant's

ability to experiment and express thoughts (James, 2013). Companies found this tool very supportive because it helps to think outside the box. The main advantage, that Lego bricks are easy to construct and the produced modules can be easily modified. Furthermore, companies noticed that this method helps a lot in building efficient communication among participants because instead of having "Lean Backward" meetings, where only a few participants are engaged, LSP method ensures "Lean Forward" meetings, where everybody is equally involved (Gauntlett, 2014**)**. LSP method is a unique way to tackle the problem when everyone is looking for a solution to a shared problem, where it is necessary to create shared mindset about something or build a vision (Jerzy, 2017). It can be applicable not only within a design but also within management especially when an organization runs through internal change.

LSP usage for change management initiatives: The business service division of an FMCG (Fast-Moving Consumer Goods) has gone through a variety of organizational changes. It created fear feeling among employees that they will be negatively influenced by these transformations and their careers are under danger. In order to ensure that individuals do not need to worry about their future, the company applied LSP method. It was necessary for the company to point out that even though the organization is running under some major changes, employees' careers are still under their own control. It created four different groups where all participants used LEGO blocks. The classification of groups was as follows:

- Group 1 - Managers and Mentors
- Group 2 - Employees, who showed willingness to change but were afraid about their careers
- Group 3- Employees, who were negative about changes or wanted to leave the organization
- Group 4 - New employees, who were not so much familiar what happens within an organization

All groups had to use LEGO blocks, which can help to improve organization's environment. Managers and teams' mentors had to visualize how their own experience and knowledge can contribute or affect team's/mentee's career development whereas the second and fourth group had to express how their ideal situation of career within a company looks like. The third group pursued very negative attitude about changes and since some of the employees were ready to leave their positions at the company, they have tried to show what obstacles were hindering them from achieving their ideal career situation. The task helped them to see that obstacles,

which they though does not help them to climb the career ladder, are some sort of inspiration points, which had to motivate them to do things in order to reach an ideal situation (Tagle, 2015).

4 The potential of DT to handle change

The chapters on change management showed that there are three major factors participation, self-reflection and narrative methods, which influence change and the use of design thinking could help in overcoming the barriers caused by their absence. In this chapter we will present different viewpoints about potential of DT to handle the change and what advantages it can bring.

Participation: According to Trullen and Bartunek (2007), collaboration of organizational development interventions together with DT research helps to increase communication and collaboration of internal and external parties. Bartunek and Louis (1996) add that DT is collaboration between three parties: customers, researchers and internal designers. That is why data collection, interpretation and communication are very significant aspects. Only through efficient communication with internal designers, external designers are able to satisfy customers' needs by translating ideal type into real. Furthermore, a number of organizations noticed that implementation of DT not only builds closer relationships with customers but it also influences individuals within the company. Employees who are involved within change process of using DT becomes more empowered, motivated and feel more appreciated as through constant engagement with others they start seeing themselves as being more involved within the working environment and that their decision and work has actual meaning for the company's future. Employees understanding that their opinions counts as well and it is not only managers who take decision, motivated them to stay longer within the workplace. Application of DT pushes an organization to create cross-functional teams where different competences and knowledge is shared among individuals. This type of diversity helps them to be more open minded, build openness, empathy, optimism and not being afraid of sharing their opinions as there is created a room for different personalities (Carlgren et al., 2014).

Self-reflection: Austin and Bartunek (2003) state that each change within an organization requires a well-prepared individual, who is capable of leading a team through a change journey. Self-reflection became significant aspect within change management process because it is crucial that leaders/mentors can reflect on their own actions and evaluate their influence on an entire team - how their position influences participants and their behaviors through a change. Authors point out that even though DT thinking approach does not directly help for a leader to

evaluate his/her own performance or learning, the process by itself is built on continuous reflection when there is interest in improving something by taking into account how an organization will react to an upcoming change. Design thinking helps to identify what actions within an organization are unproductive and what creates negative impact as you reflect on external factors. In this way, you as a leader, face difficulty to evaluate what you are doing wrong personally but on the other hand, constant evaluation of processes and participants involved within a change can help you to see what can be improved within an organization and rethink your own actions (Austin and Bartunek 2003). It leads to that by reflecting what goes wrong within a company, you will be able to see how someone's actions or your own leading influences those negative factors. To make it short, in DT thinking reflection is related to external objects and the main goal of this reflection is to create the knowledge, which could be applicable and used within other situations.

Narrative methods: The theorists from all the above-mentioned chapters will strongly agree that DT is human-centered approach and customers' focus is the foundation for everything. DT helps for researchers to identify hidden customers' needs, which cannot be expressed through surveys or questionnaires. It means that instead of analysing surveys, different data and try to draw pattern of customers' preferences, the innovator can live the customer's experience. Despite only understanding customers' needs through his/her experience, it can also shift an innovator's mindset towards some new ideas, which have been identified randomly (Liedka, 2018). Companies, which applied this method within an organization, noticed that constant communication with users makes them more innovative because an organization has to constantly rethink what they have learned from users and how it influences their way of working. It pushes an organization to step outside of narrative formulated problem and get a better understanding of the entire situation. It results in exploring different ideas, solutions and possible implementations, which could help to for an organization to grow and perform better (Calgren et. al, 2014). Design thinking is strongly linked to constant communication with target customers, having discussions and dialogues with different internal and external parties. According to Trullen and Barunek (2007), interventions, dialogue and discussion between participants and researchers are key for the conception of a design and its implementation.

Prototyping: Coughlan et. al (2007) argues that the use of DT promotes organizational change and development as it consists of prototyping phase. He emphasizes that prototyping can be

used in any stage in design process as it is a "learning tool" but not a final product or offering. The reason behind it is that three primary objectives of prototyping are:

- ***Building to think.*** It means that instead of wasting a lot of time on discussions, analysis, hypothesis building and so on. It is better to start directly to brainstorm and develop your ideas through actual actions.

Example: When somebody asks you do you know how to build a beautiful house before you have actually constructed a house. Prototype helps us to translate our ideas into actions. It leads to that even though if you imagine how to build a beautiful house but do not have a complete idea, putting it into the action can push your thinking towards (Coughlan et. al., 2007).

- ***Learning faster by failing early.*** It implies that producing tangible things earlier provides you a possibility to notice small and low-impact failures faster. That is why it is very crucial from the beginning to try to construct as the cheapest and quickest way to test an idea before moving with its development further.

Example: The staff in a healthcare center wanted to build a closer relationship with their patients. The first thing that came into their minds was to make a board with photos and their names that patients could read and know the staff better. In a week, the healthcare center got negative feedback from patients because they think that it is unnecessary to know all employees within healthcare center as it is enough to know the ones, who provides treatments for them. This information they could get from a nametag. Instead patients said that it would be better to learn more about care providers, who they deal with directly. Eventually, care providers created a photo album with pictures, activities and hobbies and so on that patients would look through. This example demonstrates that sometimes an early failure is a good step towards higher performance (Coughlan et. al., 2007).

- ***Giving permission to explore new behaviors.*** The meaning behind it is that sometimes prototyping pushes you to act extraordinary or change your way of doing things instead of just following your habits.

Example: In the healthcare center, care providers were used to share all information, have discussion in nurse's lounge at shift change. Discussions were time consuming and did not involve any patients, doctors or relatives. Later it was decided that change shift conversations

will happen in each patient's room and the patient will participate in the conversation. This example demonstrates that prototyping helped for the healthcare center to increase communication among different stakeholders, have better engagement (Coughlan et. al., 2007).

Organizations, which implement design thinking, can expect to achieve greater innovation output. DT methodology by itself helps for participants to grow personally, develop new skills, and improve way of thinking in addition to deal with conflicting constraints. Design thinking leads to an increase in personal confidence that an individual has creative ability. Tools or methods, which is used within DT thinking such as storytelling, prototyping and so on contributes to an organization's ability to perform better and be more innovative not only by producing great products but also by changing internally (Carlgren, 2013).

In addition to the above examples, literature on Design thinking can reveal salient features of this approach, which might contribute to managing change in organizations. Below are some of the possible ways of applying Design thinking in change management:

Empathy and Immersion journey: Research on change barriers include ignoring people's sentiments to change (Sanchez, 2018). However it is not always easy to elicit responses from participants, especially where organization silence hinders upward communication (Morrison and Milliken, 2000). Hence we think that there is a need to emphatically understand the change recipients. Sanders (2002) lists some of the ways to access people's experiences and mentions that while research methods like interviews, focus groups and observation help in uncovering explicit needs, they are not sufficient. Sanders (2002) argues that understanding people's feelings enables us to empathize with them and adds that tacit knowledge of what people know, think and dream can reveal latent needs and provide insights to the change leaders or change initiators to design the 'experience'. Although Sanders (2002) described them at a generic level, Mia and Samantha (2017) illustrate how design thinking uses immersion to access people's experiences.

Ambidexterity: Beverland et al (2015) in their study on brand ambidexterity compare the concepts of consistency and relevance synonymous to exploitation and exploration in general management literature on organizational ambidexterity. They also identify design thinking as an important mechanism to facilitate ambidexterity through integration instead of tradeoffs.

According to their study, design practices of abductive reasoning, holistic view, iterative thinking and user centeredness enabled them to resolve the conflicting tensions between consistency and relevance through *destabilizing existing assumptions, define and develop alternative perspectives and restoring order by reiterating the assumptions.* We could similarly approach the change paradigms by first assessing the cause of these conflicting behaviors or needs, defining new objectives based on these assessments and using these objectives to drive change. However, it is just a theoretical possibility, which needs to be explored further through empirical research.

5 Analysis

This section combines all the theoretical concepts from change management and design thinking literature in a single context and examines the relationship between the individual topics. As shown in the first framework, organizations experience change of all types and are required to address all types of changes repeatedly and simultaneously as noted by Worley and Mohrmann (2016). Juha (2018) also supports this view and adds that the dynamic environment requires the organization to undergo all types of change. Galli (2018) recommends using appropriate models prior to making a change management plan and in our thesis, we have identified some classical and state of the art theories.

Managing all these changes in organizations is dynamic and complex requiring systematic approach. It is essential to devote equal importance to both process and the people involved in the change process. System view is also an effective way of conceptualizing change, since the change process involves interaction between different elements. To manage change, several theories have been postulated among different organizations. Some theories have been specifically tailored to suit a business context and realize the change objective. Some theories have been drawn from other disciplines such as Kubler Ross model (Cameron and Green, 2005) and adapted to cope with employees' anxieties during the change. As businesses operate under different situations and the objective of change initiatives can vary, a model suitable for each organization is recommended as against a universal model for all organizations.

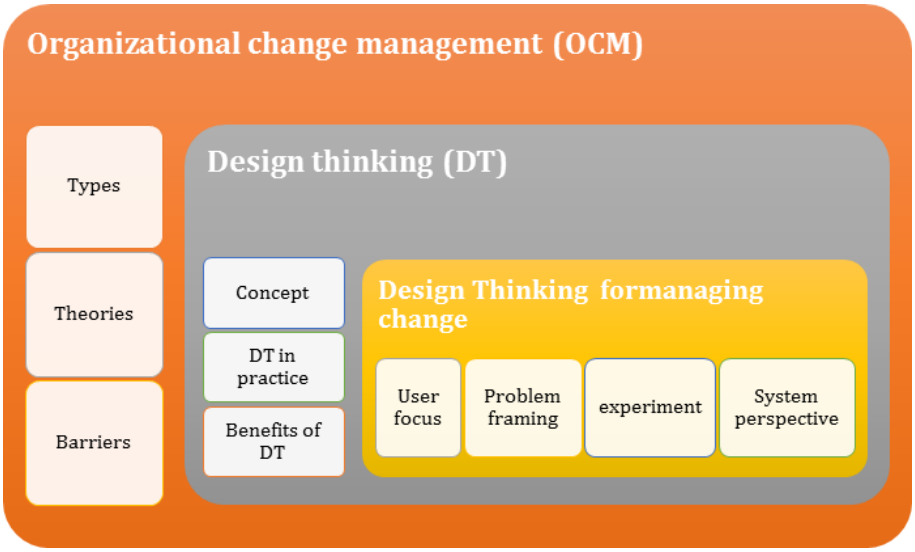


Fig 4.1 overview of literature review

The institutionalization of the new system, process, behavior etc. requires executing the planned changes which require use of resources and setting a course of action which leads to the

transition from the present state to the desired state. However, as mentioned in chapter 3.5, barriers or resisting forces pose impediments to the change process, with nearly 70% of the change initiatives failing to meet their intended objectives (Beer and Nohria, 2000)

Previously, in the literature section, we discussed barriers to managing organizational change and means to overcome them as identified in the literature. Here, we revisit the concepts and categorize them. The purpose is to investigate the origin and effects of these obstacles on the change process. These barriers along with the proposed remedies are combined in a matrix. The salient features and the benefits of design thinking are also integrated in this framework, which motivates embedding design thinking in an organization to manage change.

SN	**Description of barrier**	**Suggestions to Overcome**	
		Change management literature	**Design thinking**
Process Related barriers – barriers which may result due to not adopting the right approach or following an ineffective method			
1	Organizations adopt **managerial approach** to change such as planning and control, which is essential but not adequate as it results in lack of dedicated effort, conflict among functions and resistance (Gill, 2002)	Change requires leadership approach and cognitive skills to sense opportunities, lead change and inspire people (Gill, 2002; Strebel, 1996)	
2	**Poor planning** results in failed efforts and is evident through lack of monitoring, lack of milestones, insufficient resources and incompatible corporate policies (Gill, 2002)	The self-directed kit contains information, activities, guidelines and resources for managing change (Demers et al, 1996)	Self reflection enables the leaders or change initiators to foresee the influence of their actions on the outcomes and identify unproductive processes (Austin and Bartunek, 2003)

3	**Active inertia**, implying that organizations fail to take appropriate action due to incompetence or unwillingness. (Sull, 1999)	Sull (1999) recommends reflecting on the strategic frames, processes, relationships and values which can facilitate or hinder change initiatives and to avoid the disruption (by change) through continuous renewal process.	
4	Formulating the change objective is complex and described as a wicked problem due to diverse perspectives and lack of definite structure (Sandra et al, 2015).	----	Design thinking can aid in formulating an actionable problem statement using Point of View (POV) which takes into account: user, need and insight (Point of View, 2017)
5	Lack of effective communication (Levasseur, 2001; Sanchez, 2018)	Active communication and participation result in much less barriers. Four part communication strategy – preparing, express need, managing emotions and sustaining change(Levasseur, 2001; Garvin and Roberto, 2005)	Prototyping and visual tools create a common language thereby enhancing teamwork and collaboration (Carlgren et al, 2014)
People related barriers – Barriers originating from change participants or arising due to ignoring the people side of change			
5	Failure to consider and honour Personal compacts - mutual commitments stated and implied between management and employees (Strebel, 1996)	Leadership is essential to create a system for recognising personal compacts. It is also helpful to provide a formal systems so that these commitments are explicit, thereby reducing confusion (Strebel, 1996)	Accessing people's experiences might help in uncovering latent needs and underlying assumptions (Sanders, 2002) and address them effectively to communicate the mutual expectations
6	Individuals and groups resist change if it is inconsistent with their shared values or affect the balance of power in the	Build critical mass of support by identifying key people, mapping their relationships, seeking participation and involvement and leaders	

	future state (Nadler and Tushman, 1997)	commitment (Nadler and Tushman, 1997)	
7	Organizations focus more on structural and technical parts of change and overlook people side of the change , resulting in resistance due to fear of personal loss(Demers et al, 1996)	Revitalization plan involves employee counselling services, ways to cope with stress and change, self-assessment tools, and a focus on new employee and company relationships (Demers et al, 1996)	
8	Ignoring people's sentiments towards change (Sanchez, 2018)	Create personas of employees participating in change and conduct interviews to know their response and perception of change.	Design thinking can enable the management to assess the people's response to change through immersion, rather than surveys (Sanders, 2002 ; Mia and Samantha, 2017)
9	Failure to involve the people involved in the change during initial phases (Levasseur, 2001). Change is imposed upon them, rather than eliciting their participation.	Use VIE model and motivate employees to realise that their efforts result in outcomes which they value (Vroom, 1964)	Employees involved in the decisions during the change process are more empowered, motivated and feel more appreciated that tend to stay longer as they realise that their work adds value to the company's future. (Carlgren et al, 2014)
10	Organizational silence prevails in organization, where employees are hesitant to express their concerns (Morrison and Milliken, 2000)	Senior managers ought to design different organizations systems which elicit honest upward communication (Morrison and Milliken, 2000)	Cross functional teams are created to promote diversity, collaboration, empathy and facilitates open communication (Carlgren et al, 2014)
11	Lack of know-how and other emotional reasons (Gill, 2002 ; Carnall, 2007)	Self-directed kit (Demers et al, 2006)	Prototyping enables participants to brainstorm ideas, learn quickly and iteratively and explore

12	Influenced by habits and reluctance to adapt to new, uncertain approaches (Garvin and Roberto, 2005; Nadler and Tushman, 1997)	Unfreezing and creating a sense of urgency (Schein, 1996; Kotter , 2007; Vroom, 1964)	other possibilities (Coughlan et al, 2007)
13	Change involves loss (Lorenzi and Riley, 2000)	Use rituals of transition (Lorenzi and Riley, 2000)	Immersion maps suggested by Sanders (2002) might help capture the latent fears
14	Competing commitments divert people's focus away from the change efforts, despite them being motivated (Kegan and Lahey, 2001)	Managers play the role of psychiatrists to understand the assumptions and internal conflicts and resolve them (Kegan and Lahey, 2001)	
15	Constant changes are disruptive and does not improve efficiency (Todnem, 2005)	Use renewal rather than revolution to introduce changes in the organization (Sull, 1999)	
16	Change efforts increase workload and temporarily disrupt processes (Abrahamson, 2000)	Tinkering, borrow concepts (Abrahamson, 2000)	
Concept related barriers – barriers due to the paradoxical nature of change			
17	Turmoil of organization to disrupt stable processes to innovate and establish routines and norms to sustain the innovation creates a paradox. There is a need to both *exploit and explore* (Tushman and O'Reilly, 1996)		Beverland et al (2015) indicate the contribution of design thinking and their hallmarks such as abductive reasoning, holistic view, iterative thinking and user centeredness can help in resolving the exploration - exploitation tensions

18	Paradoxical nature of innovation culture, seeking contradictory yet interdependent behaviours. There is a need to balance creativity and rigour (Pisano, 2019)	Leaders must be vigilant of the possible dominance of either of contradictory behaviour and resolve the conflicts.They must provide clarity of the desired behaviour (Pisano, 2019)	

Table 4.1 Analysis of change barriers and possible remedial measures

5.1 Design thinking and Change management

A review of literature on both change management and design thinking has helped us to understand how they relate to each other. In this section, we present a few findings based on our study.

5.1.1 System view

One of the theories presented the system view of change (Fig 3.3) and how the individual actors and corresponding factors interacted in a non linear and possibility of multiple interactions. Similarly, design thinking is also characterized by systemic thinking based on the works of Carlgren et al (2016) and Brown (2008). Brown (2008) pursues DT as a system of spaces rather than a predefined series of orderly steps and Carlgren et al (2016) use the term as an alternate label to diversity and illustrates how a system view promotes collaboration. Hence we see that both literatures share a common approach that change or design thinking is not characterized by a single event or process or entity, but encompass a wider perspective.

5.1.2 User focus

Change management literature on the one hand, requires that organizations must address the people side of change as identified by many researchers in Table 4.1, design thinking address this need by advocating empathy, collaboration and participation (Carlgren et al, 2016; Trullen and Bartunek, 2007). Here, we conclude that design thinking provides a user oriented approach to the organizations for managing change.

6 Discussion

6.1 State of the art theories on change management

State of the art, as described in most of the dictionaries means a new stage or an advanced level of development in a process, device, technique or science and incorporates modern ideas and features. In our thesis, state of the art theories on change management refers to those theories postulated in recent years and includes diverse perspectives of change. These theories can be characterized by the recent publication and the use of different lens to view change.

Earlier in our report, we begin by introducing the process models of change as these are considered fundamental and recognized universally for their simple, straight approach for understanding how change occurs. This is evident in a quote by Schein (1996) : "I found Lewin's basic change model of unfreezing, changing, and refreezing to be a theoretical foundation upon which change theory could be built solidly." However recent works have identified problems with this and other similar models. Styhre (2002) views organizations as open systems interacting with the environment and argues that though Lewin's model is rich in metaphorical content, organizations cannot be perceived as a physical entity which can be liquefied and solidified and certainly not isolation with the environment. Worley and Mohrman (2014) further add that the theories in the 'old normal like Lewin and Kotter suggest that organization life is marked by stability and incremental change with occasional disruptions. They point out that in the 'new normal', the organizations must address both incremental and radical change and hence the traditional models do not offer guidance or tools for the same, thereby requiring a host of new theories on change. Cameron and Green (2015) also presents multiple perspectives of organization and discuss new theories, which has been included in our thesis.

After process models, we next focus on the change models with people approach. Previously in the section on change theories, we had two sections and associated matrices. Table 3.3 presents theories which blends both process perspective and people interaction by comparing the ADKAR model (Galli, 2018), Engage and Learn model (Worley and Mohrman, 2014) and the Positive Model (Worley and Mohrman, 2014). The second section includes those theories, which exclusively focuses on the people's reactions to change, as shown in Table 3.4.

Our next theory views organization change as a part of the system and the corresponding theories are summarized in a framework in Fig 3.3. Here, it is interesting to note that though the individual elements of the system such as environment, capabilities, monitoring and control systems etc. resemble the process model, the interaction is not linear or unidirectional. Instead, the framework shows the existence of multiple interactions.

The subsequent sections on change management show that authors have used theories developed earlier to explain change. From our earlier discussions, we can see that Rojas (2006) uses the concept of social movement (Diane, 1992) and explains the effectiveness of its non-disruptive tactics in facilitating change. Similarly, Cameron and Green (2015) uses the learning cycle (Kolb, 1984) to illustrate how individuals learn by changing their actions and reflections.

In a recent review, Hornstein (2015) emphasizes the need to integrate project management with change management by establishing that change is a consequence of project implementation and managing change effectively impacts project success.

To sum up, the section on change management theories in this report discusses the state of the art theories on change management used in the recent times and include modern and diverse perspectives used to understand change, partly answering the first research question of this study

6.2 Barriers to organizational change

The other part of the first research question is the main topic of this section, which covers the barriers encountered in managing change. Earlier in this thesis, we have described the barriers as indicated by several authors.

Later on, our analysis as shown in Table 4.1, we classify them into process related, people related and concept related as we see that barriers emerge either due to the following reasons - incorrect processes, resistance from participants and due to the paradoxical nature of change phenomena. The definitions of the headings italicized in the table were coined by us to describe our rationale for classifying them. In this section, we summarize our list of various barriers.

1. Process related barriers - are those barriers, which may result due to not adopting the right approach or following an ineffective method.

2. People related barriers are barriers originating from change participants or arising due to ignoring the people side of change.
3. Concept related barriers are barriers arising due to the paradoxical nature of change.

From the table, we see that a number of barriers are related to the people involved in change, which warrants the use of Design thinking. In addition, design thinking can also address the other barriers identified in this study.

6.3 Contribution of design thinking to organizational change management

The analysis section presents the table 4.1, which identifies the various barriers to change management along with strategies to overcome these barriers, from both literature streams. As shown in the table, design thinking can be used to resolve some of the barriers in each identified category. This indicates that design thinking may be used as a process, tool, approach or a mindset based on the barrier type and the context in which it is applied. In this section, we discuss how design thinking addresses barriers in each category

6.3.1 Process related barriers

Design thinking is best suited for formulating the 'wicked problems' which are termed due to their inherent complexity (Mia and Samantha, 2017) The authors illustrate the ease and practicality with we can frame how might we tackle wicked problems which considers the user, need and the insight collectively. For example, *How might the change initiators encourage employees to implement new software? How might the employees express their concern over the risks with a new merger?* As a statement, the formulation would be similar to: *The change leaders need to find a way to involve participants to implement new software to reduce their process time*. Or *the employees need a way to express their fears or anxieties associated with the new merger.*

In situations involving multiple perspectives and terminology which is difficult to comprehend, the use of prototypes and other visual aids i.e. post its can be used to aid in communication and foster collaboration (Carlgren et al., 2014).

Another issue is the failure to take appropriate action or failing to plan effectively. Design thinking plays a vital role here as self reflection of the change leaders enable them to see the outcomes of their decisions well in advance, which help them in identifying unproductive action (Austin and Bartunek, 2003). Visualisation may also be used in this context, which helps in mapping out a decision chart to assess the probabilities and the effects of their choices and guide them to take the best course of action.

6.3.2 People related barriers

Design thinking would be the ideal approach for resolving the barriers related to people due to its empathetic approach. Its focus on users highlights the employees and immersing in their change journey might help the management in understanding the latent needs and uncover the tacit knowledge regarding their insights and opinions. Carlgren et al. (2014) discuss the perceived value of design thinking to the people involved in change, called 'resources' and that involving them during the decisions related to the change process feel more empowered and valued and tend to stay longer in the company. They also emphasize the creation of cross functional teams to promote diversity and collaboration and adds that network of like minded people made the employees feel comfortable to share experiences and express their differences.

One of the reasons why people resist change is the fear of the unknown and learning anxieties (Gill, 2002; Coutu, 2002). The lack of process knowledge or the method can also lead to this resistance (Carnall, 2007). In such cases, prototyping might aid in people to learn from building models, experiment with them and learn quickly by making mistakes early in the process (Coughlan et al, 2007) using prototypes, design thinking helps people to visualize the future state and the tools or process required to achieve the same, thereby address the cognitive barriers identified by Carnall (2007).

6.3.3 Concept related barriers

Worley and Mohrman (2014) mention that today organizations must address all types of changes and there is a need to leverage existing capabilities and drive performance in the present and also develop new capabilities and business models for the future. They add that companies must continuously sustain existing practices and introduce disruptive innovations. Beverland et al. (2015) terms them as exploitation of existing capabilities and exploration of future

opportunities and adds that these approaches must be integrated rather than viewing as tradeoffs. In their study, they equate the concepts of consistency and relevance of brand ambidexterity and illustrate how design thinking is used as a mechanism to trigger this ambidexterity. They describe how the hallmarks of design thinking such as abductive reasoning, user centeredness, holistic view and experimentation help them in the three stages of demolishing existing assumptions, defining and developing new methods and processes and restoring new order through transformation. On closer observation these three stages appear analogous to the unfreezing-change-refreezing model proposed by Lewin (Schein, 1996). Therefore, we may conclude that design thinking is best suited to manage organizational change.

6.4 Conclusions

This thesis set out to identify the role of design thinking to manage organizational change. Another important objective of this study was to explore state of the art theories on change management. Here, we wish to highlight our main findings and first, the state of the art theories on change have been developed in recent years and consist of different paradigms for viewing change such as system view, people focus, complexity theory and project management approach. Second, several obstacles meet change in organizations, which we group based on inappropriate process, resistance from people and paradoxical nature. Third, we argue that design thinking is the ideal approach to manage change due to user centeredness and system perspective. We also use our analysis to describe that design thinking provides the right approach, tools and mindset to overcome the change barriers.

Theoretically, this thesis provides a conceptual framework linking both the subjects and describes the current change theories. It also opens up an arena for practitioners and other researchers to empirically test the hypothesis about the contributions of design thinking towards organizational change management. Some of them include case studies on the examples of design thinking application to implement a change initiative or using Point of View to formulate the change problems and determine their effectiveness. We can also investigate how design thinking helps in addressing the paradox of change and build ambidexterity.

7 References

Abrahamson, E. (2000). Change without pain. *Harvard business review*, *78*(4), 75-79.

Anderson, P., & Tushman, M. L. (Eds.). (2004). *Managing strategic innovation and change: A collection of readings*. Oxford University Press.

Andriopoulos, C., & Lewis, M. W. (2010). Managing innovation paradoxes: Ambidexterity lessons from leading product design companies. *Long range planning*, *43*(1), 104-122.

Austin, J. R., & Bartunek, J. M. (2003). Theories and practices of organizational development. Handbook of psychology, 309-332.

Bartunek, J., & Louis, M. R. (1996). *Insider/outsider team research* (Vol. 40). Sage Publications, Inc.

Beer, M., & Nohria, N. (2000). Cracking the code of change. *HBR's 10 must reads on change*, *78*(3), 88-95.

Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods*. Oxford university press.

Bergson, H. (1984). *Creative evolution*. University Press of America.

Beverland, M. B., Wilner, S. J., & Micheli, P. (2015). Reconciling the tension between consistency and relevance: design thinking as a mechanism for brand ambidexterity. *Journal of the Academy of Marketing Science*, *43*(5), 589-609.

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational researcher*, *34*(6), 3-15.

Briarcliff Manor, NY 10510: Academy of Management.

Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The journal of the learning sciences*, *2*(2), 141-178.

Brown, T. (2008). Design thinking. *Harvard business review*, *86*(6), 1-11.

Brunning, H. (2018). *A manual of organizational development: The psychology of change*. Routledge.

Bullock, R. J., & Batten, D. (1985). It's just a phase we're going through: a review and synthesis of OD phase analysis. *Group & Organization Studies*, *10*(4), 383-412.
Burnes, B. (1996). No such thing as… a "one best way" to manage organizational change. *Management decision*, *34*(10), 11-18.

Cameron, E., & Green, M. (2015). *Making sense of change management: A complete guide to the models, tools and techniques of organizational change*. Kogan Page Publishers.

Carlgren, L. (2013). Design thinking as an enabler of innovation: Exploring the concept and its relation to building innovation capabilities. Chalmers University of Technology.

Carlgren, L., Elmquist, M., & Rauth, I. (2014). Design thinking: Exploring values and effects from an innovation capability perspective. The Design Journal, 17(3), 403-423.

Carlgren, L., Rauth, I., & Elmquist, M. (2016). Framing design thinking: The concept in idea and enactment. *Creativity and Innovation Management*, *25*(1), 38-57.

Christian F. Durach, Joakim Kembro & Andreas Wieland (2017), "A new paradigm for systematic literature reviews in supply chain management," Journal of Supply Chain Management, Vol. 53, Issue 4, 67-19.

Cooper, H. M. (1982). Scientific guidelines for conducting integrative research reviews. *Review of educational research*, *52*(2), 291-302.

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology*, *13*(1), 3-21.

Coughlan, P., Suri, J. F., & Canales, K. (2007). Prototypes as (design) tools for behavioral and organizational change: A design-based approach to help organizations change work behaviors. *The journal of applied behavioral science*, *43*(1), 122-134.

Coutu, D. L. (2002). The Anxiety of Learning. Interview by Diane L. Coutu. *Harvard business review*, *80*(3), 100-106.

Crawford, L., & Nahmias, A. H. (2010). Competencies for managing change. *International journal of project management*, *28*(4), 405-412.

Creasy T. (2018) An Introduction Guide to Change Management. Retrieved from https://empower.prosci.com/introduction-to-change-management-guide

Demers, R., Forrer, S. E., Leibowitz, Z., & Cahill, C. (1996). Commitment to change. *Training & Development*, *50*(8), 22-27.

Diani, M. (1992). The concept of social movement. *The sociological review*, *40*(1), 1-25.
Elrod, P. D., & Tippett, D. D. (2002). The "death valley" of change. *Journal of organizational change management*, *15*(3), 273-291.

Feldmann, D. (2016). Social movements for good: How companies and causes create viral change. John Wiley & Sons.

Fernandez, S., & Rainey, H. G. (2017). Managing successful organizational change in the public sector. In *Debating Public Administration* (pp. 7-26). Routledge.
French, W. L., & Bell, C. H. (1973). *Organization development: behavioral science interventions for organization improvement*(No. HD38 F69).

Galli, B. J. (2018). Change management models: A comparative analysis and concerns. *IEEE Engineering Management Review*, *46*(3), 124-132.

Garvin, D. A., & Roberto, M. A. (2005). Change through persuasion. *Harvard business review*, *83*, 26-33.

Gauntlett, D. (2014). The LEGO System as a tool for thinking, creativity, and changing the world. *LEGO Studies: Examining the Building Blocks of a Transmedial Phenomenon*, 1-16.

Gill, R. (2002). Change management--or change leadership?. *Journal of change management*, *3*(4), 307-318.

Golembiewski, R. T., & Billingsley, K. R. (1980). Measuring change in OD panel designs: A response to critics. *Academy of Management Review*, *5*(1), 97-103.

Hayes, J. (2018). *The theory and practice of change management*. Palgrave.

Hornstein, H. A. (2015). The integration of project management and organizational change management is now a necessity. *International Journal of Project Management*, *33*(2), 291-298.

Jackson, G. B. (1980). Methods for integrative reviews. *Review of educational research*, *50*(3), 438-460.

James, A. R. (2013). Lego Serious Play: a three-dimensional approach to learning development. *Journal of Learning Development in Higher Education*, (6).

Jerzy, M. (2017). Using Lego as a design thinking artefact. Retrieved from http://thinkdesignmanage.com/2017/06/13/using-lego-as-design-thinking-artefact/

Johansson‐Sköldberg, U., Woodilla, J., & Çetinkaya, M. (2013). Design thinking: past, present and possible futures. *Creativity and innovation management*, *22*(2), 121-146.

Johansson, F. M., Hookway, S., Leffler, M.J., & Kronbland, C. (2008). *Design thinking intro day.* [PDF file]. Retrieved from https://pingpong.chalmers.se/courseId/8896/node.do?id=4188288&ts=1511433728868&u=25866011

Johnson, D. M. (2004). Adaptation of organizational change models to the implementation of quality standard requirements. *International Journal of Quality & Reliability Management*, *21*(2), 154-174.

Junell, J., & Ståhle, P. (2011). Measuring organizational renewal capability: case training service business. *Competitiveness Review: An International Business Journal*, *21*(3), 247-268.

Katz, B. (2015). *Make It New: The History of Silicon Valley Design*. MIT Press.

Kegan, R., & Lahey, L. L. (2001). The real reason people won't change. *HBR's 10 Must Reads on Change*, *77*.

Kerber, K., & Buono, A. F. (2005). Rethinking organizational change: Reframing the challenge of change management. *Organization Development Journal*, *23*(3), 23.

Kiteley, R., & Stogdon, C. (2013). *Literature reviews in social work*. Sage

Kotter, J. P. (2007). Leading change: Why transformations fail. *Harvard Business Review*, *85*, 1-8.

Kritsonis, A. (2005). Comparison of change theories. *International journal of scholarly academic intellectual diversity*, *8*(1), 1-7.

Levasseur, R. E. (2001). People skills: Change management tools—Lewin's change model. *Interfaces*, *31*(4), 71-73.

Levasseur, R. E. (2010). People skills: Ensuring project success—A change management perspective. *Interfaces*, *40*(2), 159-162.

Levy, A., & Merry, U. (1986). *Organizational transformation: Approaches, strategies, theories*. Greenwood Publishing Group.

Liedtka, J. (2018). Why design thinking works. *Harvard Business Review*, *96*(5), 72-79-8.

Luchs, M. G., Swan, S., & Griffin, A. (2015). *Design thinking: New product development essentials from the PDMA*. John Wiley & Sons.

McKim, R. H. (1980). *Experiences in Visual Thinking*. Brooks/Cole Publishing Company.

Meyerson, D. E. (2001). Radical change, the quiet way. *HBR's 10 Must Reads on Change*, 79(9) 92-100.

Moran, J. W., & Brightman, B. K. (2001). Leading organizational change. *The Career Development International, 6*(2), 111-118.

Mortensen, P. S., & Bloch, C. W. (2005). Oslo manual-guidelines for collecting and interpreting innovation data: Proposed guidelines for collecting and interpreting innovation data.

Nadler, D. A., & Tushman, M. L. (1990). Beyond the charismatic leader: Leadership and organizational change. *California management review*, *32*(2), 77-97.

Organisation for Economic Co-operation and Development, & Statistical Office of the European Communities. (1997). *Oslo manual: Proposed guidelines for collecting and interpreting technological innovation data*. Organisation for Economic Co-operation and Development.

Orlikowski, W., & Hoffman, D. (1997). An improvisational model for change management: The case of groupware technologies. *Inventing the Organizations of the 21st Century*, *265*.
Owen, C. (2007). Design thinking: Notes on its nature and use. *Design Research Quarterly*, *2*(1), 16-27.

Palmer, I., Dunford, R., & Akin, G. (2006). *Managing organizational change*. New York, NY: McGraw-Hill.

Pettigrew, A., & Whipp, R. (1993). *Managing change for competitive success*. Wiley-Blackwell.

Pink, D. H. (2006). *A whole new mind: Why right-brainers will rule the future*. Penguin.

Pisano, G. P. (2019). The hard truth about innovative cultures, 97(1), 62-71.

Point of View - Problem Statement. (2017). Interaction Design Foundation. [online] Available at: https://public-media.interaction-design.org/pdf/Point-Of-View.pdf [Accessed 2 Nov. 2017].

Randolph, J. J. (2009). A guide to writing the dissertation literature review. *Practical assessment, research & evaluation*, *14*(13), 1-13.

Rauth, I. (2015). *Understanding management ideas: the development of interpretability*. Chalmers University of Technology.

Rojas, F. (2006). Social movement tactics, organizational change and the spread of African-American studies. *Social Forces*, *84*(4), 2147-2166.

S.Point (n.d.). Mercedes-Benz Innovation Bootcamp. Retrieved from http://www.spointdesign.com/en/work-all/178.htm

Sanchez, P. (2018). The secret to leading organizational is empathy. *Harvard Business Review*, 6-9.

Sanders, E. B. N. (2002). From user-centered to participatory design approaches. In *Design and the social sciences* (pp. 18-25). CRC Press.

Schein, E. H. (1996). Kurt Lewin's change theory in the field and in the classroom: Notes toward a model of managed learning. *Systems practice*, *9*(1), 27-47.

Schermerhorn Jr, J. R. (1980, August). Managerial Ingredients of Successful Planned Change in Hospitals. In *Academy of Management Proceedings* (Vol. 1980, No. 1, pp. 32-36).

Schön, D. A. (2017). *The reflective practitioner: How professionals think in action*. Routledge.

Simon, H. A. (1996). The sciences of the artificial (3rd ed.). Cambridge, MA: MIT Press.

Strauss, A., & Corbin, J. (1994). Grounded theory methodology. *Handbook of qualitative research*, *17*, 273-85.

Strebel, P. (1996). Why do employees resist change?. *Harvard business review*, *74*(3), 86.
Styhre, A. (2002). Non-linear change in organizations: organization change management informed by complexity theory. *Leadership & Organization Development Journal*, *23*(6), 343-351.

Sull, D. N. (1999). Why Good Companies Go Bad HBR., 45-50.

Tagle, J. (2015). Using Lego Serious Play for Change Management. Retrieved from https://seriousplaypro.com/2015/11/24/using-lego-serious-play-for-change-management/?fbclid=IwAR1jlz-5kLGGmpE-BSWTcn_l2zdPpiTRkxecKLKMlrE73z0uAZua86dy_Fg

Teal, R. (2010). Developing a (Non-linear) Practice of Design Thinking. *International Journal of Art & Design Education*, *29*(3), 294-302.

Todnem By, R. (2005). Organisational change management: A critical review. *Journal of change management*, *5*(4), 369-380.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British journal of management*, *14*(3), 207-222.

Trullen, J., & Bartunek, J. M. (2007). What a design approach offers to organization development. *The Journal of Applied Behavioral Science*, *43*(1), 23-40.

Tushman, M. L., & O'Reilly III, C. A. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California management review*, *38*(4), 8-29.

Uotila, J. (2017). Punctuated equilibrium or ambidexterity: dynamics of incremental and radical organizational change over time. *Industrial and corporate change*, *27*(1), 131-148.

Van Aken, J. E. (2007). Design science and organization development interventions: Aligning business and humanistic values. *The Journal of Applied Behavioral Science*, *43*(1), 67-88.

Vanhemert, K. (2014, August 18). The Engineer of the Original Apple Mouse Talks About His Remarkable Career | WIRED. Retrieved April 25, 2015, Retrieved from https://www.wired.com/2014/08/the-engineer-of-the-original-apple-mouse-talks-about-his-remarkable-career/

Waddock, S., Meszoely, G. M., Waddell, S., & Dentoni, D. (2015). The complexity of wicked problems in large scale change. *Journal of Organizational Change Management*, *28*(6), 993-1012.

Weisbord, M. R. (1976). Organizational diagnosis: Six places to look for trouble with or without a theory. *Group & Organization Studies*, *1*(4), 430-447.

Wiggins, L. (2008). Managing the ups and downs of change communication. *Strategic Communication Management*, *13*(1), 20-23.

Worley, C. G., & Mohrman, S. A. (2014). Is change management obsolete?. *Organizational Dynamics*, *43*(3), 214-224.