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**RESISTANCE TOWARDS ORGANIZATIONAL AND  
INFORMATION SYSTEM CHANGE IN STARTUP  
ORGANIZATIONS**



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# ABSTRACT

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Change resistance is well known phenomenon in psychology and management research. Individual level change resistance originates from persons disposition to resist changes in their environment and it can lead to disruptive change resistance behaviours. On organizational level these resistance behaviours can cause costly change project failures. One type of change resistance is the user resistance towards new information system. User resistance may cause the implementation of the new system to fail completely and the system not being used. This master's thesis studies if change resistance in startup companies differ from resistance in traditional companies. Majority of the research literature focuses on traditional organizations and research on change resistance in startup organizations is limited.

Startup organization as a concept originates from small, disruptive, and innovative software companies. Startup companies are characterized as immature, innovative, uncertain, and swiftly scaling and evolving. They are growing rapidly and constantly changing which leads to changes in the systems they use. Due to the nature of the startups they require employees who are adaptive and less disposed to change resistance.

This master's thesis was conducted as a qualitative study which allows gathering new information from interviewees directly. Used research method was semi-structured interview which gives the opportunity to examine specific topics and uncover new ones from the interviewees. The data gathered from the interviews was analysed in an iterative process using thematic coding. These codes and groups of codes formed the empirical data which then was analysed together with the theoretical framework to answer the research question.

In this study the change resistance towards organizational and information system is studied in startup organizations. The results show that nature of startup companies influences how they choose their employees and systems they use and how organizational changes are conducted. The change resistance in startup organizations is viewed as more constructive than in traditional companies and negative resistance behaviours are presented considerably less often.

*Keywords: resistance to change, resistance to organizational change, startup organization, user resistance, information system change*

# TIIVISTELMÄ

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Muutosvastarinta organisaationaalista muutosta ja tietojärjestelmämuutosta kohtaan startup-organisaatioissa

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Muutosvastarinta on tunnettu ilmiö psykologian ja johtamisen tutkimuksen aloilla. Yksilötason muutosvastarinta juontuu henkilön taipumuksesta vastustaa muutoksia ympäristössään ja vastarinta saattaa johtaa muutosta hankaloittavaan käyttäytymiseen. Organisaatiotasolla muutosvastarinta saattaa johtaa kalliiden muutosprojektien epäonnistumisiin. Käyttäjien vastarinta on vastustusta uutta tietojärjestelmää kohtaan ja se saattaa aiheuttaa järjestelmän implementoinnin epäonnistumisen ja käyttämättä jäämisen. Tämä pro gradu -tutkielma tutkii, eroaako muutosvastarinta startup-organisaatioissa muutosvastarinnasta tavanomaisemmissa organisaatioissa. Suurin osa tutkimuskirjallisuudesta keskittyy tavanomaisiin organisaatioihin ja tutkimus startup-organisaatioista on vähäistä. Startup-organisaatio konseptina on saanut alkunsa pienistä, markkinoita muuttavista ja innovatiivisista ohjelmistoyrityksistä. Startup-yrityksiä kuvaillaan keskeneräisiksi, innovatiivisiksi, epävarmoiksi ja nopeasti skaalautuviksi ja kehittyviksi. Ne kasvavat nopeasti ja muuttuvat jatkuvasti, mikä johtaa muutoksiin niiden käyttämissä tietojärjestelmissä. Startup-yritysten luonteen takia ne edellyttävät työntekijöiltä mukautuvuutta ja vähäisempää taipumusta muutosvastarintaan.

Tämä pro gradu -tutkielma toteutettiin kvalitatiivisena tutkimuksena, joka mahdollistaa uuden tiedon keräämisen suoraan haastateltavilta. Tutkimusmetodina käytettiin puolistrukturoitua haastattelua, joka mahdollistaa valittujen aiheiden tarkastelun ja uusien keräämisen haastateltavilta. Haastatteluista kerätty data analysoitiin iteratiivisesti käyttäen aiheenmukaista jaottelua (thematic coding). Nämä jaotellut teemat ja niiden ryhmät muodostivat empiirisen datan, joka analysoitiin teoreettiseen viitekehykseen nojaten. Näin saatiin vastaus tutkimuksen tutkimuskysymykseen.

Tässä tutkimuksessa tutkitaan organisaatiomuutoksen ja tietojärjestelmämuutoksen vastaista vastarintaa startup-organisaatioissa. Tutkimuksen tulokset osoittavat, että startup-yritysten luonne vaikuttaa miten ne valitsevat työntekijänsä ja käyttämänsä järjestelmät ja miten organisaatiomuutokset toteutetaan. Muutosvastarinta startup-organisaatioissa koetaan rakentavampana kuin tavanomaisissa yrityksissä ja negatiivista vastarintakäyttäytymistä esiintyy huomattavasti vähemmän.

*Avainsanat: muutosvastarinta, organisaatiomuutoksen vastustus, startup-organisaatio, tietojärjestelmän käyttäjän vastarinta, tietojärjestelmämuutos*

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# 1 INTRODUCTION

This master's thesis studies change resistance and user resistance towards new information system (IS) in startup organizations and the possible differences between startup and traditional organization. Startup has been a buzzword in business and especially information technology (IT) business for over a decade. Startup organizations significance on the market as disruptive and innovative force is recognised worldwide. The very nature of startup companies is the continuous change in pursuit of success. User resistance and change resistance are well known phenomena in management and IS literature and a known force to bring down even well planned and organized IS change projects. The constant changing of startup organizations and resistance towards change would appear an incompatible match and a recipe for catastrophe. However, studies addressing change resistance in startup companies are almost non-existent. Similarly, the number of studies examining IS deployment and implementation and user resistance in startup organizations is small. This thesis aims to clarify the existence of IS change resistance in startup organizations and its implications for practice and future research.

This introduction presents the research problem and research question and the motivation for this study. Then it explains the literature review process which is used as a theoretical basis for the theoretical framework presented in subchapter 1.3 with the data collection process. The chapter ends in short presentation of the results of the study and the introduction of the thesis structure.

## 1.1 Research problem and research questions

User resistance is known and established phenomenon in Information Systems research. The theories examining user resistance cover the resistance in well established companies and organizations initiating IS and IT change. User resistance in startup companies is less studied due to the contemporary nature of startup companies and the whole concept of startup way of conducting business.

The aim of this study is to analyse user research in startup companies which have initiated changes in IS. This defines the research question as:

- Does user resistance towards IS change in startup companies differ from user resistance in established companies?

## 1.2 Literature review

The search for research literature was conducted as Templier and Paré (2015) describe it as an iterative process and with structured search strategy to identify relevant studies and literature. Key words and concepts were identified both beforehand and from the literature during the search process. Part of the relevant material was backward and forward searched for additional literature and for validation of relevance. Additional methods were also used to restrict the search to relevant literature and to ascertain the quality of the literature. The literature review was part of master's thesis seminar and it provided much of the theoretical background for this thesis.

The research question and the purpose of the study guide the literature search and aid in defining the search strategy (Pan & Tran, 2017; Templier & Paré, 2015). The literature review is a narrative review and it aims to provide an overlook of the previous research. The search strategy for this study however was adapted from the developmental review and aimed to include both empirical and conceptual studies. (Templier & Paré, 2015.)

The search begun with previously identified key concepts and studies such as Markus' (1983) research paper. The studies were screened for additional keywords to use in the search. Primary search engines were Google Scholar and JYK-DOK, the search service of the library of the University of Jyväskylä. Both were used to screen for international e-materials and papers available on the internet. These sources were used together to collect relevant research literature from the field of Information Systems Science and project management theories.

The key concepts in the subject area were identified from the initial studies by screening their lists of keywords. These concepts were then listed by how many sources referred them as key concepts in their study. This listing is included in this paper as Appendix 1. The most referred and relevant keywords were used to search for literature. The list of keywords used in the search were updated from additional studies whenever a concept was deemed relevant to the subject. Such additions were project management, IS project management, IS development life cycle, IS success and IS development. Additional concepts and keywords were also identified from studies examining startup organizations and among these keywords were startup, software startup, startup business, lean startup, and startup change.

Additional methods used in the literature search were restricting the search to more recent publications, centring the search to Association for Information Systems (AIS) Senior Scholars' basket of journals and prioritizing to highly cited



studies. Older relevant studies were also included, especially when they were cited by other studies. Other sources than Senior Scholar's basket of journals were also used when they were deemed reliable and relevant.

### **1.3 Theoretical framework and data collection**

Theoretical framework for this thesis was formed from the research literature and it includes the core concepts of startup organization, employees, change resistance and organizational change. This framework was used to form the interview questions for the empirical data collection. The empirical data was collected using qualitative research methodology. The interviews were semi-structured interviews with questions planned beforehand and the possibility to ask detailing questions during the interview.

The empirical data was collected from four pre-selected IS and IT startup companies and six interviewees. The interview data was then analysed using the-matical coding and grouping those codes to into categories corresponding with the theoretical framework. This analysing process led to forming the answer to research question and the results of the thesis.

### **1.4 Results**

The results of this study indicate that change resistance in startup organizations differs from traditional organizations. The startup companies view change resistance in more positively and encourage employees to participate in change projects and suggest new ideas and improvements. Similarly, startup companies want employees who are more adjustable and ready to change their work routines. These employees are less inclined to display change resistance behaviour and prevent changes in startup organizations.

IS change resistance and user resistance is likewise unlikely in startup organizations. This is in equal parts due to qualities mentioned above and the startup companies' effort to minimize the effect of IS change to job descriptions and organizational operations. Startup companies try to limit the effect of IS change to processes and work assignments while still receiving the benefits in more organized and systematic operations. This is achieved by continually monitoring the development in the business environment and planning changes ahead. Employee involvement and acceptance of change is also deemed as important in mitigating the effects of change and change resistance.

## 1.5 Structure of thesis

The structure of this master's thesis is presented in this subchapter. The introduction of the thesis presents the motivation for the study and short descriptions of the literature review process, theoretical framework and data collection, and results. The second chapter in this thesis gives definition for change resistance theories and user resistance. Third chapter describes the IS deployment and its success measurement and user resistance towards implementation. Fourth chapter presents the research literature addressing startup organizations, their characteristics and IS change resistance in startup organizations. It also describes the theoretical framework developed for the study from the research literature. The research approach and method, data collection and interview questions, and data analysis is depicted in the fifth chapter. Sixth chapter includes the findings, discussion, and implications and presents the interviewees and their organizations in more detail. Seventh chapter summarizes the thesis and discusses the limitations, reliability and validity, and suggestions future research.

## 2 CHANGE RESISTANCE THEORIES

Resistance to change as a concept has its origins in the psychology and management literature (Li, Liu, & Liu, 2016; Marakas & Hornik, 1996; Meissonier & Houzé, 2010). This gives change resistance two different perspectives. Psychology has its focus on the individual and it defines the resistance to change as person's tendency to avoid and be averse of changes and devalue them. Management literature gives resistance more general focus and defines resistance as actions to maintain the current state or enduring avoidance of change. (Kim, 2011.) The two approaches to explaining resistance on individual and organizational level are visible in Information Systems Science research literature as well. Laumer, Maier, Eckhardt and Weitzel (2016b) define resistance to change simply as individual's perceptions of the change. Oreg (2006) defines resistance more closely as a person's attitude towards change, consisting of affective, behavioural and cognitive component. Affective component considers feelings about change, behavioural component considers actions in response to change and cognitive component considers what thoughts change evoke. (Oreg, 2006.) Hirschheim and Newman (1988) define resistance to change as an adverse reaction to change. The resistance may arise concurrently with the change or remain hidden for shorter or longer periods to surface later. The research clarifies how individual level resistance affects group level and organizational resistance. (Hirschheim & Newman, 1988.)

Lapointe and Rivard (2005) identify five resistance primitives: resistance behaviours, object of resistance, perceived threats, initial conditions and subject of resistance. Resistance behaviours range from passive reluctance to cooperate to physically resisting change. Object and subject of resistance are quite self-explanatory terms, but they are important to identify. Lapointe and Rivard point that from psychological perspective the subject is the individual resisting change and from political perspective the subject is usually a group. Perceived threats refer to the outcomes of change that individual or group fear might result from the change. Initial conditions refer to for example prior distribution of power and other preceding circumstances before the change. (Lapointe & Rivard, 2005; Rivard & Lapointe, 2012.)

Individual's personal traits determine how they will respond to change. Some are more predisposed to resist changes even when the change might be beneficial to them. (Laumer, Maier, Eckhardt, & Weitzel, 2016a; Oreg, 2003; Su, Chung, & Su, 2012.) Oreg (2003) advances the concept of dispositional resistance to change on the field of IS with a Resistance To Change (RTC) scale to measure change resistance tendencies. Laumer et al. (2016a) reveal in their study that higher level of dispositional resistance to change predicts actual change resistance better than age, gender or other variables. Barak (2018) studies the flexibility and open-mindedness of higher education students and finds indications that more flexible students resist change less. Both Laumer et al. (2016a) and Barak (2018) conclude that certain personal traits increase the likelihood of change resistance.

Resistance to change is not always harmful. Researchers agree that resistance in many cases is not negative but a sign of problems or faults in the change. Individual's resistance might arise from concerns how the change affects them and the uncertainty it brings. (Hirschheim & Newman, 1988.) Resistance may be indication of genuine doubts about the change. The change itself might be poorly administered and the resistance acts as an early warning sign (Marakas & Hornik, 1996). Waddell and Sohal (1998) even recommend in their study that the notion of resistance as negative should be abandoned and to recognize the change resistance as an opportunity to adapt and improve the contents of the change.

## **2.1 Organizational change**

In definition organizational change is the alterations to existing work routines and strategies that affect the organization. The business environment is becoming increasingly convoluted and to answer the growing complexity organizations commence changes that range from individual employee level to organization wide changes. (Dawson, 2003; Wee & Taylor, 2018.) Organizations seek to develop new innovations and improve their competitive edge, efficiency, revenue, and profit. To achieve improvement on organizational level and to create innovations on individual employee level organizations initiate change in their business activity, business units and even whole organization. (Hon, Bloom, & Crant, 2014.)

Dawson (2003) identifies causes to organizational change and divides these 'triggers' to internal and external factors. Internal triggers to change arise from within the organization and are identified as technology based, people based, change in the primary task, or core business, or change in administrative structures. Technology and people-based changes originate from new and changing technologies and restructuring human resource management and ways of working in the organization. Changes in the primary task and administrative structure derive from shifting to new core business and restructuring management and organizational relationships. (Dawson, 2003.)

External factors causing organizational change according to Dawson (2003) are laws and regulations, globalization, major political and social events, advances in technology, and organizational growth and fluctuation in business cycles. Laws and regulations can be national or international and they can affect range of organizational matters from human resources to production and trade. Globalization adds the competitive pressure both locally and abroad and force the organization to adjust to competing organizations and international regulations. Dawson (2003) describes how major political events and fluctuations in business cycles both nationally and globally, such as the economic sanctions, global recession, tension between different countries, and global pandemics change the global and organizational settings. Technological advances cause changes in organizations themselves and their products and services when the organizations introduce new technology and try to match others' innovations to avoid obsolescence. (Dawson, 2003.)

Both Krovi (1993) and Dawson (2003) describe the organizational change as three-stage process. Krovi (1993) names the stages Unfreezing or Definition stage, Moving or Physical Design stage and Refreezing or Implementation stage, whereas Dawson (2003) names the stages as Unfreezing, Changing and Refreezing. On unfreezing stage, the change is defined and need for it is created. Moving entails choosing a course of actions and implementing it. Refreezing aims to stabilize the organization again and embed the changes as a part of the organization. (Dawson, 2003; Krovi, 1993.) Both Dawson (2003) and Krovi (1993) base their description of change process on the work of Lewin (1951) on the Organizational Development model of change. The model consists of three general phases of change: Unfreezing, Changing, and Refreezing which Lewin describes according to Dawson being essential to follow for the change effort to succeed. (Dawson, 2003; Krovi, 1993; Lewin, 1951.)

Krovi (1993) mentions Kolb's and Frohman's (1970) Model for Planned Change and its similarity to Lewin's (1951) general model of change however Kolb's and Frohman's model is more detailed than Lewin's model (Krovi, 1993). The Model for Planned Change acknowledges the need to plan and assess the change process and the criteria for the success or failure of the process. Kolb and Frohman (1970) describe in their model the process of organization development between the organization and a change consultant as planned change consisting of seven stages. The stages are Scouting, Entry, Diagnosis, Planning, Action, Evaluation, and Termination. In the Scouting phase, the need, resources and limitations, attitudes and motivation, and the potential for change are evaluated. In Entry phase the subsequent stages of organizational change is negotiated between change participants e.g. change consultant, change client etc. In Diagnosis phase the change clients' problem, goals, and resources and the change consultants' resources are defined. (Kolb & Frohman, 1970.) Kolb and Frohman (1970) suggest that after the Defining phase, the change is planned in the Planning phase. Plans define steps to achieve the change and the commitments needed to the change to success. The plans and the change strategy selected during Planning phase are implemented during Action phase. In this phase the change can

encounter resistance if previous phases are not performed adequately. (Kolb & Frohman, 1970.)

Kolb and Frohman (1970) argue that the Evaluation phase should be coincidental with implementing the change strategy. In this phase the set goals and objectives from Planning phase are assessed to ensure that the change process is advancing appropriately. The process ends in the Termination phase in which the success or failure of the entire process is assessed. In short, success is achieving the goals set beforehand for the change and failure is somehow failing to achieve the premeditated goals and failing to solve the problem targeted in the change process. (Kolb & Frohman, 1970.)

In addition to phases of organizational change Krovi (1993) presents the different levels of organizational change presented in the literature. They present several models for the levels of change from previous studies and combines them together to two levels. On the other end is First Order Change as small and incremental changes that are executed gradually and on the other end is Second Order Change as broad and radical changes that change the organization and its practices. Krovi (1993) also suggests that between the incremental and radical changes lies a middle ground of Middle Order Change which is greater than incremental changes but not as strategic or radical as Second Order Change. (Krovi, 1993.)

Dawson (2003) summarizes four organizational change dimensions from the existing literature. These dimensions are the temporal element of change, the scale of change, the political dimension of change and the substantive element of change. The temporal element of change is the change from present state of organization to the desired state in the future. The scale of change resembles Krovi's (1993) levels of change mentioned earlier in how it ranges from small and incremental to large and radical change in the organization. The political dimension covers the acceptance or resistance of the change and the substantive element refers to the content of the change. The four dimensions are used in the definition and classification of organizational change in the research literature. Dawson (2003) describes how the dimensions of change have been stressed variously by different researchers and consultants which can cause some confusion and difficulties to compare results between studies. (Dawson, 2003.)

### **2.1.1 Emergent Continuous Organizational Change**

Wee and Taylor (2018) propose a theoretical model for Emergent Continuous Organizational Change. This model explains how the small-scale ongoing work-unit level changes accumulate to consequential changes on the organizational level. Wee and Taylor argue that modern organizations are continuously changing, and this change is accumulated from small continuous changes on the employee level and in everyday routines. Their multilevel model explains how the small changes in routines form and generate continuous change in organization. (Wee & Taylor, 2018.)

The multilevel model of Emergent Continuous Organizational Change composes of two levels, organizational level and work-unit level. Wee and Taylor

(2018) argue that change in work-unit level routines is amplified and accumulated on the organizational level by managers to continuous organizational change. The single changes are either composed in to converging changes in all the organization or varied changes in different parts of organization. Managerial sensemaking creates the sequencing, time window, pacing and rhythm for the change. According to Wee and Taylor (2018) this bottom-up process leads to interactive change that is emergent from the workforce and develops to organizational level change. (Wee & Taylor, 2018.) It is notable that in this multilevel model employees are not simply change recipients but also active participants in creating and cultivating change. This is a contrast to previous studies and shows the shift in organizational change and organizational change research.

## **2.2 Resistance to organizational change**

Resistance to organizational change can be defined as the actions to maintain the present state in the event of strategic change in an organizational setting (Waddell & Sohal, 1998). According to Dawson (2003) the resistance to organizational change emanates typically from one or more of factors affecting the employee. These factors are substantive change in job, reduction in economic or job security, psychological threat, disruption of social arrangements and lowering of status. Substantive change alters the skill requirements of the job while reduction in job security threatens the employment. Disruption of social arrangements and lowering of status bring new work arrangements, possible change in authority relationships and disrupt the social network of the workplace. (Dawson, 2003.)

According to Li et al. (2016) in management literature research of change resistance can be divided into two categories: individual level and organizational level change resistance. Individual level has its focus on cognitive dissonance theory, psychological contract theory and dispositional resistance theory. Dispositional resistance, as explained earlier, is person's tendency to resist or accept changes in their personal and professional lives. Cognitive dissonance occurs when person cannot be consistent with their attitudes and behaviour which leads to resistance against the cause of dissonance. (Li et al., 2016.)

### **2.2.1 Cognitive Dissonance Theory**

Hinojosa, Gardner, Walker, Coglisier and Gullifor (2017) study the Cognitive Dissonance Theory (CDT) in management research. Their finding is that the theory has been widely used and used both as foundation and supporting theory for studies. It has proven to be useful theory to explain organizational and individual behaviour and for managers to select a solution to counter individual problems. (Hinojosa et al., 2017.)

Li et al. (2016) and before them Jermias (2001) describe cognitive dissonance in organizational environment in the event of an organizational change. They

state that cognitive dissonance emerges from the inconsistency of persons attitudes and behaviours. In organizational change the dissonance arises from the changing behaviour when attitudes are in favour of the present state. To alleviate the dissonance generated by the change employees seek to either change their attitudes or behaviour. (Jermias, 2001; Li et al., 2016.) Even when the change was beneficial to the employees they were biased towards the present state and ignored contradictory information and considered only information that validated their view of the change. This confirmation bias led to employees retaining their prior attitudes and pursuing to continue their preceding behaviour. (Jermias, 2001.)

In Jermias' (2001) study they investigated the confirmation bias towards the present organizational accounting system, the subsequent cognitive bias to the change to new one and how additional information about the effects of change and feedback about employees own performance mitigate the change resistance. The study concluded that people who are committed to certain behaviour are more prone to ignore information in favour the alternative behaviour. This commitment and change resistance can be alleviated by employee participation in change process. The participation in change process allows employees to commit to the change and feel responsible of the success of the process. (Jermias, 2001.)

### **2.2.2 Psychological Contract Theory**

Psychological contract is defined by Li et al. (2016) and by other researchers like Ali et al. (2016), Klaus and Blanton (2010) and Morrison and Robinson (1997) as unspoken contract between employee and organization. A person's psychological contract is the beliefs they hold about unspoken agreement they and another person have made (Klaus & Blanton, 2010). In organizational context psychological contract entails what employee believes their obligations to the employer to be and what they expect the employer's obligations to be to them (Morrison & Robinson, 1997). These beliefs and expectations are distinct to each employee since psychological contract is subjective to the person (Klaus & Blanton, 2010).

Morrison and Robinson (1997) present the process how violation of psychological contract develops in organizational environment. First, organization breaks its perceived promise to the employee by providing less than the employee believes to be promised. The employee then considers how well promises are kept in a comparison process. If employee concludes that they have contributed accordingly but the employer has failed to reciprocate, and employee feels that breach is severe enough they will determine that a violation has happened. (Klaus & Blanton, 2010; Morrison & Robinson, 1997.)

Li et al. (2016) explain that violation of psychological contract in change process occurs when organization expresses conflicting demands to employees or change alters the perception of equality in the contract. Renewing the psychological contract and increasing the fulfilment of organizations promises increases the employee's acceptance of change. (Li et al., 2016.) Klaus and Blanton (2010) state that change in employees' tasks, in the amount of tasks or the environment



where tasks are performed can result in psychological contract violation. This violation according to them may become the justification for change resistance behaviour. (Klaus & Blanton, 2010.)

### 2.2.3 Dispositional Resistance Theory

Laumer et al. (2016a) divide the user resistance into three factors: user resistance behaviour, resistance to change and dispositional resistance to change. Dispositional resistance is defined as the person's tendency to react negatively to change and tendency to resist changes in general. (Laumer et al., 2016a.) Oreg (2006) conceptualizes resistance to change as three-dimensional attitude towards an organizational change. These dimensions are the Affective, Behavioural and Cognitive resistance, as mentioned earlier in this chapter. Oreg (2006) also studies the personality of the change recipient and the context of change as antecedents of the change. The study verified the Resistance to Change scale consisting of four-facet structure that affect the employee's personality and disposition to resist change. These four dimensions are routine seeking, emotional reaction to imposed change, short-term focus, and cognitive rigidity. (Oreg, 2006.)

Oreg's (2003; 2006) studies also show that the Resistance to Change scale predicted change resistance in varied contexts. The latter study (Oreg, 2006) concludes that the individuals personal traits and change context affect the change resistance. It shows that some employees are more inclined to anticipate negative outcomes despite the context of change when other consider the context more. Anticipated negative or positive change outcomes affect the Affective and Cognitive resistance decreasing or increasing its occurrence. Factors in the process, such as good management and positive social effect influence the Behavioural resistance decreasing the resistance behaviour. (Oreg, 2006.)

Laumer et al. (Laumer et al., 2016a) advance Oreg's (2006) model for dispositional resistance to change. In the model the resistance is divided into four dimensions: routine seeking, emotional reaction, short-term focus, and cognitive rigidity. These dimensions of dispositional resistance are according to Laumer et al. (2016a) significant predictors of individual's perception on the mandatory organizational change. Especially emotional reaction has strong effect on change resistance, and it is the manifestation of the dimension of dispositional resistance to change. Employees that are more inclined to perceive organizational change as stressful and straining have higher tendency to negative emotional reactions and dispositional resistance. (Laumer et al., 2016a.)

Hon, Bloom and Crant (2014) examine the dispositional resistance to change in a work environment. Their research verify that employee's dispositional resistance can have adverse effects on creative performance. The negative effects of change resistance could be overcome by social-contextual factors which Hon et al. name climate for modernity, empowering leaders, and supportive co-workers. These factors were proved to help reduce the impact of change resistance to employee creativity. (Hon et al., 2014.) Laumer, Maier, Eckhardt and Weitzel (2016b) study the work routines as an object of resistance and how employees'

dispositional resistance affects the resistance. They continue to use the Oreg's (2003) scale to measure dispositional resistance. Their findings implicate that the employees' preconception of the IS and more importantly how it will affect their work routines were strong predictors of change resistance. (Laumer et al., 2016b.) These findings prove that negative preconceptions and disposition to resist changes predict change resistance and negatively affect employees' creative performance.

## **2.3 User resistance**

User resistance is considered one of the major reasons why IS and IT projects fail since its intention is to prevent the implementation of the undesired information system (Ali et al., 2016). User resistance is defined as behavioural reaction to change in organizational IS that is deemed somehow negative to the change recipient. Resistance can manifest as apathy, passive resistance, active resistance, or aggressive resistance. (Meissonier & Houz , 2010.) The concept of user resistance draws from psychology and management literature. The psychological side defines user resistance as individual's avoidance of changes and management side defines it as behaviour to maintain the status quo. (Kim, 2011.) It is notable however that these definitions of user resistance do not include the notation of beneficial or neutral change resistance. User resistance is seen as mostly negative and adverse reaction to change in IS and IT when psychology and management literature appear to accept the change resistance more generally as a sign of possible problems in the change initiative.

Lapointe and Rivard (2005), Rivard and Lapointe (2012) and Selander and Henfridsson (2012) introduce the five aforementioned change resistance primitives in IS context. User resistance starts to form when the new system is assessed in interaction with the initial conditions. Initial conditions refer to the personnel's perception of established work routines and organizational structure. Object of resistance is the new IS or its connotation to the organization or the persons who advocate the change. Subject of resistance is the person or group in opposition to the new system. (Lapointe & Rivard, 2005; Selander & Henfridsson, 2012.)

### **2.3.1 Three theories of user resistance emergence**

According to Markus (1983) there are three theories why resistance occurs: person's or group's internal factors, external factors or interaction between the system and the people using it. These theoretical perspectives are identified as people-oriented, system-oriented and interaction theories (Ali et al., 2016; Jiang, Muhanna, & Klein, 2000; Joia, de Mac do, & de Oliveira, 2014; Klaus & Blanton, 2010; Li et al., 2016). Markus (1983) gives interaction perspective two variants, which are socio-technical, and power and politics variant. Socio-technical variant focuses on changes the systems causes on organizational tasks and distribution of

work activities while power and politics variant focus on changes in the power distribution inside the changing organization. (Joia et al., 2014; Klaus & Blanton, 2010; Markus, 1983.)

Hirschheim and Newman (1988) describe causes to change resistance, which are innate conservatism, lack of felt need, uncertainty, lack of involvement in the change, redistribution of resources, organizational invalidity, lack of management support, poor technical quality, personal characteristics of the designer and other causes of resistance (Hirschheim & Newman, 1988). From these, innate conservatism, lack of felt need and uncertainty can be described as people-oriented causes of resistance, since they cover the person's feelings about change. Lack of involvement in the change, redistribution of resources and lack of management support are interactional reasons to resist change because they arise from the interaction of the system and the employees using it. Organizational invalidity and poor technical quality are system-oriented reasons for resistance because they describe the poor quality of the system or its lack of fit to the organization and its practises. Ali et al. (2016) describes similar reasons for resistance, but names them as distorted perception, low motivation for change, lack of creative response, political and cultural deadlock and other sources of resistance (Ali et al., 2016).

### **2.3.2 Equity Implementation Model and status quo bias**

Joshi (1991) proposes an Equity Implementation Model (EIM) that explains how user compares their investments to the organization and work, what organization gives to them in exchange and what other users get. This exchange of inputs and its fairness is important to a person and if the new IS changes the precepted fairness of the inputs and outputs it causes distress. User evaluates the change and on the first level of analysis they evaluate the change in inputs and outputs and decide whether the change is positive or negative. On second level of analysis employee compares how them and the organization benefits from the change and is benefit distributed to those who deserve it. On third level of analysis employee analyses the compares their outcomes to those of other employees. If the user feels that other benefit more from the change, they will see it as unfavourable to themselves. (Joshi, 1991.)

EIM is very similar to the psychological contract mentioned before (Li et al., 2016). Both theories explain the resistance arising when user of the system feels that the implemented information system disturbs the exchange of resources with organization and changes it to be unfavourable to the user. EIM is also used in Kim and Kankanhalli's (2009) cost-benefit analysis of change in how user evaluates change. In cost-benefit analysis switching costs consist of transition costs, uncertainty costs and sunk costs and refer to user's increased inputs and decrease in outcomes when changing the IS. Accordingly, switching benefits refer to user's decreased inputs and increased outcomes when changing the IS.

Kim and Kankanhalli (2009) also utilize the concept of status quo bias to explain the reluctance towards change. Change can evoke feelings of anxiety,

uncertainty, and stress, which leads users to underestimate the switching benefits and overestimate the switching costs. This misinterpretation causes user to assess the present situation as more favourable than the anticipated change outcome, which is considered as status quo bias. (Kim & Kankanhalli, 2009.)

### **2.3.3 Multilevel Model**

Lapointe and Rivard (2005) propose a multilevel model to explain how user resistance emerges from the individual level behaviour to group level resistance. In the early stages of IS implementation individual resistance is more important to understand, since in the early stages the resistance arises from individual basis. In later stages of implementation group level resistance arises both from the individual reasons and group level reasons to resist the change. The resistance might be more severe when the threats are more concrete and affect a whole group of people at the same time. (Lapointe & Rivard, 2005.)

Lapointe's and Rivard's (2005) findings prove that at earlier stage of IS implementation resistance emerges on the individual level. The resistance is more concrete and based on actual problems in the system and is aimed at the features of the system. They determined that inappropriate managerial responses to early stage resistance incites group resistance in later stages and politicizes the resistance. The adaptation of the system and resistance management is easier in the early stage when resistance is oriented towards the system. This mitigates the resistance in later stages and prevents it from escalating to group level resistance. (Lapointe & Rivard, 2005.)

Kim (2011) combines the multilevel model, EIM and status quo bias in their study to classify subtypes of switching costs and to analyse the subtypes based on both EIM and status quo bias. Kim wants to expand the knowledge of different subtypes of switching costs and test their effects on user resistance. The study extends previous research in proposing that switching costs have multiple dimensions and identifies those as causes for user resistance. The study also validates the status quo bias research on how switching costs cause resistance and the multilevel nature of user resistance origins. (Kim, 2011.)

### **2.3.4 Resistance behaviours**

Shang (2012) describes more closely the resistance behaviours with which users respond to the change. Shang mentions non-destructive, aggressively destructive, and passively destructive behaviours which pursue to resist new system either by eliminating contact with it, directly damaging its processes, or passively damaging the processes. (Shang, 2012.) Non-destructive resistance avoids using the system and partaking to the training, while aggressively destructive resistance aims to directly sabotage the work processes associated with the project and the system. Passively destructive resistance delay learning the new work processes or neglect to adhere to them. (Shang, 2012.) Hirschheim and Newman (1988) similarly divide resistance behaviour to three categories: aggression, projection and

avoidance. Aggression is the intent of harming the system, projection is the act of blaming the system for difficulties and avoidance is the attempt of not using the system. (Hirschheim & Newman, 1988.)

Meissonier and Houzé (2010) and Lapointe and Rivard (2005) give four resistance behaviour categories, or levels according to Lapointe and Rivard. Their categories are apathy, passive resistance, active resistance and aggressive resistance. Three latter categories correspond with the ones mentioned by Shang (2012) but the category of apathy differs from Shang's list. Apathy is defined as disinterest and inaction (Meissonier & Houzé, 2010) and distance and lack of interest (Lapointe & Rivard, 2005) towards the new system.

Beaudry and Pinsonneault (2005) study user appraisal of IT and IS change in their research for the Coping Model of User Adaptation (CMUA). Their model explains four adaptation strategies and how users choose them to adapt to IS and IT change. They argue that the adaptation strategy is chosen by primary and secondary appraisals, which are expected consequences of IS change and user's control over the change, respectively. The model has predictive power on user behaviour in the event of IT driven change and it can be used to understand emergence and reasons behind user resistance behaviour. (Beaudry & Pinsonneault, 2005.)

### 3 INFORMATION SYSTEMS DEPLOYMENT

Information systems are developed with projects that range from uncomplicated to extensive and complex. Information Systems Development Life Cycle (ISDLC or more concisely SDLC) describes the different phases of IS development, which are concept, requirements, design, implementation, integration and testing, system installation and maintenance or support phases (Taylor, 2004, p. 41-43). In this research the focus is on the implementation phase and information system deployment. The context was chosen since the major part of literature addresses the IS implementation process and user resistance towards the deployment in the implementation phase.

According to Laumer et al. (2016b) IS implementation is an organizational change aimed at diffusing information technology within the organizational users. Three strands of implementation research have analysed the implementation process itself, the impact it has on the organization and the employees' reactions to it. The research on the impact of IS implementation has demonstrated that systems only provide value to organization when other resources are aligned with it. This entails the human resources, group organization, work routines and other elements in the organization. The third strand of research has studied the user resistance and its antecedents and how to respond and counter it. (Laumer et al., 2016b.)

#### 3.1 Information Systems deployment

Implementation is the phase in SDLC when the system is deployed and the required changes in the organization are executed. Brown, Chervany and Reinicke (2007) divide implementation into five stages: initiation, adoption, adaptation, acceptance and infusion. In the initiation stage organization detect the need for new information system to solve business problems or create new opportunities. Adoption aims to elicit user requirements, organizational support, and resource allocation for the system. The system is developed and deployed during the

adaptation stage and then the affected organizational structures needed to capitalize the benefits are adjusted. According to Brown, Chervany and Reinicke (2007) acceptance stage entails the actual usage of the system in daily work activities. The benefits of the system actualize in the infusion stage when the business problem or opportunity is resolved. (Brown et al., 2007.)

Brown, Chervany and Reinicke (2007) use rather precise definitions for implementation stages in their research. Other researchers have divided implementation to only to pre-implementation, implementation and post-implementation phases (Beaudry & Pinsonneault, 2005; Laumer et al., 2016b) and others make the division only to early stage and later stage implementation (Lapointe & Rivard, 2005; Rivard & Lapointe, 2012). Some researchers address only pre-implementation phase to focus their studies on understanding the user resistance antecedents and ways to counter it (Kim & Kankanhalli, 2009; Meissonier & Houz , 2010). Other researchers discuss the information systems implementation as a one phase and not as sequential phases (Joshi, 1991; Joshi, 2005; Selander & Henfridsson, 2012).

Tyre and Orlikowski (1994) argue that there is only short period of time for users to adopt the usage and routines of the new IS. This period may be only months after the initial deployment and after that changes to the new system become harder to implement and ingrain the new routines. The benefits of the new system and organizational change might not actualize fully, and the system might not be used to full extend. (Tyre & Orlikowski, 1994.)

### **3.2 Information Systems success measurement**

The IS success is described by DeLone and McLean (2003) as systems quality, information quality and service quality, which influence the intention to use, actual use and user satisfaction which in turn lead to net benefits of the IS. A system is deemed as a failure when it does not fit the requirements, its implementation uses more resources than planned and it is not used adequately or at all. (DeLone & McLean, 2003.) Lapointe and Rivard (2005) mention that while user resistance does cause IS implementations to fail, it isn't always negative outcome. If system has undesired features or it is flawed, user resistance might halt the implementation project and prevent unfavourable consequences. (Lapointe & Rivard, 2005.)

Jiang, Muhanna and Klein (2000) and Oreg, Vakola and Armenakis (2011) suggest that user involvement in IS change alleviates the resistance and enables successful implementation. However, He and King (2008) studied the user involvement in the ISD and determined that user involvement in the projects doesn't improve the perceived project success. Particularly end-user involvement from the early planning stage on proved to have little to no impact on the success rate. User expectations and user anticipatory readiness however were shown to have a clear impact on IS project success and user attitude and anticipations towards the project are a critical factor to the success of the project. User expectations and anticipatory readiness were shown to have more impact in the

early planning stages of ISD and the impact diminished in the later implementation stage. (He, J. & King, 2008.) This is supported by Oreg, Vakola and Armenakis (2011) who emphasize trust, commitment and open organizational culture as change resistance reducing factors. To achieve trust, Oreg, Vakola and Armenakis suggest managers to adopt a supportive and participatory stance to the change process. This increases the user co-operation and changes for the ISD to succeed. (Oreg et al., 2011.)

### 3.3 User resistance to implementation

As mentioned earlier, IS user resistance research is usually divided to system-oriented, people-oriented and interaction approach based on where the resistance is deemed to arise from (Ali et al., 2016; Markus, 1983). Lapointe's and Rivard's (2005) multilevel model of resistance describes how resistance against IT implementation emerges from individuals to group resistance and how the resistance varies during different phases of implementation. They posit at introduction users assess the system and make predictions about its impact on their work tasks. If during implementation something alters balance of power between change recipient groups, it also alters the resistance. (Lapointe & Rivard, 2005.) Similarly Joshi's (1991) EIM describes how users evaluate the impact of the implementation to their net gain and that of others and how user resistance arises from the experienced inequality between change recipient groups.

Joia, de Macêdo and de Olivera (2014) use the abovementioned user resistance approaches in their research. They conclude that in some ISD cases, namely Enterprise Resource Planning system cases, people variant may be reduced to individual level i.e. single employee's personal biases causing resistance. They also remark that different persons have different biases and employees should not be considered as one homogenous group. (Joia et al., 2014.) Laumer et al. (2016a) prove that dispositional resistance explains the variation between users in their tendency to resist new IS. Their study indicates that disposition to resist predicts resistance behaviour better than age, gender, or work experience. This according to them explains why even a well-suited system might encounter resistance in an organization. (Laumer et al., 2016a.)

Kim & Kankanhalli (2009) study pre-implementation user resistance from theoretical perspective. Their study on status quo bias reveals the importance of colleague opinion and self-efficacy as antecedents to switching costs and perceived value of IS change and organizational support as antecedents to user resistance. Their conclusion is that these determinants decrease switching costs and thus decreases user resistance already during pre-implementation. They suggest that management can alleviate implementation resistance beforehand by providing organizational support on individual level to accept and support the new IS. (Kim & Kankanhalli, 2009.)

Meissonier and Houzé (2010) give a different perspective to early implementation stage resistance in their study. According to them employees are



prompted to present unspoken reasons to resistance and confront the change when management adopts more passive role in resistance resolving. Accepting and allowing the resistance to manifest and even reinforcing it helps predicting and resolving later problems. Their conclusion is that resistance is an integral part of IS change and it should be addressed as such. (Meissonier & Houzé, 2010.)

### **3.3.1 User resistance counter measures**

User involvement in the ISD and IS implementation is seen as a counter measure to user resistance in many studies. However, He and Sheu (2014) argue that user involvement in ISD doesn't improve the chance of success. Their findings show that supportive organizational culture is the most critical success factor, since it ensures management support, positive attitude towards change and transparent leadership in the organization concerning changes. This aids in managing user expectations which when clarified early on increase the chance of successful IS implementation. They argue that user attitude towards information system is more crucial to the success than user involvement since positive attitude seldom creates resistance. (He, X. J. & Sheu, 2014.)

Rivard and Lapointe (2012) present four categories of user resistance responses: inaction, acknowledgement, rectification and dissuasion. Inaction is the managements unawareness, ignorance, or inability to act on the resistance. Acknowledgement entails management knowing of the resistance and listening to the reasons behind it, but not really hearing and acting upon the concerns. Both inaction and acknowledgement increase user resistance by decreasing trust to the organization and change implementers and increasing the perceived threats to employees. Rectification approach to resistance aims to correct either the system, the environment, or the users by changing the system, adding personnel, and abandoning the old system and providing explanation and training about the new system. Dissuasion is the coercion or persuasion of employees to use the system and it is deemed as twofold response to resistance, since it requires credibility from the management. Rectification is an effective mean to alleviate user resistance, but only when it is aimed right. Training or increasing personnel will not help when the system is flawed and correcting the system will not help when there are not enough personnel. In cases like these rectification increases user resistance. (Rivard & Lapointe, 2012.)

Jiang, Muhanna and Klein (2000) study IS acceptance and strategies for promoting it across system types. They found out that different systems provoke different reasons for user resistance: decision support systems (DSS) are resisted because they alter the decision-making process and transaction processing systems (TPS) are resisted because suspected loss of power, status, and employment. Change in job content and general uncertainty were reasons to resist both types of IS. Countering user resistance requires involving employees, open communication, and sympathy, change info, rewarding new ideas, documented standards, and retraining employees. These countermeasures are for both system types but

TPS resistance additionally requires time to adjust to the change, clear authority, and orientation. (Jiang et al., 2000.)

Shang (2012) studies the difference between managerial and operational user resistance. Operational user resistance is usually non-destructive and can be countered with directive responses guiding users of use of the new system. Managerial user resistance is more often destructive and participative responses to engage users in the change process are more effective to counter it. (Shang, 2012.)

## 4 STARTUP ORGANIZATIONS

The term software startup and startup as a way of conducting business emerged from studies like Carmel's (1994) study about young software package firms. Since then startup organizations and specifically software startups have garnered considerable amount of attention from both business and scientific communities. With their books, Ries (2011) and Blank (2013a) have presented the practitioners side of the startup business and defined the lean startup way of conducting business. Researchers like Sutton (2000), Crowne (2002), Coleman and O'Connor (2008) have examined software startups in more analytical way. More recently researchers have compiled mapping studies and models of startup organizations and software development in them (Berg, Birkeland, Nguyen-Duc, Pappas, & Jaccheri, 2018; Giardino, Paternoster, Unterkalmsteiner, Gorschek, & Abrahamsson, 2016; Paternoster, Gorschek, Abrahamsson, Giardino, & Unterkalmsteiner, 2014; Unterkalmsteiner et al., 2016).

The definition of startup company is still forming despite the frequent use in business and research environment alike. Ries and Blank describe the lean startup approach to business. According to Ries (2011) startups are human institutions intended to create a service or a product under extreme uncertainty. Blank (2013a, p. 15-17) posits that startup companies are looking for a business model instead of executing a premeditated business model. Both emphasize that startups are not traditional business organisations and therefore traditional business models and strategies do not apply to them. Ries and Blank also regard lean startup as a useful method for business initiatives within larger companies and organizations that need to establish customers to a new product. (Blank, 2013a, p. 15-17; Ries, 2011.)

Researchers somewhat conform to practitioners' view of software startups however they also extend and define the concept of startup company. Carmel (1994) studies young software package companies and names them as startups. They conclude that successful startups have a core team who are motivated and have comprehensive expertise in software development. Other two characteristics that drive startup success are incremental innovation and extra effort during pivotal times. (Carmel, 1994.) Sutton (2000) lists more characteristics of startup

companies which are youth and immaturity, limited resources, multiple influences, and dynamic technologies and markets. Crowne (2002) sees startup more as a phase than a type of company. He states that startups arise from entrepreneur's vision how to answer a business opportunity with a small managerial team. The team may employ staff but usually they lack the necessary funds for additional workforce. Small team enables working in same location and rapid face to face communication between individuals. (Crowne, 2002.)

Coleman and O'Connor (2008) describe startups having very limited resources, lacking a business model and concentrating on surviving the markets rather than creating formal procedures. Giardino et al. (2014; 2016) and Berg et al. (2018) concur with previous research in their definition and Giardino et al. (2014; 2016) add that startups aim at developing innovative products and to swiftly scale and evolve their business. They also suggest that startups typically have only one product, are depending on a third party for resources and are relying on external funding. Startup teams according to them have low-experience level and are lacking a well-formed organizational culture but are quick to react to changes in the market, technology and business if required. (Giardino et al., 2014; Giardino et al., 2016.) Startup organization characteristics derived from research are summarized in the Table 1 below.

TABLE 1 Summary of the startup characteristics

Characteristic	Definition	Source
Young, Immature	Newly established, short history of operations	(Berg et al., 2018; Carmel, 1994; Crowne, 2002; Giardino et al., 2014; Sutton, 2000)
Small size	Core team of skilled people who are all responsible of the operations	(Coleman & O'Connor, 2008; Crowne, 2002; Giardino et al., 2014)
Limited Resources	Lack of workforce, funding, and other resources	(Berg et al., 2018; Coleman & O'Connor, 2008; Giardino et al., 2016; Sutton, 2000)
External Funding	Funding from angel investors, venture capitalists etc.	(Crowne, 2002; Giardino et al., 2014)
Multiple Influences	Influences from the customers, investors. etc.	(Berg et al., 2018; Giardino et al., 2016; Sutton, 2000)
Innovation, New Technologies, and Markets	Startups react quickly to changes in technology and markets and strive to innovate	(Berg et al., 2018; Carmel, 1994; Crowne, 2002; Giardino et al., 2014; Sutton, 2000)
Uncertainty	Markets, competition, customers, finance, and product features are uncertain	(Coleman & O'Connor, 2008; Giardino et al., 2016)
Lack of Formality	Communication, processes, and practises are informal and not defined, no upper management	(Berg et al., 2018; Coleman & O'Connor, 2008; Crowne, 2002; Giardino et al., 2014; Giardino et al., 2016; Sutton, 2000)

Swift Scaling and Evolving	Aim to rapidly scale and advance operations	(Berg et al., 2018; Carmel, 1994; Giardino et al., 2014)
Expertise in Selected Domain	Prior expertise, knowledge, or interest in the selected business	(Coleman & O'Connor, 2008; Crowne, 2002; Sutton, 2000)
High Risk	Startups are very likely to fail	(Berg et al., 2018; Giardino et al., 2014)
Time pressure	Products must be released quickly due to demand from customers and pressure from competitors	(Berg et al., 2018; Giardino et al., 2014; Giardino et al., 2016)

Giardino et al. (2014) mention high reactivity, third-party dependency, developing only one product, low-experience and little working experience as recurrent themes in software startups. (Giardino et al., 2014.) These themes are not included in the table since they could be included in other definitions of startup. Low experience and little working experience also contradict the other studies which argue that software startup entrepreneurs and personnel have prior interest and expertise in software business.

In conclusion startup companies and organizations are regarded as recently established, small and lacking resources but innovative and quick to react to changes in the markets. The team in startup organization lacks formality in their structure and have prior knowledge in their sector. They are driven to scale and grow fast and evolve their business model. Startups are influenced by the markets, customers, competitors, and investors which they depend on for external funding and resources. In their operations startups face uncertainty, high risks, and time constraints to develop their business and product.

#### 4.1 IS change and resistance in startup organizations

Working in startup organization demands flexibility and aptness to adapt in changing situations (Giardino et al., 2014; Paternoster et al., 2014). This adaptation is continuous and rapid since startups are by nature susceptible to change. Startup management often requires teams to be independent and change their direction and ways of working when need arises. (Paternoster et al., 2014.)

Coleman and O'Connor (2008) found in their study that in software startup companies the establishing of development process depends considerably on the person in charge of process management. They posit that the prior experience and other personal characteristics of the manager are essential to defining successful software process. (Coleman & O'Connor, 2008.) Giardino et al. (2016) also suggest the importance of employees' personal traits in software startups. They argue that skilled workforce acts as a development catalyst promoting development. These skills and personal traits include both occupational expertise and personality traits. (Giardino et al., 2016.)

Startup organizations and companies are dominantly very small and lack in resources and they usually acquire commercial off-the-self (COTS) information systems. Startup organizations circumvent the development phases in SDLC by using COTS systems (Giardino et al., 2014). This way they only need to focus on deployment of the system. Most of the literature focuses on systems development and deployment in larger organizations and more mature and established companies than startup companies generally are. Research on startup companies has centred on IS developed by startups and how it differs from traditional SDLC rather than how startups themselves harness IS.

Davila, Foster & Ning (2010) studied the adoption of management control systems in early-stage startup companies and discovered that adopting these systems reinforces startup growth. They also mention that startup founders and CEO's who are reluctant to adopt management systems are more likely to be replaced. (Davila et al., 2010.) Similarly Unterkalmsteiner et al. (2016) mention the need for startup support tools to aid the organization in processes and activities. They explain that while there are many support tools startup companies and their management may lack the experience and resources to adopt them. They also discuss the need for skilled workforce who can adjust to changes quickly. (Unterkalmsteiner et al., 2016.)

Researches mentioned above confirm the startup organizations' need for employees who are ready and willing to adapt to changes fast. They also support the notion that the personalities of workforce and their disposition to change play a role in their success in the startup organization and the success of the startup. Startup companies may have to introduce new IS and ways of operating in short notice. In situations like this, employees who are more dispositioned to resist changes are a disadvantage to startup companies. It seems logical that startup organizations favour and employ flexible and open-minded personalities to counter change resistance.

## 4.2 Theoretical Framework

The theoretical framework for this study is drawn from user resistance and IS implementation theories and startup organization research and practice and it is presented in Figure 1. As mentioned in the Table 1, startup organizations are described to operate in high uncertainty, to lack formality and aiming to rapidly scale and evolve their business. Organizational change is defined as the adjustment of current work routines and startup organizations are seen to be in a state of continuous organizational change. Continuous change leads to need for employees who are ready to change their ways of operating in a very short notice (Unterkalmsteiner et al., 2016). Need for flexibility causes people that are less dispositioned to change resistance to be selected as the workforce as flexible personalities are less prone to resist change (Barak, 2018; Blank, 2013b).

Disposition to change resistance is according to scholars (Laumer et al., 2016a; Oreg, 2003) a four-facet structure consisting of routine seeking, emotional

reaction, short-term focus and cognitive rigidity. These concepts of dispositional resistance predict the occurrence of change resistance behaviours and change resistance in organizational setting. Change resistance behaviours are divided into four categories: apathy, passive resistance, active resistance and aggressive resistance (Lapointe & Rivard, 2005; Meissonier & Houz , 2010). The manifestation of change resistance behaviours can be a sign of authentic concerns regarding the change or sign of dispositional resistance. When discerning between justifiable and dispositional change resistance the variables of age, gender and working experience indicate if the resistance behaviours are based on concerns of the change impact or assumptions of the disadvantages caused by the change. (Laumer et al., 2016a.)

Theoretical framework is presented in the Figure 1 below. It shows the different components of this study and the relationships (A-E) between them.

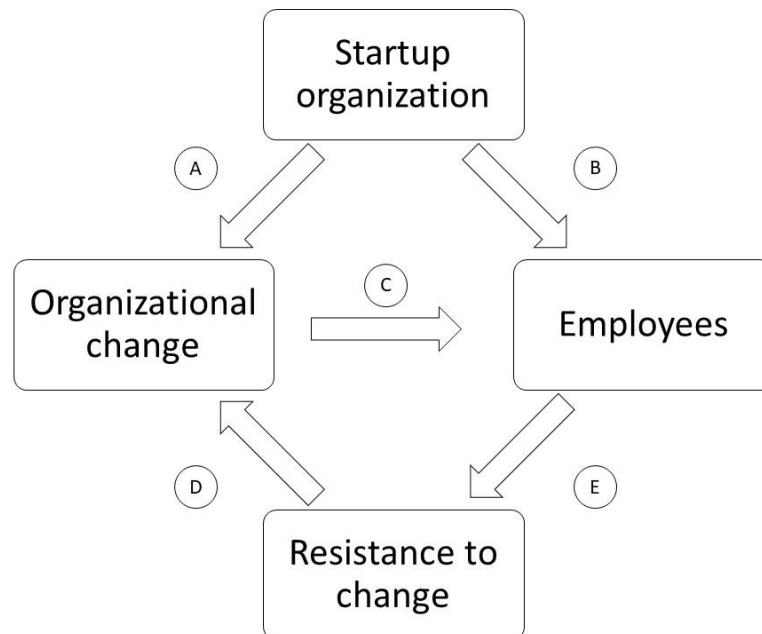


FIGURE 1 Theoretical framework of the study

The relationships are explained as follows:

- A. Due to nature of startup organizations, they are constantly changing their ways of operation.
- B. The nature of startup organizations also affects the type of workforce they attract.
- C. Organizational change affects the employees and their view of the fulfilment of the psychological contract between them and the organization.
- D. Resistance to change can alter the way change is conducted or cancel it entirely.

- E. Employees' different dispositions to change affect the way they react to change and what resistance behaviours they express.

In the context of this study the theories of Cognitive Dissonance and Psychological Contract are a grounding from where to examine the user resistance in startup organizations. The assumption is that employees in startup companies are less likely to experience cognitive bias and dissonance during changes (Jermias, 2001). The employees' Psychological Contract towards the company is presumed to be stronger than in regular organizations. The contract entails the unspoken obligations of the employee believes themselves and the company to share (Morrison & Robinson, 1997). In startup companies and organizations employee commitment is a desired and encouraged aspect of operations (Ries, 2011).



## 5 RESEARCH APPROACH

The objective of this master's thesis is to investigate the IS change resistance in startup companies and organizations. The study is an exploratory study using qualitative approach to clarify startup companies' views of change and change resistance in their organizations. The data was collected from IS and IT startup companies using semi-structured interview method in Jyväskylä between December 2019 and February 2020. The research approach, methods, questions, and data collection and data analysis are presented and discussed in this chapter.

### 5.1 Research approach and method

Research approach in this study is qualitative to understand the phenomenon of change resistance in startup organizations. Qualitative research methodology aims to assemble exploratory understanding about the phenomenon in situations where prior knowledge is limited. This methodology provides understanding of the social interpretations and insights of reality, and as such is a valuable approach studying both IS and business phenomena. (Eriksson & Kovalainen, 2008; Myers & Avison, 2002; Stake, 2010, p. 11-18.)

Qualitative research approach was chosen for its ability to uncover new information and bring forth new viewpoints considering the IS change resistance in startup organizations. As stated in the theoretical literature review the majority of IS change resistance research has been conducted in larger and more established companies. Therefore, there is limited prior knowledge of the phenomenon of change resistance in startup companies. Qualitative approach offers the opportunity to gather new information from the startup organizations and create understanding of the resistance phenomenon.

Interviews and other qualitative methods are a stable part of IS and business research. Semi-structured interviews, also known as guided or half-structured interviews, may be utilized when researcher wants to examine specific topics and give the interviewees the opportunity to submit new topics and aspects related

to the phenomenon at hand. The researcher is then able to uncover different outlooks on the research problem. (Eriksson & Kovalainen, 2008; Myers & Avison, 2002.)

Semi-structured interviews allow room for additional or modified questions depending on the interviewee's answers. This can help uncover new information and insights about the subject of the study. Since the IS resistance to change in startup organizations is less studied phenomenon, semi-structured interview is justifiable method for this study to examine the occurrence and prevalence of change resistance.

### 5.1.1 Research question

Research question for this master's thesis is:

- Does user resistance towards IS change in startup companies differ from user resistance in established companies?

This research question was chosen for this study based on the previous literature and empirical research to complement it regarding startup organizations. It defines the purpose of this study to examine the possible differences in change resistance in startup organizations to that of change resistance in more established organizations. The question also guides the research of the change resistance to that of IS change.

## 5.2 Data collection

The data for this research was collected between December 2019 and February 2020 with semi-structured interviews. The interviewees for this study were selected from startup companies in the Jyväskylä area. The data sample was limited to companies operating on IS line of business to elicit professionally well-informed answers. Similarly, the sampling was limited to more established and mature organizations to obtain a broad view of the change resistance in startup organizations during their development. The sample consists of four companies, five interviews, and six interviewees. All but one interviewee had their educational and professional background in IS and IT line of business. Three of the interviews were done by phone and two were done in person. The first in person interview had two interviewees from the same company, other interviews had single interviewee each.

Interviews were done using ten interview questions selected beforehand and possible additional clarifying questions were asked if needed. Each question was presented to each of the interviewees although phrasing and order of the questions was adapted to suit the flow of discussion. The questions and interviews are in Finnish but the questionnaire and the quotes from the interviewees are

translated to English for this study. The questions are included in this research as Appendix 2 in Finnish and Appendix 3 in English and they are discussed in detail in the next subchapter.

### 5.2.1 Interview questions

The ten interview questions chosen for this study were based on the theoretical framework. The connection between questions and the framework is presented in Figure 2. In the figure question number is presented with the concept or concepts it concerns. Some questions had defining additional questions included in the list of questions, other questions had additional questions added during the interview if needed. Only the main questions are included in the figure.

The first question explores the background information about the interviewee and their educational and professional background and the startup company's background, employee base and their educational and professional background. Questions from second to sixth discuss the organizational change or changes startup organization has experienced, when these changes occurred, their origin, extent, and effect on organization and how they were dealt with.

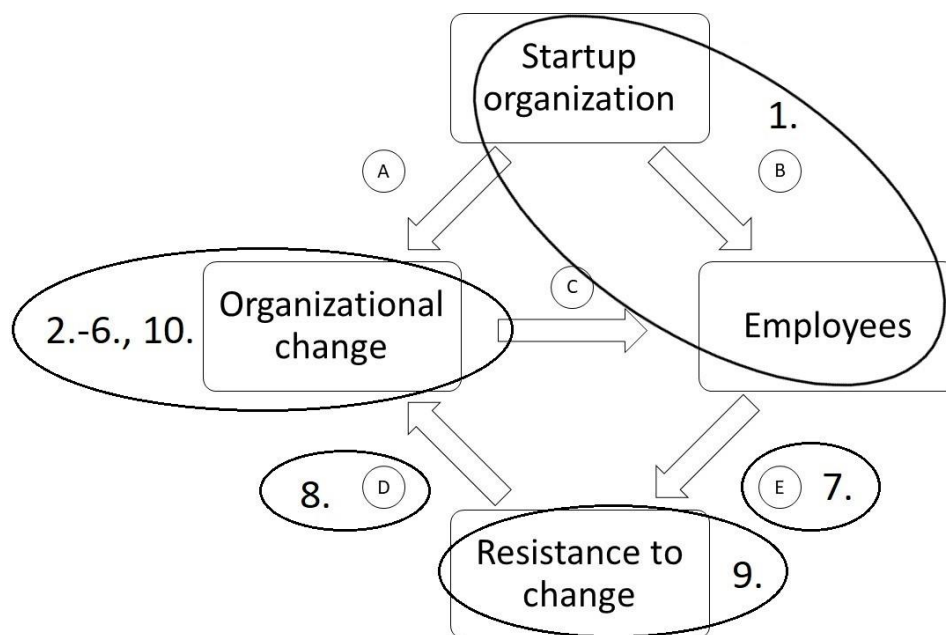


FIGURE 2 The interview questions presented with related concepts in the theoretical framework

Seventh question examines the personnel's disposition to change resistance, relationship E in the Figure 2. Eighth question examines the relationship D which is the change resistance's and employees' effect on the organizational change. Ninth and tenth question explore the possible change resistance and its types and the outcome of the change in organizational practises.

### 5.3 Data analysis

Research data in qualitative research is divided into primary and secondary data. Primary data is collected by the researcher themselves and secondary data is the empirical data obtained from other sources without the researcher's participation in collecting it. (Eriksson & Kovalainen, 2008.) Data analysis in qualitative studies is performed alongside the collection of data and it is an iterative process requiring returning to the data multiple times. In thematic coding method the empirical data it is organized, thematically coded, and interpreted. (Galletta & Cross, 2013, p. 119-128.) This interpretation leads to categorization of the codes and synthesis of meaning. After this the empirical data is discussed with the theoretical frame of the study and answer to of the research question is proposed. (Galletta & Cross, 2013, p. 119-128; Tracy, 2012, p. 184-200.)

Thematic coding collects patterns and ideas and produces meaning from the data. Gradually these thematic patterns can be grouped into categories by their relationships with each other. This process is iterative and can be repeated multiple times during research. (Galletta & Cross, 2013, p. 119-128.) The relationships of the categories and codes then form meaning from the data and theory together. The conceptual framework formed from the data and theory then provides answers to the research questions. (Galletta & Cross, 2013, p. 119-128.)

In this thesis only primary data collected in semi-structured interviews is used as research data. The interviews were conducted in Finnish to allow the interviewer and interviewee communicate in their native language. This reduces the risk of misunderstandings during the interviews and ensures that interviewees can give precise answers.

The interviews were analysed iteratively during the collection and analyzation phases to allow the initial organization and thematic coding. These codes were then grouped into categories according to the theoretical framework. The categories and the key findings they provided were examined with the theoretical framework to provide answer to the research question and present propositions for future research and practice.

## 6 FINDINGS AND DISCUSSION

This chapter introduces the findings of this master's thesis. First it presents the interviewees and their respective companies in greater detail. Next, the thematic coding of the interview data is explained, and the thematic categories are presented and discussed. Finally, this chapter ties the results of the data analysis together with the theoretical framework and discusses the answer to the research question, and the key findings and their implications.

### 6.1 Interviewees and their organizations

The interviewees for this study were selected to represent IS and IT startup entrepreneurs and personnel in established startup companies. As mentioned in the last chapter, the sample consisted of four companies, five interviews and six interviewees. The organizations are IS and IT companies that offer services for business customers that range from small enterprises to big corporations and government agencies. The companies and their respective services are presented in the Table 2 below together with the interviewees.

TABLE 2 Summary of the interview companies and the interviewees

Company	Interviewee(s)	Services
Company A	Person A1	IT-consulting, cloud services, providing freelancers to companies and project assignments to professionals
Company B	Persons B1 and B2	integrations of multiple information systems in e-commerce and retail
Company C	Persons C1 and C2	frontend development, code-for-hire, and game development

Company D	Person D1	online store platform development, online store application development
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The interviewees are mainly owners and founders in their respective companies, interviewee C2 had been an employee before becoming a partner and interviewee D1 is an employee. All the interviewees have a bachelor's degree or higher from either university or university of applied sciences and all but two have a degree in IS or IT sciences. The interviewee B2 has a degree in economics and D1 has degree in cultural management and production. All the interviewees have been with their companies from very early on, so they have intimate knowledge about the evolution of the company and changes in it.

## 6.2 Interview analysis

During the analysis of the interview data 11 different thematic codes emerged in majority of interviews. These themes were organized into categories according to the concept of the theoretical framework they address. Themes are presented in the Table 3 below together with the categories. The themes cover the personnel's disposition to change resistance and contribution to the change project and possible change resistance behaviours. They also include the types of IS the companies use and what kind of changes have been made to the systems and reasons behind the changes. The change in the organisation is represented in the change source, reason for change, and the speed of change and how it affected the company. Also, the personnel's feedback regarding the change and managements outlook on change are also included to give perspective of how people in the organization view and discuss the change.

TABLE 3 The themes and their categories

Category	Theme
Employee	disposition to change
	contribution to change (other than feedback)
	feedback about change
	change resistance behaviours
IS	types of IS in the organization
	changes in IS in the organization
Change	speed of change
	effect of change
	source and reason for change
Organizational	changes in the organization
	interviewee's or managements opinion of change

During the analysis, the themes were grouped together in categories as presented in the Table 3 above. The categories are named as Employee, IS, Change, and Organizational category due to the nature of the themes they contain. The categories are analysed and discussed in greater detail in next subchapters.

### 6.2.1 Employee theme category

The themes that constitute the Employee category are employees' disposition to change, their feedback and contribution to change and change resistance behaviours. The themes are discussed individually and are presented with excerpts from the interviews translated from Finnish to English.

#### *Disposition to change*

The employees' disposition to change is according to interviewees practical and professional in nature. Interviewees C1 and C2 admit that employees in their organization are open to change and C1 particularly adds that they prefer adjustable applicants when recruiting:

And in certain way it's presented in recruiting so that one chooses persons who give, or at least seem to give, that kind of [open mindedness towards change] feeling. Because if there would be someone who clearly opposes new things in general, new procedures and changes, it would quickly turn out to be really difficult. (Interviewee C1.)

Differences between interviewees arise in the degree of how open to change employees are perceived to be. B2 mentions that employees are commendably positively dispositioned to change and willing to challenge their work conducts and habits to make them more efficient. B1 however thinks that employees display resistance to change everywhere but especially currently in their organization explaining the reasoning behind change is easier. The clarification of the reasoning is achieved through better involvement of employees compared to before.

Interviewee D1 tells about personal differences in reacting to change. According to them some employees are more enthusiastic towards new ideas whereas some want to take time to adjust and familiarize themselves to the new. Some even express doubts of the necessity of the change. This is handled by testing the change in smaller groups before implementing it in the whole company.

Interviewee A1 agrees on the idea of startup employees being more positively dispositioned to change and compares startup organization to their previous work experience in a big publicly listed company:

Well we have just few systems after all so one can't really say that this kind of change resistance that I have seen for example in publicly traded company, where I used to work, which has five to six hundred employees so there it [change resistance] is totally different. So, we don't have that kind of challenges. (Interviewee A1.)

They continue that in their organization they do not have set conventions for operations which helps in preventing change resistance. They also feel that in startup it is easier to try new services and systems because of the possibility to use cloud services and that adds to the employees' more positive disposition to change.

#### *Contribution to change*

Every organization interviewed in this study has involved their employees' in change efforts to decrease and prevent change resistance. The involvement is deemed to have positive impact and to advance the change. Interviewees B1 and B2 mention the participation of some single sceptical employees in change projects and the benefit of employee involvement is recognized by all interviewees.

In startups, or at least in our [company], the 'why' something is done, the reasoning and involvement of people in the decision making is easier in a small group. And then people are more committed when they have had the change to influence the decision. (Interviewee B1.)

If there is a signal [from employee] that this software could be changed or that I don't like this present software, so this person is, if not directly placed as project leader, is at least set to take part in the selection of the new software. (Interviewee B2.)

Using small groups to bench test the new IS and prepare for the change is used in interviewees' C1, C2 and D1 organizations before launching the change in the whole organization.

#### *Feedback about change*

Employee feedback about change is collectively seen as positive and constructive. Interviewee A1 explains the culture of open communication in their organization when questioned about discussing with employees about changes:

Yes, yes, they are [changes are discussed], we in general have an open communication and experimentation culture. So, if someone wants to try something it is urged and then communicated. Those kinds of comments and discussions take place in our communication channels or face to face if we have some events together. And everybody can make their voice heard and give suggestions and try things out. (Interviewee A1.)

Interviewees B1 and B2 share the notion of employees giving valuable feedback and at times constructive criticism. According to them employees are keen to propose improvements and new ideas.

In company C the growth has changed daily communication with employees. C1 tells how before one could see all ten employees every day and they could tell about their problems. Now with more employees they might not have the chance to see everyone and feedback may not reach management. To keep track



on general level what employees think the company conducted a technology questionnaire among the employees:

We had a technology poll at the beginning of last year to map people's opinions. There was questions about favourite and disliked technologies, there was maybe three favourites and three dislikes. It could be any technology, so that we didn't limit it to anything. (Interviewee C2.)

According to interviewees this poll had only a small effect on the changes in organization, but they admit that if there had been clear resistance towards any intended change, they would have reconsidered it. Interviewees C1 and C2 also see that as a technology company they themselves have knowledge to assess different options and their viability:

But in a way me and C2 can assess that thing [potential change] very objectively ourselves. Of course, if we didn't have the professional skills, we would listen to it [the employee opinion] more. (Interviewee C1.)

I believe that there is trust in the choices we have made. Although there is new things coming, by trusting us one can think that they have determined this is certainly better [than the previous technology or system]. (Interviewee C1.)

Interviewee D1 gives the only somewhat differing answer to employee feedback. According to them the initial feedback to change may be somewhat sceptical and doubts of the necessity of the change can arise. This type of feedback is especially present in situations where one does not use the changing system everyday so learning to use it might take time. After getting familiar with the system the feedback may even change to development ideas to improve the usefulness of the system.

### *Change resistance behaviours*

Employee change resistance behaviours were mentioned in each interview, however there were differences in how interviewees addressed them. Interviewee D1 states that change resistance could be averted with reasoning and explaining the change. Interviewee A1 similarly tells that they have not encountered active resistance behaviours nor dissatisfied feedback. They reason this is because there are not many systems in use and therefore there is less systems to cause problems or dissatisfaction.

Interviewee B1 sees that in company B the change resistance occurs concurrently with the change. Interviewee B2 however sees change resistance occurring after change and that it is due to poor adoption which they see partially originating from insufficient introduction. They both agree that employee involvement is important in avoiding and countering resistance.

Interviewees C1 and C2 say they have not encountered active resistance behaviours and even passive resistance may be due to poor introduction to the change and system. Total failure to use the system has not been an issue in their

company. They describe how employees often welcome change and are enthusiastic towards the new system:

Yes, one can even think that many times the new system is even welcomed. The reception is usually not the strict no, but many times it is the 'Yes'. They [the employees] are quite receptive. (Interviewee C2.)

### 6.2.2 IS theme category

Information system category of themes consists of what kind of systems interviewee organizations use and what kind of changes organization has had. As with the employee themes each theme is discussed separately with excerpts from the interviews in the next paragraphs.

#### *Types of IS in the organization*

Although interviewees were not specifically questioned about the types of IS their organization uses the theme emerged from interviews. Interviewee A1 explains that all their systems are purchased SaaS or software as a service. Similarly, company C has only one software they develop themselves and other software and systems they obtain from cloud service providers.

The companies have systems for customer relations management, human resource management, marketing, production, and sales. For the reasons for having and changing the systems in their organization interviewees mention the need to optimize and automate their operations, improve data management, and ensure the scalability during growth.

[Systems have changed.] During these six years when we have grown and seen that the previous system doesn't work anymore in our company since the processes have changed, for example on the sales and marketing side which I know most of. So, we have noticed that OK, we need for example marketing automation, so we have had to change software. (Interviewee B2.)

In a way the reason was that we could reduce the amount of systems in use. On the other hand [the new system] is more sustainable solution, it can be adjusted easily and so on. (Interviewee C1.)

#### *IS changes*

In company A the systems in use have been introduced at various points of operation mainly to improve processes, organizing and supervision of work. This need for improvement arose from the growth of the company. Similarly, company B have had four significant IS changes but they also acknowledge the ever-changing nature of startup organizations:

Maybe if you narrow it like that - there is nothing else in startups than changes - but if you limit it to the information systems. We have changed systems all in all four times maybe, four changes have been bigger changes. (Interviewee B1.)

Interviewees from companies C and D agree on the idea of startups continuously changing. They also mention using customer's systems during a project and then discontinuing the use.

Of course, customers have, bigger customers might have their own communication tools or platforms which they want to use in organizing and communications. But those have been specific for that project and we haven't taken those in use in our house. (Interviewee D1.)

Both companies use these customer specific systems during projects and they change from project to project. In company C these changes are used as an opportunity to learn from different systems and see their suitability for their needs:

On the other hand, we can collect information from there [from customers' systems] like hey, this works very well, or we don't want to use this in our organization at all and this system is really difficult to handle. So, it's a great way to analyse what we should use. (Interviewee C1.)

### 6.2.3 Change theme category

The themes for change category are the speed, effect, and source and reason for change. These subjects address how changes are conducted in the companies and how they changed them, who were the driving forces behind them, and why changes were made.

#### *Speed of change*

All companies have had rapid IS changes and the changes are described in many cases as lightly planned or unplanned. The systems were introduced quickly and orientation to using them was minimal:

And before it was maybe a little bit like, maybe we have learned about the startup life, that in the beginning systems were changed a little too often and orientations were like here is the new software we are using it in sales now, let's go. And then everyone was like OK how do we use this thing. Now the company and maybe even employees and entrepreneurs have matured and became more patient in that regard. (Interviewee B2.)

The recent changes are described as more controlled and employee participation and introduction to the system is planned and managed better. The changes are still seen to be faster than in traditional organizations since startup organizations have more flexibility to change and employees are seen open to change.

Maybe when you compare to traditional companies it [change] has been very quick but we are on technology and software company ourselves. Maybe compared to average company it is rapid but from our viewpoint lately they have been very controlled. We have done research which software could be suitable and shortlisted and reviewed them in detail and watched some demos. (Interviewee B2.)

And in a way a long time [for change project] isn't longer than six months, I might be short time for someone else. (Interviewee C1.)

Interviewees have the impression that their organizations have grown and learned from the past and have better understanding of change management. This enables premeditated changes while still retaining the advantage of startup agility to change rapidly.

### *Effect of change*

The effects of changes were consistently limited to organizational policies and processes. In the interviewee organizations IS changes have not led to termination of employment or other changes in personnel. Job assignments have changed but this has not led to changes in job titles as interviewees B1 and B2 explain:

Well not really, IS change hasn't changed the organization. We have just replaced old systems so that organization has stayed the same. Or organization of course changes all the time but these two as such have no connection to each other. People have come and gone but has that happened with system changes, not really. It's more like, there is no relation between them. (Interviewee B1.)

I'll have to think about that one [changes in organization]. Well job titles surely haven't changed. We haven't laid anyone off either because of automatizing work so efficiently. There is always so much other things to do. We have aimed to optimize our operations with automatization. (Interviewee B2.)

This viewpoint is shared by interviewees C1 and C2. In company C they have attempted to keep the need for system administration and system changes moderate. They aim to keep their organization agile by not having to have employees designated to maintaining any one system and so that changing systems does not change job titles or descriptions.

Interviewee D1 explains the changes in their job assignments during the growth of the company. Their own responsibilities have changed from customer communications to everything from internal and external communications, and employee introduction. In interviewee's opinion developers' job assignments have changed less and the human resources, marketing and sales have adapted around the developers. IS changes have changed interviewee's job assignments in how employee introduction is done for each system and how to use each individual system. D1 also explains how organizational growth has changed the IS changes:

It feels like that we have a system and if we would like to change that system, now that we have 46 employees, it would be a ton of work to examine if we should replace the system with this other one which might serve us better. How do you get everyone onboard with the change and how to concretely change the system to the other so that everyone knows how to use it and if there are customers who use the system with us, that is a whole chunk of work to do. (Interviewee D1.)

### *Source and reason for change*

The reasons for changes vary from company to company, but as mentioned earlier in this chapter, one major reason was the need for more organized operations. Similarly, the source of change was seen to be inside the organizations rather than come from outside. Company A has had one major change in their organizational systems during their operations. This change arise from the wish to reduce costs and led to change of one system while other systems have been introduced as new systems to optimize operations.

Similarly, company B has changed their systems due to growing and needing more efficient and compatible systems and needing more automatization. Interviewee B1 explains this that they have updated their systems as they have learned how to operate a startup organization along the way. Interviewee D1 tells that changes arise from the need to be more efficient due the growth of the organization. D1 explains how change initiative can come from anyone in the company but bigger changes are negotiated and accomplished with all employees and especially with those most affected by the change.

Interviewees C1 and C2 tell how their company has changed systems for more proficient operations and for better information security, and how they see the improved information security both as internal and external reason for change. Information security is important for everyday operations of the company and to meet the expectations of the customers. Still company C sees that they have sought better efficacy with their changes more than competitive advantage and reduced costs:

In a way the reason was rather that we could reduce the number of systems. That is more sustainable solution for the future with better scalability. In that way, the effect on the job assignments was minimized although the system changed. (Interviewee C1.)

## **6.2.4 Organizational theme category**

Organizational category includes the themes addressing the whole organization. Some of these themes have been partly discussed in the previous subchapters and they are elaborated here. The themes concerning the organization are the changes in the organization and organizational opinion of the change.

### *Changes in the organization*

Changes in organizations were limited to changes in systems, job assignments and policies. No employees were laid off or had their titles changed because of IS changes and this was even somewhat preferred as interviewee B2 explains there is always something other to do for everyone. The change in job titles is not even seen as important as interviewee B1 presents it when questioned about did IS change affect employment in the company:

No, no. Information systems are only there to support the operations we normally do. In startups the job descriptions, even with this much employees, are so broad that there is no labelling that this is your work slot, do this. Rather here are the things we need to take care of, who does what? (Interviewee B1.)

Interviewees A1, B1 and B2, and C1 and C2 all describe that changing IS did change company policies and processes in how the everyday tasks are performed. This was the desired result as the changes increased automatization, systematic processes, and organized work which in turn leads to increased efficiency.

Interviewee D1 differs from others in that their own job assignments and job description have changed when the organization grew and changed. However, D1 also states that in company D developers' assignments, positions, and operations have remained mainly the same regardless of change. Changes in company D, similarly to other companies interviewed, have increased efficiency by allowing more systematic processes.

#### *Organizational opinion of the change*

The overall organizational opinion on changes was not explicitly questioned in the interviews rather it emerged from the data during the analysis. The organizational attitude was present in the answers as overall positive opinion on employee engagement, resistance, and the opportunities changes generate. All but one interviewee are management in their companies', and they were able to give insight on the organizational viewpoint of change.

Interviewee A1 views startup organization and employees as more accommodating and open-minded as traditional organizations. In their opinion employees are less dispositioned to change resistance and changes are easier to implement and instil as part of organizational practises. Interviewee sees this as a startup feature, and they feel that employees understand that change is part of the startup organization. Interviewee D1 speaks similarly of the startup organization changing all the time and searching new ways of working.

Company B sees changes as a way of making things easier in the company. They want to force employees to analyse their job assignments and finding new and efficient ways of working and according to interviewee B2 this has happened:

But people [employees] are intrinsically really open-minded, they are ready to challenge their own practices, if there could be more efficient way of doing this. (Interviewee B2.)

Interviewee B1 feels that change resistance always has a reason and in a smaller company it is easier to justify changes.

People want to hear the reasoning behind why things are done this way. It requires learning new things and learning new things must be worth it so that it eases their work and doesn't make it harder. That's when it sticks. In a small organization these things are pretty easy to justify, one can even go through the change with everyone individually if need be. (Interviewee B1.)

Company C prepares for changes by researching technologies and monitoring trends. They conducted a questionnaire last year to examine employees' opinion on favourite and least favourite technologies and they commission two theses to study current technologies to utilize now and to determine promising technologies for future. They also observe trending information technologies and tools in international developer community online. Company C uses knowledge from these sources to decide which systems and technologies to invest in and, if the need arises, make quick and justifiable technology changes:

It is changing towards trying to do and research things beforehand and not to rush into them. Maybe it's becoming more important as we grow so we won't make bad decisions regarding it [new technology]. (Interviewee C2.)

### 6.3 Key findings

The aim of this thesis is to examine does user resistance in startup companies differ from that in traditional companies. The theoretical framework of this study is presented in the Figure 1 and it consists of the components of startup organization, organizational change, employees, resistance to change, and the relationships between the components. The relationships between components are:

- A. the relationship between the startup and the organizational change
- B. the relationship between the organization and its employees
- C. how organizational change affects employees
- D. how change resistance affects organizational change
- E. how employees exhibit change resistance.

Startup companies in this study are aware of the constant changing and have accepted it as part of startup organization. The companies do not see organizational change how it is seen in traditional companies as a process with multiple stages and a start and an end, rather it is constant occurrence in the operations. Employees are similarly accustomed to the changes and conform to them accordingly. Concerning the IS change, it is not seen as drastic as organizational change and its impact on employment, job titles, descriptions and organizational

operations is consciously minimized. These findings describe the relationships A and C in the theoretical framework.

The relationship B between startup organization and their employees is presented in how startup organizations value and actively seek employees who are more adaptive to changes. Interviewees also expressed that employees are more dispositioned to accept changes, give constructive criticism, and offer proactively suggestions to improve the company operations.

The positive attitude towards changes affects the change resistance which is considered in most interviewee companies not to be a similar problem as in traditional companies. However, one interviewee describes vocal resistance to changes in their company. This resistance is mitigated by introducing changes to employees and involving them in the change project. Involvement in the change project is also used to elicit suggestions and insight from employees who express improvements to the organizational practices. These findings present somewhat conflicting information about the relationship E between employees and resistance to change. Still, the employees are viewed to be more adjustable and to exhibit constructive change resistance behaviours rather than destructive or prohibiting behaviours.

As mentioned, resistance to change is not seen as severe as in traditional companies and all interviewees denied witnessing attempts to prevent the change or engagement in other negative change resistance behaviours. Criticisms towards the change was also deemed to be nearly always constructive and not aiming at inhibiting the change. The presented change resistance behaviours were understood to be part of the change process and the relationship D between change resistance and organizational change is seen as intrinsic part of operations.

## 6.4 Discussion

The assumptions for this study were that employees in startup organizations are less likely to exhibit change resistance behaviours, their commitment to the company is greater than in traditional companies and the commitment is encouraged by the organization. The findings of this study adjust these assumptions and offer new aspects to the theory of organizational change resistance and user resistance. The findings also provide answer to the research question does IS change resistance in startup organizations differ from resistance in traditional companies.

The change resistance in startup organizations seems to differ from traditional companies in how the resistance manifests, how companies relate to resistance, and how they counter the resistance. The resistance behaviours in startup organizations are more constructive and have more positive impact on change than in traditional companies, but differing opinions are also expressed. In some interviewee companies change resistance behaviours were present during the onset of changes and after changes. The resistance was disagreeing opinions of the necessity of the change, call for evaluation of the change, and when concerning IS change, using the system ineffectively or insufficiently after the



change. These behaviours were regarded as somewhat justifiable and accepted in the companies as reactions to change and, when presented after the change, inadequate implementation of the changed system.

The toleration of differing opinions and small size give startup companies the possibility to engage employees in change process more. This appears to indicate that startup organizations understand that change resistance is not always harmful and their expectations of encountering and managing resistance are realistic. Employees are engaged more readily to change projects and they are encouraged to give development ideas. This is possible because the frequent and informal face to face communications in startup companies. The companies also consider their employees to be more open to change and especially intend to recruit flexible personalities. It seems that the employee commitment to the organization matches the organizational expectations and organization in turn value their employees and employee participation in improving work routines and organizational environment.

To summarize and present the answer to the research question, the IS change in startup organizations seems to differ from more traditional organizations in how employees present less negative change resistance behaviours, how organizations sees the resistance having positive impact to change, and how organizations are able to counter change resistance more effectively and participate employees to it more. The assumption of lesser incidence of resistance behaviours in startup companies is debatable since particularly interviewee D1 presented differing observations of negative assumptions of change and its necessity to the company. However, interviewees have not witnessed disruptive change resistance behaviours or preventing of changes which appears to differ from traditional companies. The assumption of greater employee commitment is neither confirmed nor disproved in this study but there is evidence to support the assumption of companies encouraging employee commitment and participation. This is shown particularly in company C which has conducted an employee questionnaire to investigate employee opinion.

## **6.5 Implications on research and practice**

This research has studied the change and IS resistance in startup organizations to examine the differences to traditional organizations. The findings indicate that previous research literature does not fully explain the change resistance in startup organizations. More comprehensive studies involving more participants and variation in organizations' line of business is recommended to verify and elaborate these findings. More detailed research on the startup organization change could involve multilevel models such as Emergent Continuous Organizational Change model to study the change on individual level and on organizational level. On individual level possible theories to research are the Cognitive dissonance theory, Psychological contract theory, and Dispositional resistance theory. These theories can provide clarification on how startup employees see

their commitment to the organization and how they are dispositioned to change. The applicability of user resistance theories like Equity Implementation Model and Multilevel Model of change resistance emergence in startup organizations would also benefit future research and practitioners alike.

Practical implications of this study suggest that startup organizations are more adaptive towards change resistance than traditional organizations. They address changes effectively and have the possibility to adjust their operations in a short notice. This advantage can be increased by preparing for changes from the onset of the company. In this way organizations can evade uncontrolled or careless changes and make them more organized from the start. The readiness for change consists of flexible workforce, well established organizational communications, employee involvement, planning for scalability of systems and processes, keeping track of changes in the business environment, and limiting the effect of changes in the organization. These components of change preparation provide startup companies tools to manage the changes and change resistance in the organization. When the readiness for change is premeditated from the start it is easier to respond to change resistance even after growing and employing more workforce.

## 7 CONCLUSION

This chapter presents the conclusion of this master's thesis by summarizing the research findings. The contributions to research and limitations and suggestions for future research of this study are also described in this chapter.

This study aimed to examine the differences in change resistance and IS user resistance between startup organization and traditional organizations. The purpose was to clarify do these differences exist and increase the understanding of the phenomenon of change resistance in startup companies. The research approach was a qualitative study using semi-structured interviews. Five interviewees from four companies were interviewed for this study. The interview data was analysed iteratively using thematical coding and then categorizing these codes to groups corresponding with the concepts in the theoretical framework. This provided the answer to the research question and increased the understanding of the change resistance.

The results show that differences in resistance occurrences between startup companies and traditional companies exist. The startup organizations perceive resistance more positively and accept it as a part of the nature of their operations. They mitigate change resistance behaviours by selecting adaptive employees and involving them in the changes. Employees who voice their concerns regarding change are especially involved in the change process to ensure commitment to the change. Employees are also encouraged to present their ideas and propositions to improve the organization and its operations. Startup companies monitor the changes in their environment and follow new technologies to track development. This helps them plan changes and prepare for them better. In cases of IS change the impact is also restricted to only the necessary operations of the company to maximize the benefits and minimize the impact on employees and organization.

## 7.1 Contributions to research

The contributions of this thesis to research are the increased understanding of change resistance and IS user resistance in startup companies and the differences to resistance in traditional companies. The findings indicate that change resistance in startup organizations is more accepted and anticipated than in other organizations. The employees are more dispositioned to adjust to changes but also express their doubts and vocal change resistance. The startup companies are more ready to answer these doubts and involve employees in change projects which mitigates the resistance and increases employee commitment to the change. Companies value and strive to recruit employees who exhibit flexible personality traits. Startup organizations prepare for the changes and monitor changes in their business environment to allow them to make quick decisions when the need arises. They also listen to their employee's opinions and ideas which helps to decrease change resistance.

As a previously limitedly studied finding this thesis describes the startup organizations' explicit aim to limit the effects of IS changes. Companies in this study described using information systems to automatize, organize, and increase scalability in their organization without them changing organizational operations more than necessary. They knowingly restricted the change effect to the minimum and avoided changes in job titles, employment, job descriptions and assignments. This helped the organizations to decrease change resistance and increase the benefits obtained from the IS. This finding is interesting with the other implications in that it shows how startup organizations accept they are continuously changing and adapt their operations to it.

## 7.2 Limitations and suggestions

The limitations of this study are the research sample size, time, place, and variability. Limiting the sample to IS and IT organizations was a conscious choice to elicit professional information of IS change resistance and more variability and greater number of interviewees is recommended in future research. In this study all organizations are from Jyväskylä area and are still operational, which limits the temporal and cultural reach of this study. Future research could benefit from interviewees from other cultures and locations, and organizations which are not operational anymore. This could provide more comprehensive knowledge how cultural aspects and organizational success affects the change resistance. The differing interviewee D1 with no background in IS or IT also shows that variability in educational and occupational background of interviewees in future research could prove valuable.

Other limitations of this study are the scarcity of relevant research literature and the translation of interviews to English. The change resistance in startup organizations and particularly IS user resistance is not yet well studied

phenomenon and there is little research literature to reference and compare to. The interviews were conducted in Finnish and excerpts were then translated to English. This might cause inconsistencies and misinterpretations of the research data. These limitations might cause inaccuracies in the research findings.

### **7.2.1 Reliability and validity of the thesis**

The overall reliability and validity of this master's thesis is considering the circumstances and sample size evaluated to be sufficiently rigorous. The reliability of the research is presented in the research methodology applicability to the research problem and consistency of the collected results. The qualitative methodology is appropriate to examine the existence of change resistance phenomena in startup organizations. The collected data presents consistent results across the interviews and themes coded from the data. Adding new interviews with same sample criteria would not yield new themes to the data.

The validity of this research is presented in the rigor of application of the research method and the validity of the study results. The research method was adhered to throughout the research process. The interviews were planned beforehand and recorded to be analysed later. The analyzation of the interview data follows the method of thematic coding in which themes are identified from the interviews and grouped into theme groups. Different themes were gathered from the interviews separately and then compared to each other to assess their relevance and descriptive power of the study phenomenon. This ensures the validity of the themes and the results.

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## APPENDIX 1 LIST OF KEYWORDS

Keyword	Times referenced	Reference
behavioral factors	1	Joshi (1991)
change management	1	Laumer, Maier, Eckhardt and Weitzel (2016b)
change theories	1	Krovi (1993)
dispositional resistance to change	1	Laumer, Maier, Eckhardt and Weitzel (2016a)
enterprise systems implementation	1	Kim (2011)
equity implementation model	1	Kim (2011)
equity theory	1	Joshi (1991)
ERP	1	Joia, de Macêdo and de Oliveira (2014)
implementation	1	Markus (1983)
implementation process	1	Krovi (1993)
implementation strategies	1	Krovi (1993)
incremental change	1	Krovi (1993)
information systems	1	Joia, de Macêdo and de Oliveira (2014)
information technology implementation	1	Lapointe and Rivard (2005)
innovation characteristics	1	Venkatesh (2003)
integrated model	1	Venkatesh (2003)
intraorganizational power	1	Markus (1983)
levels of change	1	Krovi (1993)
longitudinal perspective	1	Lapointe and Rivard (2005)
mandatory adoption	1	Klaus and Blanton (2010)
mandatory IS usage	1	Laumer, Maier, Eckhardt and Weitzel (2016a)
multilevel approach	1	Lapointe and Rivard (2005)
organizational change	1	Joshi (1991)
overcome resistance	1	Ali, Zhub, Miller and Ieromonachou, (2016)
planned change	1	Krovi (1993)
politics	1	Markus (1983)
radical change	1	Krovi (1993)
resistance behaviors	1	Lapointe and Rivard (2005)
resistance to change	1	Joshi (1991)
resistance to information systems	1	Joia, de Macêdo and de Oliveira (2014)
social cognitive theory	1	Venkatesh (2003)
strategy	1	Ali, Zhub, Miller and Ieromonachou, (2016)
switching costs	1	Kim (2011)
technology acceptance model	1	Venkatesh (2003)
the Elaboration Likelihood Model	1	Campbell and Grimshaw (2016)
theory of planned behavior	1	Venkatesh (2003)
unified model (of user acceptance)	1	Venkatesh (2003)
user attitudes	1	Campbell and Grimshaw (2016)
user behaviour	1	Joshi (1991)
user involvement	1	Joshi (1991)
user personality	1	Laumer, Maier, Eckhardt and Weitzel (2016a)
work routines	1	Laumer, Maier, Eckhardt and Weitzel (2016b)
work system theory	1	Laumer, Maier, Eckhardt and Weitzel (2016b)
enterprise systems	2	Joia, de Macêdo and de Oliveira (2014), Klaus and Blanton (2010)
information technology	2	Ali, Zhub, Miller and Ieromonachou, (2016), Joia, de Macêdo and de Oliveira (2014)
psychological contract	2	Klaus and Blanton (2010), Morrison and Robinson (1997)
resistance	2	Krovi (1993), Markus (1983)
status quo bias theory	2	Kim and Kankanhalli (2009), Kim (2011)
technology acceptance	2	Laumer, Maier, Eckhardt and Weitzel (2016a), Laumer, Maier, Eckhardt and Weitzel (2016b)
user acceptance	2	Campbell and Grimshaw (2016), Joshi (1991)
systems implementation (IS implementation)	4	Joshi (1991), Kim and Kankanhalli (2009), Lapointe and Rivard (2005), Laumer, Maier, Eckhardt and Weitzel (2016a)
user resistance	9	Ali, Zhub, Miller and Ieromonachou, (2016), Campbell and Grimshaw (2016), Hirschheim and Newman (1988), Kim and Kankanhalli (2009), Kim (2011), Klaus and Blanton (2010), Lapointe and Rivard (2005), Laumer, Maier, Eckhardt and Weitzel (2016a), Laumer, Maier, Eckhardt and Weitzel (2016b)

## APPENDIX 2 INTERVIEW QUESTIONS FOR THE SEMI-STRUCTURED INTERVIEW

1. Mitkä ovat taustatiedot yrityksestä ja haastateltavasta: henkilöstön koulutus ja määrä, suhde yritykseen (työntekijä/perustaja)?
2. Milloin tietojärjestelmämuutos/-muutokset tapahtuivat?
  - Mikä oli niiden ajankohta yrityksen kehityksen aikana (alkuvaiheessa, kehityksen yhteydessä, kasvun aikana, yms.)?
3. Millä tavalla organisaatio muuttui?
4. Oliko muutos laaja vai rajoittuiko se osaan toiminnasta?
  - Koskiko muutos vain käytettyjä järjestelmiä vai muuttiko se myös toimintatapoja, työnkuvauksia, tehtävänimikkeitä tai työsuhteita?
5. Oliko muutos asteittainen vai nopea ja hallittu vai hallitsematon?
6. Mistä muutos sai alkunsa, tuliko paine ulkoa vai organisaation sisältä?
7. Ovatko yrityksen työntekijät ja henkilöstö yleisellä tasolla avoimia muutokselle ja uusille asioille?
8. Mikä oli työntekijöiden osuus muutoksessa?
  - Neuvoteltiinko tai keskusteltiinko muutoksesta etukäteen työntekijöiden kanssa?
  - Oliko joku työntekijöistä avainhenkilö muutoksen aloittamisessa, sen aikana tai sen jälkeen?
9. Ilmenikö muutosta ennen, sen aikana tai sen jälkeen muutosvastarintaa tai haluttomuutta muutokseen?
  - Ilmaistiinko tyytymättömyyttä järjestelmään tai muutokseen ääneen?
  - Pyrittiinkö muutosta häiritsemään tai estämään?
  - Oliko suullinen palaute rakentavaa ja muutosta parempaan suuntaan vievää?
10. Muuttuivatko toimintatavat muutoksen seurauksena (uusi järjestelmä otettiin käyttöön)?

## APPENDIX 3 INTERVIEW QUESTIONS FOR THE SEMI-STRUCTURED INTERVIEW IN ENGLISH

1. What is the background information about the company and the interviewee: how many personnel, educational background and relationship with the company (employee/founder)?
2. When did the IS change/ changes happen?
  - At what time of the organization's evolution did the changes occur (at the beginning stage, during development, during growth, etc.)?
3. How did the organization change?
4. Was the change extensive or was it limited to only a part of company?
  - Did the change affect only the IS in use or did it also change procedures, job descriptions, titles or employment relationships?
5. Was the change gradual or rapid and controlled or uncontrolled?
6. Where did the change originate, did the pressure for change arise from outside or within the organization?
7. Are employees and personnel commonly open to change and new things?
8. What was the employees' role in the change?
  - Was the change discussed with the employees beforehand?
  - Was someone of the employees an important figure in starting the change, during it or after it?
9. Was there any change resistance or reluctance to change before, during or after the change?
  - Was the discontent towards the change or the IS expressed out loud?
  - Was there attempts to interrupt or prevent the change?
  - Was the oral feedback constructive?
10. Did the work procedures change due to the IS change (the new system was adopted to use)?