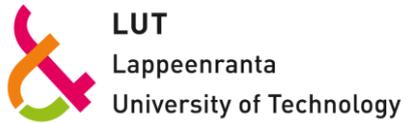




Master's thesis

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LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

School of Economics

Knowledge management

**Leading resilient organization – Change leadership’s impact on
organizational resilience**

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TIIVISTELMÄ

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Tämän tutkimuksen tavoitteena oli tunnistaa muutosjohtamisen elementtejä, joilla on positiivinen vaikutus organisaation muutoskyvykkyyteen eli resilienssiin. Tutkimuskysymyksenä oli, miten muutosjohtaminen vaikuttaa organisaation muutoskyvykkyyteen. Tutkimusmenetelmänä käytettiin tilastollista analyysiä. Tutkimuksen aineisto kerättiin vuonna 2013 ja se koostui 1623 vastaajan vastauksista.

Muutosjohtamisen tueksi on kehitetty useita menetelmiä, joiden tavoitteena on ollut parantaa muutoshankkeiden onnistumisprosenttia. On kuitenkin hyvä huomioida, että organisaatioiden ja muutostyyppien välillä voi olla merkittäviäkin eroja. Tämä ei tue lähestymistapaa, että tarjolla olisi kaikille sopiva johtajan tarkistuslista, joka auttaisi johtamaan organisaatiota muutoksen läpi. Transformationaalinen johtamistyyli auttaa johtajaa luomaan organisaatiossa muutokselle vastaanottavaisen työilmapiirin, jossa houkutteleva visio motivoi työryhmää olemaan muuntautumiskykyinen ja antamaan panoksensa siihen, että organisaatio saavuttaa tavoitteensa – nyt ja tulevaisuudessa. Tässä tutkimuksessa muutoksenjohtamista mitattiin organisaation osallistamisen ja päämäärän ymmärtämisen näkökulmasta. Resilienssin mittarina toimivat organisaation jatkuvuuden ja mukautuvuuden kyvykkyydet.

Tulosten perusteella voidaan todeta, että muutosjohtaminen vaikuttaa resilienssin kehittymiseen, tämän tutkimuksen mittareilla mitattuna. Mittaustulokset ovat johdonmukaisia kirjallisuuskatsauksen kanssa. Osallistamisella ja hyvällä päämäärän ymmärryksellä on positiivinen vaikutus organisaation resilienssin kehittymiselle. Tämän päivän alati muuttuvassa liiketoimintaympäristössä on oleellista, että yritykset panostavat muutosjohtamisen kyvykkyyksiinsä. Parhaimmillaan muutosjohtamisen taidot rakentavat kestävä pohjan organisaation resilienssille.

ABSTRACT

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The objective of this study was to identify change leadership factors, which would have positive impact on organizational resilience. The main research question of this study was “What is the impact of change leadership on organizational resilience?” Research method was statistical analysis. The data of the analysis was collected in 2013 and the sample size was 1623 informants.

Many change management methods have been developed with the aim to reduce the failure rate of change initiatives. There are, however potentially significant differences between organizations and situations, which does not support the approach of having a universal managerial checklist to guide managers in leading the organization in today’s turbulent business environment. Transformational change leaders are able to create change-positive working environment with a compelling and inspiring vision, which motivates employees to be adaptable and make an effort to achieve organization’s objectives - now and in the future. The measure of change leadership was built to measure employee involvement and mission understanding. The measure of resilience was built to measure organization’s consistency and adaptability.

Based on the study, it is evident that there is a strong relationship between change leadership and organizational resilience, as the measures were defined for the purpose of this study. Results of the empirical tests are consistent to theories of the literature review. Involving and empowering organization and clear and well-understood mission have positive impact to an organization to be more resilient to change. It is imperative for companies to invest in their change leadership capabilities. Skillful change leadership at its best can create a sustainable foundation for a resilient organization.

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I dedicate this thesis to my father. From the time me being a little girl, he always reminded me that what comes to achieving goals, regardless of how ambitious they may be, anything is possible as long as I believe in myself.

Leena Suoninen

Espoo

21st of May 2017

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Appendix 1: Linear regression background assumption diagnostic data

1 INTRODUCTION

In today's fast phased and continuously evolving business environment, an organization can often face situations that can generate unexpected and unforeseen challenges to leadership. Drivers for change can be various; global marketplace with intense competition, changing customer needs, technological changes, changes in regulations or the need to improve productivity while reducing organization's cost structure, to mention a few. (Becker & Gerhart, 1996, 779) Constant change and increasing competition require leaders to be equipped to identify which factors need to be adjusted and act quickly in response. Leaders need to have capability to reshape and redefine the company according to the market circumstances. At the same time, it is required to sustain existing operational performance and retain competitive advantage by observing the business landscape to seek the next new opportunity on which to capitalize. (Conner, 2000, 18; Masood, Dani, Burns & Blackhouse, 2006, 941)

The way organizations prepare and react to change is a feature of being resilient. As well as organization's strategic flexibility, efforts to build capacity for resilience can work as an important source for the ability to capitalize on the opportunities a change can create. Resilience allows an organization to retain operational performance and original intent when it faces a crisis or change in business environment. Being resilient is a capability that enables organizations to adapt and react to change as it occurs. It allows an organization to develop new capabilities and even create new opportunities when responding to change. (Lengnick-Hall, Beck & Lengnick-Hall, 2011, 244)

The ability to develop leadership within an organization that can lead change successfully and build long-term organizational resilience capabilities may mean the difference to an organization's survival. Organizations need to develop the skills to be flexible and hold the ability to adapt to fluctuating market demands, to focus in finding innovative solutions for problems in parallel changes, and implement those

quickly. (Conner, 2000, 18) Prerequisite for this capability is to have skillful leadership, which enables resilient behaviors in the organization. This study aims to identify change leadership characteristics, which affect positively on organization's resilience.

1.1 Previous research

The literature review reveals little empirical research that explicitly associates the two concepts of this study, change leadership and resilience. In the corporate environment, according to Horne and Orr (1998), the concept of resilience alone has been given quite little attention (Horne & Orr, 1998, 30). Sutcliffe and Vogus (2003, 99) suggest that similar to individuals, organizations can increase their effectiveness and performance by developing the ability to be more resilient. The concepts of organizational resilience has received quite little attention but is worth the attention as it can provide insight into positive adjustments or adaptability in organizations under challenging conditions. (Sutcliffe & Vogus, 2003, 99) They state in their research that it is important to distinguish the terminology between resiliency as a personality trait and resilience as a process. Researchers seem to agree that there is a need to have better understanding of the concept of organizational resilience. Better understanding can help organizations to develop the capability and leadership skills to succeed in rapidly evolving business environment. (Ibid. 96, 98-99; Harland et al., 2005, 5)

Although empirical evidence between change leadership and organizational resilience is limited, there are researchers that have proposed a link between transformational leadership and resilience. There is data that supports the assumption that leadership has positive and linear correlation to resilience. Bass (1990) indicated that transformational leaders may play a role in transforming challenges into opportunities. This would be done by allowing individuals to solve problems and come up with creative solutions rather than developing defensive responses that do not allow growth. Isaacs (2003) conducted a research, which

assessed the relationship between resilience, leadership practices, and demographic variables of high school teaching personnel. This research showed that there is a relationship between resilience and transformational leadership. (Sylvester, 2009, 4) Luthans and Avolio note in their research the connection between resilience and leadership. They argue that it is an essential element of leadership to develop the capability of resilience in an organization (Luthans & Avolio, 2003, 256).

Sutcliffe and Vogus suggest that companies should increase the awareness of resilience in organizations. This can have positive impact on effectiveness and performance. (Sutcliffe and Vogus, 2003, 99) According to Deevy (1995) organizations cannot be seen as objects, which can be fixed by punctuated corrective actions back to normal if a change or an unexpected event challenges the status quo. Instead, the demand for organizations today is to develop the capability to be able to respond to change continuously. To meet these demands organizations need to rethink and reshape their organizational form. (Deevy, 1995, 6)

1.2 Objectives and the research question of the study

This study's focus is on evaluating the impact of self-assessed change leadership characteristics and self-assessed resilient behaviors of individuals operating in an international company. The objective is to analyze change leadership's impact on organization's resilience. Theoretical part introduces the constructs of change leadership and resilience. The theoretical part aims to identify the relationships of these constructs to create hypotheses. In the empirical part the hypothesized relationships will be tested by statistical analysis.

In this study, change leadership and resilience are treated as individual constructs. This approach has been selected to be able to study the interrelationships of these

constructs in detail. The chosen approach also supports the empirical analysis in order to test the hypotheses of change leadership's impact.

The objective of the study is to find answer to following research question:

What is the impact of change leadership on organizational resilience?

1.3 Exclusions and limitations

The data point of this study is year 2013. This study will not have historical data review nor will it try to predict the future. The study will give results of the state of the organization the year the survey data was collected. This study concentrates on organizational resilience, not other resilience disciplines that academic literature identifies. Data represents self-assessment of the respondents and it was collected on individual level. Individuals have assessed the work community.

1.4 Theoretical framework

The literature review presents the theoretical background of the two independent constructs of this study; change leadership and organizational resilience. Change leadership is reviewed from the perspective of leading theories of change management methods and the theory of transformational leadership. Literature review elaborates the difference between transactional resilience and transformational resilience to identify the key characteristics of a resilient organization.

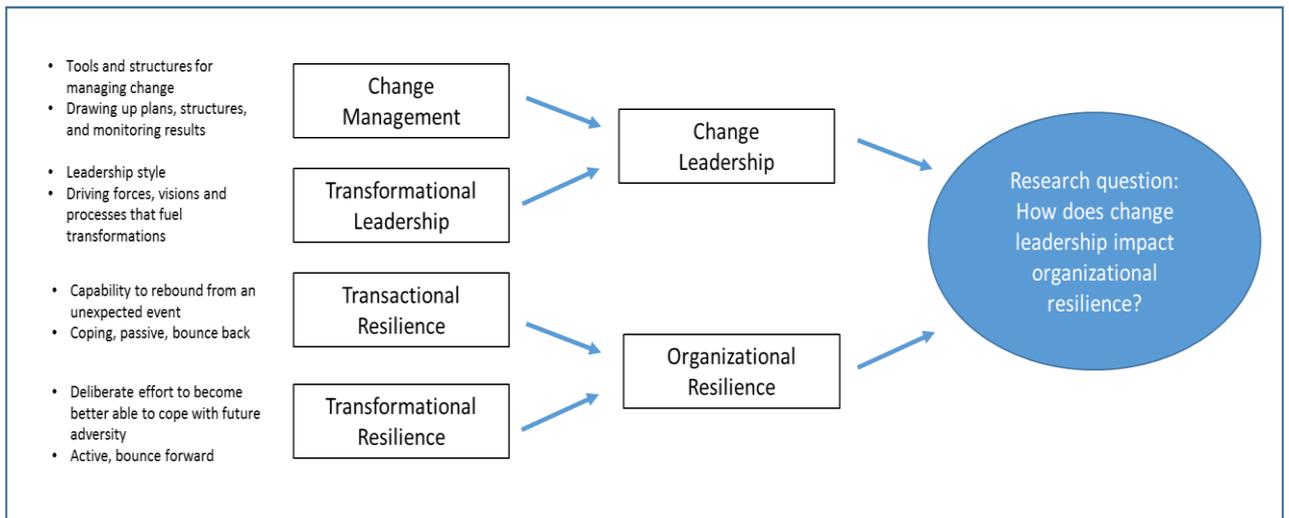


Figure 1 Theoretical framework

This theoretical framework provides foundation to develop measures, empirical testing and finding results to answer to the research question in this study.

1.5 Structure of the study

The first chapter of the study introduces the research problem and questions. It briefly introduces previous research related to the research problem and theoretical framework. Academic research and previous study are further introduced in literature review. Main constructs of this thesis are change leaderships and organizational resilience. Construct of change leadership is built around the theory of transformational leadership and change management methods, construct of organizational resilience around transformational and transactional organizational resilience. Hypotheses are tested with statistical analysis. Research method, data and measures are explained in chapter 4. Results chapter represents the results of the empirical tests and at the end, concluded by discussion and recommendations for further research.



Figure 2 Structure of the study

Next two chapters will introduce the two main constructs of this thesis; change leadership and organizational resilience.

2 CHANGE LEADERSHIP

It is stated that less than 30% of change initiatives succeed. In other words, it means that 70% of change initiatives fail for one reason or another. (Al-Haddad & Kotnour, 2015, 235) Figures indicate a need to find out leadership factors, which would have positive impact on organizations' change readiness and capability to build resilience, and find out key leadership skills to lead successful transformations. Leader's role cannot be overstated when looking at managing change in an organization; they are on key role in creating an engaging working environment. Leaders must be able to create confidence in organization's future, demonstrate respect and recognition, and make the jobs interesting and exciting for individuals. Employees need to have the confidence to leadership and the future of the organization to be able to build engagement. (Wiley, 2009, 49-50) When organizations experience change, it is important that leadership is equipped to meet the challenge. (Landis, Hill & Harvey,

2014, 98) When looking at the rapid change pace in the business environment, workforce shifting more and more towards knowledge workers and the ever-changing trends in the society, Graetz (2000) argues that today the main task of management can be considered to be leading organizational change (Graetz, 2000, 550).

There are potentially important differences in types of change and organization types, which require different leadership types. Organizations undergoing change are very different in terms of size, shape, structure, and culture. (Al- Haddad & Kotnour, 2015, 236) The objective of this study is to identify key leadership capabilities, which support creating a resilient organization. The objective is not to test change management activities' effectiveness in a single change initiative but to identify such a set of leadership capabilities, which would enable building sustainable change resilience in an organization it to be favorable to incremental change and ensure organizations competitiveness.

In this chapter, there is first a brief review of change management methods. The objective of the review is to identify different approaches to the role of a leader in managing change. Second, leadership as a change enabler is elaborated with the construct of transformational leadership. Third, theories of change management methods and transformational leadership are compared and combined to create a definition of change leadership and a measure of change leadership for the research purpose.

2.1 Change management methods

Change management methods and behavior have been the interest of psychology and sociology as an effort to understand, why or how people do or do not change. Many approaches and tools have been developed over the years, to help organizations manage change. Management and leadership research has been

more focusing on creating principles and practices for management to accomplish their change goals. (Al- Haddad & Kotnour, 2015, 237) Three change management models have become leading examples of the methodology to manage change. These are the eight-step model by John Kotter, the ten-step change model developed by Todd Jick, and the seven-step change acceleration process model used by General Electric (GE). (Langvardt, 2007, 27; Mento & Jones, 2002, 45-46; Egan, 2005) In addition to these three, it is also worth to mention one of the early fathers of change management research Kurt Lewin, who emphasized the role of human behavior in change. Lewin's work inspired researchers to study the role of human behaviors in organizational dynamics and change implementation as a process. Lewin identified and defined theory of group dynamics. He saw that organizational structures were becoming more team-based. Team is a sum of individuals, and the behavior can only be impacted in terms of groups. Group dynamic perspective gets support and the supporters state that change has to take place on an organizational level, not only on individual level. (Al- Haddad & Kotnour, 2015, 236)

Next a brief introduction of the three leading examples of change management methods.

Kotter's eight-stage process

Probably the most widely known example of a managerial approach is Kotter and the Eight steps of change. The trigger for Kotter's model was to develop better quality management rationalizations and restructurings, growth, cultural changes, turnarounds, etc. While developing and testing his theory, the most important lesson learned was that the change process always seemed to get through series of stages that took substantial period of time. He also noticed that if a company tried to skip some of the stages, change was rarely implemented successfully. Based on these lessons learned Kotter developed a check-list for the manager to plan the change activities in advance. Kotter's model is very actionable and at the same time

highlights manager's position as influencer. Manager's check-list ensures he manages stakeholders with the help of organization, develops and communicates clear vision and creates engagement by empowering people and creating feeling of unity. Kotter splits the change process into phases; change process consists of phases and trying to skip a phase or neglecting needed actions in a particular phase can lead to failure on the change management process (Relation Technologies; Mento et al., 2002, 45-46.)

Kotter's eight-step change process model consists of following stages:

1. "Establishing a sense of urgency
2. Creating a guiding coalition
3. Developing a vision and strategy
4. Communicating the change vision
5. Empowering employees for broad-based action
6. Generating short-term wins
7. Consolidating gains and producing more change
8. Anchoring new approaches in the culture."

(Kotter, 1996, 21)

Jick's ten-step model for change implementation

The second example of a leading change management methodology is the approach developed by Todd Jick in year 1991. Jick's ten-step model offers a plan for organizations to implement a change process. Essential in Jick's model is that he argues that change is an on-going process - a journey. Therefore, it is important to continually, along the way ask questions to check the direction and state of the organization. Jick does not believe that change follows a step-by-step process. Hence, his model offers a tactical level guide for leaders to stop, think and act accordingly throughout the process. He emphasizes the importance to understand the nature of the change. Success is highly dependent on the ability of the leaders

to keep their finger on the pulse of the organization and bear in mind that change is continuous. (Mento et al., 2002, 45-46; Langvardt, 2007, 28)

Jick's ten-step model for implementing change:

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

(Egan, 2005)

General Electric's Change Acceleration Process (CAP)

The third example of a change management model is the Seven-step change acceleration process. The model, which was developed and is used at General Electric emphasizes leader's role in change. A leader as an influencer is in an important role to communicate vision, measure the progress and root the change into the organization. Systems and structures enable the institutionalization. Each of the seven steps offers an individual checklist for leaders. (Mento et al., 2002, 46)

The seven steps are summarized as follows:

1. "Leading change – committed leadership
2. Creating a shared need for change
3. Shaping a clear vision
4. Mobilizing commitment – making workforce part of planning and definition of change

5. Making change last
6. Monitoring progress
7. Changing systems and structures”
(Sardella, 2014)

There are similarities in the themes of the three models. One element of change management that is brought up in all of the three models; the need to communicate a clear vision. This aims at ensuring that the organization has a clear direction and members of the work community are involved and willing to participate the change. The important role of a leader is pointed out in Jick’s and GE’s models. Jick and Kotter point out the role of teamwork. Kotter’s and Jick’s models aim to provide a structured plan, a framework for managers who are implementing a change. However, Jick reminds that change is a continuous process and each situation is different so no one step-by-step model offers a quick fix to the challenges of managing change. (Mento et al., 2002, 45-46; Langvardt, 2007, 32-35)

The models offer framework for the activities required in a change process. These managerial, checklist type of models can be useful guides to managers. Each situation is unique, however, and there is no universal method or checklist that would apply to all situations. To ensure the success in a change initiative, it is more important to consider the specific situation and act accordingly than think of the change as a process and try to manage that similarly in each situation. The use of checklists can be a useful support tool to a manager to ensure that all required steps have been taken into account. (Mento et al., 2002, 45-46; Langvardt, 2007, 32-35)

Literature review of different change methods proves that there is not one universal method for managing change. As organizations are very different in size and in terms of the type of change they are undergoing, same change management method is not suitable for all. When selecting a method, leaders should always be aware of the conditions of that particular organization and be sensitive to the

situation. Also change types can be different. Some are more transformational in nature and would require more foundational changes to organization's structures. Another example of a change type would be implementing new information technology. In this case, the change might affect a large group of people but the change would not be as drastic or require significant changes to the ways of working. It is fair to say that one or few methods cannot cover different change situations in different organizations. As Al-Haddad and Kotnour (2015) state based on their research, the organization needs to align different change management methods to different change types. (Al- Haddad & Kotnour, 2015, 243)

Table below summarizes the features of each model represented, accompanied with Lewin's model.

Table 1 Change management methods

Kotter Eight -Stage Model	Jick's tactical Ten steps fro implementing change	GE Change acceleration process	Lewin Components of change process
Establish sense of urgency	Analyze the organization and its need for change	Leader behavior	Unfreeze
Creating a guiding coalition	Create a shared vision and common direction	Creating a shared vision	Movement
Developing a vision and strategy	Separate from the past	Mobilizing commitments	Refreeze
Communicating the change vision	Create a sense of urgency	Making change last	
Empowering employees for broad-based action	Support a strong leader role	Monitoring progress	
Generating short-term wins	Line up political sponsorship	Changing systems and structure	
Consolidating gains and producing more change	Craft an implementation plan		
Anchoring new approaches in the culture	Develop enabling structures		
	Communicate, involve people and be honest		
	Reinforce and institutionalize the change		

2.2 Leadership as change enabler

Change management and leadership literature identifies a variety of enablers, which can help the organization to succeed in change. As the review of the three leading change management models already stated, the importance of having a clear vision and goals is one widely known enabler. Involving employees in the change journey and clear roles and responsibilities also enables the organization to be engaged to changing the ways of working. The importance of leaders' commitment and strong sponsorship are often brought up. In order for the organization to be able to keep up the operational efficiency in the new situation, continuous capability development and training, and strong performance management culture, support the success. Change requires the organization to be adaptive to the new ways of working. Hence, leadership plays significant role in implementing change. (Eisenbach, Watson, Pillai, 1999, 80; Al- Haddad & Kotnour, 2015, 239) Whatever the driver for change is, both leadership and change literature identify the importance of leadership to make change a success. What is also common to leadership and change management research is, that when identifying success factors in leading change, both identify certain similar leadership qualities – fitting the theory of transformational leadership.

2.2.1 Transformational leadership

Transformational leadership is based on subordinate's motivation to follow leader's vision and group's or organization's interest instead of one's self-interest. Transformational leadership is behavior where typical characteristics are ability to influence, charisma, encouraging subordinates to question ways of doing things, and supporting individual learning. Subordinates trust the leader, they are emotionally engaged and motivated to personal development. Transformational leaders identify the need for change, are able to create clear vision and operationalize the change in the organization. Effective leaders are able to impact on people's beliefs, values and attitudes in such a way that they want to exceed the minimum performance in aiming towards group's goals. (Eisenbach et.al.,1999, 83)

Transformational leadership is unarguably better in non-routine situations - which change represents by definition. It is also more effective when the goal is to adapt to new environment or new ways of working instead of increasing efficiency in old routines, especially in continuous or incremental. Making the organization to understand the need for a change does not mean the leader needs to create dissatisfaction with the present. Instead, it can be important to make the future look attractive and engaging by creating a compelling vision. In his role, the leader motivates the group by an appealing vision and is able to take into consideration the implicit needs and values in the group. Challenging goals offer needed intellectual stimulation and encourage people to rethink the way of working. These components together are the catalyst to induce people and make change attractive. Instead of commands or rules, individual coaching and guiding in a team and encouraging team decision making can diminish change resistance. (Ibid., 84-85)

Eisenbach et. al. (1999) define transformational leadership as "having the ability to create a collective vision, act in a sense of oneness, be more authentic and engaged, and loosen authority and control." Shared vision to which the entire work community can be committed to and the sense of being able to influence the outcomes, creates a high performing organization and positive environment for change. (McKnight, 2013, 103; Eisenbach et.al., 1999, 82) McKnight calls leaders as "management leaders"; an effective management leader should have the characteristics of a transformational leader. By transformational leadership, the manager is able to respond to the leadership challenge that change creates; transformational leaders have the capability to create and communicate a compelling vision, engage employees and lead without command and control. This is the difference to transactional, effective management. (McKnight, 2013, 104)

2.2.2 Leadership styles in change

Change is an emotional process for people. Psychologist Daniel Goleman is known for his theory of emotional intelligence. Building on the concept of transformational

leadership and the requirement of a leader to be adaptive, influencing and visionary, Daniel Goleman identifies different leadership requirements in different stages of the change cycle. The theory of emotional intelligence and leadership styles underlines the importance of the leader's ability and flexibility to shift between different approaches. He also emphasizes the importance of the manager's awareness of fitting the leadership style to the position of the participants in the change process. A leadership style used with the wrong timing potentially creates more confusion and more resistance. Goleman claims, that each stage in change requires different behavior from the leader. Some leadership styles work in many stages, some only in others. (Goleman, 2000,5-10; Relation technologies, p. 2)

Visionary leader gives change direction and opens the perspectives and opportunities of "the new". Visionary leader ensures stakeholders have wide enough perspective and long-term vision, and are not caught up with too narrow minded or short-sighted view. Visionary leadership style plays a significant role in creating meaning and explaining purpose. Vision alone, however, is not enough in implementing change. Change needs to become real and concrete. (Ibid.)

Democratic leadership style secures that the relevant stakeholders are aware and involved and they can actively participate and influence, which further builds up the trust and change acceptance. *Coaching style* can have positive impact on supporting and challenging change participants to develop new competencies, which are required. Coaching supports as well participants to use this new knowledge and competencies when they adjust and adapt the new ways of working. (Ibid.)

Affiliative style has a role in each change phase. Leader creates relationships between people and enables dialogue between and to the participants of the change. This style is good in order to get valuable insights of stakeholder engagement and possible change resistance. *Pacesetting style* secures that the

change results materialize and that new way of working is demanded but at the same time rewarded. (Ibid.)

2.3 The characteristics of a change leader

In this chapter there was first brief review of different managerial approaches to change management. The overall objective was to find out, how leadership has been seen as change enabler in literature. Mahmood et al. (2012) argue that “management and leadership are two overlapping terms which confuse many people. Leadership and management are complementary for each other and they go hand in hand” (Mahmood et al. 2012, 513). However, the objective is different if offering leaders change management methods and tools than identifying or ensuring leaders have key leadership skills to anticipate and react to continuous change. Both are important. True that one might argue if it is important to distinguish words management and leadership. In this study the objective is specifically concentrate on influencing and leadership characteristics to build resilience and therefore it is important to look at the differences what is meant by management, what by leadership in the context of change to have clear understanding of the measures of this research.

There are characteristics, which have been identified to support leader’s success in change. First characteristic is that successful leaders are able to provide employees a sense of clear responsibility. They are not so much providing specific rules, rather freedom to operate. Clear vision and extensive communications steer employees towards the common goal, which is the fundament in making change happen. In a changing business environment, it is challenging to predict the future. The second success factor of change management is having the courage and ability to explore the future – investigate the possibilities for future from different angles. Exploring future opportunities enables managers to anticipate the future and find new openings in change. Effective change leaders are also able to link current projects to the anticipated future. It is important that leaders can create such structures and

routines in the organization, which are applicable in situations representing past, present and future. This enables people to adopt their efforts and focus on the rhythm of change. (Eisenbach et al., 1999, 82) Especially when leading knowledge workers, it is important that the leaders communicate clearly, what the task is. Unlike for manual workers, the task as such is not what “programs” the worker. Many knowledge workers hardly ask the question. It is the sense of purpose and clear mission, which motivates a knowledge worker to perform towards the given goals. (Drucker, 1999, 85)

Organizations need to be able to adapt to the continuous change in business environment. They need to re-evaluate and adjust the ways of working and structures to retain the competitive advantage. Strong performance management and effective rewarding system are elements of effective change leadership. Continuous change sets demands for leaders to set high but realistic goals and reward behaviors and achievement that support the targeted vision. (Hughes, 2007, 40; Kotter, 1996, 21; McKnight, 2013, 105)

As Al-Haddad and Kotnour (2015) state, the organization needs to align different change management methods to different change types (Al-Haddad and Kotnour, 2015, 235) This study aims to argue, that even if managerial methods for managing change possibly need to be different in each organization and in each situation, it is possible to identify leadership requirements, which can be defined to be prerequisite for successful change leadership and not bind to organization specific characteristics.

Kanter (2000) list key skills for change leaders. The approach identifies that leaders need to challenge the prevalent organization perceptions and communicate a compelling vision of the future. Leaders should build guiding coalitions and transfer the ownership to the work community. The aspect of “making everyone a hero” refers to the importance of engagement, performance management and rewarding

systems. (Kanter, 2000, 34) The elements of the list are aligned with the managerial approach of change management models and methods, which were presented previously in this study and emphasize the importance of leadership. Leader needs to be sensitive to the environment and create the sense of urgency for change by challenging the organization. Empowering and involvement are important to create engagement. Rewarding and recognition motivate participants to perform. Managers often face complex situation where they need to deal with uncertainty. Those who can cope with the situation, make right decisions and give directions to the organization go beyond the expectations of traditional management and potentially become successful change leaders. (Al-Haddad & Kotnour, 2015, 239)

Kotter is well known for his eight-step model for managing change, but Kotter as well distinguishes change management and change leadership. This distinction does not take away the importance of having structured methods for managing change process as such but the leadership perspective complements the theory and brings another dimension to the process. Kotter sees that the difference of change management and change leadership is that management is about managing with complexity and leadership about managing with change. Therefore, the means of leadership are also different. Management brings order and consistency – leadership is about establishing direction with a vision and influencing the group towards joint goals. Leader needs to align resources to meet the new situation and inspire workers to make an effort towards the vision. Plans and structures represent the management aspect. Transactional leaders emphasize the tasks and clearly defined roles. Kotter as well points out the importance of transformational leadership's importance in inspiring work community. According to Kotter, change management, which is the more commonly used term, refers to the tools and structures, which aim to control the change process. Management's goal is to reduce business interruptions and diminish the impacts of the change. Change leadership concerns the processes and visions that induce organizational transformations. (Kotter, 2011)

Based on the literature review, the table below summarizes the key findings of change leadership characteristics, which work as basis of the measure development in this study.

Table 2 Change leadership characteristics

Change Leadership factors	Characteristics
Communicating vision	<ul style="list-style-type: none"> • Creating vision that is interesting and exciting for individuals; visionary • Create clear picture of the direction; vision and mission communications • Support confidence in future
Engaging and empowering	<ul style="list-style-type: none"> • Create engaging and inspiring working environment • Empowering workers and creating sense of responsibility; coaching • Support building coalitions and networks • Enable capability development and organizational learning

3 ORGANIZATIONAL RESILIENCE

Resilience can be introduced from different perspectives; personal, organizational, sectorial and social. In this study, resilience is viewed from organizational perspective. There are several definitions for organizational resilience. In this chapter, different approaches are introduced as well as what are the key characteristics of a resilient organization to define the measure for this research purpose.

3.1 Bouncing back or bouncing forward? Definitions of resilience

According to Mafabi et al. (2012), “organizational resilience refers to a business’ ability to adapt and evolve as the global market is evolving, to respond to short-term shocks and to shape itself to respond to long-term challenges.” Resilience is the capability of an organization to be able to react to the changing demands of the business environment. Failure of resilience can be seen as loosing vision, mission and mandate. (Mafabi et al. 2012, 57.) One way of describing resilience could be “keep going no matter what happens”. This can also be viewed as consistency. Ihab

and Salman (2015) and Sutcliffe and Vogus (2003) share the view that resilience is not about only surviving or coping. At organization level, resilient are those, who are continuously and pro-actively able to adjust and adapt to challenging and changing conditions. (Ihab & Salman, 2015, 346; Sutcliffe & Vogus, 2003, 3)

There are two leading perspectives to the definition of organizational resilience in academic literature. In transactional view, resilience is seen as a capability to rebound from a crisis or another adverse situation and continue after as it is. If organizational resilience is seen as a bounce-back capability, the focus is on finding coping methods by which the organization is able to get back on track to what-used-to-be performance. This rebound-oriented perspective on organizational resilience emphasizes the importance of adaptability as an enabler to react to unexpected changes. Second perspective is to look at organizational resilience as an ability to keep up with continuous changes. In this case resilience is seen as thriving. Organization is able to take advantage of on unanticipated change and develop new capabilities. Instead of returning to already established performance, resilience is an ability for an organization to benefit of its resources and capabilities, exploit opportunities and build successful future. This view sees resilience as a dynamic capability, which can be deliberately developed. The latter view on organizational resilience is called transformational view. (Lengnick-Hall et al. 2011, 244)

One approach is to split organization's capability to response to change into vulnerability and resilience. In this approach, developed by Gaillard, vulnerability can be viewed as the acceptance of crisis and represents exposure of people and organizations to suffer and consequently transforming minor incidents into disasters. Resilience, on the other hand, represents the levels of tolerance and draws on the techniques adopted to cope with hard times to survive. Pelling (2003) defined resilience as: "the ability to cope with or adapt to risk or crisis to survive and reduce damage". Therefore, resilience can be considered to be the positive side of vulnerability. (Ihab & Salman, 2014, 347; Mallack, 1998, 9-10)

Organizational resilience can be active or passive. Passive resilience is demonstrated after the occurrence of an incident. It reflects how quickly an organization returns to normal without incurring major loss, damage or discontinuity. Passive resilience represents the ability to “bounce back” following a crisis or unexpected change. Active resilience is more than the ability to bounce back; it is a deliberated effort to develop the ability deal with future challenges. It involves identifying potential risks, developing early warning systems and taking proactive measures. Valastro (2011) identified four main objectives of organizational resilience and described them as resilience maturity levels. These are: decline, survive, bounce back and bounce forward. The higher the maturity level, the more resilient the organization becomes. In addition to these four levels. One additional level (Level 5) was added to Valastro’s model, that is, “established culture of resilience” to represent the highest level of resilience.(Ihab & Salman, 2014, 347-348)

Organization resilience may be mixed with other quite similar attributes such as flexibility, agility, and adaptability. Lengnick-Hall et al. (2011) distinguish these attributes from resilience. They see that flexibility, agility and adaptability reflect different origins and outcomes. Resilience is required often in an unexpected situation. Flexibility and adaptability can be seen as strategic capabilities which company need to have on an on-going basis. Resilience is organizations internal process to enhance competitiveness whereas in contrast adaptability is a need to try to fit to the challenges triggered by external requirements. Adaptability from that perspective aims to a new desired state in a new, externally determined equilibrium. Even though flexibility, adaptability and agility together may impact organization’s resilience capability, none of these alone is sufficient to achieve it. (Lengnick-Hall et al. 2011, 244)

3.2 Key characteristics of a resilient organization

There is not one agreed list of the characteristics of a resilient organization, though it is agreed that resilient organizations have certain common features. According to Mallack (1998), common to resilient organization is that they are able to sustain competitive advantage by effective actions to advance themselves. Organization shares decision-making power, which supports effective responses. When the organization is empowered to decision making, decisions don't require immediate approval and can be done under time pressure. This has positive impact to productivity and quality. (Mallack, 1998, 8-10)

According to Coutu (2002), resilient organizations regularly ask if it truly understands and accepts the reality of it's situation. Organizations are almost pessimistic when looking at the reality, which enables them to train to survive before the actual materialization of a change or crisis. Resilient organizations are able to see the connection between current difficulties and better future. Finding the meaning of hard times makes even difficult times bearable. Shared values is fundamental for resilient organizations. It is indeed the sharing, which makes it important. Even if the organization would be full of resilient individuals, it would not matter if all of them had their own vision of reality and future. In worst case, this could threaten the organization's future as decisions and actions would conflict. Resilient organization typically improvises solutions without obvious tools and are able to see opportunities where no one else. Improvising does not mean there are no rules or regulations - discipline actually increases resilience. (Coutu, 2002, 48)

Organizations with clear and well understood vision and goals, typically find it much easier to adapt to changing conditions. Often management teams struggle with identifying what is critical to the organization. This leads into a situation where it is difficult to prioritize what to manage in the case of an unexpected event of change. (Nelson & Nelson, 10-13) These findings strengthen the change management theory of the importance of communicating a clear vision in the organization. Once

people have clear direction and shared understanding, it is much easier to work towards common goals and be committed to them.

3.3 The dimensions of organizational resilience

Each organization has a unique blend of capabilities, which consist of cognitive, behavioral and contextual elements. Lengnick-Hall et al. (2011) suggest that the capabilities can be systematically developed to increase resilience. The concept of the Horne/ Orr model confirms the view, which has already been brought up in this study, that even if the organization would consist of highly resilient individuals, it does not automatically mean that the organization forms a resilient work community as a group. As Sutcliffe & Vogus (2003, 99) state in their research, it is important to distinguish the terminology between resiliency as a personality trait and resilience as a process. Therefore when developing resilience, it is important to view organization as a whole and understand the behaviors of the group. Horne and Orr have identified seven behavior streams, which have an impact on organization's development of resilience. (Lengnick-Hall et al., 2011, 244-245; Horne & Orr, 1998, 30-31)

Typical cognitive factors of a highly resilient organizations is that there is a strong and shared sense of purpose, core values, vision, and a shared use of language. These factors create positive conditions for problem solving. The core of resilient behavior is to be inventive, flexible and creative in finding actionable solutions. Resourcefulness and flexibility to change the way of working are characteristics, which enable organizations to respond to an unexpected change. (Lengnick-Hall et al., 2011, 244-245.) The Horne/ Orr model identifies the same drivers and locates these under the *community* stream. People within the organization need to share the purpose, vision, mission and values. The degree of how well an employee's self-interest is aligned with the benefit of the organization has an impact on how the work community sees themselves as "who they are together". The *competence* of the

organization needs to be matched with the changing demands. (Horne & Orr, 1998, 32)

Connections, i.e. the relationships between the parties of the community, are crucial to the capability to be flexible and respond to changes (Horne & Orr, 1998, 32). In direct contrast of flexibility and creativity, resilience heavily relies on the development of repetitive habits and routines. The importance of these factors is that those provide the first response to unexpected situations. These joint and over-learned habits and routines are closely tied to shared values and common understanding of purpose and mission. According to Lengnick-Hall et al. contextual conditions are the ones that enable the organization to respond to external challenges. Essential contextual conditions are that the members of the work community feel psychological safety and there is deep social capital. Power should be distributed in order for the members to develop accountability. Broad resource networks support resilience. When these prerequisites are in place, the organization is able to act quickly to surprises and change. (Lengnick-Hall et al. 2011, 247) One of Horne/ Orr model's behavioral streams is *commitment*. That is how well the organization works together, and the level of trust and goodwill among its members. The *communication* stream enables trust and goodwill; information increases the understanding of goals and the possibilities a change can create. Goal orientation and co-operation does not realize without timely and efficient *coordination*. That links individual or group efforts to one, for the benefit of the joint objectives. The seventh behavioral stream of the Horne/ Orr model is *consideration*. This stream emphasizes the importance of leadership. Leaders need to have the ability to understand the reactions and emotions of employees. Even small shifts can be experienced significant. Consideration means in other words the capability take this human factor into account. (Horne & Orr, 1998, 33-34)

The table below represents the key findings of the literature review, which represent the shared characteristics between resilient organizations. These characteristics work as basis for the measure development in this study.

Table 3 Organizational resilience factors

Organizational resilience factors	Characteristics
Consistency and shared values	Organization shares values Shared sense of purpose, mission and vision, strong faith Culture of resourcefulness, innovating and improvising supported by strong discipline, habits and routines
Adaptability and flexibility	Keep up with changes and leverage resources and capabilities Leaders have proactive approach Strong problem solving abilities Organizational learning

3.4 Leading resilient organization

In this study, there has been an introduction to change management practices, review of leadership styles applicable to change and theoretical review of organizational resilience. Combining these reviews, this chapter summarizes the theory findings to identify leadership capabilities, which enable leaders to build and maintain a resilient organization.

How can leaders build a resilient organization? Literature review supports the assumption that resilience is a dynamic capability and it can be deliberately developed by leadership. An organization is a network of individuals and the main interest of this study is to understand how a leader can positively influence building a resilient work community. Different researchers highlight the importance of good vision communications, clear goals and objectives, and clear strategic direction. Leaders should provide a vision of a possible future that is attractive and engaging. It is change leader's core capability to be able to communicate a vision, which is clear and creates confidence in the future. Literature review confirms that clear vision and goals are an essential building block for a resilient organization. Visionary leadership style plays a significant role in creating meaning and explaining purpose for stakeholders to have wide enough perspective and long-term vision. Resilient organizations have strong sense of purpose and shared objectives. Organizations with clear, shared vision and goals are able to react to changes and crises much

easier. (Eisenbach et. al., 1999; McKnight 2013; Kotter, 1996; Kanter, 2000; Goleman, 2000; Lengnick-Hall et al., 2011; Coutu, 2000; Horne & Orr, 1998)

H1: There is a significant relationship between mission and organization resilience

Based on the literature review common characteristics of a resilient organization can be identified. In resilient organizations there is a feeling of empowerment, purpose, trust and accountability. Also strong sense of trust between employees and management supports resilience. Resilient organizations share values. Employees form a network of professionals who are engaged and empowered. Members are self-organized into communities, which supports organizational learning. Teamwork and problem solving abilities differentiate resilient organization from others. Change leader is in a position of an influencer. He manages stakeholders with the help of organization and creates engagement by empowering people and creating feeling of unity. Instead of command or rules, leaders use individual coaching and guiding in a team and they encourage team decision making. Coaching style can have positive impact on supporting and challenging employees to develop new competencies, which are required. However, improvising does not mean there are no rules or regulations – discipline actually increases resilience. Repetitive, practical habits and routines offer the first response in change. (Lengnick-Hall et al., 2011; Coutu, 2000; Ihab & Salman, 2014; Mallack, 1998)

H2: There is a significant relationship between involvement and organizational resilience

Change evidently holds a leadership challenge and leading a resilient organization requires the leader to be proactive instead of reactive. Leading a resilient organization can be seen as a continuous act of adjusting to trends rather than responding to one-time change. A resilient organization is the one, which is able to

retain operational performance, to achieve its objectives and be efficient and profitable when facing change. Leadership plays vital role in developing capacity to be adaptive and agile. Change leadership should not only concentrate to preparing responses to changes but also proactively seek new opportunities on which to capitalize. (Nelson & Nelson, 23)

Bell (2002) lists five key components of building resilience: leadership, culture, people, systems and settings. Leadership's role is to allocate resources and set priorities. Empowerment, purpose, trust and accountability are essential building blocks. Work community should be seen as a network of professionals and allow them to be self-organized into communities. This supports organizational learning. Team work also improves the sharing of purpose in all levels and enhance building trust among the members. Empowerment increases sense of accountability. Building a resilient team requires systematic strategy for building right composition of skills and level of resiliency. (Bell, 2002.) Tunick Morello (2002) states that it can be challenging to build a resilient organization for leaders, as today organizations are often distributed. Disperse people, knowledge, systems and workspaces need to be deliberately designed to enable adjustments and flexibility. Building resilient capabilities is a joint effort of leaders across the organization, across the functions, geographical location and other possible organizational boundaries. (Tunick Morello, 2002.)

H3: There is a significant relationship between change leadership and organizational resilience

In the chapter measures, there is detailed introduction of the measures used in this research to measure mission understanding and involvement as components of change leadership, and consistency and adaptability as components of resilience. The figure below summarizes the key components of change leadership and resilience characteristics to give visual reasoning for the question setting.

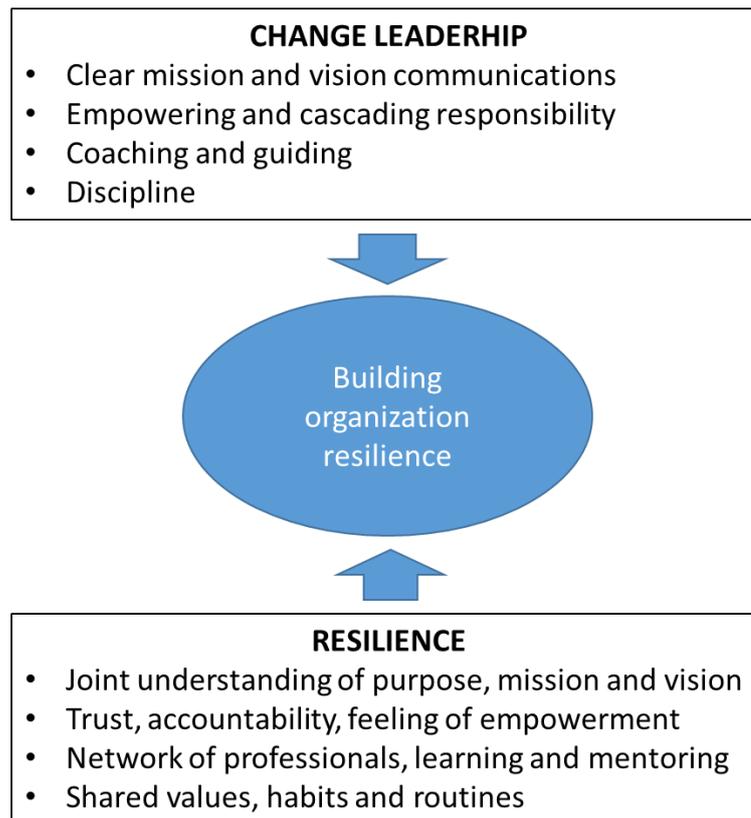


Figure 3 Relationship of change leadership and resilience

Based on the literature review, following hypotheses were formed.

Table 4 Hypotheses

H1	There is a significant relationship between mission and organization resilience
H2	There is a significant relationship between involvement and resilience
H3	There is a significant relationship between change leadership and organizational resilience

Next, the hypotheses are tested with statistical analysis.

4 RESEARCH METHODOLOGY

This chapter describes the methodology of the research. First, the data and process are described. Then the measures are explained. Analytical methods and tools used in this research are briefly introduced before the actual results of the empirical test.

4.1 Data and process

The data for the empirical part of this study was collected in the organization in 2013. Originally, it was collected for the purpose of Denison Organizational Culture (DOCS) survey. The DOCS survey is based on a theory linking four key cultural traits to organizational effectiveness; involvement, consistency, adaptability, and mission. Series of studies conducted by Denison and colleagues suggest that “the highest performing organizations find ways to empower and engage their people (involvement), facilitate coordinated actions and promote consistency of behaviors with core business values (consistency), translate the demands of the organizational environment into action (adaptability), and provide a clear sense of purpose and direction (mission). Involvement and adaptability, are indicators of flexibility, openness, and responsiveness. Consistency and mission, are indicators of integration, direction, and vision. Each of the four traits are also seen to be significant predictors of other effectiveness criteria such as quality, employee satisfaction, and overall performance”. (Denison, Nieminen, Kotrba, 2012, 7)

The survey consists of 60 items, five items per index. The indexes are designed to measure 12 item areas (e.g. team orientation, goals & objectives, core values). The traits (e.g. involvement, consistency), organize these content areas into broader principles. The Denison model aims to measure and examine the cultural characteristics of high and low performing organizations. (Ibid., 8).

Table 5 summarizes the four traits and 12 indexes of the original DOCS survey.

Table 5 The traits and indexes of the DOCS survey

Involvement concerns the personal engagement of individuals within the organization and reflects a focus on the internal dynamics of the organization and on flexibility.

Consistency refers to shared values, and efficient systems and processes and reflects an internal and stable focus.

Adaptability refers to employees' ability to understand what customer wants, learn new skills, and to change in response to demand. The focus of adaptability is external and flexible.

Mission refers to an organization's purpose and direction, and reflects a focus external to the organization and on stability.

Empowerment - Individuals have the authority, initiative, and ability to manage their own work. This creates sense of ownership and responsibility towards the organization

Team orientation - Value is placed on working cooperatively towards common goals for which all employees feel mutually accountable. The organization relies on team effort to get work done.

Capability development - The organization continually invests in the development of employees' skills in order to stay competitive and meet ongoing business needs.

Core values - Members of the organization share a set of values which create sense of identity and clear set of expectations

Agreement - Members of the organization are able to reach agreement on critical issues. This includes both the underlying level of agreement and the ability to reconcile differences when they occur.

Coordination and integration - Different functions and units of the organization are able to work together well to achieve common goals. Organizational boundaries do not interfere with getting work done.

Creating change - The organization is able to create adaptive ways to meet changing needs. It is able to read the business environment, react quickly to current trends, and anticipate future changes.

Customer focus - The organization understands and reacts to their customers and anticipates their future needs. It reflects the degree to which the organization is driven by a concern to satisfy their customer.

Organization learning - The organization receives, translates, and interprets signals from the environment into opportunities for encouraging innovation, gaining knowledge, and developing capabilities.

Strategic direction and intent - Clear strategic intentions convey the organization's purpose and make it clear how everyone can contribute and "make their mark" on the industry.

Goals and objectives - A clear set of goals and objectives can be linked to the mission, vision, and strategy, and provide everyone with clear direction in their work.

Vision - The organization has a shared view of a desired future state. It embodies core values and captures the hearts and minds of the organization's people, while providing guidance and direction.

In this study the data collected by Denison survey is used to analyze change leadership's impact on organizational resilience. The aim of the original survey was to get a better understanding of company culture. The survey was called Mirror, hence employees self-assessed their experience of the company's organizational culture and related behaviors. Survey was sent to all employees (~5000) and 1623 responses were received. Survey was sent in an electronic format and in paper format in those locations, where employees did not have access to personal computers to take the survey. Items used a 5-point Likert-type scale ranging from 1= "strongly disagree" to 5= "strongly agree". The original index measuring customer focus was excluded from this research giving result of 55 questions used in this research.

4.2 Measures

4.2.1 Change leadership measure

Based on the literature review, measure of change leadership was built to measure involvement and mission.

Involvement consists of three components; empowerment, team orientation and capability development.

Involvement was chosen as a dimension of change leadership measure based on literature review, which suggests that successful change leaders are able to provide employees a sense of clear responsibility and define roles for employees involved in change; leader manages stakeholders with the help of organization and creates engagement by empowering people and creating feeling of unity. Typical for resilient organizations is that there is a strong sense of trust between the members, in all levels of the work community. One characteristic of resilient organization also is, that employees are motivated to follow group's or organization's interest instead of

one's self-interest. Involvement dimension of team orientation is supported by theoretical view that a successful change leader encourages team decision making instead of command or rules. Leader creates relationships between people and enables dialogue between and to the participants. Capability development enhances resilience. In a resilient organization, subordinates trust the leader, they are emotionally engaged, and motivated to personal development. Employees can actively participate and they have a feeling they can influence. Successful change leader achieves positive impact by supporting and challenging change participants to develop new competencies, which are required in changing conditions. (Eisenbach et al., 1999; McKnight, 2013; Goleman, 2000; Kotter, 1996; Hughes, 2007; Kanter, 2000)

Mission consists of three components; strategic direction and intent, goals and objectives, and vision.

Mission understanding and vision communications are broadly identified as cornerstones of change leadership in change management literature and therefore mission was selected as second change leadership factor in this study. To support resilience, leaders must be able to create confidence in organization's future; employees need to have the confidence to leadership and the future of the organization to be able to build engagement. In a resilient organization there is a strong and joint sense of purpose that cascades down from the management. Visionary leader gives change direction and ensures stakeholders have wide enough perspective and long-term vision, and are not caught up with too narrow-minded or shortsighted view. Being able to communicate clear vision and goals that give the direction to the change are crucial for successful change leadership. Leader needs to be able to communicate a vision that is attractive and engaging. Organizations that have clear and well-understood vision and goals, typically find it easier to adapt to change. Resilient organizations typically have favorable perceptions and strong faith in future. (Eisenbach et al., 1999; McKnight, 2013; Goleman, 2000; Kotter, 1996; Hughes, 2007; Kanter, 2000)

4.2.2 Organizational resilience measure

The literature review did not provide indication that there would be commonly identified measure for organizational resilience. In this study the solution was to conceptualize the measure of organizational resilience by referring to presented theories from literature. The measure of organizational resilience consists of consistency and adaptability. In the literature review, Lengnick-Hall et al. argued that resilience is not same as adaptability or consistency, though the constructs may often be mixed (Lengnick-Hall et al., 2011, 244). The definitions of resilience reviewed in chapter 3 referring to organizations capability to retain its operational efficiency and identity when changes occur, supports the approach to measure consistency. In this study, adaptability is the second dimension of the measure. By supplementing each other, consistency and adaptability give a broader perspective to resilience.

Consistency consists of three components; core values, agreement, and coordination & integration

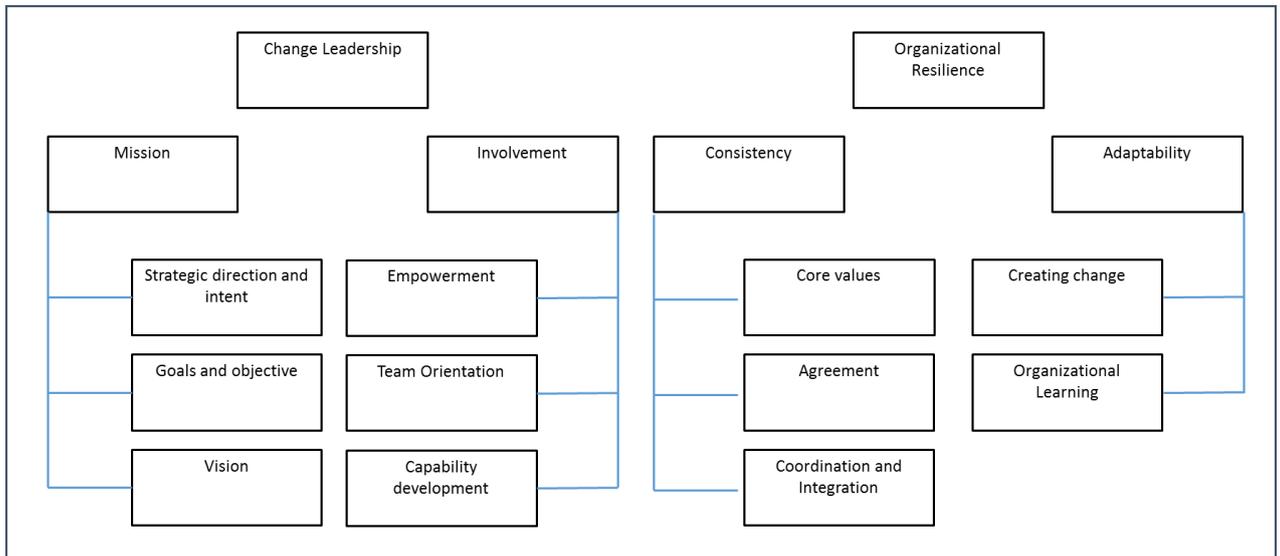
Shared values are fundamental for resilient organizations. Measuring core values is therefore justified element of the measure. Change leadership should aim to influence the values and norms of the work community to ensure consistency and agreement among its members. Change needs to become real and concrete; leader drives clarity that the change is for real and that the organization has to respond to it. In contrast to innovativeness and flexibility, resilience also relies on repetitive, useful and practical habits. These provide the first response to change. Joint values support developing shared and agreed routines. In this study, the measure takes into account agreement and coordination and integration. (Lengnick-Hall et al., 2011; Robb, 2000; Mallack, 1998; Horne & Orr, 1998; Coutu 2000.)

Adaptability consists of two components; creating change and organization learning.

Change requires new ways of working and an organization has to be resourceful, agile, and creative and find actionable solutions to be resilient. Resilient organization typically has excellent problem solving abilities. Challenging goals offer needed intellectual stimulation and encourage people to rethink the way of working. Successful change leader has the courage and ability to explore the future. Resilient organization has the ability to cope with unexpected situations and has the capacity to maintain operational performance. They are able to see the connection between current and future. Employees form a network of professionals who are empowered to participate. Teamwork is encouraged and this supports organizational learning. Employees are able to question ways of doing things and individual learning is supported. (Lengnick-Hall et al., 2011; Robb, 2000; Mallack, 1998; Horne & Orr, 1998; Coutu 2000.) Given the common characteristics of a resilient organization which theory supports, adaptability was chosen to be an adequate dimension in measuring resilience in this study.

Customer focus content area of adaptability index of the original set of questions was left out of this research purpose and was not included in resilience measure. There were hints in literature that the relationships the organization has with external counterparts would be an indication of resilience. However, the theoretical evidence was very limited. The other reason to leave customer focus out of this research was that even if the literature review would have provided reasonable foundation to measure this content area as a part of resilience, measuring only customer focus would have given narrow perspective. Counterpart would include also for example suppliers, partners, society and regulators. The data would have not provided sufficient information to form a valid indicator.

Table 6 Measures



Resilience is the dependent variable (Y). Change leadership is the independent variable (x).

4.3 Analytical methods and tools

The research methodology of this study is quantitative. The constructs in this research are analyzed by using SAS EG 6.1 software. This study is exploratory in nature and is conducted as a desk study by using already existing data collected for other research purpose.

Factor analysis is used for assessing the internal consistency of the measures. The analysis is conducted per each of the eleven areas of the two measures. The factor analysis method is principal component factor analysis. Measure of sampling adequacy (*MSA*) is used as an indicator of the fit of the correlation matrix to the factor analysis. Minimum value of .50 on Kaiser's scale is used. *Communality* explains how much one factor explains of the inter-item variance. Common recommendation is that the value should be > .50. (Puumalainen, 2013b)

Correlation and Cronbach alpha is calculated for the indexes. The sub-dimensions of change leadership and organizational resilience are combined into *summated scales*. Summated scales are calculated as an average of the items in the trait. The purpose for this is to evaluate the reliability of the concepts. *Cronbach alpha* is an indicator, which explains the variance of individual items in the data. In this study, the indicator is used to assess the inter-item reliability. The recommended minimum level of .70 value is used in the analysis. (Puumalainen, 2013a) *Linear regression* is used to analyze the relationship between change leadership and organizational resilience. Resilience is the dependent variable (y) and change leadership independent variable (x). In this study, there are more than one explanatory variable, and the method selected is *multiple linear regression*. Linear regression is applicable to measure the relationship between y and x. In this research, multiple linear regression is used to test the hypothesized relationship of the constructs of change leadership (x) and organizational resilience (y).

Reliability indicates the probability of achieving the same results if the measurement was repeated with using the same methodology. In other words, high reliability is a signal that most likely individuals would respond to same way if they would respond to similar survey again. (Metsämuuronen, 2006, 442 - 443) Reliability of the research can be seen to be as strong as the reliability of the measures. (Ibid.,115) In this study, reliability of the measures is analyzed with correlation analysis and Cronbach alpha. *Validity* indicates how well the measures of the study measure the constructs they are intended to measure. However, internal consistency does not guarantee the validity of the measure. Validity is tested by primary component and factor analysis. (Metsämuuronen, 2006, 581) High Cronbach alpha value is primarily a signal of the fact that the factors of the measure, measure similar phenomena.

Validity can be analyzed from different angles. One dimension of validity is *external validity*. This refers to how well the results of a study can be generalized outside the sample of the study. *Face validity* indicates how well the constructs and measures meet the common understanding of the concepts. *Construct validity* indicates if the

measure covers the various sides of the construct on a sufficient level. The measure should include all sides of the concept to give broad enough perspective to the phenomena that is the object of the research. *Construct validity* can be evaluated by comparing test results to previous results of the same measures. *Internal validity* indicates the causal relationships of the constructs in order to give response to the research question. (Puumalainen, 2013a)

In this research, measures were theoretically derived based on a literature review. Therefore, it is reasonable to argue if the operationalization of the measures was properly conducted. There was no previous validated model used thus it may risk the internal validity. Reliability and validity of this research is discussed in chapter 6.2.

5 RESULTS

This chapter presents the results of the empirical tests.

5.1 Demographics of the respondents

In this study the sample is all 1623 respondents. Respondents were asked to indicate their home organization, location, if they are in a managerial position and how long have they worked for the company. Majority of the respondents, 78% were based in Finland. 1150 of 1623 had no managerial position, 276 were managers and 126 had managers as their subordinates. Largest group (447) of respondents had worked for the company 5-15 years. Second largest group (332) had worked for the company over 25 years. 40% represent employee group Upper white collar, 33% white collar. Share of blue-collar workers was 22%. Respondents represented 12 different organization units.

Table below summarizes the demographics of the sample.

Table 7 Sample demographics

	n	% of sample
Country		
Finland	1265	77,90 %
North America & Europe other	133	8,20 %
Russia & Baltics	120	7,40 %
Asia	88	5,40 %
Other +No response	13	0,80 %
Tenure		
< 1	113	7,00 %
1-2	87	5,40 %
2-5	258	15,90 %
5-15	447	27,50 %
15-25	324	20,00 %
> 25	332	20,50 %
No response	62	3,80 %
Employee group		
Blue collar	360	22,20 %
White collar	527	32,50 %
Upper white collar	652	40,20 %
Top management	49	3,00 %
Other & No response	35	2,20 %
Managerial position		
Manager	276	17,00 %
Manager's manager	126	7,80 %
No subordinates	1150	70,90 %
No response	71	4,40 %

5.2 Factor analysis

The internal consistency of the 12 indexes was tested to see if the scales of the item subsets were reliable. Multivariate factor analysis was used to see if patterns of relationships between the variables and indexes support the proposed model. Factoring method selected was principal component analysis. Rotation method

used was Orthogonal varimax. Table 9 presents the results for the first step in the analysis.

Reversing negatively worded items

Initial factor analysis reported weak correlations to five of the items (24, 29, 34, 38, 50). Question setting is seen in table 8. These questions are negatively worded and were reversed in the analysis after initial factor analysis. Analysis was re-conducted after the reversing and this procedure improved the results. Item 15 from the capability development index (“Problems often arise because we do not have the skills necessary to do the job”) shows low item-to-total correlation of .17. Item 53 (“Short term thinking often compromises our long-term vision”) from vision section showed as well a low item-to-total correlation of .13. These negatively worded items were retained because the alpha coefficient for the index itself still reached an acceptable level of .0.88/ 0.89 and the items were judged to have adequate content validity based on their fit with the definition provided for this index.

Table 8 Survey questions

Involvement	Empowerment	1 Most employees are highly involved in their work. 2 Decisions are usually made at the level where the best information is available. 3 Information is widely shared so that everyone can get the information s/he needs when it's needed. 4 Everyone believes that s/he can have a positive impact. 5 Business planning is ongoing and involves everyone in the process to some degree.
	Team Orientation	6 Cooperation across different parts of the organization is actively encouraged. 7 People work like they are part of a team. 8 Teamwork is used to get work done, rather than hierarchy. 9 Teams are our primary building blocks.
	Capability Development	10 Work is organized so that each person can see the relationship between his or her job and the goals of the organization. 11 Authority is delegated so that people can act on their own. 12 The "bench strength" (capability of people) is constantly improving. 13 There is continuous investment in the skills of employees. 14 The capabilities of people are viewed as an important source of competitive advantage. 15 Problems often arise because we do not have the skills necessary to do the job.
	Core Values	16 The leaders and managers "practice what they preach". 17 There is a characteristic management style and a distinct set of management practices. 18 There is a clear and consistent set of values that governs the way we do business. 19 Ignoring core values will get you in trouble. 20 There is an ethical code that guides our behavior and tells us right from wrong.
Consistency	Agreement	21 When disagreement occur, we work hard to achieve "win-win" solution. 22 There is "strong" culture. 23 It is easy to reach consensus, even on difficult issues. 24 We often have trouble reaching agreement on key issues. 25 There is a clear agreement about the right way and the wrong way to do things.
	Coordination and integration	26 Our approach to doing business is very consistent and predictable. 27 People from different parts of the organization share a common perspective. 28 It is easy to coordinate projects across different parts of the organization. 29 Working with someone from another part of this organization is like working with someone from a different organization. 30 There is good alignment of goals across levels.
	Creating change	31 The way things are done is very flexible and easy to change. 32 We respond well to competitors and other changes in the business environment. 33 New and improved ways to do work are continually adopted. 34 Attempts to create change usually meet with resistance. 35 Different parts of the organization cooperate to create change.
Adaptability	Organizational Learning	36 We view failure as an opportunity for learning and improvement. 37 Innovation and risk taking are encouraged and rewarded. 38 Lots of things "fall between the cracks". 39 Learning is an important objective in our day-to-day work. 40 We make certain that "the right hand knows what the left hand is doing".
	Strategic Direction & Intent	41 There is long-term purpose and direction. 42 Our strategy leads other organizations to change the way they compete in the industry. 43 There is clear mission that gives meaning and direction to our work. 44 There is clear strategy for the future. 45 Our strategic direction is unclear to me.
Mission	Goals & Objectives	46 There is widespread agreement about goals. 47 Leaders set goals that are ambitious, but realistic. 48 The leadership has "gone record" about the objectives we are trying to meet. 49 We continuously track our progress against our stated goals. 50 People understand what needs to be done for us to succeed in the long run.
	Vision	51 We have shared vision of what the organization will be like in the future. 52 Leaders have long-term view-point. 53 Short-term thinking often compromises our long-term vision. 54 Our vision creates excitement and motivation for our employees. 55 We are able to meet short-term demands without compromising our long-term vision.

Alpha coefficients indicate considerable shared variance within those items intended to measure the same underlying concepts. Alpha coefficients for the indexes were all .88 indicating an acceptable level of internal consistency. Item-total correlations exceed .50 except for the two negatively worded items mentioned in previous paragraph. Partial correlation coefficients and measure of sampling

adequacy (MSA) showed that factor model is reliable. MSA varies from .68 to .86. meaning values range from middling (.70) to marvelous (.90) on Keiser's scale. (Puumalainen, 2013) MSA is reported also in table 9. The eigenvalue in table 9 indicates the relative importance of a factor in explaining the variance associated with the variables.

Communality did not reach the recommended level of .50 in all of the items. Though in some parts the communality was reported low, all factors were retained in the analysis.

5.2.1 Analysis of inter-item correlations and factor analysis

Involvement variables

Empowerment

The two items having strongest correlation to Empowerment were item 2 “Decisions are usually made at the level where the best information is” .72 and item 5 “Business planning is ongoing and involves everyone in the process to some degree” .70. The mean score 3,86 for item 1 “Most employees are highly involve in their work” is higher than the next closest empowerment item 4 “Everyone believes s/he can have positive impact”, 3,26. Highest communality is on item 2 Decision making explaining 54% of the variance and second highest item 4. Lowest communality items are on item 1 and 5.

Based on the factor analysis, the two factors affecting the most to empowerment are decision making and involvement in business planning. Decision making also has the highest communality score in item-to-total factor analysis.

Team orientation

The two highest correlation scores for team orientation were on item 8 “Teamwork is used to get work done, rather than hierarchy” correlation of .79 and item 7 “People work like they are part of the team”, .75. The mean score for item 9 “Teams are our primary building blocks” is highest at 3,70, the next closest item 7 with mean score of 3,55. Highest communality is on item 8 with value of .63 and second highest item 7 Part of the team. Lowest communality item 6 “Cooperation across different parts of the organization is actively encourages”, with communality value of .42.

Factor analysis shows that teamwork and feeling of being part of a team correlate the strongest to Team orientation index. Same items explain a large part of inter-item variance.

Capability development

Highest correlation .74 to capability development is on item 14 “The capabilities of people are viewed as an important source of competitive advantage”. Second highest .72 on item 13 “There is continuous investment in the skills of employees. The mean score for item 12 “The capability of people is constantly improving” is highest, scoring at 3,56. Highest communality item 15 “Problems often arise because we do not have the skills necessary to do the job” and second highest item 13. Lowest communality is on item 11 “Authority is delegated so that people can act on their own”.

The item to total analysis shows that employees feeling there is continuous investment in skills and people are viewed as an important source for the company, has biggest correlation to capability index

Consistency variables

Core values

The two strongest correlating items for core values were item 18 “There is a clear and consistent set of values that governs the way we do business” with a correlation of .76 and item 19 “Ignoring core values will get you in trouble” with a correlation of .71. Same highest correlation item 18 has the highest (3,47) mean score. Lowest mean score is on item 16 “The leaders and managers practice what they preach” of 3,11. Highest communality is on item 18, reporting value of .63.

Highest item to total correlation and communality is on item 18, which measures respondents' experience of clarity of values and their directive impact on business.

Agreement

The two strongest correlating explanatory items based on item total correlation for agreement rate were items 23 "It is easy to reach consensus, even on difficult issues" with correlation of .74 and 21 "When disagreement occur, we work hard to achieve "win-win" solutions" correlation of .69. The mean score for item 22 "There is strong culture" is highest 3,68 , lowest mean score for item 23 and 25 "There is a clear agreement about the right way and the wrong way to do things" at 3,17. Highest communality is on item 23 giving a level of .58, lowest on item 22.

High correlating items reported as was expected when looking at the objective of the index (Agreement) and the question setting. Experience of a strong culture correlates least with agreement index.

Coordination and integration

Item 28 "It is easy to coordinate projects across different parts of the organization" and item 30 "There is good alignment of goals across levels" have highest correlation to Coordination and integration with values .74 and .71. The mean score for item 26 "Our approach to doing business is very consistent and predictable" is highest with score of 3,16, lowest mean score for item 28, score of 2,64. Highest communality item and second highest item 28 "It is easy to coordinate projects across different parts of the organization". Lowest communality item 29 "Working with someone from another part of this organization is like working with someone from a different organization". This negatively worded question number 29 was reversed after first factor analysis as stated previously in this study.

Most significant impact on index Coordination & integration is on if there is good and aligned co-operation within the company, across organizational boundaries, and if goals as well are aligned.

Adaptability variables

Creating change

The two most correlating items for creating change were item 31 “The way things are done is very flexible and easy to change” with a correlation of .70 and item 33 “New and improved ways to do work are continually adopted” with a correlation of .69. The mean score 3,31 for item 33 is highest, lowest mean score 2,64 for item 34 “Attempts to create change usually meet with resistance”. Also this negatively worded item was reversed after the initial factor analysis showed negative correlation. Highest communality, as well as highest correlation in Creating change index is on item 31 with value of .53. Lowest communality as well as lowest mean score is reported on item 34. Flexibility, adaptability and improving ways of working have highest impact on the index creating change.

Organizational learning

Two items with highest correlation are item 40 “We make certain that the right hand knows what left hand is doing” with correlation value of .72 and item 36 “We view failure as an opportunity for learning and improvement” with correlation value of .64. The mean score for item 39 “Learning is an important objective in our day-to-day work” is highest at 3,91. Lowest mean score for 38 “Lots of things fall between the cracks”. Highest communality item is 40, resulting value of .55, second highest item 36 Failure is an opportunity – same items scoring highest correlation.

It could have been expected that the item 39 would have had highest correlation to the index measuring organizational learning based on questions setting. However,

it is worth to notice that the differences between the three lower scoring items were narrow, ranging between .59-.64.

Mission variables

Strategic direction and intent

Highest correlation scores are on items 44 “There is a clear strategy for the future” with a correlation of .80 and item 41 “There is a long term purpose and direction” with a correlation of .77. Also the highest mean score is on item 41, scoring at 3,75. Lowest mean score resulted for 42 at 2,82 “Our strategy leads other organizations to change the way they compete in the industry”. Highest communality items, as well as high correlation, are 44 and 41 with values of .72 and .65. Lowest communality in on item 42 “Our strategy leads other organizations to change the way they compete in the industry”.

Clear strategy and sense of long-term purpose and direction correlate most on Strategic direction and intent. Less impact is on the fact if employees feel, the company steers the competition in the industry.

Goals and objectives

The range of correlations is narrow varying between .71 and 74. The mean score for item 48 “The leadership has gone on record about the objectives we are trying to meet” is highest (3,55), lowest mean score for 47 “Leaders set goals that are ambitious, but realistic” (3,30). Highest communality item 48, with a value of .55 and second highest item 47, with a value of .51. Lowest communality item 49 “We continuously track our progress against our stated goals” and 50 “People understand what needs to be done for us to succeed in the long run”.

Vision

The two most strongly correlating items for organizational learning were item 52 “Leaders have long-term viewpoint” (.75) and item 51 “We have shared vision of what the organization will be like in the future” (.71). Also the mean score for item 52 is highest with a score of 3,32, lowest mean score for 51, with a score of 3,07. Lowest communality is on item 53 “Short-term thinking often compromises our long-term vision”. The interpretation of this question is challenging and it is retained in the research. Highest communality is on item 51

5.3 Analysis of summated scales

Next, the sub-items of each index were combined into a single composite score for 11 indexes. The purpose was to get broader perspective to the indexes and not only observe single variables. Summated scales were calculated as an average score across the items in particular index. Table 10 reports the mean, standard deviation and Cronbach alpha values for each index.

Reliability of the measures was estimated by correlation analysis and Cronbach alpha. This analysis was done on item-total level for each of the 11 indexes and on summated-scale level for four traits. Each index was analyzed by using correlation analysis to get a result which of the items has the strongest item-to-total correlation in that specific trait. Cronbach alpha was measured to evaluate internal consistency of the index and of the trait. Item-total correlation resulted acceptable level for each 11 indexes and all four traits. According to Metsämuuronen (2006, 572), it is not always simple to interpret the results of correlations. Those can be impacted by for example *out-liers*. In this study, the out-liers were not removed at any point of. The data is based on subjective opinion of an informant and they were judged to be correct and rightful for the research purpose.

Table ten presents the results for summated scale reliability analysis for indexes.

Table 10 Summated scale reliability

	Mean	Std Dev	Cronbach alpha
Empowerment	3.30	.68	.923
Team Orientation	3.47	.69	.924
Capability development	3.27	.57	.928
Core values	3.39	.64	.926
Agreement	3.36	.61	.927
Coordination and integration	2.96	.70	.925
Creating change	3.06	.67	.925
Organizational learning	3.23	.62	.924
Strategic direction and intent	3.51	.75	.926
Goals and objectives	3.45	.67	.922
Vision	3.18	.59	.922

Correlation analysis was done to analyze inter-relations between the summated scales. Summated scale correlations range from .44 to .70. Cronbach alpha was reported .92 - .93 to all indexes. High Cronbach alpha values support inter-item reliability as all indexes report > .70 alpha values. All inter-item correlations were statistically significant (> .01).

Table 11 Summated scale correlation analysis

	1	2	3	4	5	6	7	8	9	10	11
Involvement 1. Empowerment		.67	.57	.57	.55	.60	.59	.58	.51	.59	.59
2. Team orientation	.67		.57	.56	.56	.58	.57	.50	.56	.57	
3. Capability development	.57	.57		.53	.46	.49	.53	.44	.50	.51	
Consistency 4. Core values	.57	.56	.53		.53	.47	.51	.51	.57	.59	
5. Agreement	.55	.56	.46	.53		.53	.54	.44	.54	.52	
6. Coordination & integration	.60	.56	.45	.52	.54		.61	.56	.53	.57	
Adaptability 7. Creating change	.59	.58	.49	.47	.53	.61		.59	.47	.53	
8. Organizational learning	.58	.57	.53	.51	.54	.56	.59		.51	.59	
Mission 9. Strategic direction & intent	.51	.50	.44	.51	.44	.53	.47	.51		.66	
10. Goals & objectives	.59	.56	.50	.57	.54	.57	.53	.59	.66		
11. Vision	.59	.57	.51	.59	.52	.60	.57	.61	.67	.70	
Cronbach alpha (with deleted variable)	.923	.924	.928	.926	.927	.925	.925	.924	.926	.922	.922
Prob > [r]	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001	< .0001

Team orientation has highest correlation with empowerment. In terms of the survey questions, this can be interpreted that feeling of being part of a team, teamwork,

cooperation across the organization, and seeing own work's purpose in organization's goals correlate to personal involvement, decision making, available information, experience of being able to have positive impact personally on organizations success and involvement in business planning. The correlation result is aligned with the theoretical perspective. The result gives confirmatory indication of the theoretical view that a change leader creates engagement by empowering people and creating feeling of unity. As literature review reveals, this is an important change leadership method since resilience is built on organization empowerment, purpose, trust, and accountability.

Capability development has highest correlation with empowerment and team orientation. Based on the results, it appears that same above mentioned team orientation factors and in addition, empowerment factors of personal involvement, decision-making, available information, experience of being able to have positive impact personally on organizations success and involvement in business planning correlate positively to the capability development. Capability development factors measure if respondents feel there is continuous investment to skills and if people are seen as an important source, and if the skills are in a sufficient level to excel in operations. One characteristic of a successful change leader according the literature is that a leader achieves positive impact by supporting and challenging change participants to develop new competencies, which are required.

Core values has highest correlation with vision. This result shows that there is a strong link between the organization having joint core values guiding the behavior and the organization having shared vision, which is motivating and which leadership executes accordingly. This result supports the suggestion, which was brought up in literature that shared values are fundamental for resilient organization. Agreement has high correlation with team orientation. Result supports the view, that teamwork and cooperation have a strong link to shared values in the work community and organization being able to reach consensus, and what is the common understanding of right and wrong way of doing things. Theory review suggest that resilience relies

on joint, repetitive and practical habits, which can provide that provide the first response when an unanticipated change occurs. In a resilient organization, employees are motivated to follow organization's interest instead of one's self-interest.

Coordination and integration has highest correlation with creating change. Common goals, consistent and predictable, joint ways of working which are shared across the organization, have strong link to be able to get things done in a flexible ways which are easy to change. Organizational learning has highest correlation with vision. There is a link between learning, improvement, courage to fail and positive innovation and risk taking environment and shared vision, which is exciting and motivating and long-term vision being clear. Change requires new ways of working. Resilient organization has the capability to improvise solutions without obvious tools and is able to see opportunities where no one else but the routines and habits are the ones that provide the first respond in change situation. The result of the correlation analysis is consistent with this assumption.

Strategic direction and intent has highest correlation with vision. Results show that there is a strong link between clear direction, strategy and mission, and with a sense of purpose and shared vision, which is exciting and motivating. Same applies to goals & objectives; joint and agreed goals, strong leadership, tracking and understanding of what needs to be done now to ensure long term success. Typically resilient organizations have favorable perceptions and strong faith in future. Visionary leader is able to give clear change direction. Organizations that have clear vision and goals find it much easier to adjust to change.

Summated scales for traits were calculated as an average score of the indexes in the trait.

Table 12 Index correlation analysis

	Involvement	Consistency	Adaptability	Mission
Involvement		.76	.72	.69
Consistency	.76		.73	.73
Adaptability	.72	.73		.68
Mission	.69	.73	.68	

Correlation analysis shows that the strongest correlation is between consistency and involvement. Consistency is a dimension of organizational resilience and involvement a dimension of change leadership. Weakest correlation is between mission and adaptability – though showing acceptable level of correlation .68 (.70 normally). Differences between correlation values are small, all reporting strong values.

5.4 Hypotheses testing – Multiple linear regression

Though correlation analysis states the relationship between factors, it does not state the possible causality of the two variables. In other words in the context of this study, correlation analysis does not tell if the measure of change leadership affects the measure of organizational resilience or vice versa. Therefore, in order to get answer to the research question, measures were tested by multiple linear regression analysis. Due to the exploratory nature of the study, the method chosen was standard multiple regression. No variables were removed or added during the analysis. Explanatory variables were tested simultaneously. Hypotheses were tested by multiple linear regression. Method was OLS and enter.

5.4.1 Linear regression background assumptions

In order for the regression analysis to be correct and accurate, the results need to meet requirements of a number of explanatory assumptions. Background assumptions of the regression analyses of this study were examined from the diagrams and diagnostic indicators produced by SAS software.

In the case of normality, variables were considered to be normally distributed if their residuals were visually observed to have a sufficiently straight line in the normal probability (Metsämuuronen, 2006, 656). Homoscedasticity, that is the even distribution of the residual value variances (Ibid, 643), was examined by observing the residual values compared to predicted values. The effect of individual observations on the model was viewed from the Cook's distance view, which explains how large the effect of eliminating an individual observation is (Metsämuuronen, 2006, 655). The autocorrelation, that is the possible dependence of the residuals, was examined by an autocorrelation coefficient, which should get values between -1 and +1.

Appendix 1 presents the background conditions involving all the explanatory variables for the linear regression analysis. Based on the appendix diagrams, the background conditions for the regression analysis of this study were generally acceptable in terms of normality, heteroscedasticity and multicollinearity. The outliers in the material can be considered as the weakening of the model. However, these were not eliminated as they were considered realistic, subjective and valuable estimates of the concepts that were measured.

The autocorrelation values ranged from about -0.03 to -0.38. The number of observations can be considered sufficient given the guidelines presented by Metsämuuronen (2006, 585), as there were more than 200 observations and the

number of observations was at least five times the number of variables. The analyzes used unmodified variables. Multicollinearity is not considered to be a must if the analysis does not seek to create a model for prediction, but rather aims to explore explanatory factors (Hair et al., 1998, 188 - 189). Heteroscedasticity neither is considered to have a very adverse effect on the value of the regression coefficients but may have an effect on their statistical significance (Mellin, 2006, 406). If the residual terms of the regression model are not normal, statistical significance based on t and F values may not be valid. However, the conclusion is indicative if deviations from normality are reasonable (Ibid, 409). Regression models obtained from the data can be considered at least as indicative for the purpose of the study.

Figure four illustrated the hypotheses and tested measures.

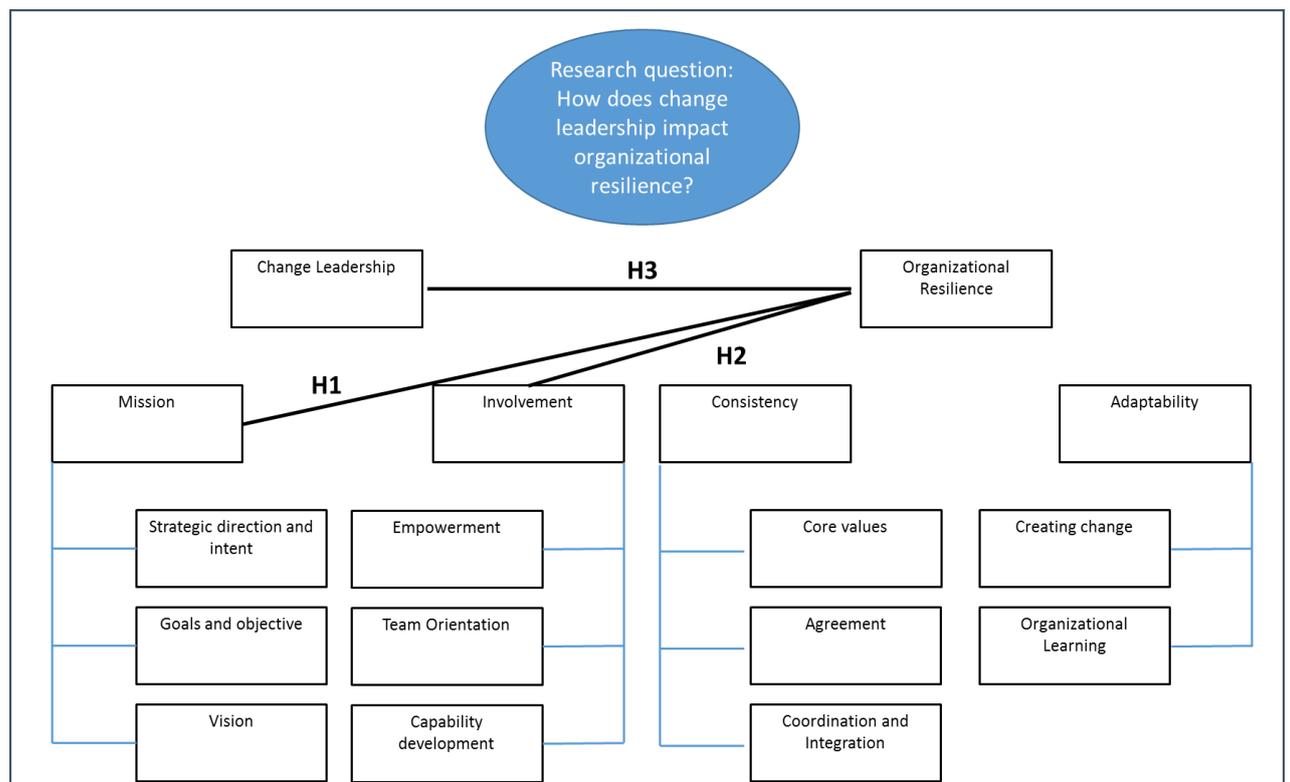


Figure 4 Hypotheses and tested measures

5.4.2 Results of the multiple linear regression analysis

First regression test aimed to test, which of the change leadership variables have biggest impact on organizational resilience. There was no hypotheses to be tested for the purpose of this regression analysis. The test aimed to support the later analysis with more detailed understanding of the impacts of change leadership variables if the other regression analysis would have shown unexpected results. Table below summarizes the results.

Table 13 Regression analysis of single change leadership variables

DEPENDENT VARIABLE		Resilience			
Independent variable	DF	Parameter estimate	Standard error	t-value	p-value
Intercept	1	0.41	0.044	9.39	<.0001
Empowerment	1	0.17	0.015	11.90	<.0001
Team orientation	1	0.16	0.014	11.52	<.0001
Capability development	1	0.11	0.015	7.44	<.0001
Strategic direction and intent	1	0.04	0.013	3.38	0.0008
Goals and objectives	1	0.14	0.015	9.10	<.0001
Vision	1	0.20	0.018	11.39	<.0001
Model fit					
		F-value	746.31	R-Square	0.73

Regression analysis was conducted in order to test, which of the change leadership variables (x) have biggest impact on organizational resilience (Y). Based on the test results, vision as a single variable has the biggest impact, empowerment the second biggest. Team orientation is the third biggest influencer. Strategic direction and intent has the lowest impact. Involvement variables (empowerment, team orientation and capability development) have relatively bigger impact on resilience than mission variables (strategic direction and intent, goals and objectives, and vision). This test gave positive indication to expect the hypotheses 1 and 2 of this study to be true. The test gave more detailed information about the relationships than regression analysis with summated variables.

H1: There is a significant relationship between mission and organizational resilience

H2: There is a significant relationship between involvement and resilience

Table 14 Regression analysis of change leadership indexes

DEPENDENT VARIABLE		Resilience			
Independent variable	DF	Parameter estimate	Standard error	t-value	p-value
Intercept	1	0.41	0.043	9.38	<.0001
Involvement	1	0.48	0.017	28.40	<.0001
Mission	1	0.36	0.016	22.74	<.0001
Model fit					
F-value		2144.02		R-Square 0.73	

Regression analysis was conducted to see, which of the two change leadership summated variables has greater impact on organizational resilience. Involvement reports higher impact on resilience than mission. The result is statistically significant. Strong R-Square supports the reliability of the result. T-value for involvement is a bit higher than that for mission. The test proves both of the hypotheses true.

Third regression analysis aimed to answer to hypotheses 3, There is a significant relationship between change leadership and organizational resilience.

Table 15 Regression analysis of change leadership and organizational resilience

DEPENDENT VARIABLE		Resilience			
Independent variable	DF	Parameter estimate	Standard error	t-value	p-value
Intercept	1	0.42	0.043	9.66	<.0001
Change leadership	1	0.82	0.013	65.07	<.0001
Model fit					
F-value		4234.68		R-Square 0.72	

This test confirms the response to the main research question of this study though the more detailed analysis give more valuable insight into the change leadership variables affecting organizational resilience.

Based on the regression analysis, all three hypotheses of the study proved accepted.

Table 16 Results of the hypotheses

H1	There is a significant relationship between mission and organization resilience	ACCEPTED
H2	There is a significant relationship between involvement and resilience	ACCEPTED
H3	There is a significant relationship between change leadership and organizational resilience	ACCEPTED

6 DISCUSSION OF THE RESULTS

In this chapter, empirical test results are concluded with the support of the theoretical framework. The reliability and validity of the study is evaluated and at the end, there is discussion about possible options for future research.

6.1 Conclusions

The objective of this study was to identify change leadership factors, which would have positive impact on organizational resilience. The main research question of this study was “What is the impact of change leadership on organizational resilience?” Based on the empirical analysis, it is evident that there is a strong relationship between change leadership and organizational resilience, as the measures were defined for the purpose of this study. Many change management methods have been developed with the aim to reduce the failure rate of change initiatives. There are, however potentially significant differences between

organizations and situations, which do not support the approach of having a process oriented, managerial checklist to guide managers in leading the organization in today's turbulent business environment (Al-Haddad & Kotnour, 2015, 243). Transformational leaders are able to create a change-positive working environment with a compelling and inspiring vision, which motivates employees to be adaptable and make an effort to achieve organization's objectives now and in the future. (Eisenbach et al., 1999, 82-83; McKnight, 2013, 103)

One common characteristic for resilient organizations is that there is a clear sense of mission; organizations with clear and well-understood vision and goals, find it easier to adjust to change. (Nelson & Nelson) Employees need to have the confidence to leadership and the future of the organization to be able to build engagement. Being able to communicate vision and goals and give direction for the change are crucial for successful change leadership. (Wiley, 2009, 49-50) The analysis proved that there is a strong relationship between mission understanding and organizational resilience – as measured in this study.

Resilience is built with empowerment, sense of purpose, trust between the members of the community on all levels, and accountability. Theory suggested that successful change leaders are able to provide employees a sense of responsibility and involve them in change. (Eisenbach et al. 1999; McKnight, 2013; Kanter, 2000) Change management theories advice a change leader to build guiding coalitions, encourage team decision making, enable favorable conditions for teamwork and build networks in the work community (Ihab & Salman, 1998, Lengnick-Hall et al. 2011; Kanter, 2000) Based on the theories, second dimension of change leadership measure in this study was employee involvement. Results of the statistical analysis support theory review by showing a strong link between team orientation, empowerment and capability development. Empowerment and teamwork have positive correlation with organizational learning and personal development.

Shared values are fundamental for resilient organizations. Clear vision creates unified sense of purpose and values guide the way of working when the entire work community is working for the benefit of the whole. (Coutu, 2002) Empirical tests proved strong link between core values and vision. This result confirms the suggestion that change leadership should concentrate on influencing the norms and values of the organization.

Resilient organization typically improvises solutions without obvious tools. When facing change, an organization has to be creative and agile to find actionable solutions. Resilient organization typically has excellent problem solving abilities. At the same time, resilience relies on repetitive and practical habits; useful habits are closely tied to organizational values and are a fundamental part of resilience as they provide the ability to quickly respond to change and retain operational performance. (Lengnick-Hall et al., 2011, 244-245) In this study, coordination and integration showed highest correlation with creating change. That proves that there is a link between organizational learning capability and resilience. Creating change measured courage to fail and positive innovation and risk taking environment. If the organization has those capabilities, and shared long-term vision, it has the capacity for resilience based on the measures of this study.

Conclusion of this study is, that managerial check-lists and structured approaches to managing a change process can offer a leader valuable support in ensuring that all needed aspect of a change process and needed management activities to ensure the success, are taken into account. However, in order to build sustainable, transformational resilience in an organization, managerial and process oriented approach is not sufficient. Resilience requires continuous leadership activities. Leader needs to ensure the organization has the required structures and capabilities in place. People become engaged to change when the work community feels empowered and involved. In today's team oriented work communities, change and resilience needs to be built on team level. A work community is always a sum of individuals but even if the team would be filled with resilient individuals, the results

might not be a resilient team. Shared values, clear vision and agreed ways of working to achieve goals are needed. In order for an organization to develop its resilience, it is imperative to invest in the leadership capabilities. Skillful change leadership provides the foundations for a resilient organization.

Results of the empirical tests are consistent to theories of the literature review. The results show, that employee involvement and mission have positive impact on building resilience. Involvement variables had relatively bigger impact on resilience than mission variables. In other words, change leadership actions around empowerment, team orientation and capability development seem to have more significant influence on leading resilient organization than those in the area of mission; ensuring clear strategic direction and intent, clear and challenging goals and objectives, and communicate a clear vision. However, as the measures were built in this result, statistical analysis shows quite marginal difference in the importance. Therefore the hypotheses of change leadership having strong correlation to organizational resilience is proved true.

6.2 Reliability & validity

According to Metsämuuronen (2006, 115) the reliability and validity of the research equals the reliability and validity of its measures. In this research, the measures were built for the purpose of this study and had not been previously tested for the purpose. Therefore, it can be argued if the measures were properly operationalized, though the variables tested were consistent with a theory review of the constructs. The internal reliability of the measures was tested by factor analysis. Based on the results it is fair to assume, that the measures did measure what they were aimed to. Inter-item correlations and Cronbach alpha values support the assumption. Also the results of principal component analysis and the internal reliability show for large part that measures are reliable. Measures also behaved in the principle component analysis according the expectations based on the literature review. Based on these

observations, the measures can be considered to be suitable for the research purpose of this study.

Another factor affecting reliability of a study is how the data has been collected and in which type of situation. The data for this research was originally collected for other purpose. At the time, survey respondents have been instructed to evaluate organizational culture and they have evaluated the state of the organization from their own perspective. Also, the only method used in this data collection was a structured questionnaire and no other methods were used which can lower the reliability (Bardi & Schwartz, 2003). A questionnaire in general allows errors like dishonesty, neglecting and misunderstandings by respondents. Questions or the questionnaire structure can be unclear, which on its share can lower the reliability. (Hirsjärvi et al., 2004, 184)

In this research, all of the constructs were theoretically derived following an extensive literature review. As already stated, there were no existing measures for the two constructs of this study and therefore the generalizability and face validity can be argued. Though measures behaved in the principle component analysis according the expectations based on the literature review, it is challenging to estimate if the measures are aligned with common agreements and generally accepted thinking of the underlying concepts, as there were no accepted measures available to compare to.

6.3 Limitations and suggestions for future research

The measures were developed solely for the purpose of this study, based on literature review. The data was originally collected for other purpose. Though the measures and results proved to be consistent with the theories of change leadership and resilience, the generalization of the measures is questionable. This can be seen as a limitation of the study. The main objective of this study was not to aim to develop

generalized measures for change leadership and organizational resilience. The data was used for this research purpose without modifying factors based on principle component factor analysis. Factor analysis reported internal consistency for the purpose the index was originally developed but the operationalization of the measures can be argued. However, based on the reliability measures, the measures can be considered functioning to this research purpose.

This study analyzed the entire sample consisting of individuals from different positions, cultures, and length of employment. The literature review did not reveal, whether there are assumed differences of working change management methods, leadership methods and resilience between different geographical areas or ethnic cultures. However, knowing that there are identified differences in working leadership methods in different cultures, it would be interesting to see if the factors affecting resilience would be different if the sample would be split into different groups by the country and/or ethnic background of the respondents.

For leadership research development, there is a need to develop and agree on a measure for resilience. As stated previously in this study, resilience as a research area has received increasing interest. It provides an interesting cross-scientific research area combining behavioral sciences, organizational culture, psychology, and leadership elements.

The importance of this study to research is the attempt to identify a set of leadership factors, which can be considered as change leadership. Combining consistency and adaptability as resilience measure is a valuable attempt to develop set of factors, which can measure resilience.

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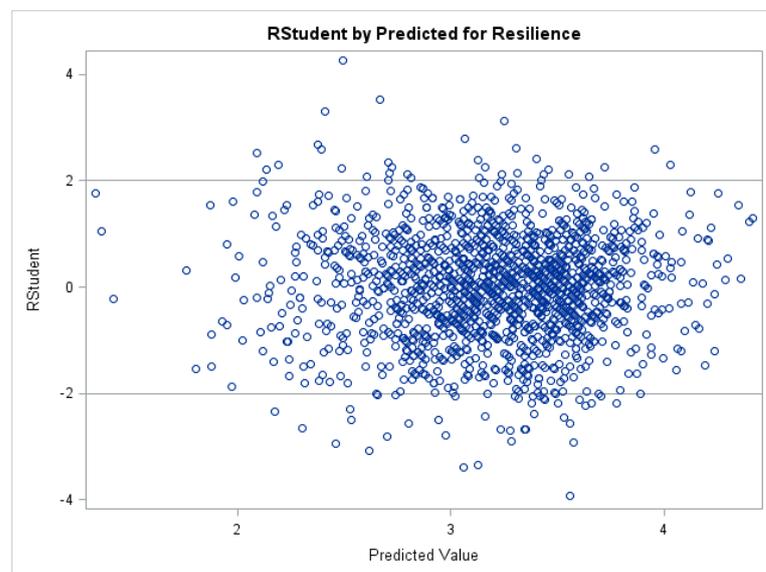
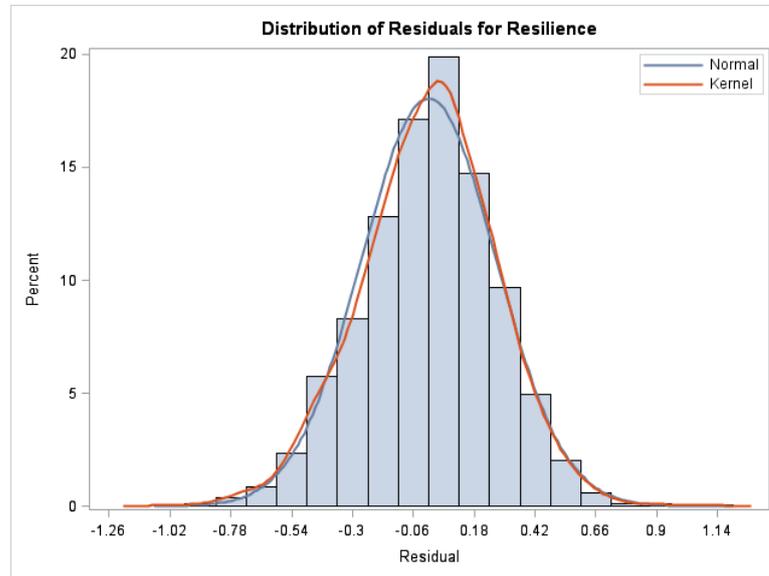
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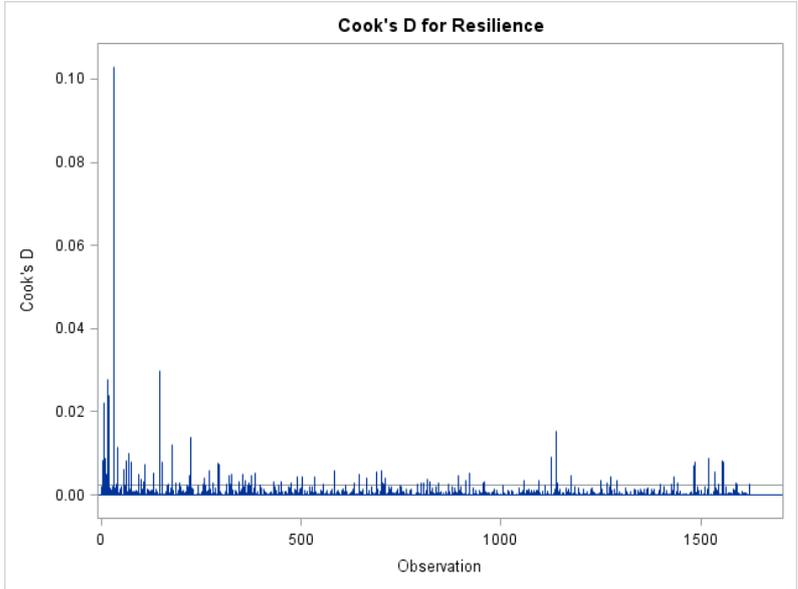
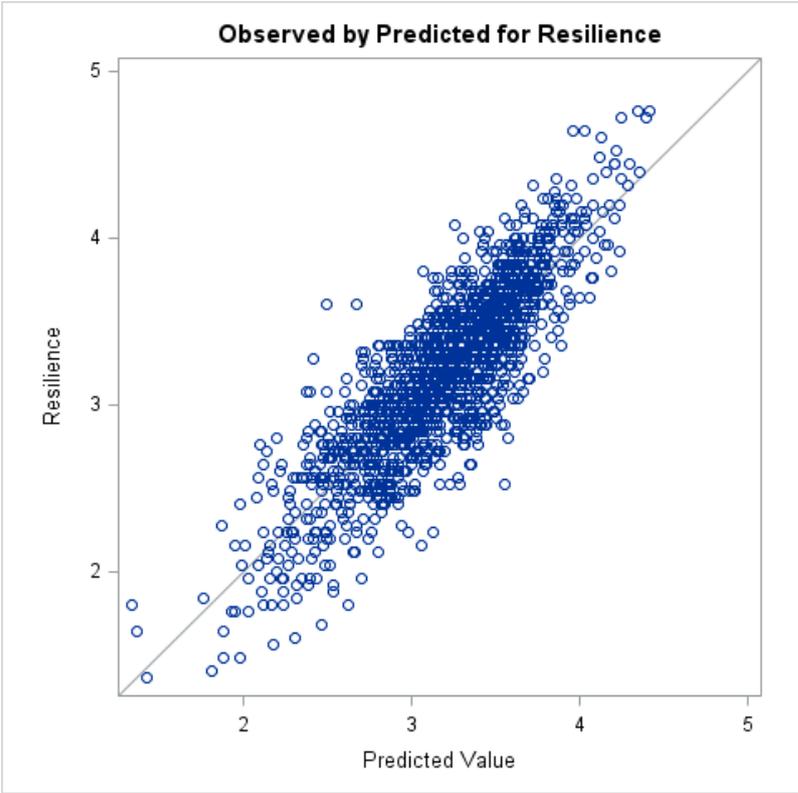
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Diagnostics of the background assumptions of the linear regression analysis





Correlation of Estimates							
Variable	Intercept	Empowerment	Team Orientation	Capability Development	Strategic Direction and Intent	Goal and Objectives	Vision
Intercept	1.0000	-0.0288	-0.0968	-0.3742	-0.0720	-0.1075	-0.1660
Empowerment	-0.0288	1.0000	-0.3843	-0.2169	-0.0526	-0.1389	-0.1393
Team Orientation	-0.0968	-0.3843	1.0000	-0.2352	-0.0586	-0.0889	-0.1170
Capability Development	-0.3742	-0.2169	-0.2352	1.0000	-0.0385	-0.0874	-0.0855
Strategic Direction and Intent	-0.0720	-0.0526	-0.0586	-0.0385	1.0000	-0.2992	-0.3177
Goal and Objectives	-0.1075	-0.1389	-0.0889	-0.0874	-0.2992	1.0000	-0.3513
Vision	-0.1660	-0.1393	-0.1170	-0.0855	-0.3177	-0.3513	1.0000

