

Master's Thesis

**AGILE LEADERSHIP MODEL FOR TEMPORARILY COMPOSED
INNOVATIVE TEAM IN THE FINNISH DEFENCE FORCES**

Alexandra Hauhia 2018

Supervisors:

D.Sc. Anna-Maija Nisula

D.Sc. Pia Heilmann

Disclaimer

The opinions and conclusions expressed in this thesis do not necessarily represent the views of The Finnish Defense Forces. References to this study should include the foregoing statement.

ABSTRACT

Author:	Alexandra Hauhia
Title:	Agile Leadership Model for Temporarily Composed Innovative Team in The Finnish Defence Forces
Faculty:	LUT School of Business and Management
Master's programme:	Knowledge Management and Information Networks
Year:	2018
Master's thesis:	145 pages, 16 figures, 4 tables, 1 appendix
Examiners:	D.Sc. Anna-Maija Nisula D.Sc. Pia Heilmann
Keywords:	Team leadership, Teamwork, Temporary team, Virtual team, High-performance team, Self-managed team, Agile leadership

The aim of this thesis was to describe diverse practices to conduct leadership actions with one highly specialized team. The researched team works temporarily when support of the team is needed. It is composed of permanent The Finnish Defence Forces personnel and contractors from different companies. The team is widely dispersed geographically and its work is mainly conducted in virtual environment. Actual work is often independent and the team has many self-managed functions.

The members of the team are very high-performing professionals who are capable of creating innovative products and services. Agile methods are often used nowadays in technical projects and the results of this thesis promote application of these methods. This thesis introduces an agile leadership model for temporarily composed innovative team. The idea is to combine agile leadership characteristics with direct- and indirect leadership influences. Additionally, this model includes temporal, virtual, high-performance and self-managed teamwork dimensions.

TIIVISTELMÄ

Tekijä:	Alexandra Hauhia
Tutkielman nimi:	Agile Leadership Model for Temporarily Composed Innovative Team in The Finnish Defence Forces
Tiedekunta:	LUT School of Business and Management
Koulutusohjelma:	Tietojohtaminen ja informaatioverkostot
Valmistumisvuosi:	2018
Pro gradu -tutkielma:	145 sivua, 16 kuvaa, 4 taulukkoa, 1 liite
Tarkastajat:	D.Sc. Anna-Maija Nisula D.Sc. Pia Heilmann
Hakusanat:	Team leadership, Teamwork, Temporary team, Virtual team, High-performance team, Self-managed team, Agile leadership

Tämän opinnäytetyön tavoitteena oli määritellä monimuotoisia johtamiskäytäntöjä pitkälle erikoistuneelle tiimille. Tutkimuksen kohteena oleva tiimi toimii väliaikaisesti silloin, kun sen tukea tarvitaan. Se koostuu vakinaisesta Puolustusvoimien henkilökunnasta sekä eri yritysten asiantuntijoista. Tiimi on hajaantunut laajalle maantieteelliselle alueelle ja työ suoritetaan pääosin virtuaalisessa ympäristössä. Työ on usein itsenäistä ja tiimillä on monia itseohjautuvia tehtäviä.

Tiimin jäsenet ovat huippuosaajia, joilla on kyky luoda innovatiivisia tuotteita ja palveluita. Agile-metodeja käytetään nykyisin usein teknisissä projekteissa ja tämän opinnäytetyön tulokset tukevat näiden metodien soveltamista. Tämä opinnäytetyö esittelee ketterän johtamismallin väliaikaisesti toimivalle innovatiiviselle tiimille. Ideana tässä mallissa on yhdistää ketterän johtamisen ominaispiirteitä suoran ja epäsuoran johtamisen vaikutusten kanssa. Lisäksi tämä malli sisältää väliaikaisen, virtuaalisen, huippuosaajien ja itseohjautuvan johtamisen ulottuvuuksia.

CONTENTS

1 INTRODUCTION.....	9
1.1 Background	9
1.2 Research problem and questions	12
1.3 Conceptual framework.....	13
1.4 Definition of key concepts.....	14
1.5 Delimitation of the study	17
1.6 Structure.....	18
2 TEAMWORK LITERATURE REVIEW	19
2.1 Temporary team	20
2.1.1 Function and characteristics	21
2.1.2 Composition and abilities.....	22
2.1.3 Team processes	22
2.1.4 Effective teamwork and challenges.....	24
2.2 Virtual Team.....	26
2.2.1 Function and characteristics	26
2.2.2 Composition and abilities.....	27
2.2.3 Team processes	28
2.2.4 Effective teamwork and challenges.....	29
2.3 High-performance team.....	31
2.3.1 Function and characteristics	31
2.3.2 Composition and abilities.....	32
2.3.3 Team processes	33
2.3.4 Effective teamwork and challenges.....	34
2.4 Self-managed team	37
2.4.1 Function and characteristics	37
2.4.2 Composition and abilities.....	39
2.4.3 Team processes	39
2.4.4 Effective teamwork and challenges.....	40
2.5 Teamwork literature findings.....	41
3 TEAM LEADERSHIP LITERATURE REVIEW.....	44
3.1 Temporary team's leadership	46
3.1.1 Characteristics of team leadership.....	46
3.1.2 Team building	48
3.1.3 Leading team processes and functions.....	48
3.1.4 Effective team leadership.....	49
3.2 Virtual team's leadership	50
3.2.1 Characteristics of team leadership.....	50
3.2.2 Team building	51

3.2.3	Leading team processes and functions.....	52
3.2.4	Effective team leadership.....	54
3.3	High-performance team's leadership	57
3.3.1	Characteristics of team leadership.....	57
3.3.2	Leading team processes and functions.....	58
3.3.3	Team building	58
3.3.4	Effective team leadership.....	60
3.4	Self-managed team's leadership	62
3.4.1	Characteristics of team leadership.....	62
3.4.2	Team building	63
3.4.3	Leading team processes and functions.....	64
3.4.4	Effective team leadership.....	66
3.5	Team leadership literature findings.....	67
4	RESEARCH METHODOLOGY.....	70
4.1	Research strategy	70
4.2	Acquisition of data	71
4.3	Data analysis process	71
5	EMPIRICAL RESULTS AND ANALYSIS	74
5.1	Factors of effective teamwork and leadership.....	75
5.1.1	Expertise and background of military project's personnel.....	75
5.1.2	Teamwork in the military environment.....	81
5.1.3	Leadership in the military environment.....	85
5.2	Diversely working team and leadership challenges.....	88
5.2.1	Temporarily working project team.....	89
5.2.2	Virtually working team in the preparation phase.....	91
5.2.3	High-performing team in the workshop phase.....	95
5.2.4	Self-managing team in the multiple project phases.....	100
5.3	Agile leadership in the military focused companies.....	106
5.4	Qualitative research findings	108
6	DISCUSSION AND CONCLUSIONS	111
6.1	Influencing factors of team leadership	111
6.2	Leadership challenges with multi-organizational diversely working team.....	113
6.3	Team leader's agile leading practices.....	116
6.4	Agile leadership model	119
6.5	Reliability and limitations	123
6.6	Conclusions and suggestions for future research	124
	REFERENCES.....	125
	APPENDICES	146
	APPENDIX 1	146

LIST OF FIGURES

Figure 1. Context of the study.....	10
Figure 2. Agile team leadership model's framework.....	14
Figure 3. Input-process-outcome model of virtual teams.....	29
Figure 4. The Three Dimensions of Project Uncertainty.....	35
Figure 5. Self- Managing and Integrating Functions of All Teams.....	40
Figure 6. Schematic diagram of identified research clusters.....	47
Figure 7. Virtual team attributes, team processes and team effectiveness.....	53
Figure 8. A multilevel model of leadership in virtual teams.....	54
Figure 9. The leader-task-context framework.....	57
Figure 10. D.O.T-team model.....	62
Figure 11. An Inductive Boundary-Spanning Model of Effective External Team Leader Behavior.....	65
Figure 12. Model of direct and indirect leadership influences on the processes of innovation.....	66
Figure 13. Coding and sorting of data.....	72
Figure 14. Modified data analysis model.....	73
Figure 15. The Finnish Defence Forces Staff 31.12.2016.....	74
Figure 16. Agile Leadership Model for Temporarily Composed Innovative Team in The Finnish Defence Forces.....	122

LIST OF TABLES

Table 1. Teamwork literature findings.....	43
Table 2. Team leadership literature findings.....	69
Table 3. Qualitative research findings.....	110
Table 4. Factors, challenges and leading practices of team leadership.....	120

FOREWORD

I express my gratefulness towards all people who have helped me during this writing process. First, I would like to thank my supervisors D.Sc. Anna-Maija Nisula and D.Sc. Pia Heilmann from Lappeenranta University of Technology for all help and support. Their positive attitude encourages students to reach even higher goals.

I also want to thank The Finnish Defence Forces for giving me the opportunity to research this matter as well as following companies: Azetti, Bittium, Cygate, Fujitsu and Systematic for taking part in this study and for good cooperation. Especially, I want to thank all my colleagues who I have worked with. Their work is very important and I have learned a lot from them along the years. The most I thank my family and the closest people for all support they have given me.

Leadership is a controversial matter and it may prove to be challenging to choose a right leadership style in each different occasion. Leadership requires always balancing between different interests and circumstances.

28.2.2018 Alexandra Hauhia

1 INTRODUCTION

The Finnish Defense Forces (FDF) has a long history of leadership studies. Therefore, it is slightly difficult to implement new leadership models. The military school provides certain leadership education, but it is not always suitable for business environment. The aim of basic military leadership is to command troops. Strict and non-dynamic way to give orders and commands suits perfectly well to the operational area, where the only goal is to survive and win the battle. Motivating and inspiring leadership is needed in the operational area, when a difficult and stressful situation lasts for a long time.

There has been some development after Deep Leadership Model (DLM) was introduced by Nissinen (2001). This transformational leadership model was created initially to train military leadership skills, but has later been introduced also in some civilian companies and organizations (Nissinen, 2004). The deep leadership model is a good example how leadership should be organized. However, it is not always used correctly. FDF's leadership tradition is strong and it is hard to introduce new ideas. Further, the military environment is different compared to a civilian environment. The way how ideas and issues are expressed is may often be too direct and strict for innovative workers. Therefore, it is a challenge to lead workers who are not used to military rules and order.

1.1 Background

Nowadays outsourcing and use of external workers is a very common way to reduce organization's expenses (Pfeffer & Baron, 1988, 297). It is also one reason for adopting similar leadership in military environment than in civilian business environment. It is important to find new ways to conduct projects, in which staff includes civilian workers from different companies.

Figure 1. present the context of this study. It consists of four team leadership areas and specified field of team's expertise.

Temporal area includes workshop periods where work is done with a temporarily composed team. Each member has been selected to be part of this specialized team because they possess skills which can be used to benefit the project.

Virtual area can be described as preparations for workshops and projects. Short-term workshops may require preparations which are necessary to carry out the workshop successfully. Due to long distance between temporary team members there is need for virtual work to complete preparations before the workshop. Virtual tools can be used also after the workshop to continue long-term R&D work and long-term projects.

Self-managed approach is either an ordered or unordered action to prepare workshop or carry out individual tasks. Self-directive behavior can occur also when some part of the work needs to be performed by a specialized team or individuals. These separate individuals and teams have their own goals for actions. Self-organization can be part of self-directed work in order to complete some part of the work independently with team members. By using creativity this team can solve complex problems by creating new solutions. Cooperation is necessary if aim is to generate new information. Due to technical environment all team members need to be high-performance professionals to complete given tasks.

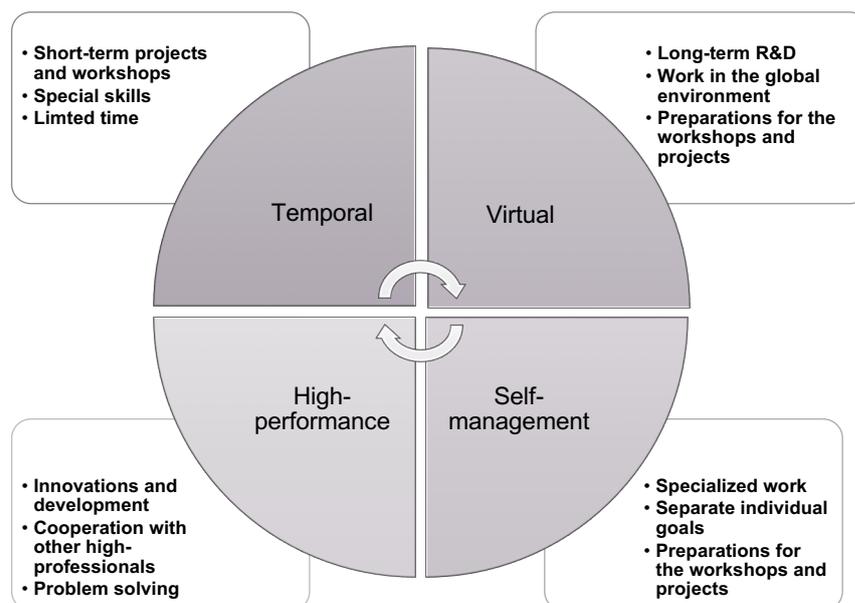


Figure 1. Context of the study

In this thesis operational environment of is combination of typical military environment and civilian business environment. It means that officers, military civilians and contractors from different companies are working together in same research and development (R&D) projects. It is also international consisting of team members working also abroad. Due to reason that team members have different backgrounds, this is quite challenging environment for a team leader.

The team is working under high pressure, typically in projects with very tight schedules and limited time for testing new solutions. Rapid changes in operational environment require temporary team to adapt quickly to changes and to find solutions or innovations to solve occurred problems. There is often need for prioritization to resolve multiple problems simultaneously.

The leadership plays an important role when the team is working in changing environment. Sofany et al. (2014, 33) stated that virtual IT-team leaders need both, soft and hard, leadership skills. Hard skills refer to technology whereas soft skills mean for example an ability to communicate with others and team work skills. It is imperative for a leader to have a clear picture of the project and required actions and to have very good leadership skills. Efficient communication between team and leader must work without interruptions.

Kinnunen et al. (2012, 145-146) emphasized in FDF's Leadership manual that the team leader is also a member of the team and under influence of the team continuously. Team leader should not forget how important it is to consider emotional side of team members and to improve team spirit. The leader of the technical team does not have to know all technical details, but needs to have basic knowledge about the project, its goals and capabilities of the staff. This helps to avoid situation where team dynamics change during the project and team carries out work without support from the leader. The leader of innovative team must ensure well-being of the team members, so they can concentrate on the actual work.

In traditional organizations, leadership models are often very formal and based on guidance given by organization. It is necessary to study leadership in different

circumstances and understand that even in the same organization leadership may vary depending on the target of contemplated actions. Knowledge workers in innovative projects are used to working in a complex environment and prefer flexible leadership. This study aims to raise discussion about FDF's current leadership culture and consider novel ways of leadership.

1.2 Research problem and questions

This thesis focuses on a temporarily composed team which works either virtually and physically in international environment. The main goal of this team is to complete some complex IT- projects. The main target is to discover the best leadership style for the project which is prepared virtually and carried out as a workshop in special facilities and the factors that influence the most team leadership. The topic of this thesis is current and important, because the lack of literature which directly handles this matter. The findings of this thesis can be exploited in leadership training targeted to teams which are working mainly with high-level specialists and contractors. As Nisula & Kianto (2016) mentioned, there is a need for further research on various temporarily acting teams. Leadership is a matter which has been researched for a long time, but there are still only very few studies on "combined" leadership models. Further, there is a lack of research how to adapt combined models to different situations.

The topic of this thesis is team leading, and in particular team leadership models. The first argument is that no specific leadership models exist which include a combination of multiple leadership dimensions, such as temporary-, virtual-, high-performance or self-managed team leadership. The second argument is that military leadership models are not necessarily adaptable to the team consisting of civilian professionals and military personnel. This thesis develops a new model which combines these dimensions. Research questions are formed to give answers to these arguments.

The main research question:

“How temporarily composed innovative team is led effectively and agilely in The Finnish Defense Forces?”

The sub-questions:

1. *What factors influence on the effective team leadership?*
2. *What leadership challenges might occur if the team works diversely and consists of The Finnish Defence Forces personnel and contractors?*
3. *Team leader’s agile leading practices?*

1.3 Conceptual framework

The conceptual framework of this thesis is leadership of temporary teams and it covers leadership concepts which are used with a team which holds multiple different tasks. The leadership model varies depending on the circumstances and it is important to recognize what kind of leadership needs to be used.

Innovations created by the project team are developed for The Finnish Defence Forces (FDF). In other words, there is no need for producing innovations for other organizations. Naturally innovations can be shared and used inside FDF.

Figure 2. below presents sketched framework for an agile team leadership model for a temporary working team. Teamwork and team leadership literature is divided by this framework. Agile-leadership literature is embedded in these four dimensions.

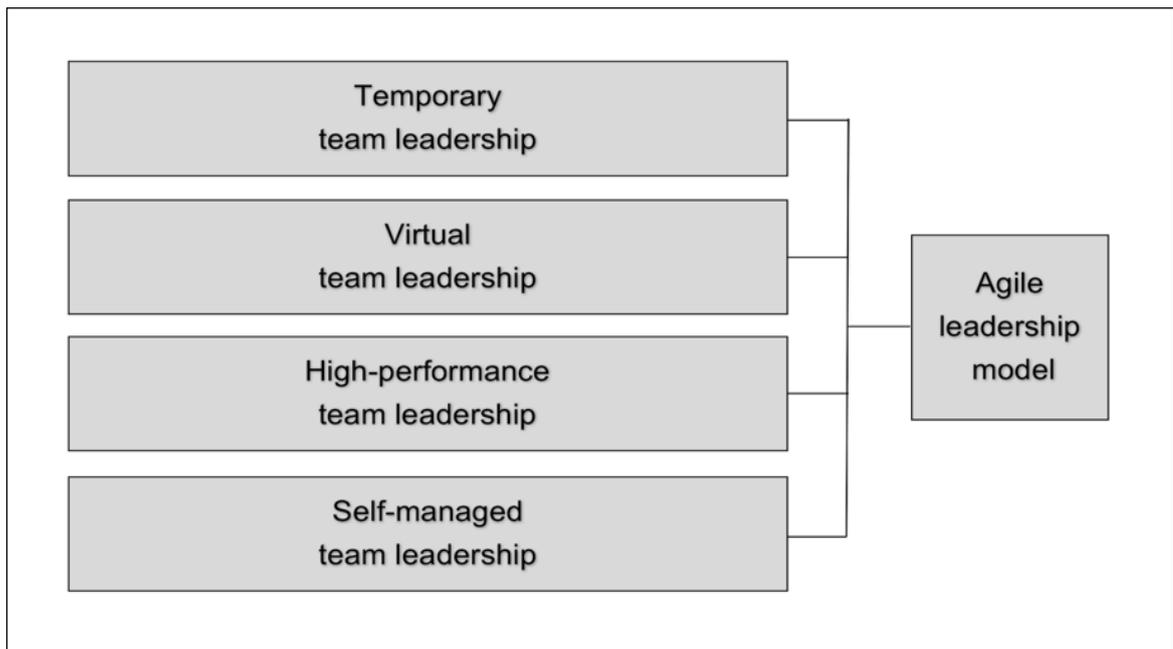


Figure 2. Agile team leadership model's framework

1.4 Definition of key concepts

Agile – According to Oxford English Dictionary (Waite, 2012) word agile refers to ability of quick and easy movement, but it can be used also to describe quick thinking and understanding. Moran (2015) mentioned that it is based on methods which were used in Toyota factories in Japan. Agile concept was introduced in the 1990s when software industry faced difficulties with their development processes. Later on, software was replaced by solution meaning that agile leadership method was not used only in software industry. Meyer (2014) mentioned Agile Manifesto, which was signed 2001 and it defines basic guidelines of agile work. Agile Manifesto is a more idealistic approach to agile methods.

Contractor – Person who works in a civilian company and provides services for the military forces.

Creativity – According to Oxford English Dictionary (Waite, 2012) it is an action that involves imagination when creating something new. Tidd & Bessant (2016) stated that changing an organizational culture and producing creative climate is very time-consuming process. Smith et al. (Thompson & Choi, 2006) say that “In short,

creativity is something we desperately need, but we do not know how to get it, and we are not really sure what it is.”

Innovation – Bessant (2008) mentioned that word “innovation” comes from Latin language. Latin translations for “to make something new” or “to change” are “in” and “novare”. People have always used innovations to facilitate their work. All good ideas are not however innovations. Practical innovation is a combination of very good idea and its implementation. Radical innovation is an innovation which changes whole business radically. Radical innovations tend to have long-term impact on organizations. Incremental innovation is for example an additional or improved part of original innovation.

Leadership – Burns (1978) rose a question about leadership as a power over another person. His finding was that relationships between people can be described as power. Power can exist in multiple forms and can be used to reach certain individual or common goals. Leadership can take multiple forms. Transformational, dynamic leadership occurs when leader and team are reaching common goals. Leadership comes with great responsibility.

Some leadership models are originally adapted from military leadership. Sun Tzu’s (1963, 58) idea about leader’s responsibility is related to clear orders. Sun Tzu said: “If instructions are not clear and commands not explicit, it is the commander’s fault. But when they have been made clear, and are not carried out in accordance with military law, it is a crime on the part of the officers.”

Von Clausewitz (1989) had a very classical opinion about a good leader. From his point of view good leader’s characteristics are bold. And invincible intellect makes this leader a hero. Jomini’s (2005, 275) view was: “The first of all the requisites for man’s success as a leader is, that he be perfectly brave. When a general is animated by a truly martial spirit and can communicate it to his soldiers, he may commit faults, but he will gain victories and secure deserved laurels.”

Military civilian – Person who is working for the military forces and has a university degree, qualification or degree from the other institute.

Non-commissioned officer – Person who belongs to permanent military staff and has usually completed some training in military institute.

Officer – Person who belongs to permanent military staff and has an academic degree from a military university.

Research and development (R&D) – According to Oxford English Dictionary (Waite, 2012): “work directed towards new ideas and improvement of products and processes”.

Specialized officer – Person who belongs to a permanent military staff and has an academic degree from a civilian university or institute. Specialized officer has also completed officer’s basic training.

Self-directed – According to Cambridge online dictionary a person makes his/her own decisions and organizes work independently without any orders from managers. (<http://dictionary.cambridge.org/dictionary/english/self-directed>. Ref. 20.8.2017)

Self-managed leadership – This leadership style contains self-directed and self-organizational characteristics.

Self-organization – Can be described as part of self-directed work where a worker organizes his/her own work independently and for example decides to gather a small team to complete some part of the work together.

Teamwork – According to Oxford English Dictionary (Waite, 2012):”organized effort as a group”.

Temporary – Cambridge online dictionary describes temporary as something which does not last or something which is not needed for very long. (<http://dictionary.cambridge.org/dictionary/english/temporary>. Ref. 20.8.2017)
Temporary organizing can be described as a process, form or perspective. (Bakker et al. 2016)

The Finnish Defence Forces (FDF) – Is a large military organization which consists of 12,000 people in multiple locations in Finland. (<http://puolustusvoimat.fi/en/about->

us Ref. 3.10.2017) The military service is completed every year by 22,000 conscripts. The commander of the Finnish Defence Forces is currently General Jarmo Lindberg. (<http://puolustusvoimat.fi/en/commander-of-the-finnish-defence-forces> (Ref. 3.10.2017)

Virtual – Oxford English Dictionary (Waite, 2012) describes virtuality as something which does not exist in reality as we understand it. It has been made by using computer software to create appearance. In this study a virtual team work is discussed from a traditional perspective as a way to communicate with team members and not from actual IT worker's perspective who uses virtual connections for testing or builds for example virtual networks.

Warrant officer – Person who belongs to permanent military staff and has an academic degree from a military institute.

1.5 Delimitation of the study

The discussed team is a complex entity and this study refers technical aspects slightly without going deeply on details. The interviewed persons have been involved in the temporary team and have worked for The Finnish Defence Forces as permanent workers or contractors. They have long experience with communication and information systems, including IT-systems. The studied temporary team has been working over 10 years together with varying assembly. Time frame of this study is approximately five-year period which consists mainly of years 2012- 2017 and interviewed persons were able to use their expertise gained from that period of time.

Permanent organizations are not discussed necessarily but, some observations can be related to those. Leadership theories are reviewed in the literature review, but more important is to discover best leadership practices for temporary working team.

Agile concept and ideas are discussed, but use of particular methods will not be included. This study shows a leadership model for temporary composed innovative

team. This model is designed mainly for one specific team, but it is possible to make modifications for other teams too. The used perspective is mainly leader's perspective.

Information security is taken under consideration strictly and this thesis does not include any FDF's classified information. The introduced leadership model does not include any specific information about tasks or members of this team.

1.6 Structure

There are six chapters in this Master's thesis. The first chapter is an introduction which describes a background of the research problem. This chapter contains a conceptual framework, research questions and explains some key concepts. Theoretical context consists of two chapters.

The second chapter is a teamwork literature review and the third chapter consist of team leadership literature review. Both these chapters are divided into four different sub-categories according to conceptual framework. The focus in these literature reviews is leadership and factors which support the team leader.

The fourth chapter explains research methodology including strategy, how empirical research was done and which methods were used for data collection and analysis. The empirical part of this study is presented in the fifth chapter. This chapter includes the interview results.

The final chapter provides answers to research questions, compares the findings with earlier studies and introduces the new agile leadership model.

2 TEAMWORK LITERATURE REVIEW

Team is a formed or self-organized group of people. Teams are used to solve certain problems and accomplish certain tasks, which individuals are not able to solve by themselves (Sharma & Bhatnagar, 2017, 14-15). Hinsz (2015, 226) considered teams as a technology which is used to solve important problems. User of this technology need to apply methods and processes with problem-solving.

According to Zaccaro et al. (2001, 473-474) team effectiveness is depending on team members' coordination skills. Coordination is also discovered to impact on team effectiveness. Coordination can be divided to different dimensions. Team orientation functions presents team members' engagement towards team actions and sharing same team goals. Team needs timing functions meaning that project needs to follow certain speed and schedule. Work phases need to be synchronized also. These actions can be described as response coordination functions. Team which has strong relationships among its members is more committed to achieving common goals and it can be described as team motivational functions. System monitoring functions are errors appearing in timing- or other functions. Procedure maintenance functions can be used for supervising team functions and adjustments can be done according to these observations.

Zhang et al. (2015, 520) mentioned that team is functioning better if importance and necessity of the task are explained. This motivates employees and gives also better results with the task. It is beneficial if team members are on the same skill level and their experience suits the project overall. In very complex projects it is perhaps necessary to test team members' abilities before the project starts. Zaccaro et al. (2001, 476) emphasizes the idea how important it is to monitor team dynamics and interaction. Zhang et al. (2015, 520) encourages for concentrating monitoring on high-pressure that the team is experiencing. If the team understands goals early enough, it will have positive influence on time pressure. Sharma & Bhatnagar (2017, 14-15) suggest that there should be a strong relationship between team members to overcome such difficulties as time pressure.

Nowadays people who are working in teams may need multiple skills to communicate and collaborate with others. Kozlowski & Bell (2008, 29-30) said that building human capital is necessary when organizations are proceeding towards team-based work structures. The key elements for organizational development are learning, development and adaptation. Aga et al. (2016, 814-815) noticed that team building practices improve team members' knowledge about goals. These practices enhance internal communication between team members which leads to better relationships among them. By improving its problem-solving team will perform in the better way. There are some different cultural aspects with using human capital and sharing knowledge. Good communication with team members increases team compassion and engagement.

Conflicts make work difficult for everyone. Chekwa & Thomas (2013, 42) mentioned that interpersonal conflicts effect on teambuilding practices. Interpersonal conflict has a negative effect on teambuilding processes. Appelbaum et al. (1999) mentioned that in traditional organizational framework there are two choices when the conflict occurs. There is an option whether to face conflict or to avoid it. In some cases, conflict enhances team to be more creative. Conflicts can be created artificially, if there is need to improve team's actions.

In following annexes, the team literature is analyzed from four perspectives including temporary, virtual, high-performance and self-managed dimensions. Aim is to find specific information about the team functions and matters which affect on the teamwork.

2.1 Temporary team

Temporary team is compost specifically to accomplish some work or some task. The nature of work is temporary and the team is working together only when it is needed. Temporary teams are used to provide professional workers for changing situations. These teams solve problems which require more talented personnel. (Meads, 1970) Competitive business environment has influenced on composition of working

organizations. Nature of work is more dynamic and organizations need to be more flexible (Tyssen, 2013).

2.1.1 Function and characteristics

Temporary in this context can be defined as a team which is not part of a permanent organization. The purpose of temporary team is to accomplish a given task by collaborating with team members. Limited time is an important factor when the team is working temporarily. (Nisula & Kianto, 2013) According to Bakker et al. (2013, 393-394) those creative project teams which had shorter time frame for their projects focused more on the present issues. Temporary teams are not immersed with the task on hand comparing to permanent teams. These short-term project teams process information in more heuristic way. Negative effect of a team conflict on cohesion is smaller with a temporary team than a permanent team. Heterogeneous teams tend to work usually better together for short-period of time than longer time period because social loafing effects on teamwork. (Rubino, 2014)

Temporary organization is disposable. This is another meaning for an organization which is formed only for short-term use. Semi-temporary organization is capable to complete projects with permanent organizations also. Temporary organizing can be seen also as a perspective. This perspective tries to explain reasons for temporary organizations existence, production, transformation or reproduction. Differences between temporary organizations are discussed within this perspective. (Bakker et al. 2016, 1704-1707)

Nowadays, the work is often temporary in nature and a permanent work group is not always needed. It is more cost-effective to recruit temporary employees. Nisula & Kianto (2016) studied temporary team formed for research and development actions. This study revealed one important fact about innovative temporarily working groups. Task orientation is a significant driver towards creativeness, when a group consists of diverse members. Criticism is one part of successful group work. If weaknesses are criticized while working together, it is possible that creativity reaches higher level. Short-term groups and long-term groups do not possibly relate

at same way towards experimentation, support, widely shared vision or participation. For short-term groups these were not particularly important. According to Nisula & Kianto, task orientation is one key factor in short-term projects when aiming creativeness. According to Alipour et al. (2017, 313) there is sometimes misunderstanding between leaders and followers about characteristics of temporal work.

2.1.2 Composition and abilities

Prikladnicki et al. (2017, 22) mentioned that teams are composed usually for certain project or task. When the work is done, a company will use the team again or separate it. In most cases the company will keep the team together. There are some things, which can prevent this happening. Ability to deal with challenges, risks and shared experiences are the main reasons to keep the team together. Milgram (1967, 67) talked about “The Small-World Problem” and how people are closer than we expect. Knowledge can be found via networks if these networks are connected together. For example, in The United States it is very likely that everyone is only few steps away from each other.

Uzzi & Spiro (2005, 451) mentioned that networking and partnering happens more often with random people they have not worked with before. This was Prikladnicki et al. (2017, 24) inspiration to study this aspect more deeply. After analyzing software projects in large-scale software company, they discovered that in very complex projects it is important to choose a team which contains both people which have worked together and those which have not worked together. And for less complex projects the team should be composed of new members which have not worked together before. Old team members have knowledge and they can share their expertise in development projects. New members bring fresh ideas, but sometimes old members can resist new ideas.

2.1.3 Team processes

According to Blois et al. (2016) a temporary organization has formal and informal project processes. Team processes can be divided into three categories. Self-

organizing is a condition where the system is working dynamically and maintaining certain equilibrium state. It can be found in decision-making processes and process planning. Eco-organizing is a function where one system or sub-system is interacting with other system. Eco-organizing can be found in many project processes. This needs to be taken in consideration in process planning phase because actors in some processes need to continue their cooperation. Re-organizing is traditionally a working system which needs adaption of more dynamic processes to renew the system.

Temporary organizing is described to be a process, a form or a perspective. Process perspective can be found at any level of temporal organizing and it centers on temporariness by capturing and creating a concept of dynamic change. Unanticipated results are more likely when temporary organizing process is very dynamic. Form perspective concentrates on temporary organizations which are not integrating on particular timeframe. Temporary organizing can be divided into different forms where on structure side there are temporary and permanent dimensions and same dimensions exists on the actors' side. (Bakker et al. 2016, 1704-1707)

Mohammed & Dumville (2001, 93-97) studied team mental models (TMM). They introduced several methods for information processing among team members. Information sharing is a function where one team member is giving information to other team member and afterwards they might have group discussion about shared information. Transactive memory system lifts up an idea where team's memory capacity is increased by using team members' external memory. Group learning is simplest way to address information sharing and it is possible to use it with transactive memory systems. Group learning should be encouraged in all heterogeneous teams. Shared, organized understanding and knowledge compose TMM. Mohammed et al. (2015, 705) study shows that time-based disagreements can be discovered and addressed easily. By attending explicitly due dates, task order and pacing, teams can avoid conflicts. Training enhances use of TMM and it will help team members to get to the same temporal level. There is a possibility that TMM develops during the time and its impact on team performance will be even

greater than before. Facilitation of team learning behaviors is possible to organize by setting up a course where team members can learn these skills. (Raes, 2014)

2.1.4 Effective teamwork and challenges

According to Grawitch et.al (2003, 211-212) a temporary group which was under positive influence concentrated more on important issues. They discovered that if one member of group suggests something and the group decides to do something else, it is possible that this one member will have difficulties to adapt to others' choices and concentrate on development of their ideas. Perhaps this will have an effect on creation of new ideas. This study showed also that it is difficult for groups to create something which will never be implemented. This concludes the idea that an interaction between mood and autonomy exists. Most interesting for group members is to define their own problem and solution for that. If the group experienced positive mood, their autonomy was not important and when their mood was neutral, they concentrated more on their autonomy.

He (2007) mentioned that if team performance needs some improvement, team cognitions can be used for that purpose. Team's success is based on team members, who they are and their willingness to interact with each other. He (2011, 26-27) noted that team cognitions are related to mental models. He describes team cognitions as underlying cognitive templates which can be used to achieve the best outcome. More efficient teamwork is reached where co-workers develop natural respect for schedules and deadlines. When respect appears among team members, it will lead to appropriate pacing behaviors which includes starting tasks early and finishing them on time, to accomplish common goals. He studied also relations between two dimensions, "Shared understanding of temporal requirements" and "Shared admiration of temporal requirements". A team which has these both dimensions on high-level is a team with high-level temporary cognitions. It is necessary to respect both shared admiration and understanding of temporal requirements to follow given timelines. If either one dimension is in low level, it is difficult for the team to succeed with their tasks.

Parent & MacIntos (2013, 234-235) studied temporary organizations' culture in the 2010 Olympic Winter games and made some important findings. Organizations' cultural resource is possible to re-model. Cultural repertoire or cultural resources accepts team members with the same qualities. Cultural resources expand and enact meaning that there is a link between liminality and cultural crystallization in temporal organizations. They also found that the group needs to start working together quickly after socialization process. Infusion mechanism needs to be quick so that a new team member is able to start work process rapidly. This study showed that socialization and crystallization are most likely facilitated by the liminal space.

Turnover can affect on organization in many ways. Nuhn et al. (2016) studied this question and discovered some interesting details. Turnover intentions are not higher in temporal organization due to job-autonomy and meaningful work. Intentions to leave temporal organization decreases while temporal organizations lifetime increases. People who worked in both permanent organization and in temporal organizations had increased workload. This combination tends to lead towards conflicts. Intentions to leave temporal organization will lead the worker easily to leave both organizations. The strongest predictor of upcoming situation is inter-role conflict.

Nuhn et al. (2016, 13-14) study shows a connection with recent research in human resource management (HRM). Temporal work is increasing in permanent organizations also. This is the reason to analyze development of turnover intentions. The role of HRM is meaningful when temporal and permanent organizations are composed. Impactful work and avoidance of inter-role conflict are the key issues to concentrate on. Team learning might affect on the ways how a team solves problems together.

Mueller (2012, 440-441) noticed that sharing of knowledge is possible when management accepts an interaction between employees. Knowledge sharing continues even under heavy workload, because project teams feel that they have to help colleagues in difficult situations. The most important is to encourage project teams to share their knowledge in positive way.

2.2 Virtual Team

Virtual work increased rapidly in the 1990s when computer technology was developed suitable for globally distributed organizations. Virtual teamwork provides a solution in the environment where traditional team-based work is not possible due to widely dispersed organization. (Townsend et al., 1998)

2.2.1 Function and characteristics

Geographically dispersed organization communicates nowadays very often virtually (Jarvenpaa & Leidner, 1998). Virtual teams are connected with computers and telecommunication systems. This technology enables effective cooperation between top-level experts. Virtual team functions are the same as traditional team functions, but the difference is that it is easier to find needed professionals for certain projects. It is also one way to reduce expenses and costs, because high-level professionals can serve multiple sub-organizations. Functional role of the virtual team and its members is more dynamic and flexible. In large-scale organization, this type of arrangement enables unit to respond more quickly. (Townsend et al., 1998)

According to Swart & Harvey (2011, 713-718) UK Ministry of Defense (MOD) projects consist of independent organizations which are led by management team and their prime contractors. Whole project includes contractors, internal customers and end-users. Maintenance of core knowledge is more cost-effective comparing that each project would maintain their own knowledge system. By mapping the knowledge, it is possible to manage this type of large-scale organization's information requirements. Knowledge which is not visible to all team members may cause major issues during the project. Therefore, all parties should have access to all meaningful information concerning the project. Shape of the knowledge differs across boundaries which means that for example an end-user of the product might have some information which is meaningful for all parties. Organization can reach strategic objectives by using cross-boundary teams. Individual level of knowledge is possible to transfer over the boundary if both parties are aware of organizational differences. For individuals it is important to understand what kind of knowledge they hold themselves to share it with the team. Interaction between team members

creates new knowledge. The key factors of knowledge creation are training, information, trust and personal desire. Training is supported also by Kozlowski & Bell (2008).

2.2.2 Composition and abilities

Behrend & Erwee (2009) study showed findings that are necessary and important measurements to discover how information and knowledge flows through organization. Social and personal networks will predict what information a person will get in the future. An ideal virtual team member is open minded-flexible, proactive and positive person with good communication skills. In this case almost all team members announced a need for socio-cultural and tool-related skills. It is typical for virtual environment, that some of the knowledge disappears because of poor knowledge management, multi-institutionalism or multi-culturalism. More often team members are not aware of disappeared information. Virtual work is very complex subject and often organizations forget principles of virtual teamwork. New ideas are launched without understanding the nature of virtual work. Communication and collaboration are necessary only if these actions are used to accomplished common goal. When an organization desires to achieve virtual creativity, meaningful factors are team composition, task characteristics and technical solutions. (Malhotra et al. 2004)

Krumm et al. (2016) studied KSAO (knowledge, skills, abilities and other characteristics). KSAO qualities seem to be even more important when working with virtual teams. "Leading", "deciding", "analyzing" and "interpreting" are perhaps future's competency models. KSAO requirements were in some way related when virtual and traditional teams were compared. Augment of knowledge enhances virtual teams' development process. Some requirements between traditional and virtual teams are still remaining the same. Those requirements were "organizing", "executing", "creating" and "conceptualizing". According to Krumm et al. (2016) trust is perhaps not so important factor for a virtual team. If a conflict appears, information is possible to recover from the system. Level of "supporting" and "cooperating" can be lower in a virtual environment. A practical implication driven from these results is

that by organizing technical training and giving instructors when and how to use certain media will help an unexperienced team.

Schulze et al. (2017) study showed, that face-to-face (FtF) or computer mediated (CM) interaction requires different kind of abilities (KSAO) from users. There is low to moderate relation between context of communication. Communication competence assessment should be selected according to a context of interaction. This will help the company to predict communication outcomes which are the most important. Sometimes it is possible to know predominant mode, if company is working in geographically dispersed areas. This will possibly influence on personnel selection. Human resource management can benefit from knowledge of predominant mode of interaction. From managerial point of view, good communication skills will benefit the organization. There is also a need for new assessment tools which are related to mode of interaction.

2.2.3 Team processes

Kanawattanachai & Yoo (2007) discovered that it takes approximately a couple of weeks before the team is fully operational after first team meeting. When the team is operational its members can share their knowledge with others and trust will exist between team members. When starting a new project, volume and frequency of task-oriented virtual communication is essential for high-quality team performance. Formation of transactive memory system (TMS) will decrease a need for frequent communication. Later on, virtual teamwork changes and very frequent or task-orientated communication becomes less meaningful. Coordination of knowledge becomes more important. Managers should take these issues under consideration.

Dulebohn & Hoch (2017, 570-571) developed input-process-outcome framework for practical use. These frameworks consist of essential factors which effect on virtual teams' planning. The framework is presented in following figure 3.

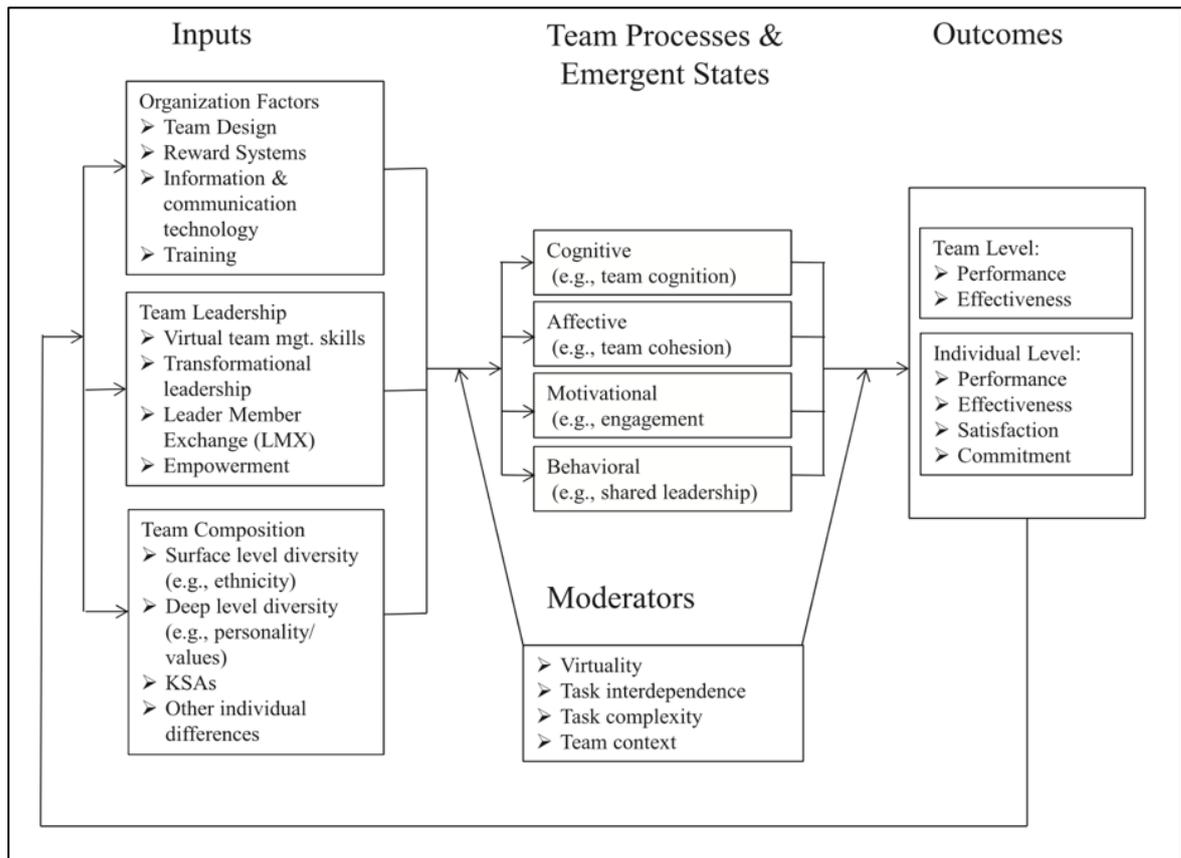


Figure 3. Input-process-outcome model of virtual teams (Dulebohn & Hoch, 2017)

2.2.4 Effective teamwork and challenges

Effective virtual teamwork and knowledge sharing requires information systems which are working properly. Integration of an IT-system which is suitable for team processes, behavior and design is necessary to ensure efficient virtual environment. (Zakaria et al.; 2004, Killingsworth et al. 2016) There is a relationship between knowledge sharing and trust which affects widely on a virtual work. Virtual team's effectiveness is based on knowledge sharing and it should be supported on technical and social levels. (Alsharo et al., 2016)

Positive environment empowers knowledge sharing. Trust between team members is important and enjoyment is one reason for knowledge sharing between team members. Positive attitude towards knowledge sharing exists when there is a possibility that the team will be working together for longer time. (Killingsworth et al. 2016). Virtual team members are able to express their feelings widely by using text

format. (Cheshin et al. 2011) Serçe et al. (2011) noticed that globally distributed virtual groups preferred to use synchronous communication for social interaction among team members. They used asynchronous mode of communication for task-related discussions.

Chamakiotis et al. (2013) discovered that virtual creativity can be divided into three different categories: individual, team level and technology-based. Creativity is enhanced in individual level when highly creative, educated people with good communication skills work together virtually. On team level it is important that leadership is centered, team is heterogenic (knowledge sharing, new ideas, task distribution) and leadership is based on expertise. Used technology should provide a flexible approach towards creativity.

Matta et al. (2015) study showed that it is important to have a common understanding between an employee and a supervisor. Leader member exchange (LMX) agreement is typically used to examine one-way relationship. Actually, best results can be achieved when both parties agree on quality of their LMX level. The ideal situation would be when both parties (employee and supervisor) evaluate each other's on five-point scale and both scores on maximum level (5). This means that employee respects supervisor's opinions and vice versa. This predicts the state where work-engagement reaches the highest level. If LMX level is low, supervisor and employee could try to cooperate and find ways to improve their relationship. It is important that supervisor clarifies employees' roles and models for behavior for common understanding between both. Employee have also a possibility to rise some important issues. This relationship brings valuable information for the leader and the organization. Face-to-face meeting effects on work engagement and organizational citizenship behavior greatly.

Behrend & Erwee (2009) studied application of social network analyzes (SNA) which was used in the virtual teams. Social networks are emerging in virtual project teams. SNA is used as a method which provides valuable information about virtual teams. This study reveals that two-thirds of the participants had experienced some communication problems in their virtual projects. Also, knowledge sharing and

knowledge utilization were problematic. Half of the interviewed participants informed that they had experienced problems with those matters. Despite all discovered problems, participants claimed to have a shared common language with their team members. This shared language consists of technical and personal parts. Those people who were not native speakers faced some difficulties. People tend to have difficulties also with some invisible cultural norms. According Rix et al. (2010) this is nowadays a well-known problem.

Swart & Harvey (2011,713-718) studied how to identify knowledge boundaries in network projects. Their interest for this study where boundaries of Defense (MOD) and Defense industry. Challenge with knowledge boundaries consists of multiple factors. Project knowledge is interconnected and dynamic which means that knowledge between two organizations cannot be shared. And also, existing knowledge cannot be retained without substantial investment. Knowledge levels vary between different cross-boundary teams. Well-organized knowledge will have a positive impact on teamwork. Requirements for aimed knowledge will transform during the project. Knowledge building is a main task of cross-boundary team and knowledge can be found in various places. According to the study, small teams tend to share knowledge more frequently and effectively.

2.3 High-performance team

The high-performance capability is associated with creativity and innovativeness. These high-performance workers are able to apply their knowledge in diverse ways. According to McAdam & McClelland (2002, 95) The concept of creativity was introduced over 50 years ago and use of word “creativity” increased on 1990s.

2.3.1 Function and characteristics

Innovation performance can be evaluated by dividing it into three categories. These categories are novelty, usefulness and market potential. If a new product is valuable in all these categories, innovation performance exists. (Frederiksen & Knudsen, 2017, 71) Lee & Yang (2015) analyzed employee goal orientation, work unit goal orientation and employee creativity. All given tasks should be explained very

carefully so that employee understands the main goals. Work conditions should support elaboration of knowledge. This should be organized in employee level.

Katzenbach & Smith (1993) noticed that it is not always clear that high- performance workers should be a part of the team. They suggest that these workers should be treated as a group which works together. Reasons for this different approach are that sometimes individuals achieve better results working individually, because they can concentrate more efficiently on their own goals and they are able to save time and money. Same kind of trust issues do not exist than compared to team settings. Mohrman et al. (1995) view supports this independent nature of work. Knowledge workers tend to work alone and participate in meetings to present their progress.

2.3.2 Composition and abilities

Teams should be selected based on the task and sometimes individuals' knowledge should be tested before starting the work. (Zhang.W et al. 2015, 520) Team climate can depend on one individual (team member) whose talent influences the whole team. Individual creativity is a very meaningful factor especially in development projects. Individuals and teams support each other. (Açıkgöz & Günsel, 2016, 459-460) Differences in workgroup members' skills effect on group performance positively. Higher specialization improves when differences between workers are recognized. Some workers are highly specialized and the level of specialization will rise when group accepts formal diversity among group members. In some cases, this will lead to a situation where some workers turn to be assistants of the others. (Akron et al. 2016, 324)

Leite et al. (2017) recognized, that there are multiple ways to select staff to different projects. Staffing process varies and depends on the context of the company. This study showed that focusing on maximized use of skills is not necessarily the best way to evaluate projects' overall future success. Better way is to research failed projects and leadership. Managers are required to understand the process of hiring and training. According to Açıkgöz et al. (2016) it is important that a team has different members. Absorptive capability increases with greater diversity. The value of required external knowledge becomes more easily understandable. Diverse team

is more capable of evaluating new information and they are able to use also their own expertise. A development team which is producing new products is more successful, if they have higher absorptive capability.

Disorganization effects on team's problem solving and motivation. Under conditions of disorganization more problems are solved. Resources are meaningful factor for team's success. If resources are not available, accomplishment of tasks becomes harder. Those teams which include multiple leads have more resources available and the outcome is usually better. Lower level teams tend to use resources which are above their own level. Resources should be organized to enable effective teamwork. (Herath et al. 2017, 57)

2.3.3 Team processes

Creativity processes include creation of new ideas. Different ways of reusing, creation or sourcing are very important for effective creation process. By knowing these base guidelines, it is possible to improve creation outcomes and reuse of affordable knowledge. Effective knowledge creating team needs diversely skilled personnel and it is leader's task to provide this kind of employees. Leader's task is also to enable efficient teamwork by creating good working conditions for everybody. Some of the knowledge is reusable and provided by knowledge repositories. (Khedhaouria & Jamal, 2015, 943) Crowdsourcing benefits use of internet online communities to collect valuable knowledge. There is also possibility to take advantage of users as co-creators in knowledge creating process. Users can take part of valuing or creating new products. Open climate encourages to share problems, mistakes or errors. (Bessant, 2010; Khedhaouria & Jamal, 2015)

Nonaka & Takeuchi (1995) introduced SECI-model which presents four ways to transfer or transform information. *Socialization* is the way how tacit (hidden knowledge) can be transferred. Tacit knowledge is transformed to explicit (visible) form via *Externalization*. This means that knowledge sharing happens through cooperation and actions. *Combination* of knowledge enables creation of new knowledge. Explicit knowledge will transform to new explicit knowledge.

Internalization is a process where explicit knowledge is transformed to tacit knowledge. Usually this process exists where people are learning by doing. Nonaka & Toyama (2005) created dynamic model of knowledge- creating company which is based on SECI-model. In this model triggers for tacit and explicit knowledge sharing are *knowledge vision* and *driving objective*. Knowledge vision is explained to be the reason why an organization exists. It is easier to develop organization's creative actions based on a clear vision. Driving objective is the reason why organization works towards its objectives. It could be profit or something else. According to Turner et al. (2012, 974) teams can be a part of organizations knowledge process. By utilizing teams as sub-processes of knowledge management. This can impact on whole organization's knowledge management functions.

Learning orientation encourages the team, because it is proven to be a driver for knowledge sourcing, creation and reuse. Even few learning orientated team members have part on other members' learning and knowledge. (Khedhaouria & Jamal, 2015; Oluikpe, 2015) Imitation is a rising form of processing knowledge. Technology companies base their production on imitated or improved products. Existing products contain explicit knowledge, which can be modified more easily than valuable tacit knowledge. (Oluikpe, 2015, 364)

Frishammare et al. (2016) mentioned that radical idea and concept development should be considered to be more than a process due to reason that there are also structures and methodology. The key idea is to implement creative individuals to create diverse knowledge-base. These individuals with different backgrounds can provide different perspective and solve work-related issues in a new way.

2.3.4 Effective teamwork and challenges

Implementation of high-performance work practices may improve high creative team's working productivity and safety. (Tregaskis, 2013, 235) It is possible that pro-sharing norms encourage knowledge sharing. Motivation, ability and opportunities for all project individuals promote knowledge sharing. Low performing teams might benefit with raised performance, if high-performing teams share their knowledge

with them. (Lee Endres & Rhoad, 2006, 277-278) O'Connor & McDermott (2004) came up with an important finding about innovative work. Working in a large organization is a real challenge for creative workers. Bureaucracy and slowness causes frustration and decreases the level of innovativeness. Networking is efficient way to work in this kind of organization. O'Connor & Rice (2013, 15) presented three dimensions of project uncertainties in figure 4.

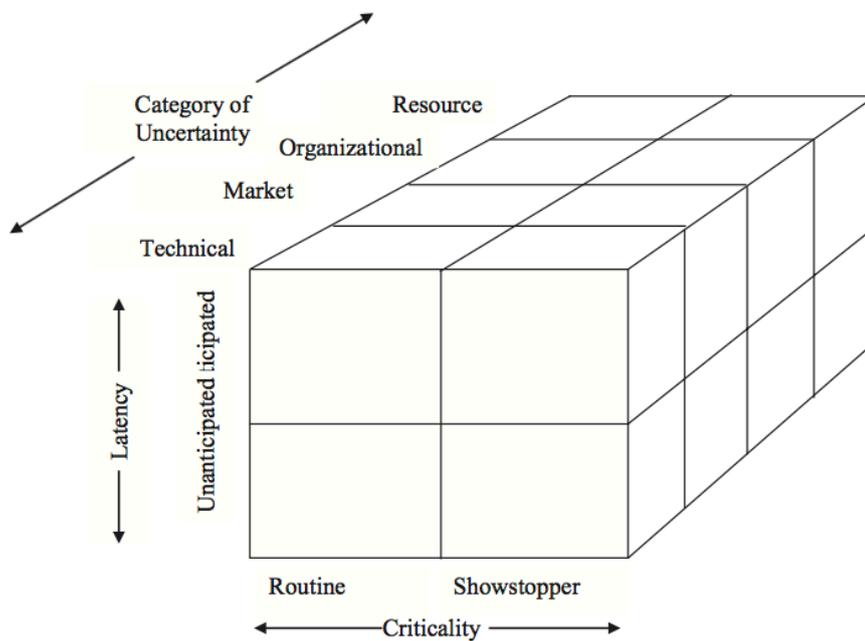


Figure 4. The Three Dimensions of Project Uncertainty (O'Connor & Rice, 2013)

Moldjord & Iversen (2015, 242) view is that it is beneficial to discover which promoters and inhibitors effect on development process of vulnerability trust. Promoters for trust are familiarity and recognition with team members and also caring attitude. Lencioni, (2012) describes vulnerability as something which is related to trust. It gives team members freedom to reveal their fears and failures. Pettersen Buvik & Danielsen Tvedt (2016, 131) mention that trust impacts on team performance. Trust effects directly and indirectly. When a team is committed to accomplish the task, outcome of the project is positive.

Nisula & Kianto (2016, 437-440) studied individual's innovative behavior in temporary group innovation. They found that individual-level and group-level factors

have influence on individual's innovative behavior. Perceived contextual factors of task orientation and climate which supports experimentation and also self-efficacy had an impact on individual's innovative behavior. Subjects like support for innovations, safety of participants or vision were not necessarily important factors for participants. This study showed that individual's qualities were confidence about themselves and their innovation skills. Individuals with these qualities were able to work in short-term innovation projects more easily. Nisula's & Kianto's study was carried out in temporary environment and participants were enthusiastic of participating in an innovation camp. It is possible that this factor impacted on results, although innovative people typically are very interested about their work. Conclusion of these findings is that experimentation friendly environment encourages participants to be more innovative.

O'Connor & DeMartino (2006) remarked that importance of the organization cannot be denied. Their idea was that there is a need for capable personnel, creative environment and efficient working tools to find radical innovations (discovery). An organization needs capability to recognize necessities for innovations and further development of ideas (incubation). There is also a demand for activities which strive for development of finished business products (acceleration).

Huo et al. (2016, 64-65) discovered antecedents for conflicts in cross-functional project teams. These teams consist of highly-skilled professionals and intra-personal diversity or organizational culture diversity can cause conflicts. Uncertain project task can cause conflicts among team members as well as inappropriate behavior. Nesterkin & Porterfield et al. (2016, 251-253) discovered that well-organized conflict management predicts high-level team performance. Team cohesion forms through team support processes. This finding supports team development. Team cohesion is slowed or shut down when a conflict happens. Helping behaviors are in this case necessary. The team which is under conflict situation requires help with conflict management. When high team performance is the main goal, aim of conflict management is to disrupt or repair those team mechanisms or attributes. According to Zhang W. et al. (2015) challenging pressure can affect positively on the outcome.

2.4 Self-managed team

Self-leadership can be described as one of the processes of organization (Manz, 1986). Participants of the self-directed groups have usually more positive attitude towards group work. Kauffeld (2006, 12), discovered that there are not so many negative remarks for taking part in team action, if a self-directed group is compared with a traditional team. She also found that participation, which is one of the work characteristics, is positively related to group competence. According to Mohrman et al. (1995) knowledge teamwork contains self-managed activities. Scheduling and monitoring performance used to be activities which managers organized before.

2.4.1 Function and characteristics

Moran (2015, 196-204) noticed that a common goal is a driver for self-organization. Self-organization cannot happen in organizations which have democratic leadership or no leadership at all. Self-organization is based on a common understanding and trust. Collectivity is a keyword for self-organization and it is related especially to resource management and decision-making. Self-organization can be described partly as a learning organization. This means that people are willing to share knowledge and learn from each other. Self-organized team needs minimum critical specification and team requires directive critical factors and least the amount of restrictions to accomplish their task. Redundancy of functions can be seen as multiplying knowledge in the team. Learning to learn is related to adaption. Internal and external environments can cause changes. Through self-reflection there is a possibility to adapt to these changes. Requisite of variety means that in highly stable environment self-organized teams are not needed. In projects which involve self-organization, learning can be seen as a possibility to create something new and innovative. Sometimes the traditional way is more familiar for the customer.

Moe et al. (2008, 77-83) found out that agile software development project is different than traditional software project. Autonomy is on different level compared to other projects. In this particular study project teams were divided into modules on each person who worked in the module which was his or her specialty. Benefit of

this division into modules was that each developer had great independence in his/her work. The disadvantage was that they did not receive any information from the other modules. Internal autonomy can also cause problems.

Moe et al. (2008, 77-83) findings were also that supervisor's guidance needs to be taken under consideration. Even if the work is independent, it is still important to take common action in parts of projects. The reason for meetings is to share information. Teams which missed many meetings due to reason that the product was not ready for integration, reduced their internal autonomy. External autonomy can form diverse problems. Too many times manager's expectations are too high towards product which is under development. External autonomy affects also when project's resources, especially human resources, are used by external units.

Moe et al. (2008) study showed that although the project lacked internal autonomy (on team level), individual level autonomy improved the project. Redundancy is understood traditionally to be negative factor of teamwork. It involves more people, but for self-organizing teams it is necessary that teammate can substitute each other. Backup behavior was mentioned to be important to receive feedback by coaching or receiving task-related behavioral assistance. Assistance can be taken into three high-level. This means that in case of absence, another team member can complete the task. According to Moe et al. (2008) for an autonomous team, team orientation is very important. Findings of this study was that, when it became more important to accomplish individual goals, team goals became less important. This was caused by lack of system support and high specialization. External autonomy was described to be a barrier in the development process. Increased external autonomy increased also information sharing and coordination.

According to Fausing (2013, 256-257) working conditions for autonomously working group should be well organized. Shared leadership is not applicable to traditional work environment where there is a role and place for the supervisor. On the other hand, non-traditional highly knowledge-based work can be organized by using shared leadership. By using applied leadership, a team will have better results in team performance.

2.4.2 Composition and abilities

Tidd & Bessant (2016) say that a self-managed team can be very successful if work is conducted in specifically defined areas. High performance team needs clearly defined objectives and tasks and effective leadership for their work. Good leadership or self-leadership requires a good balance in team roles. Team consists a group of individuals and team member's behavioral style should be on the same level with the other team members.

High-performance team needs liaison with external organizations. Hauschildt & Konradt (2012, 510-512) noted that self-leadership and individual- and task-proficiency are related positively. There is also a positive relation between self-leadership and willingness to adapt. Self-leadership need to be considered as one factor which effects on work roles and individual's effectivity. Self-reflecting and self-organizing processes include self-leadership when workers are analyzing their own work and developing teamwork skills.

2.4.3 Team processes

Yammarino et al. (2012, 396) studied leadership approaches. One team leader's role is to be a team member or team coordinator. Shared leadership follows the same pattern where a leader is part of the team. In the network type of leadership team, the leader is one node in the network. Collective approach is the highest level of leadership where leader is a hub or core of multiple collectives. When organization proceeds using collective leadership, there is certainly an urge to implement new practical systems. Also, from the technical side working tools should respond to this new kind of situation. In future organizations there might be a need for multiple leaders to fill needs of the high-performance team. New leaders need to accept collective leadership models where responsibility is not centered to one person. Certainly, there is a request for training new concepts. Collective leadership is not so well-known idea and there is a need for further study.

According to Moran, (2015) self-organized development process requires certain environment for developers. This is something which need to be addressed in the beginning of project. Resources are remarkable part of innovation process. Required resources need to be close enough so that the team can use those efficiently. Mohrman et al.1995 (Figure 5.) mentioned that self-managed teams plan and execute their work independently. Cooperation with other teams is necessary in their projects due to issues which need to be integrated. Team members are involved with their own success. By training and educating team members, they can improve their own performance. Self-managed team rely on external help, if there is an issue which cannot be solved by the team. Team's opinion matters when difficult business decisions are made by the organization.

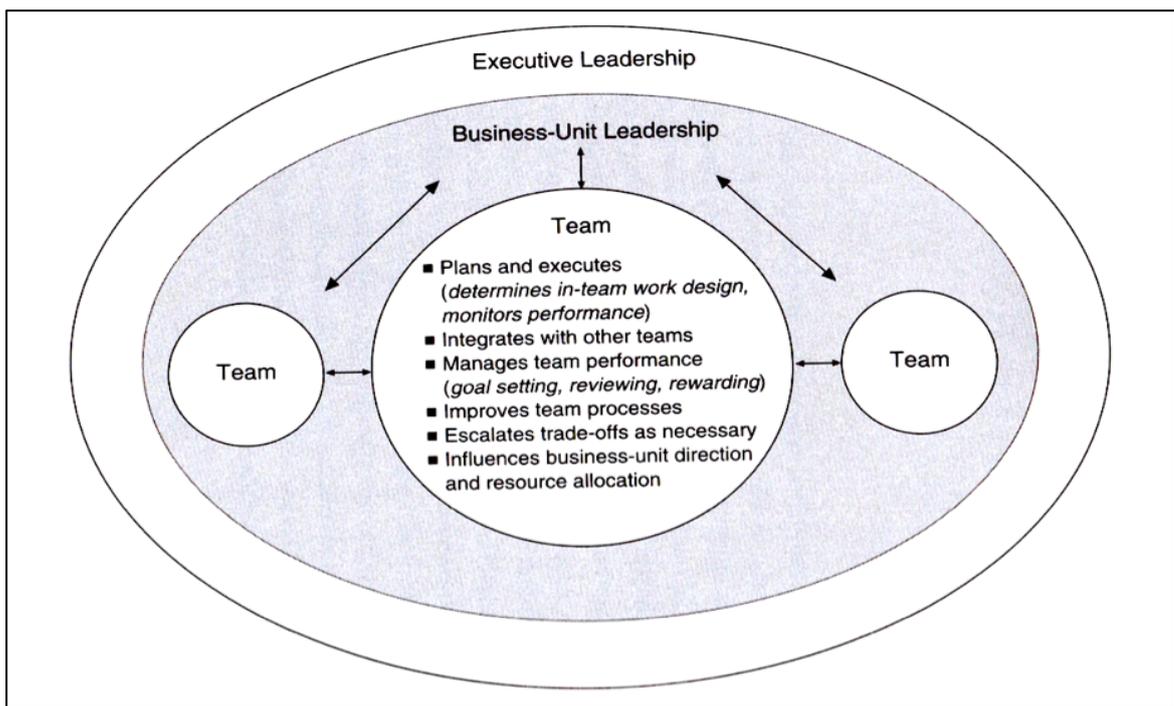


Figure 5. Self- Managing and Integrating Functions of All Teams (Mohrman et al.1995)

2.4.4 Effective teamwork and challenges

Zhang, Z. et al. (2012) mentioned that shared leadership might benefit work teams. From the system perspective, training systems should include workshops where both leaders and employees are able to develop shared values and vision.

According to Carte et al. (2006, 335-340) self-organized teams have well-organized communication exchange compared to low performing teams. One main reason for extensive communication exchange is shared leadership. People who are working in teams which contain self-leadership are typically focusing on given task. Guidance in early stage of work drives to better outcome. Self-organization or self-direction can be formed internally. Basically, one of the team members takes the role of the leader while the others continue completing the task.

Appelbaum et al. (1999, 74-75) studied a self-directed team and conflict resolution. Self-directed teams are nowadays small groups. The idea is that the group have to self-manage and there is no need for an external leader. Conflict is part of normal organizational work. Depending on the situation, conflict should be seen as a process. Conflict can be positive or negative. Positive is functional and negative is the opposite. Team benefits from cognitive conflict where they start to focus more on work goals. Conflict can affect also negatively if team members are concentrating on less important matters and creativity is decreasing. In the future managers need to have very good conflict management skills. Conflicts occur more often and workers are more highly specialized and dispersed. According to Schreuder et al. (2017, 24) team balance is possible to restore with team commitment. From managerial point of view, these psychological constraints should be recognized. Bishop & Scott (2000, 448-449) discovered that there is a positive relation between team commitment and satisfaction with co-workers and supervisors. Resources are easily a problem if the team wants to work efficiently. Team commitment is related negatively with conflicts which concern use of resources and inter-sender conflict.

2.5 Teamwork literature findings

The following table is a summary of teamwork literature findings. The table is divided into five categories according to the main teamwork types. Each teamwork type consists of the key ideas which reflect the ideologies of the authors listed in the last column of the table.

Teamwork type	Key ideas	Authors
Team (broadly)	<p><i>Conflict management</i></p> <p><i>Coordination</i></p> <p><i>Problem-solving</i></p> <p><i>Task orientation</i></p> <p><i>Team building</i></p> <p><i>Team dynamics</i></p>	<p><i>Appelbaum et al. (1999), Chekwa & Thomas Jr. (2013)</i></p> <p><i>Zaccaro et al. (2001)</i></p> <p><i>Hinsz (2015), Sharma & Bhatnagar (2017)</i></p> <p><i>Zhang, W. et al. (2015)</i></p> <p><i>Kozlowski & Bell (2008), Aga et al. (2016)</i></p> <p><i>Zaccaro et al. (2001), Zhang W. et al. (2015)</i></p>
Temporary team	<p><i>Knowledge sharing</i></p> <p><i>Limited time</i></p> <p><i>Organizational culture</i></p> <p><i>Problem solving</i></p> <p><i>Task orientation</i></p> <p><i>Team cognitions</i></p> <p><i>Team dynamics</i></p> <p><i>Team mental model (TMM)</i></p> <p><i>Temporary organizing</i></p> <p><i>Synchronization and networking</i></p>	<p><i>Mueller (2012)</i></p> <p><i>Bakker, et al. (2013), Nisula & Kianto (2013), Rubino (2014)</i></p> <p><i>Parent & MacIntos (2013)</i></p> <p><i>Tyssen (2013), Nuhn et al. (2016)</i></p> <p><i>Nisula & Kianto (2016)</i></p> <p><i>He (2007, 2011)</i></p> <p><i>Meads (1970), Grawitch et.al (2003), Blois et al. (2016)</i></p> <p><i>Mohammed & Dumville (2001, 2015), Raes (2014)</i></p> <p><i>Bakker et al. (2016)</i></p> <p><i>The Milgram S. (1967), Uzzi & Spiro (2005), Alipour et al. (2017), Prikladnicki et al. (2017)</i></p>
Virtual team	<p><i>Dynamics</i></p> <p><i>Effective teamwork, knowledge sharing and trust</i></p> <p><i>Information and knowledge flow</i></p> <p><i>Input-process-outcome</i></p> <p><i>Knowledge creation</i></p> <p><i>KSAO (knowledge, skills, abilities and other characteristics)</i></p> <p><i>Leader member exchange (LMX)</i></p> <p><i>Transactive memory system (TMS)</i></p> <p><i>Training</i></p> <p><i>Virtual communication</i></p>	<p><i>Jarvenpaa & Leidner (1998), Townsend et al. (1998)</i></p> <p><i>Zakaria et al. (2004), Behrend & Erwee (2009), Alsharo et al. (2016), Killingsworth et al. (2016)</i></p> <p><i>Behrend & Erwee (2009)</i></p> <p><i>Dulebohn & Hoch (2017)</i></p> <p><i>Malhotra et al. (2004), Swart & Harvey (2011), Chamakiotis et al. (2013)</i></p> <p><i>Krumm et al. (2016), Schulze et al. (2017)</i></p> <p><i>Matta et al. (2015)</i></p> <p><i>Kanawattanachai & Yoo (2007)</i></p> <p><i>Kozlowski & Bell, (2008)</i></p> <p><i>Cheshin et al. (2011), Serçe et al, (2011)</i></p>

High-performance team	<p><i>Composition and team building</i></p> <p><i>Conflict management and challenging pressure</i></p> <p><i>Creativity</i></p> <p><i>Crowdsourcing</i></p> <p><i>Goal orientation</i></p> <p><i>High-performance work</i></p> <p><i>Independency</i></p> <p><i>Innovations and networks</i></p> <p><i>Knowledge sharing and management</i></p> <p><i>Learning orientation</i></p> <p><i>Resources</i></p> <p><i>Trust</i></p>	<p><i>Açıkgöz (2016), Leite et al. (2017)</i></p> <p><i>Huo et al. (2016), Nesterkin & Porterfield et al. (2016), Zhang W. et al. (2015)</i></p> <p><i>McAdam & McClelland (2002), Khedhaouria & Jamal (2015), Nonaka & Takeuchi (1995), Nonaka & Toyama (2005), Zhang W. et al. 2015, 520, Açıkgöz & Günsel (2016), Akron et al. (2016)</i></p> <p><i>Bessant (2010)</i></p> <p><i>Lee & Yang (2015)</i></p> <p><i>Tregaskis (2013)</i></p> <p><i>Katzenbach & Smith (1993), Mohrman et al. (1995)</i></p> <p><i>Frederiksen & Knudsen (2017), Nisula & Kianto (2016), Frishammare et al. (2016), Oluikpe (2015), O'Connor & McDermott (2004)</i></p> <p><i>Lee Endres & Rhoad (2006), Turner et al. (2012)</i></p> <p><i>Khedhaouria & Jamal (2015); Oluikpe (2015)</i></p> <p><i>Herath et at. (2017)</i></p> <p><i>Lencioni, (2012), Moldjord & Iversen (2015), Pettersen Buvik & Danielsen Tvedt (2016)</i></p>
Self-managed team	<p><i>Effective work tasks and objectives</i></p> <p><i>Communication exchange</i></p> <p><i>Complexity and collectivity</i></p> <p><i>Conflict resolution and team balance</i></p> <p><i>Group competence and participation</i></p> <p><i>Self-leadership and Individual- and task-proficiency</i></p> <p><i>Self-management</i></p> <p><i>Self-organized development process</i></p> <p><i>Shared leadership</i></p> <p><i>Team orientation, autonomy and reliability</i></p>	<p><i>Tidd & Bessant (2016)</i></p> <p><i>Carte et al. (2006)</i></p> <p><i>Moran, A. (2015), Yammarino et al. (2012)</i></p> <p><i>Appelbaum et al. (1999), Schreuder et al. (2017)</i></p> <p><i>Kauffeld (2006)</i></p> <p><i>Hauschildt & Konradt (2012)</i></p> <p><i>Manz (1986), Mohrman et al. (1995)</i></p> <p><i>Moran (2015)</i></p> <p><i>Fausing (2013, Zhang, Z. et al. (2012)</i></p> <p><i>Moe et al. (2008)</i></p>

Table 1. Teamwork literature findings

3 TEAM LEADERSHIP LITERATURE REVIEW

Team leadership is complex subject which has been researched from different angles. There are a great number of different theories and models. Lewin (1939, 298-299) studied early leadership and behavior models. He comprised three different leadership models: Authorian, Democratic and Laissez-fair. Finding of the study was that the leader who uses too much authority or is too relaxed is not appreciated. Active, objective and fact-minded democratic leader is the most respected type. Zaccaro et al. (2001, 477) highlights a new trend where organizations change their leadership concept from a traditional structured model to more dynamic team-based model.

Simmons & Striley (2014) researched twisted leadership and introduced a visual example of leadership style using a human knot. It is necessary to understand that leadership effects on subordinates positively and negatively. "Human knot"-technique can be used to test how different leadership styles effect in different situations. Kozlowski & Bell (2008, 29) promoted team leader's role creating learning environments and preparing adaptive teams. Collyer (2016, 111) says that in a dynamic environment, communication and leadership style are important aspects. Those leaders who are working in rapidly changing environments will perhaps benefit more from the organizational culture which includes clear goals and visions. People should be treated fairly and communication must be timely and efficient. Additionally, decision-making requires quick actions if the environment changes rapidly.

Chi (2011,1445-1446) and Aga et al. (2016, 814) mentioned that project's success is depends on leadership style. Transformational leader inspires the team to achieve better project outcome. Hassan et al. (2017, 81-82) study confirms earlier research that project manager's personality and use of transformational leadership has an impact on project's success. Aga et al. (2016, 814) found partly a mediated relationship between a project success and manager's transformational leadership style. Transformational leaders use teambuilding more easily in project environment. It seems to be easy for these leaders to discover how the use of

transformational leadership style effects on project success. If the aim is to improve project's success, one option is to provide transformational leadership training for leaders. Sandoff & Nilsson (2016, 425) claim that it is management's task to create agenda where they set up the main goals and achievements. This agenda includes a formation of the team. All team members are able to take part in this formation. Team members have usually the best knowledge about the other members' skills.

Some teams which have been working for a long time together have difficulties to accept new team members. Chou & Chang (2016, 194-195) say that old team members need to develop strong formal and informal relationships with newcomers. Managers should encourage a team to build new relationships by organizing social events where it is possible for newcomers to exhibit their helpful behaviors. Communication with old team members helps situation. Manager can discuss about fears and anxieties that newcomers may have. It is also possible to create mentoring program to facilitate newcomers to become more quickly effective team members.

Sharma & Bhatnagar (2017,15) remarked that emotional agility should be the goal when training new team leaders. They should develop a leadership style which includes more positive dimensions. By using this type of leadership style teams will be highly engaged to their organizations. These findings support Goswami et al. (2016, 1094-1095) finding which also state that if transformational leaders use more appropriate humor, it increases positive emotions towards work. Integrity behavior and ethical leadership enhances mutual trust and employee engagement (Engelbrecht et al. 2017, 377). Zaccaro et al. (2001) introduced an idea concerning knowledge sharing with a supervisor. Highly skilled knowledge workers can provide valuable information about the project for their boundary-spanning supervisor. This information might influence on acquisition of resources.

Menci et al. (2016, 652-653) suggests that leaders should develop good relationships with their employees. Leaders need to apply also political skills on their leadership. This can be one selection criteria for new leaders. Arnold (2001) reminds about one important factor of strong transformational leadership. In worst case this might lead to "over-commitment" which is a reason for stress and fatigue. Barker

(1993, 434-435) studied earlier similar problem where a leader uses transformational approach and an employee starts to develop too much loyalty towards work.

3.1 Temporary team's leadership

Temporary team's tasks are many times different compared a permanent team. This is the reason for diverse leadership models. Goodman & Goodman (1976, 500-501) introduced the two-stage management strategy for temporary systems. Their statement was that temporary teams are formed for complicated problem-solving and there is a need for different type of leadership. In first stage employees concentrated on problem-solving and second stage they concentrated mainly on task accomplishment.

3.1.1 Characteristics of team leadership

Tyssen et al. (2013) researched temporary organization's leadership theories and research agenda. One characteristic of temporary organizations is limited time which refers to temporariness. Highly skilled teams are highly heterogenic, but they have to change work teams to accomplish multiple tasks simultaneously.

Figure 6. shows three research areas which were analyzed in Tyssen et al. (2013) study. Research field 1. presents the aim of relationship establishing regarding the task. Interaction- oriented approaches are related to transactional and transformation leadership. Research should concentrate on effectiveness of these models without forgetting project's nature and tasks. Interaction is important and a team leader should pay attention especially to the first meeting in order to create a high-quality relationship with followers. Effective leadership is dependable of a project environment and characteristics.

Research field 2. Refers to leadership which is influencing or accelerating team effectiveness. Team composition should be depending on the task and project environment. Person-orientation is presented in order to avoid possible errors which occur due to heterogeneity of team members.

Research field 3. gives explanation for task nature and team composition regarding to leadership.

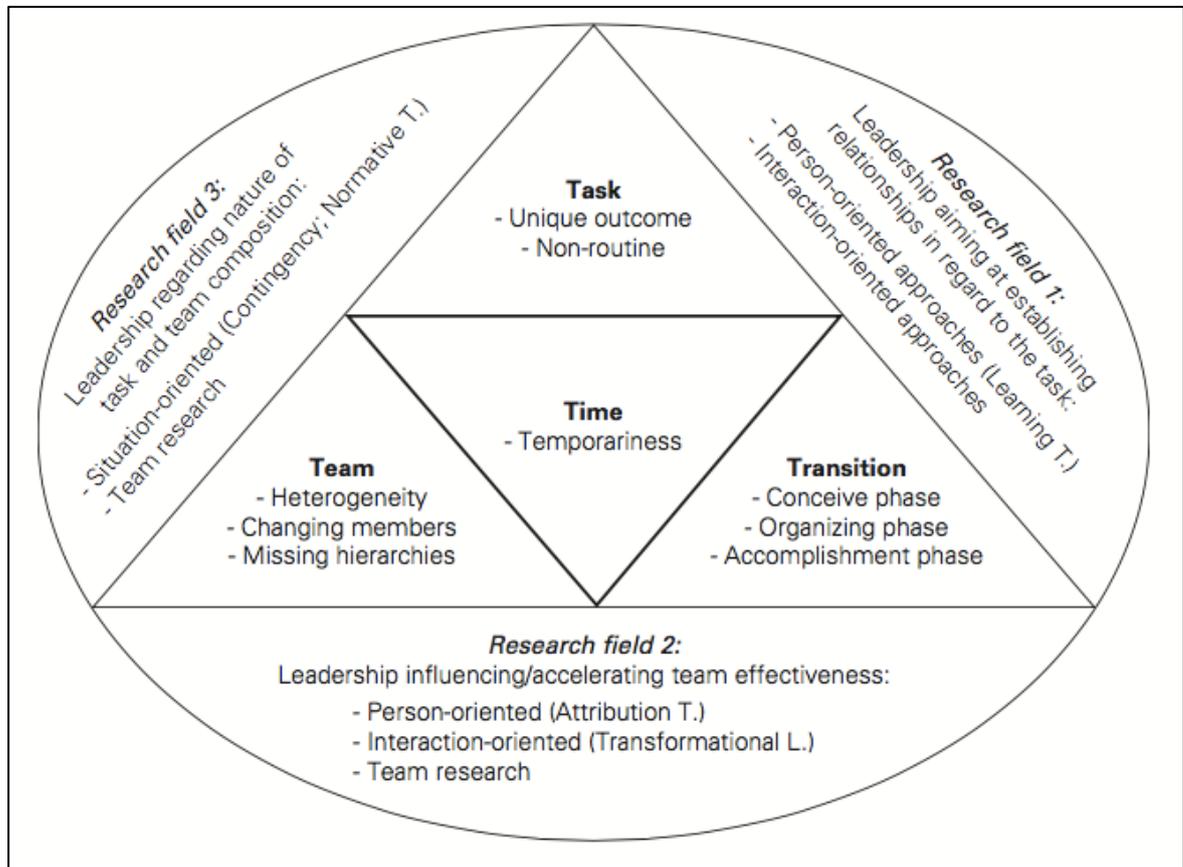


Figure 6. Schematic diagram of identified research clusters (Tyssen et al. 2013)

Tyssen et al. (2013, 62-63) suggestion is to combine normative and contingency leadership research with team research. This will provide important knowledge about team composition related to task or project environment. Svensson, et al. (2015, 262-263) researched that leadership behaviors towards external workers are more task-orientated than relations emphasizing. For external workers it is important to introduce policies and routines of organization. Also, clear instructions concerning the task accomplishment are necessary for best outcome. Managerial emphasis towards new external workers is typical. Task orientation usually reduces when goals and objectives are clear. Management of external workers concentrates on task fulfillment rather than other matters. If organizations want to maintain trustful, pressure-free atmosphere, they should concentrate on leadership training.

3.1.2 Team building

Hyllengren et al. (2011, 361-362) studied existence of swift trust in leaders in temporary military groups. Their finding was that positive swift trust exists in two categories, which are individual-related characteristics and relationship-related characteristics. Individual-related characteristics were personal experience and competence. Emotional stability, energy and intellectual style were the most rated characteristics. From the point of view of experience and competence specific knowledge was the most important and the previous experience remained less important characteristic for this category. Communication or social skills were divided into listening, social smoothness and verbal expressive ability. From these listening seems to be the most important asset.

According to Svensson, et al. (2015) leadership empowers the most popular relationship-related characteristics. It is divided into encouragement of involvement and creativity, use of exemplary model, support/empathy, confronting, and create common goals in the group, presence and timing. From this list encouragement of involvement and creativity were the top characteristics. Use of exemplary models, support/empathy and confronting were also semi-important characteristics. The rest (create common goals in the group, presence and timing), were not considered to be necessarily important issues. From managerial characteristics superior management, “would organize” and “sees the full picture” were not rated to be so important. Negatively affecting characteristics were individual-related lack of emotional stability and lack of specialized knowledge. Relationship-related negative characteristics were lack of encouragement on involvement or lack of exemplary model.

3.1.3 Leading team processes and functions

Time effects on leadership in many ways. Maruping et al. (2015, 1327-1329) findings show that small time pressure can be a positive motivator for engaging in processes. If there are some temporal limitations, teams should be informed about things early enough to have enough time for reacting to those. By doing this, the

team will be more engaged to the task and understands the situation according to the mission. Team needs also fair schedule to accomplish given tasks. Temporal constraints effect on team. There is a thin line between strict directions too often or guidance given too late. Either one is negative for the organization. If directions are given to often, it creates panic and interferes team important processes. If the team does not get guidance, there is a possibility that it fails to accomplish its goal due to temporal constraints. Time pressure effects on team's performance. It is manager's task to help team members when it occurs. Team managers can help team members also with limited temporal resources and give guidance how to use those efficiently.

According to Maruping et al. (2015, 1327-1329) team performance is the main goal. By rescheduling and giving some timelines team has awareness of its tasks. Re-prioritizing helps team to understand which tasks should be accomplished first. Multiple tasks should be synchronized so that everyone knows what processes need to be done for example at the same time. Early stages of project are important for managers to be involved in. Temporal team is formed because there is a need for its expertise and work. It is valuable that team manager gives guidance in the early stages of the project. Team will possibly lack the knowledge how to use temporal resources and it is manager's responsibility to give guidance for the team.

3.1.4 Effective team leadership

Discussion with team members helps the team to agree tasks which they are working with. It also enhances building of shared knowledge. In very difficult cases there is a possibility that the team leader shares authority and power with the team and gives them an opportunity to decide the way they want proceed to solve the problem. The end result is possibly better as the team knows what issues they have to tackle. (Santos et al. 2016, 582-584) Innovative work is more efficient if leaders encourage employees and understand mistakes should be considered as learning experiences. (Bessant, 2010)

Shared temporal cognitions and temporal leadership decrease the number of temporal conflicts. This discovery has a positive impact on team performance. There

is a possibility that leadership is substituted by shared temporal cognitions. This is related to role where temporal cognitions tend to reduce temporal conflict and improve team performance. In the other way if temporal leadership does not exist, it can be substituted with temporal cognitions or the opposite way. Communication is necessary for efficient group interaction. (McGrath, 1978; Santos et al. 2016)

According to Chen & Nadkarni (2016, 54-55) temporal leadership can be found also from the leader's side. If the leader holds a temporary position, it effects on teams and organization. Time is valuable asset in business life and there is effort to do as much as possible with limited time. Chen & Nadkarni found that there is a positive relation between time urgency and temporal leadership. Mohammed & Nadkarni (2011, 501-502) mentioned that temporary leadership balances a relationship between temporary diversity and team performance. Their suggestion is to add temporary parts and time related parts to leadership training.

3.2 Virtual team's leadership

Nowadays virtual work is required, when it is not possible to work at the same time or at the same place. Reason for this is for example long geographical distance between team members. According to Tuffley (2012, 183) Increasing number of projects are accomplished in virtual teams around the world. The nature of these software development projects is usually complex and the work is even more difficult when teams are dispersed on the other side of the world.

3.2.1 Characteristics of team leadership

According to Liao (2017) a virtual team is group people who share the same goals and some of their work is related. Virtual team members are located in different places and their connections are arranged mainly virtually. Townsend et al. (1998) finding was that a virtual environment offers several ways to observe team's success and progress. This is a major improvement compared to the traditional environment where information was not recorded. Virtual teams are located sometimes around the world. Clear schedule, directions and role in organization are very important

factors for employees. Kayworth & Leidner (2002) noticed that same qualities are important for team members as in traditional teams. Their study showed that mentoring attitude is necessary for team members. Their concern was that the leader is showing reasonable amount of understanding and empathy. Virtual leadership is more challenging for the leader. Traditional leadership styles are not usable or leader needs to proceed with different ways due to communication and information barrier. Communication might lack also some informal information which is given in face-to-face meetings. Despite these findings, it is possible that virtual leadership can be even simpler than it is expected to be. There are only few tasks that the leader needs to accomplish. Therefore, written skills are more important as the leader needs to find new ways to show caring feelings towards employees.

3.2.2 Team building

Virtual team's composition is important for team's overall success. (Turel & Zhang, 2010) Innovatively working team members have direct or indirect relationships in their network where they can find information for their projects. (Bessant, 2010) Virtual teams need efficient communication to ensure task accomplishment. Team members might have different backgrounds and their language skills are on different level. In many locations these factors can be seen as problems which need to be solved. Underneath that could defeat some other problems which are far more important for the company. By solving only, the technical and language-related problems real issues remain unsolved. (Lockwood, 2015, 138)

Ford et al. (2017) remark that there are several IT related categories to be considered. Working equipment is an essential asset when the aim is to achieve best results with the team. IT- equipment needs to work correctly and there should also be an alternative if the system is not working properly. Personnel needs to know how to use the equipment and there should be training for the systems. By creating formal virtual work policies, the leader enables trust building with team members. Leaders of these virtual teams need to be trained. They need to learn how and how often to communicate with team members. Despite the fact that team members are located in several different places, there is a need for rewarding actions. It is

important to avoid situations that some team members are isolated from the others. New team members should be selected by their abilities to communicate and interact with the others.

3.2.3 Leading team processes and functions

Virtual team's processes are interesting aggregate. Researchers have created several different process frameworks for leaders. Cordery & Soo (2008, 489-494) introduced a model (Figure 7.) which concentrates on virtual team attributes, team processes and team effectiveness. In this model virtual team attributes were influenced by virtual team leadership and psychological safety. These attributes effected on transactive memory, work engagement and collective efficacy. Concepts were influenced by workflow independencies and task complexity and those effected on virtual team effectiveness. On the other hand, virtual team effectiveness effected on transactive memory, work engagement and collective efficacy.

According to Cordery & Soo (2008, 489-494) Transactive memory system (TMS) was influenced by attributes and problems which may create an impediment when creating TMS, work engagement and collective efficacy. Work engagement is strongly related to motivation of team members which need to enjoy their work. Experience is connected to work engagement. New workers lack experience about organization. Work commitment occurs where people have worked together for a long time. Work commitment is also influenced by cultural diversity. Elements of work, like working environment, are parts of collective efficacy. Lack of communication and reduced information sharing can create problems with developing collective efficacy. If virtual teams have tasks which are complex and depending on information flow there will be challenges.

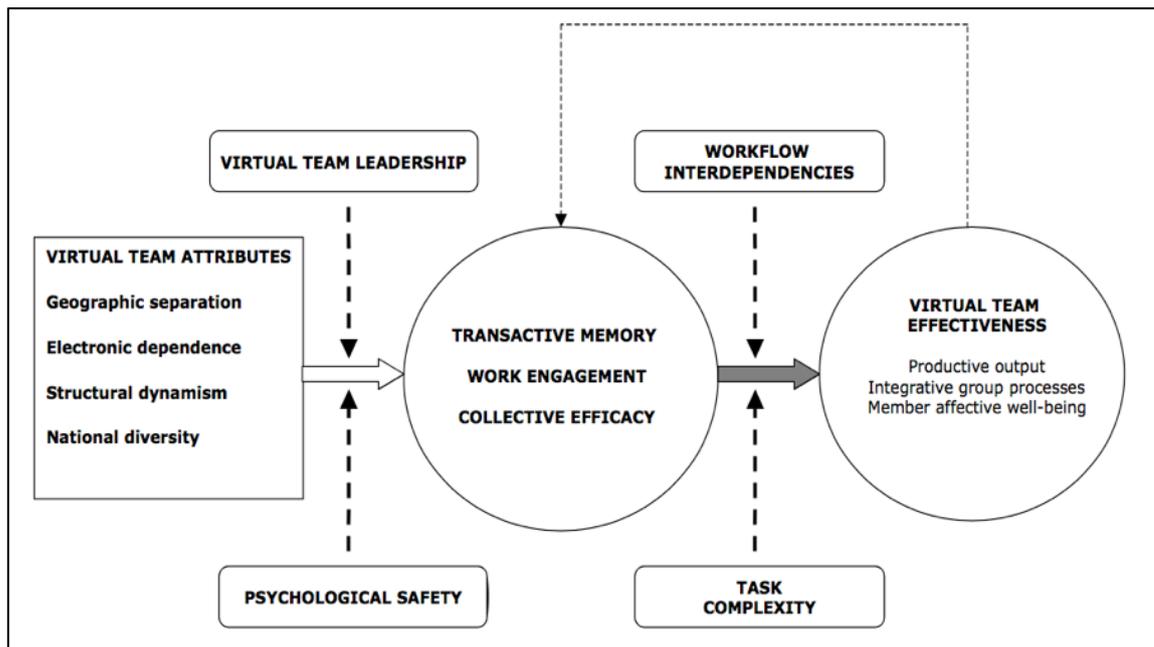


Figure 7. Virtual team attributes, team processes and team effectiveness (Cordery & Soo, 2008)

Liao (2017, 649-657) developed a preliminary multilevel model (Figure 8.) to show relations between virtual team's processes and individual processes. The idea was to show that leader's actions are meaningful. By providing needed support a team leader has a positive influence on team members. Development of mental models increases knowledge sharing. Trust building improves team member's effectiveness. Team leader can promote information sharing in multiple ways by creating good environment and abilities. If the team is partially dispersed, there is a possibility for a conflict if the team leader prefers collocated members. Shared leadership can be used as a substitute for traditional leadership. It is possible to manage good motivating relationship between the leader and team members. Virtual team processes and individual processes are connected and there is a relation between these processes. Complex tasks and task interdependency are challenges for the team leader. Good relationship between team members and the leader improve both individual and team processes. Team leader's behavior is also more important with virtual teams than with traditional teams.

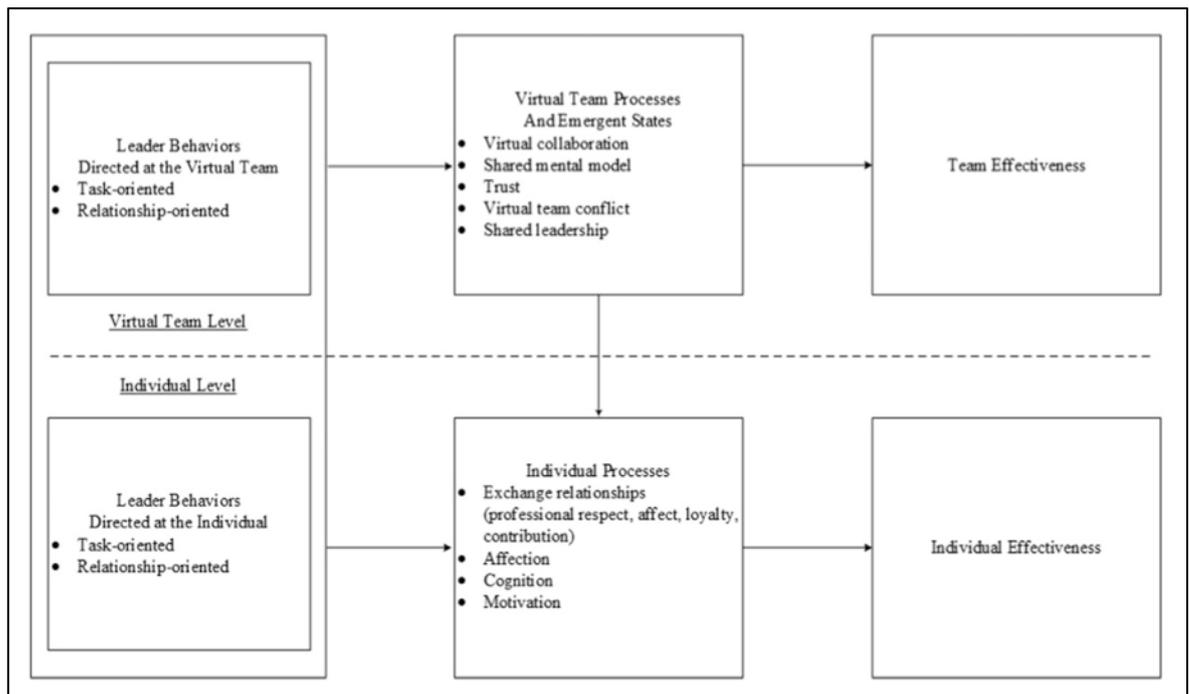


Figure 8. A multilevel model of leadership in virtual teams (Liao, 2017)

3.2.4 Effective team leadership

Pazos (2012) suggests that when the team is working in virtual environment, goal commitment can predict satisfaction and effect on team's performance. In team level these findings are remarkable. If the conflicts are solved actively, the team will have better results and better team satisfaction. Muhammed et al. study (2011) emphasizes knowledge sharing among virtual teams. Knowledge sharing has positive influence on formation of trust. It also contributes effectiveness of virtual team. This study revealed one more connection-collaboration mediates team effectiveness and knowledge sharing. Virtual working teams face more difficulties than traditional teams. These difficulties are related to communication and solidarity. Virtual teams' supervisors should use transformational leadership to increase group commitment towards common goals. Supervisors should encourage to collaborate more with those team members who require assistance. According to Chang & Lee (2013, 996-997) learning competitiveness is discovered to add the effectiveness of online-learning.

Psychologically safe environment means that the team members can express their feelings without being afraid of rejection. There is also trust and respect among team members. Psychologically safe communication will help to solve difficulties which are related to virtual environment (Edmondson, 1999). For agile project teams, psychological safety can be described as a clear vision of the goals, usable resources and information. The role of the team leader needs to be clarified precisely. (Moran, 2015, 212) If team members can express themselves freely, it impacts positively on virtual communication. The other possibility is to provide leadership which empowers the teamwork and helps building and fostering psychological safety. Other aspects of leadership are that the team needs help with building TMS. In a multicultural environment a leader needs to manage personnel and try to find ways how to connect people from different cultures. Technology is the key asset for efficient virtual work. Leader needs to be able to manage technological support so that workers can concentrate on their work. (Cordery & Soo, 2008, 495-498)

Chen & Rau (2017, 579-580) found that cooperation with friends or new encounters strengthened ties and created shared leadership behaviors. Interpersonal relationships should be adjusted on the same level with the other team members. Ziek & Smulowitz (2014, 114-115) mentioned free riders, who are team members who try to get other people to do their work. Team leader needs to take effective attitude against this type of behavior.

Transactional and transformational leadership behaviors influence on task cohesion and cooperative climate. One influencing attribute is media richness. Virtual teams face problems caused by low level of media richness. In this kind of situation there is certainly a possibility that transactional leadership improves task cohesion. Transactional leadership behavior effects different ways on different employee and improves cooperative climate. The both transactional and transformational leadership impacts on team performance and task cohesion. (Huang, 2010, 1107-1108) Ruggieri, (2009, 1020) compared transactional and transformational leadership in virtual teams. His findings were that those groups which were using computer mediated communication (CMC) did not differ from face-to-face (FTF)

groups. Same matters were relevant in interactive situation with both groups. Ruggieri (2009) found that transformational leader is perhaps not concentrated on task, but tries to keep up positive attitude. Transformational leader is also more interested about work group's innovation process and the future of the group. This kind of team leader reveals his or her originality and encourages group towards creativity. This study showed that transactional leader was more task-orientated and was more authoritative with good self-esteem. Both transactional and transformational leaders were approved and subordinates were satisfied with their leadership styles. Both leaders were sensitive and intelligent. Transformational leadership style was evaluated to be slightly different in meaning of greater emphasis on sensitivity.

According to Pauleen (2003, 160-161) virtual teams are many times the most important asset for the company because these teams are working internationally. Many times, these teams are developing company's most important products. From the team leaders point of view there are two things which might interfere leadership processes. Cross-cultural communication seems to be a common problem when project is carried out with participants across the globe. The other difficulty is contradictory persons. The leader needs to resolve their problems in virtual environment. According to Rousseau et al. (2013) coaching leadership style could be helpful for globally dispersed virtual team members.

An effective leader uses cogent communication with subordinates (Ziek & Smulowitz (2014, 115-116). In Pauleen (2003, 161) study the team leader divided team members into sub-groups with key persons. By communicating with key persons, she reached whole team more quickly. Communication methods may vary during the work-operation. Telephone can be used to create trustable relationships with key persons and email is used for quick communication. Feng et al. (2017, 292) introduced "leader-task-context" (LTC) framework which presents relations between distributed leadership and performance of the team (Figure 9).

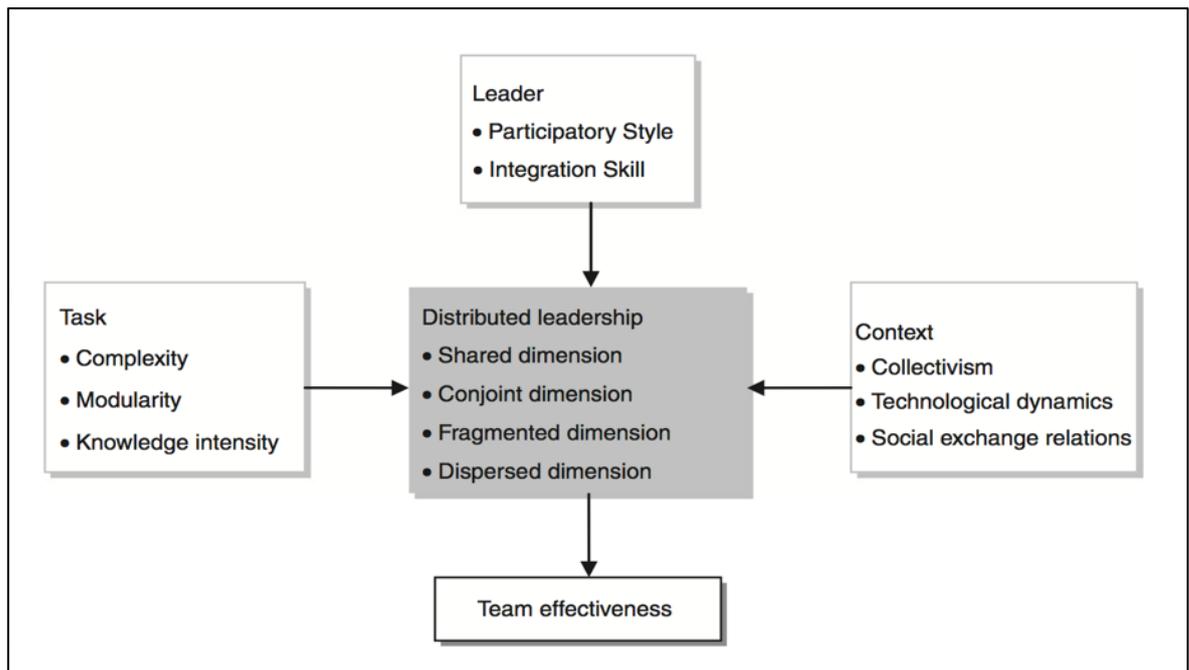


Figure 9. The leader-task-context framework (Feng et al. 2017)

3.3 High-performance team's leadership

Leadership of high performance professionals is a challenge for any leader. Expectations are typically high and the leader needs to accomplish tasks and be a good leader for the team.

3.3.1 Characteristics of team leadership

Exploration and exploitation within firms are mentioned in De Visser & Faems (2015, 368-369) study where they discuss impacts of CEO's cognitive style on incremental and radical innovation performance. There are some differences how a cognitive style impacts on exploration and exploitation. More intuitive cognitive style effects more on exploration and more analytic cognitive style impacts on exploitation. Depending on which cognitive style the leader represents is related to leadership behavior. Exploitative cognitive style leader emphasizes more sharing research and development resources on exploitative activities. Companies that appreciate more development processes will more likely to come up with radical innovation performance. De Visser & Faems discovered an interesting detail. Leader who is involved with the software development has more positive attitude towards

explorative activities. Different leader suits to different firms. Small older firms might prefer a more analytic leader and they would benefit more this type of a leader. More intuitive leaders are better for firms which have most of their products in exploratory phases.

3.3.2 Leading team processes and functions

Exploration and exploitation activities are necessary in whole information process, but a need for these different phases of process varies. (Rosing et al. 2011) Innovation activities, like exploitative and exploratory, require organizational learning to ensure long-term innovation development. (March, 1991) London (2014, 32-33) divides team processes to exploitative and exploratory. Exploratory team processes are important in innovation development: shared goals, context, clear and open communication and sense making. There is also an evaluation where the team is evaluating differences among its members. Willingness in innovation creation is explained to be a recognition of desire and a need to be innovative. Leader of exploratory team should consider these leadership processes.

By promoting individual strengths there is a possibility to achieve goals. This is the main idea coaching leadership (DeRue et al. 2010). Rousseau et al. (2013, 355) studied team coaching and innovation in work teams. Based on these studies they developed a new model which shows how the team coaching effects on team innovation. In this model team coaching supports team commitment and support for innovation. Team goal commitment is giving support for innovation which becomes team innovation. Coaching leadership style may emphasize employees for innovative actions.

3.3.3 Team building

When building the dream team, Domeyer (2015, 23-24, 27) encourages to concentrate on recruitment by refreshing job descriptions and paying effort to find the best candidates for the job. Organization need to be interesting for the applicant. That is why little things matter. For example, mobility or some other quality of work can result which working environment applicant will choose. Hiring process cannot

be too slow, but desperate approach will end most likely to a wrong choice. For recruiting party, it is wise to assess some soft skills too so that a new worker has the ability to collaborate with others. Salary is important and needs to be on a reasonable level. Rewarding team for a good work is beneficial way to increase team commitment.

Tschohl (2013, 16) mentions five things which are important when building the dream team. Education and training are the key elements for good customer service and communication skills. Good motivation is not always built on money. It can be something which keeps people interested about their work. Stimulation of employees creates more energy and improves work performance. Informal evaluation gives employees information about their performance and employees have a chance to improve their performance. At the same way a manager gets information about their willingness to leave the organization.

Low performing employees drag down others and they do not support the team performance. Manager needs to solve the problem with them and possibly re-locate those workers. Whitten (2014, 20-21) describes dream team members to be reliable and trustable. They need to participate on team actions fully and seek help from the others. When it is needed, good team members share knowledge and takes initiative. Good team member cares about others and supports their ideas. Demonstration of integrity tells about team member's moral values. Team members are team players and they are in the same side. Continues improving makes the team better.

Crowell & Kaye (2014, 19-20) presented a model for building a dream team. They compared the building of a business dream team with original dream team building familiar in team sports. On the other hand, they encourage leaders to use coaching as a leadership model. In this case *develop* means that a leader helps subordinates by discussing with them and trying to find some new, game changing ideas. It is important for an organization to know their skills and talents. Processes like development, learning and growing are agreed in a co-designed action plan. *Retain* in this context can be described in the way that it is very important to keep "top

players” in the team. If the employee leaves the team, it is important to evaluate the environment and leader’s actions to keep the others in the team. There is also a possibility to update the game plan. *Engage* is described as organization’s engagement towards workers. It is important for an organization to receive reflective, positive or negative feedback from workers. Team member needs also feedback and recognition to feel that work is done well. If worker’s goals are set in the right way, they can use their talents and be more engaged to the organization. *Mentor* means that leader is model for the team. Negativity does not improve results. Positive attitude and positive consideration of new ideas serves organization. Building relationships inside organization should be encouraged.

Chandrasekaran et al. (2015, 574-580) found out that the team size and diversity are positively related with technical team performance. Low turnover level refers to efficiency of performance. Experience is respected by team members. Senior leader categorization is positively associated with both efficiency and technical team performance. Some incremental innovation projects need strict leaders who will monitor team reward for outcome. This type of performance decreases if the leader gives more autonomy. Radical innovations team leaders need to be flexible when the aim is better performance. Continuous rewarding keeps team motivated and more innovative.

3.3.4 Effective team leadership

Transformational leadership is known to be more dynamic way of leadership. (Bass, 1985) Cheung & Wong (2011, 666-667) mentioned that transformational leaders’ support effects positively on employee creativity. There is a need for transformational leadership in organizations and there should be a possibility for organizations to start screening leader applicants and look for these qualities. According to Rosing et al. (2011) ambidextrous leadership is a model which gives guidance how to conduct leadership in complex innovative work environment. Opening and closing leadership behaviors encourage different kind of behavior models. Opening leadership behaviors emphasize workers to conduct their work differently. It leads followers towards own thinking and using own ideas and at the

same way it leads to more explorative actions. Closing leadership behaviors on the other hand remind of exploitative actions and include more monitoring behaviors. Ambidextrous leadership refers to transformational leadership model and it is a combination of opening and closing leadership behaviors. This idea was supported also by Chandrasekaran et al. (2015). Zacher & Rosing (2015, 64-65) studied how ambidextrous leadership is related to team innovations. Team innovations are highest when both closing and opening leadership behaviors are high. When either one or both are on the low-level team is not creating new innovations. If a team leader considers both aspects, team will create new innovations more rapidly.

From managerial point of view, transparency and crossing the threshold of vulnerability are discovered to be most important matters. Small group size enhances interaction. From role-trust point a view, promoters were experience, knowledge, professional competence, good reputation and ability to cooperate. Inhibitors of vulnerability trust were negativity with feedback and unfamiliarity with the team members. And also, from role-trust point of view, role failures affected negatively. Disagreements without solutions were also a reason for lack of trust. As same as promoting, bigger group sizes affected negatively to vulnerability trust. Role-trust building happens when team members roles are clarified. Communication skills and knowledge sharing will increase and group identity and team co-operations will show signs of improvement. Additionally, mutual understanding enhances. (Moldjord & Iversen, 2015, 242)

Dansereau et al. (1975) introduced a vertical dyad linkage approach to leadership which was a base for leader-member exchange (LMX). Xu et al. (2017, 492-493) mentioned that authentic leadership can improve psychological safety climate and LMX quality. The right way to do these improvements is to develop better manager-subordinate-relationships. They discovered also that learning and psychologically positive state have a positive impact on creativity. Courtney et al. (2007, 39) developed “Dynamic Organic Transformational (DOT) team model” to present different dimensions of team (Figure 10). This model explains matters which effect on team performance and also what things need to be considered when team leadership is planned.

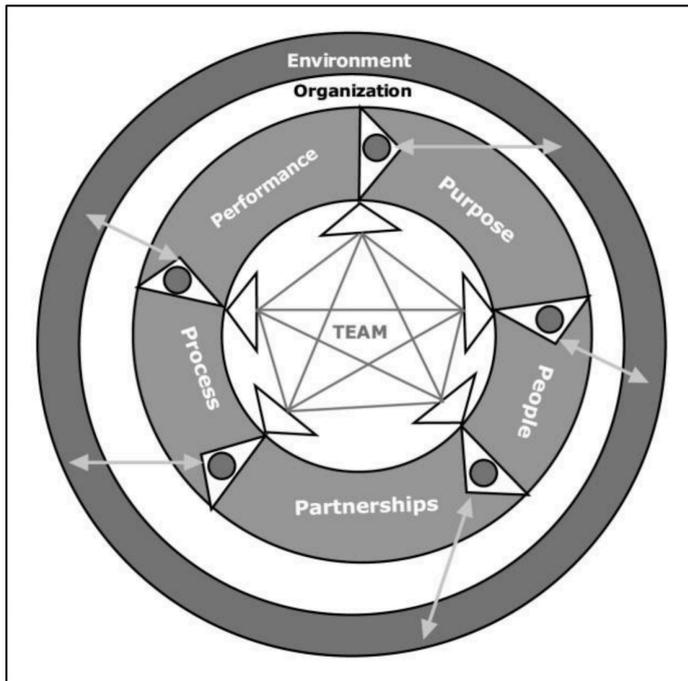


Figure 10. D.O.T-team model (Courtney et al. 2007)

3.4 Self-managed team's leadership

Hans & Thamhain (1999, 8) realized that due to an increased amount of self-directed work, leadership has become more and more important. According to Parker et al. (2015,112-113) a self-organized team is a group of people who organizes their work semi-autonomously.

3.4.1 Characteristics of team leadership

Self-management is a complex subject. Team leader's role is usually to encourage team members to use different techniques to improve daily work. Self-management is a substitute for traditional leadership, because there is no need for continued supervision. Use of self-management can lead the team to reach organizational goals. (Manz & Sims, 1980, 366) Manz & Sims (2001) presented in their book "The new super leadership" a new way of leadership which emphasizes self-driven leadership where leaders teach workers to lead themselves. If team members are working individually, managers should support individuals by creating self-goal settings and with efforts to give feedback in several ways. Hauschildt & Konradt,

2012, 510-512 remarked that self-organization or self-directivity does not mean that there is not anybody on charge. Team leader needs to decide what is an optimal solution for leadership. Klug & Bagrow (2016, 7-10) researched team functionality and found that those teams which have more leads also have better success. Team size does not affect on this finding. They wanted to know if teams are more successful if they consist of many or few leads. In this case the lead is described to be a person who is responsible for one or more projects. Their study showed that successful teams are more diverse with experience and the most successful teams are focused on certain subjects.

Dust & Ziegert (2016, 531) mentioned that usually many leaders improve team performance. Although if there are too many leaders in same team, the effect can be opposite. These leaders tend to produce unnecessary communication and they require additional coordination. The team with many leaders need clear and collective goal. This type of team will perform well when work situation is urgent. Cohen & Ledford (1994, 163-166) study shows self-managing teams to be more efficient than traditional teams. Employees of these teams were more satisfied about their work. Gust-Thomason & Yantis (1998, 165) studied team leaders in self-management teams. Specific skills which this type of team's leader needs are definition of team goals, problem-solving skills and communication skills. Communication skills are the most important skills for the self-managed team's leader. This idea was found earlier by Cohen & Ledford (1994, 163-166). They discovered that a team leader needs to communicate often with team members and management. Ammeter & Dukerich (2002, 9-10) noticed that a team leader has a remarkable impact on team members and their feelings and a team leader is able to determine feelings of success. If team members feel that they are successful, they are able achieve better results.

3.4.2 Team building

There are some conditions to be taken under consideration when building effective project teams. Assignment of the project should be clear and work environment needs to be inspiring. Those teams which are self-managed require assistance with

their problems. Team organization should be clear and chain-of-command have to be verified as well as cross-functional key persons should be identified. Highly skilled R&D employees respect early feasibility assessment to make sure that all parties who are participating in the project understand the importance of following the agreed schedule. Changes disturb normal teamwork and those should be avoided. Senior management is able to provide support, resources and upper-level cross-functional contacts. A project should be presented to senior management regularly. (Hans & Thamhain, 1999, 6-8)

Parker et al. (2015, 125) developed the conceptual model: self-organized teams, agile leadership and cultural mix based on continued study. Stewart et al. (2011, 209-210) Training increases the use of the leadership strategies. It is most effective for people who are not used to self-leadership. Teams and individuals achieve better performance by using empowering and sharing leadership approaches. The cultural aspect is important, because self-leadership is applied diversely in different cultures. On team level there are external team membership, reward systems, for the initiation of structure/ culture and national culture. External leadership approach includes coaching procedures for creating successful relationship with the team. Resource management is targeted for creative development team. External leader provides required resources for the team. The team in which self-leadership is used needs encouragement to act effectively. Self-leadership occurs in organizations which workers are more involved on working culture. In certain collective cultures workers have difficulties to accept the use of self-leadership.

3.4.3 Leading team processes and functions

Liden, et al. (2008, 163) studies showed that servant leadership is partially similar with traditional transformational leadership (e.g. Bass, 1985) models. Duff (2013) mentions that a performance management process is more effective if manager uses coaching activities. Leadership is a dynamic process and leadership style should be chosen by respecting this notion. Jaiswal & Dhar (2017) found that those managers who develop a trustable relationship with followers have better results with creativity.

Druskat & Wheeler (2003, 446-447) introduced “The Process of Effective External Leadership: A Boundary-Spanning Model”. They noticed that positioning is an important matter for external leaders. Figure 11. shows four different dimensions of behavior models which can be used to achieve effectiveness.

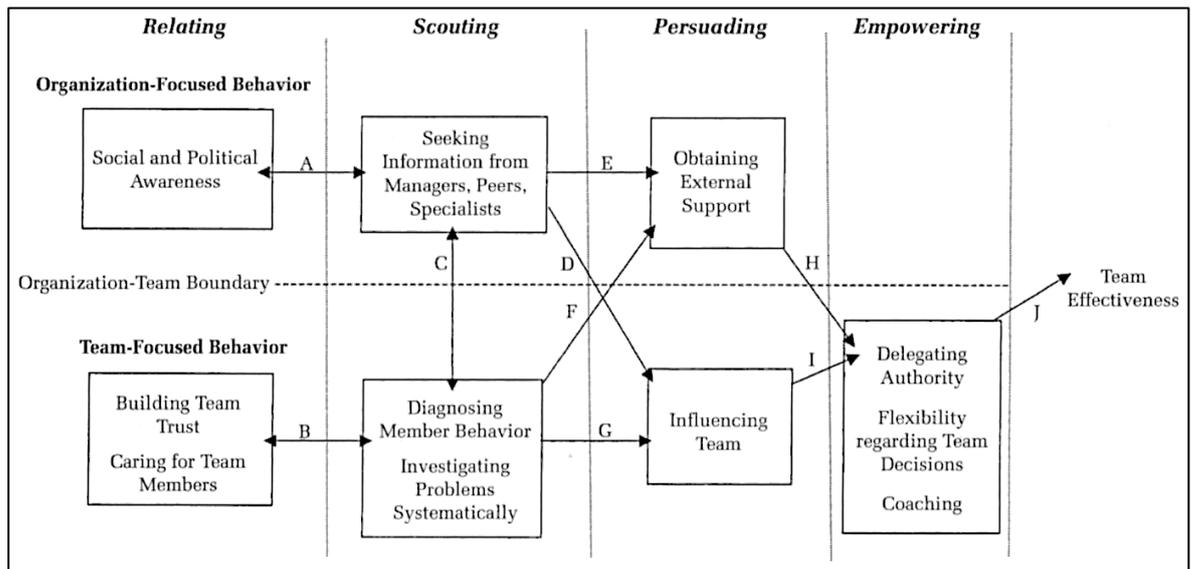


Figure 11. An Inductive Boundary-Spanning Model of Effective External Team Leader Behavior (Druskat & Wheeler, 2003)

Hunter & Cushenbery (2011) presented their model of direct and indirect leadership influences which effect on innovation processes. In their study leaders had multiple roles and there was not one particular way how a leader should promote innovativeness in the organization. Processes of innovation are not linear and innovation activities tend to vary along the way. When the innovative process starts leader’s, task is to provide an appropriate climate for workers. When the process develops the leader becomes more directive and critical according in the decision-making. These two dimensions were mentioned to be direct and indirect influences of leadership. Direct leadership is related to an organizational innovation process. Indirect leadership relates more on an individual creativity process. Both leadership dimensions effect on team creativity process and organizational innovation process is related also to individual creativity. Figure 12. presents model of direct and indirect leadership influences.

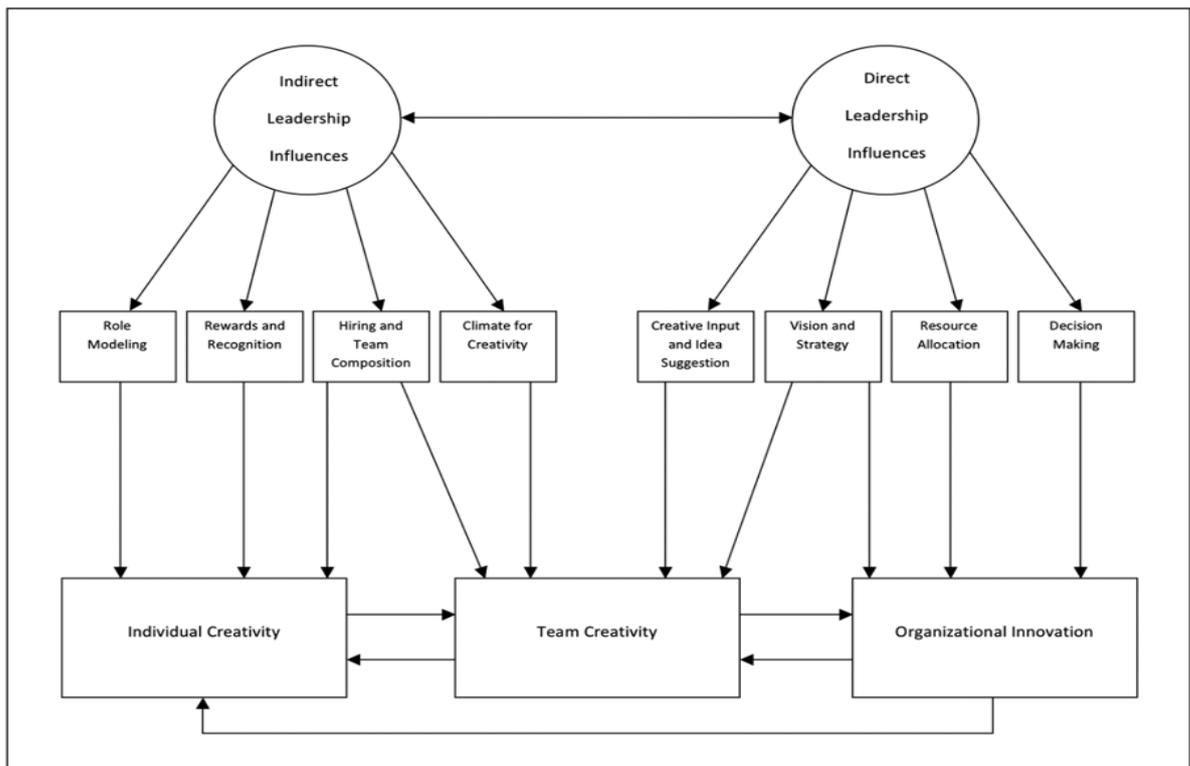


Figure 12. Model of direct and indirect leadership influences on the processes of innovation (Hunter & Cushenbery, 2011)

3.4.4 Effective team leadership

Poutanen & Ståhle (2014) study supports Cohen & Ledford's (1994) statement on the importance of communication for the project. By communicating people tend to share knowledge and information with their team members. If some team members are for some reason cut out of communication, it impacts on creativity. Dansereau et al. 1975 remarked that argumentation among team members is considered to improve creativity if the team has psychologically safe environment where everybody can present their ideas. Poutanen & Ståhle (2014) mentioned that the use of external help (mediators, peers, facilitators etc.) is accepted also. Time pressure can have positive effect on creativity in short-term projects when work processes become faster (Baer & Oldham, 2006; Poutanen & Ståhle, 2014). According to Politis, (2006, 212-213) an organization needs to provide specific training for self-leadership.

Poutanen & Ståhle (2014, 271-272) wanted to understand the performance of short-term innovation groups by applying a complexity-based self-renewal framework. Acquisition of information or knowledge is meaningful for the innovative self-directed group. They need to have a common understanding or method how to choose ideas which will be developed. Shared goal is important for the team. Regularly given feedback need to be fair, too strict feedback effects negatively on innovative atmosphere and positive feedback emphasizes team members creativity

Pearce (2004, 47) mentioned that creative work can be crucially important for an organization. Shared leadership helps innovative workers to share their knowledge. It is especially effective when someone from the team does not have same skills as the others. According to Fausing et al. (2015, 283-285) vertical empowering leadership, shared leadership, interdependency and team performance are related positively. If leaders desire to reach shared leadership behavior they have to give team work goals, which requires team members to use their skills and to share their knowledge with the others. Managers should provide the team with external empowering leadership. The key idea is that those organizations which desire to have shared leadership model in use, should encourage team leaders to release leadership and responsibilities to teams. In these organizations the task of the team leader is to empower and train the team for shared leadership actions.

Druskat & Wheeler (2003, 452-454) remarked issues which external leader need to consider. Team leader can create role conflict or lack of clarity when he or she is too concerned about boundary spanning. Dynamic leadership style improves team effectiveness. If an external team leader has good relationship with team members, encouragement of team members will improve leadership even more. Team need freedom for performance and encouragement. External team leader's ability to share and inquire information creates a possibility to influence on team's actions.

3.5 Team leadership literature findings

The following table is a summary of team leadership literature findings. The table is divided into five categories according to the main team leadership types. Each team leadership type consists of the key ideas which reflect the ideologies of the authors listed in the last column of the table.

Type of team leadership	Key ideas	Authors
Team leadership (broadly)	<p><i>Dynamic environment</i></p> <p><i>Emotional agility</i></p> <p><i>Goal setting</i></p> <p><i>Human knot</i></p> <p><i>Knowledge sharing</i></p> <p><i>Leadership models</i></p> <p><i>Learning and training</i></p> <p><i>Relationships</i></p> <p><i>Successful leadership</i></p> <p><i>Transformational leadership</i></p> <p><i>Trust</i></p>	<p>Collyer (2016)</p> <p>Sharma & Bhatnagar (2017)</p> <p>Sandoff & Nilsson (2016)</p> <p>Simmons & Striley (2014)</p> <p>Zaccaro et al. (2001)</p> <p>Lewin, C. (1939), Zaccaro et al. (2001)</p> <p>Kozlowski & Bell (2008), Bessant (2010)</p> <p>Chou & Chang (2016), Mencl et al. (2016)</p> <p>Chi, (2011), Aga et al. (2016), Goswami et al. (2016), Hassan et al. (2017)</p> <p>Barker, (1993), Arnold, (2001)</p> <p>Engelbrecht et al. (2017)</p>
Temporary team leadership	<p><i>External workers</i></p> <p><i>Leadership theories</i></p> <p><i>Shared temporal cognitions</i></p> <p><i>Swift trust</i></p> <p><i>Team discussion</i></p> <p><i>Temporal leadership</i></p> <p><i>Time</i></p> <p><i>Two-stage management</i></p>	<p>Svensson, et al. (2015)</p> <p>Tyssen et al. (2013)</p> <p>McGrath (1978), Santos et al. (2016)</p> <p>Hyllengren et al. (2011)</p> <p>Santos et al. (2016)</p> <p>Mohammed & Nadkarni (2011), Chen & Nadkarni (2016)</p> <p>Maruping et al. (2015)</p> <p>Goodman & Goodman (1976)</p>
Virtual team leadership	<p><i>Communication</i></p> <p><i>Cross-cultural communication</i></p> <p><i>Effectiveness</i></p> <p><i>Goal commitment</i></p> <p><i>Mentoring and monitoring</i></p> <p><i>Networking</i></p> <p><i>Psychological safety</i></p> <p><i>Shared leadership</i></p> <p><i>Transactional and transformational leadership</i></p>	<p>Pauleen (2003), Muhammed et al. (2011), Ziek & Smulowitz (2014), Lockwood (2015)</p> <p>Pauleen (2003)</p> <p>Tuffley (2012), Chang & Lee (2013), Ford et al. (2017), Feng et al. (2017), Liao (2017)</p> <p>Pazos (2012), Liao (2017)</p> <p>Townsend et al. (1998), Kayworth & Leidner (2002)</p> <p>Turel & Zhang (2010)</p> <p>Edmondson (1999), Moran (2015), Cordery & Soo, (2008)</p> <p>Chen & Rau (2017)</p> <p>Huang (2010), Ruggieri (2009)</p>

Type of team leadership	Key ideas	Authors
High-performance team leadership	<p><i>Ambidextrous leadership</i></p> <p><i>Coaching</i></p> <p><i>D.O.T-team model</i></p> <p><i>Exploration and exploitation</i></p> <p><i>Leader-member exchange (LMX)</i></p> <p><i>Recruitment</i></p> <p><i>Reliance and trust</i></p> <p><i>Team building</i></p> <p><i>Team performance</i></p> <p><i>Transformational leadership</i></p>	<p><i>Rosing et al. (2011) Chandrasekaran et al. (2015), Zacher & Rosing (2015)</i></p> <p><i>DeRue et al. (2010), Rousseau et al. (2013)</i></p> <p><i>Courtney et al. (2007)</i></p> <p><i>March (1991), Rosing et al. (2011), London (2014), De Visser & Faems (2015)</i></p> <p><i>Dansereau et al. (1975)</i></p> <p><i>Domeyer (2015)</i></p> <p><i>Whitten (2014), Pettersen Buvik & Danielsen Tvedt (2016)</i></p> <p><i>Tschohl (2013), Crowell & Kaye (2014)</i></p> <p><i>Chandrasekaran et al. (2015)</i></p> <p><i>Bass, (1985), Cheung & Wong (2011)</i></p>
Self-managed team leadership	<p><i>Coaching</i></p> <p><i>Communication</i></p> <p><i>Dynamic leadership</i></p> <p><i>Effective teamwork</i></p> <p><i>External Leadership</i></p> <p><i>Knowledge sharing</i></p> <p><i>Multiple leaders team</i></p> <p><i>Psychological safety</i></p> <p><i>Self-goal setting</i></p> <p><i>Self-observation</i></p> <p><i>Self-organized team</i></p> <p><i>Servant leadership</i></p> <p><i>Shared leadership</i></p> <p><i>Team leadership</i></p> <p><i>Team success</i></p> <p><i>Transformational leadership</i></p> <p><i>Working culture</i></p>	<p><i>Duff (2013)</i></p> <p><i>Cohen & Ledford (1994), Gust-Thomason & Yantis (1998)</i></p> <p><i>Druskat & Wheeler (2003)</i></p> <p><i>Cohen & Ledford (1994), Hans & Thamhain (1999), Poutanen & Stähle (2014)</i></p> <p><i>Druskat & Wheeler (2003)</i></p> <p><i>Poutanen & Stähle (2014)</i></p> <p><i>Dust & Ziegert (2016)</i></p> <p><i>Poutanen & Stähle (2014), Jaiswal & Dhar (2017)</i></p> <p><i>Hauschildt & Konradt (2012)</i></p> <p><i>Politis, 2006</i></p> <p><i>Parker et al. (2015)</i></p> <p><i>Liden, et al. (2008)</i></p> <p><i>Pearce (2004), Fausing et al. (2015)</i></p> <p><i>Manz & Sims (1980), Hans & Thamhain (1999), Klug & Bagrow (2016)</i></p> <p><i>Ammeter & Dukerich (2002)</i></p> <p><i>Bass (1985)</i></p> <p><i>Stewart et al. (2011)</i></p>

Table 2. Team leadership literature findings

4 RESEARCH METHODOLOGY

This chapter presents methodology of this study. The aim is to find new details about team leadership and compose model for multi-dimensional teamwork. Silverman (2005, 209) emphasizes the importance of the quality of research. Method is also important matter when the desire is to receive valid results.

4.1 Research strategy

This is a qualitative study. It is typical for this kind of study that recognition of different phenomenon is straightly connected with the researcher. Hypothesis is not commonly used in qualitative study and quantitative material can be used as a source of information. Deeper results can be found from previous quantitative studies with qualitative methods. (Rantapelkonen & Koistinen, 2016)

In this thesis the interview style was half-structured interview, i.e. "Theme Interview". This type of interview does not include any particular answers for questions and participants are able to answer questions freely. (Eskola & Suoranta, 1998: Rubin & Rubin, 2012) Although the interviewer is responsible for the questions, sometimes the interviewed person may suggest some additional questions. Half-structured interview is not same as "Deep Interview", where the idea is to minimize the impact of the interviewer. In the half-structured interview, the order of the questions can be changed. (Koskinen et al. 2005)

The interviews were conducted using a conversation style which means that answers are easily long and vivid. Responsive interviewing was also used in some parts where further information was needed. With this interviewing style the interviewer has an opportunity to make some additional questions, if the interviewed person has some deeper knowledge related to the subject. (Rubin & Rubin, 2012)

4.2 Acquisition of data

The data for this study was collected by conducting interviews and studying the relevant literature. In the qualitative study it is necessary to collect adequate amount of relevant data to be able to draw conclusions about it. (Eskola & Suoranta, 1998) The interviewed consisted team members from FDF and different companies (Azetti, Bittium, Cygate, Fujitsu and Systematic). These interviewed persons (20) were divided into two groups, FDF's personnel and contractors.

The research questions were the same for both groups except additional questions regarding agile methods. The interviews were conducted individually with each group member. All interviews were confidential and the identity of the interviewed persons is not disclosed. One interview lasted approximately half an hour and consisted of 17 questions and few sub-questions. Questions were the same for everybody but perspective varied in cases where an interviewed person was a leader or had some experience about agile methods.

With these interviews it was possible to collect relevant data from actual team members. The collected data is authentic and presents team members' real opinions. Telephone and VOIP was used in some interviews due to interviewed persons' tight schedules and separate location.

The interviewed group was quite heterogenic, but number of females were small. Most interviewed persons were aged between 30-50 years. All participants had a positive attitude towards research. Although in a military environment the answering style is usually short and exact, all necessary information was gathered from interviewed persons.

4.3 Data analysis process

A qualitative study consists of data which is chosen based on research questions and theoretical studies. Research questions were base for literature review. (Eriksson & Kovalainen, 2016) The selection should be based on scientific literature

if the purpose is to reach some scientific goals. (Koskinen et al., 2005) Figure 13. Presents a model of coding and sorting data. Figure 14. is a research model, which was used in the empirical part. It is a modified structure which was originally presented by Rubin & Rubin (2012).

1. *Transcription* - The recorded interviews were transformed into written form. In this thesis transcription process was time-consuming. All recorded material was handled word-for-word and the total amount of text was approximately 275 pages. The interviewed persons had different dialects and, in some cases, there were some difficulties with the transcription.

2. *Coding and sorting* – In this phase the data was divided into different categories and organized. After transcription, the data was coded and sorted into relevant form to be used as a source of information and it can be found in table 3 pp.106-107. Main idea was to find key words for all answers for integration and combination phase. The coded data was used to answer sub-questions according to figure 13.

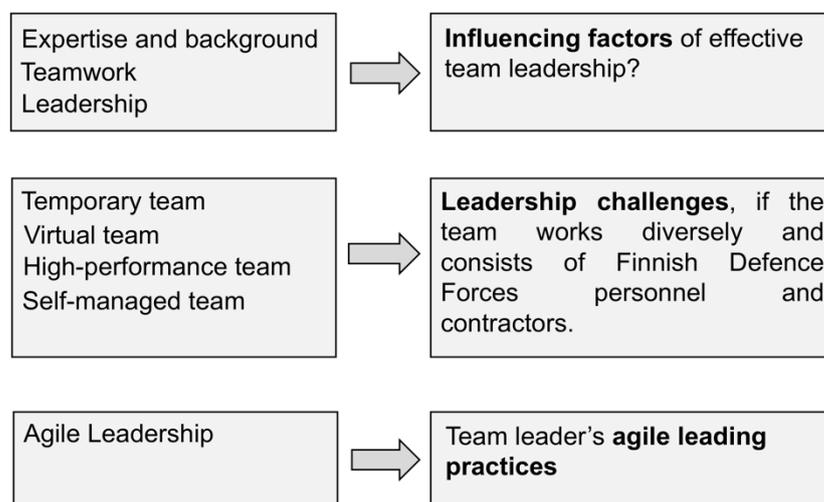


Figure 13. Coding and sorting of data

3. *Integration and combination* – The coded and sorted data was integrated and combined with scientific research. The purpose of this was to create base for modeling.

4. Modeling - This phase included formulation of a new model. This process was the most difficult part of this thesis, as the new model needs to be useful and practicable. The created model was introduced and explained thoroughly.

5. Conclusions and generalization - The phase consisted of consequences' valuation and relations' comparison with other studies in this particular context. The results were analyzed and relations were evaluated.

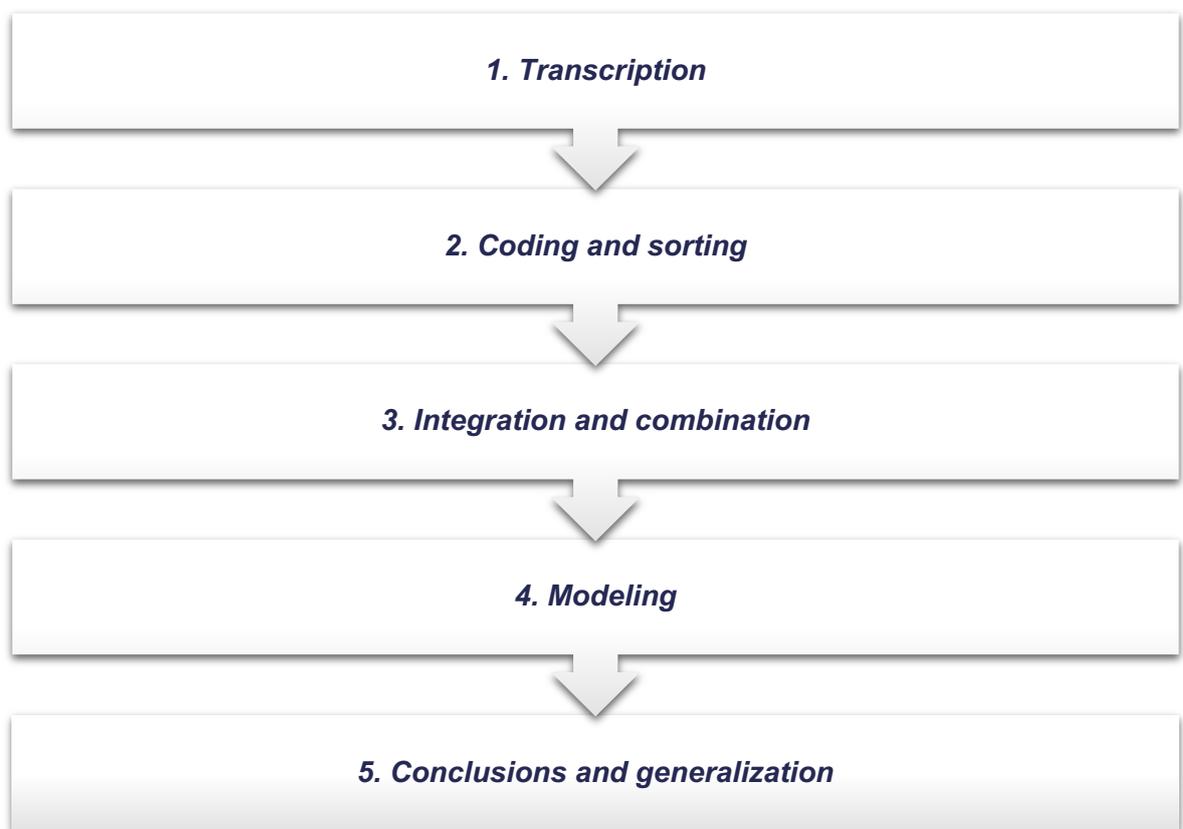


Figure 14. Modified data analysis model (originally Rubin, H. & Rubin, I. 2012)

5 EMPIRICAL RESULTS AND ANALYSIS

The empirical results provide answers to main research question: “*How temporarily composed innovative team is led effectively and agilely in The Finnish Defence Forces?*”. All empirical results and information in this chapter are based on interviews conducted for this study.

The interviewed personnel (20 persons) were all high-level professionals and they were selected from three main categories: soldiers, military civilians and contractors from several companies. Soldiers were from four different sub-categories: non-commissioned officers, warrant officers, officers and special (engineer) officers. According to figure 15. sample (military personnel) represents approximately 98% of the FDF’s staff. Sample of contractors were also adequate and represented collaborators widely. Expertise and teamwork background effects on results and validity of the study.

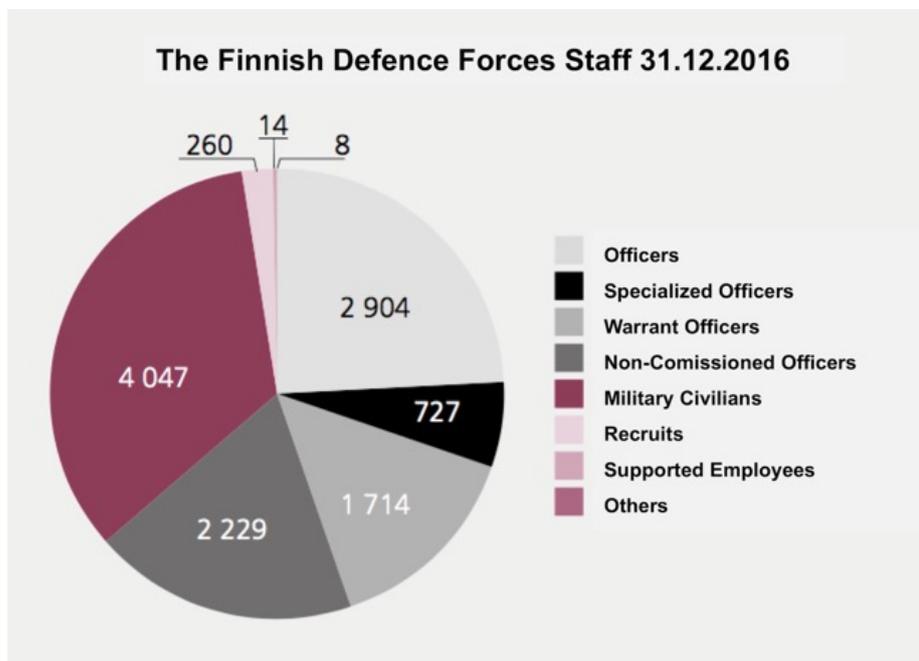


Figure 15. The Finnish Defence Forces Staff 31.12.2016 (Modified, <http://puolustusvoimat.fi/> Ref.14.10.2017)

5.1 Factors of effective teamwork and leadership

This sub-chapter presents the results of three dimensions of teamwork and answers to first sub-question: “*What factors influence on the effective team leadership?*”

Teamwork is more efficient if leadership is conducted in correct way and the team benefits also of good environment, proper tools and safe environment. The past experience influences on team and leadership functions. An idea is to analyze factors related to leadership which impact on team’s effective work. Teamwork is discussed generally.

5.1.1 Expertise and background of military project’s personnel

The interviewed people represents diverse roles of in the team which is working in military environment. These people have quite different backgrounds, but they all have experience working with communication and information systems or IT-systems. Team has following experience:

- *Development of new systems and products*
- *Network planning, programming, coding, supervision and maintenance*
- *Communication and information systems specialist or trainer*
- *Information security and other security related tasks*
- *Product owner’s or representative’s duties*
- *Purchase management and software development related tasks*
- *Compliance validation and testing for purchases*
- *Project management*
- *Planning*

All participants have fairly long careers and they have taken part in teamwork and multiple projects in Finland or abroad. Military projects are typically temporary and some interviewed people have their normal daily office work along with temporary projects. Project size varies depending on the subject. Some projects are so-called long-term projects which include some temporary phases. These projects start with planning process and continue until the delivery phase is completed. Projects can

be also temporary and lasting only a couple of weeks. The interviews showed that people have experienced both types of these projects.

Expertise and background of The Finnish Defence Forces personnel

Soldiers and military civilians participate in projects either by working with some part of the project or having a leading role in the project. Team leader's tasks are usually given to the most experienced person who holds the most of information on the project. Contractors represent mainly their own products, but it is also possible that they work as a team and one of them is a team leader. Work weeks can be divided roughly to three categories: 1. Exercises or workshops (permanent staff is expected to take part in certain exercises, whereas for soldiers it is mandatory), 2. Travelling weeks which include project and other work (domestic or abroad) and 3. Office week (which include projects and normal work). Staff's typical work week consists mainly projects or other work. Typical week includes mandatory meetings and information acquisition. Planning activities are necessary for accomplishing complicated projects. Interviewed personnel described typical week as follows:

"Perhaps there are couple of or three types of different work weeks."

"We have weekly meetings where we monitor status of the project, where we have proceeded and define next steps forward in that project."

All projects do not necessarily require same kind of contribution. Nature of some projects include more planning and supervising activities. Monitoring functions are needed when the project consists of multiple external workers. This is especially important if external workers need some organizational knowledge. Some people are taking part in multiple projects at the same time. Prioritization is necessary in these cases. Some of them have troops training and supervising related tasks. Sometimes work tasks are different what these people are trained to do. Personnel defined the nature of projects in this way:

"But it is necessary to recognize that none of these final project manufacturing projects are so-called hands-on projects."

“In my current position typical work week consist practically 6-7 days per week and work days lasts approximately 8-10 hours.”

If a team consists of members who do not have authority to accomplish their work independently or they have to wait for some answers, project's pace slows down. Lower-level authority speeds up projects. If decisions are made in too high-level, there is possibility that pace of the project is slower. If the leader is not participating team actions, shared leadership occurs among the team members. Sometimes this kind of situation enhances creativity and innovations, because workers are not competing with others. From the worker's point of view:

“Everybody had received authority to accomplish the task.”

“If there are not any actual leaders, it is easier to have a conversation with everybody all the time and then competitive environment does not exist.”

Information load can be confusing, since there are many parties working with the same project. Information comes from different sources and some parties may hold information which is not delivered to everybody. Different backgrounds may turn out to be useful in projects, for example asking questions is faster than independent information acquisition from different external sources. Combination of different personnel is ideal for the team, since these groups complete each other's knowledge. Innovative ideas appear when different people are working together. Some projects require members who hold certain knowledge that they can use to solve the problems and work is done in the right way. The interview results revealed following aspects:

“Operational knowledge comes from soldiers and practical knowledge comes from us military civilians and specialized officers.”

“There is of course advantage, because people are thinking outside the box, so it is a good thing.”

Diverse backgrounds impact positively on teamwork. Different points of view enhance innovation development process in the way that precious time is not

wasted for something which is not possible to accomplish or something which is not suitable for product users. Different education and even age gives diverse perspective. Innovative ideas appear when different people work together. Organizational change requires new perspectives and views. Without different views organizational change will not happen. There is possibility to change old patterns when people with different backgrounds share their knowledge with the others. Same kind of work backgrounds give less new ideas for the organization and the personnel is able to appreciate different expertise mentioned below:

“If view is only operational there, is a risk that produced innovations are not technically possible to accomplish.”

“If there are parties from several different areas, who master the subject, we can make a product which for example serves users as much as possible.”

On the other hand, same kind of knowledge connects workers. High-performance professionals tend to have common “technical” language which they use when they have to communicate with their colleagues. They have learned their special language due to their common working backgrounds. There are many pre-requisites for a successful project. Professional and experienced personnel is one of the key factors which lead to success. The past experience effects positively on work performance and trust. In some projects where a schedule tight, it is important that the whole organization is capable of making quick decisions. A common background tends to improve teamwork:

“In some way, the most important is that everybody has certain common security related background.”

“And those people who managed finances realized that there is rush and they took care of all resources really quickly.”

Expertise and background of the contractors

Contractors are not working only with FDF. They participate in multiple projects which are in different phases with other clients too and military projects are just one

part of their work. Contractors have different customers and they have to switch between projects. Scheduling is very challenging. Sometimes they only accomplish some part of the project without seeing the entire picture. There are many times a lack of qualified or substitute personnel and workdays are sometimes quite long. One interviewed contractor described a typical work week as follows:

“Consultants have typically quite long work weeks.”

Project sizes varies and contractors take part of very small and also quite large projects. Some projects are lasting long time, even years. Some contractors are able to choose which projects they should participate. Project planning consists of planning (offers), preparations and visits to customers sites. Their daily work is mostly based on different projects. However, some of them have done some other non-project-based work too. Contractors are working mainly as consultants and cooperating with the customer. They do not always feel that they are necessarily part of the team and they are just doing their own part of the work and tasks. Teamwork was mentioned to be more cooperation by one contractor:

“It is more like cooperation rather than that it would be teamwork.”

Workshops are sometimes the most efficient way to work with high-performance professionals. Collaboration with colleagues helps problem-solving and decision-making. Contractors tend to appreciate face-to-face meetings and working together in workshops. This is not a familiar way to work in private-sector and in those projects, workers do not always see project success or teamwork entity. Workshop environment effects positively on their work and working with others gives them possibility to gain knowledge from all areas of the project. In large scale projects, there is possibility that different subjects are connected in some ways. Knowledge about “bigger picture” is helping them to discover occurring challenges earlier. Some military projects require knowledge from both sides in meaning that customer (FDF) needs same kind of knowledge what the company has. In these projects, there are issues which require specialized expertise. It is possible to have diverse discussion inside the project and it is easier to make decisions when there are participants from

both sides. Advantages of teamwork with FDF from the contractors' point of view are these matters:

"There were approximately 6-7 people building it and dedicated specialists for all areas, so it was very good teamwork."

"It is rare in private sector, that cases are reviewed together with others or even reviewed."

"There is same kind of organization on the opposite side, so it is good to have people with different backgrounds in the project."

Personal qualities effect on teamwork efficiency. Certain people like to work with specific type of team members and leaders. Team members appreciate hard working colleagues. For some workers, it is important that a leader of the team has high-level standards. Different views are appreciated including knowledge sharing functions. There are always some new things which can be shared with team members. Some new ideas can be found only when people are working together. For individual workers, it is more difficult to discover some things independently. Individual skills emerged in the interview results:

"The team was very hard-working and project manager was extremely pedantic."

"It gives me many things that I was not able to discover by myself."

Communication with team members is predicting project success. Nowadays projects are many times multi-cultural and participants come from all around the world. Sometimes difficulties might occur due to lack of understanding and communication as described below:

"It is quite efficient if the team is working at the same place and we all speak our native language."

5.1.2 Teamwork in the military environment

There are some differences between teamwork in the military and business environment. The results present characteristics of teamwork in military environment.

The Finnish Defence Forces personnel's teamwork

For some team members and team leaders, the goal orientation gives the right direction for the project. If the goal is not defined properly, there is a chance that direction will change and cause problems. Poor goal setting creates frustration among team members. If the goal is not clear and fundamentals are not defined, it is difficult to start the project. Focusing on the project should be the top priority and should last until the end of the project. The goal orientation is needed when working with knowledge workers. If everybody has clear goals, it is easier to accomplish the task. Leader's coordination skills improve teamwork and release time for the project. Depending on the workers of the team, different teams need different kind of leadership. In some teams, leader needs to give guidance and information about entity. In other teams, there is a need for managerial style leadership where workers get direct guidance from the leader. Team members appreciate the leader who is aware of the big picture. Enthusiastic workers predict success in innovative projects. If the worker is able to become excited about own work, there is a chance that new innovations are created. Some workers are willing to sacrifice their own time to accomplish some work. Respect and shared goals enhances creativity. The results show that FDF's personnel respects goal orientated leader:

"The leader describes the big picture and everybody can start working with it. Second option is that the leader is simply so-called recorder who uses managerial style."

"The most important thing is to be able to carry on continuously the assignment which is given for the team which is participating in the project, so it will not slide to wrong direction."

"Focus should last as long as project continues."

Teamwork is not always easy. Team commitment is important for effective teamwork. If team members do not want to be part of the development process, they are decreasing level of effectiveness. When team is built, selected team members should be committed and new team members should be focused on learning new things. Team members respect their colleagues if everybody is engaged with the project. Help it is then provided by the others for those workers who require assistance. Lack of enthusiasm lead to lower results and reduces others motivation and the results supported this matter.

“They should be committed to learn, rather than wasting their time over there without willingness to present their own opinions or develop subjects, those are not good things in teamwork.”

Psychological safety is important for the team. In innovative teams, members should feel comfortable to express their opinions and present their new ideas. Psychological safety is considered to be more important than relationships among team members. If interpersonal relationships are not working, there is still possibility that the team is successful. Confidence towards own and other peoples' areas of expertise is more meaningful when the team is reaching common goal as interviewed persons described it:

“If something funny comes up, we start thinking out of the box and those ideas are not directly insulted.”

“Even if interpersonal relationships are not the best, it does not necessarily matter as long as team members are confident that they have some knowledge which they are able to bring for the team.”

Meetings are one part of the teamwork. Discussion and cooperation nourish creation of new ideas. Even short meetings help to understand common goals and there is opportunity to share information. Team needs for this kind of occasions regularly. All members need to be heard, because their opinions and knowledge are meaningful for the project. Teamwork relies on correctly working equipment. For example, failures in the network can cause problems and slow down work pace. Documentation is helping the team when one team member has multiple projects

and is required to switch between projects or project staff is changing. Two interviewed persons expressed their attitude towards psychological safety and documentation in this way:

“There should be a possibility to express own opinions and professional knowledge.”

“Perhaps it is documentation at least, in our area of expertise staff changes a lot.”

High-performance workers need freedom of movement. Sometimes the goal is delimited precisely, which impacts on creative process. Directions are too strict without any possibilities for own ideas. Some people are not included in teamwork and their ideas are not considered. Superiors do not always understand the projects and related subjects. Lack of understanding and support creates pressure towards knowledge workers who are trying to accomplish their work and solve the problems. Personnel is the most valuable assets of the organization. Limited time, pressure and lack of professional people effects negatively on projects. Switching time reduces working hours and impacts negatively on quality of work. There are multiple matters which disturb the teamwork. Some of these matters are listed below:

“Too strict goal is given in the way for subjects...it is even defined how you have to do etc.... freedom of execution does not exist.”

“One thing what borders the most this kind of teamwork is if managers support or knowledge is not adequate enough to overcome this process as being supportive.”

“It would make sense to sometimes think that those projects and work can be done one after the other and not all at the same time.”

The contractors' teamwork

Cooperation enhances teamwork. It is important to consider others' work and see the big picture. Lack of knowledge about the project is considered to be irritating. Steering is required when there is a need for prioritizing between different

approaches. Discussion between different parties helps them to understand in the better way different opinions. Lack of guidance slows down pace of the projects. Companies need guidance in multiple ways from customer's side too. Too often there is an assumption that everything is clear, but insufficient amount of knowledge leads to a motionless situation. Knowledge sharing improves teamwork in widely dispersed organizations. Some contractors consider that it is important for them to see the whole picture.

"We try to see the whole picture, how things proceed and we prioritize along the way things we confront."

Creativity relies on different thinking. All ideas are not good and some things need to be tested to see if there are some usable ideas. Team members respect the fact that there is possibility to test some things, even if the end result is uncertain. Requirements may be something which team members are not familiar with. Opportunities to test something new effect positively on team climate. There should be possibility to make wrong presumptions. Trust impacts on teamwork. In some projects, there are multiple companies participating in the same project. The areas of responsibilities should be defined and agreed tasks need to be accomplished. Sometimes there are rivals from different companies, but a common project should not be the opportunity for business intelligence acquisition. According to the interview results contractors noted that experimental work environment and equal share of responsibilities and trust are key factors of successful teamwork.

"It is almost equally valuable information that we are not able to do it."

"It is probably share of responsibilities and trust."

Contractors and consultants are representing their own products. When multiple companies take part in the same project, there is possibility that some ideas are contradictory. Decisions effects differently on different companies depending of the sizes. There are more challenges in multicultural environments. Understanding of cultural dimensions enhances communication and project success. There is a possibility that some facts are not presented precisely and after discovering these

some new problems might appear. There should be a defined schedule and goals for each project. Tasks should be divided into smaller parts and all meetings should be documented. When the project is under control, upcoming challenges are easier to recognize. The contractors mentioned in the interview results following issues:

“There are some cultures where it does not matter how much documentation you produce and how much you try to agree some areas of responsibility.”

“Somebody’s idea might risk others duties and this creates conflicts.”

In some projects personnel is spread out to multiple projects and they are able to take part in one project just limited hours. Well prepared schedule enhances productivity. Technical workers need peaceful environment without interruptions due to a complex nature of projects. Scheduled meetings are not efficient if the workers need to stop their productive work for the meeting or other event. Leaders need to be flexible for these high-value workers. Possibility to meet face-to-face enhances efficiency and is considered to be necessary even if there is a possibility to have a connection over the network. Cooperation with others at the same place and peaceful working environment seem to be meaningful matter for contractors.

“It is the biggest obstacle to get the team to work together for example in certain days, so that efficiency increases remarkably.”

“These interruptions are difficult and they should have peace for work.”

5.1.3 Leadership in the military environment

The leadership matters and challenges are basically the same in military environment as they are in other organizations. These results show FDF’s personnel and the contractors’ perspective on leadership.

The Finnish Defence Forces personnel’s view on leadership

A team leader is responsible for dividing work to team members and leader needs to know exactly who is able to accomplish the task. The team leader creates good working climate and provides required resources. A good leader is always aware of

the situation and phase of the project. The relationship between a leader and subordinate is delicate. Trust is one key element which leads to effective work and good relationships. Sub-ordinates need encouragement and support for effective work. An ability to give and receive feedback is considered to be a desired quality. The leader takes responsibility of everything and should also be willing to admit if something goes wrong. The interviewed FDF's personnel described a good leader as follows:

"If I use adjective to describe, it is probably good knowledge about people and precisely productive type of person.

"A good leader admits own mistakes in the way that he/she is not hiding those."

Some workers face difficulties when they have to express something new in the military environment. This is the reason why new ideas are not presented too often. Controlling and hierarchical leadership prevents creativity and innovation activities. The safest option is not always the best. Working environment should be psychologically safe to support innovativeness and creativity. One interviewed person explained how leadership effects on creativity:

"It effects on creativity in the way that if leadership is controlling, people are shy to make their own decisions or the safest option will be chosen."

Workshops are challenging for a leader. Guidance which is given to employees have to be clear so the next functions are possible to execute. Discussion after a workshop helps the leader to recognize required follow-up actions. Information exchange inside the team is important and need to be encouraged in all project phases. Communication should be real-time and team members need to communicate with others immediately when they receive new information. Importance of communication and guidance was mentioned in the interview results.

"Those follow-up actions are agreed in the end and after the workshop."

"Immediate real-time information exchange inside the team is important."

Project phases are diverse and require different leadership style. Team members are working very closely with other in workshop phase. One option for the team leader is to use conversational leadership style and have discussions with team members. In this way, it is possible to locate certain impediments. Team leader needs to be flexible and adapt to different project phases. Same kind of leadership style is not necessarily suitable through the entire project. Leadership style is important for interviewed personnel.

“When we are in workshop phase, there is also the goal what needs to be done. So, it is probably more conversational style.”

“In the beginning when the team is formed and the goals are created, leaders’ task is to give direct guidance and explain the goals and start the work, but when the work starts and these virtual teams start to work in some way, there is rather a need for background support and resourcing and once in the one giving some guidance.”

“Directly it is possible to separate at least the startup phase, innovation and creativity phase and then summarizing phase.”

The contractors’ view on leadership

High-performance teams need somebody who gives guidance and is able to cooperate with team members. Lack of answers slows down the project. In the business world guidance is given even more rarely. It is important that the leader understands how project proceeds and is able to answer the questions. Subordinates are curious how the leader is acting. Workers appreciate the leader who is strict enough to get work done. It is expected that the leader takes care of own work and responsibility over the project. These ideas can be found from results of the interviews.

“If we think about the business world, guidance and information in a certain way is often incomplete.”

“I would not mind if the leader would not be my friend. I would mind if the leader accomplishes things in a bad way from my point of view, for example is too soft.”

Decision-making affects on worker’s daily tasks. If decisions are made in too high level, there is a possibility that those people who are making decisions do not understand what they are deciding. If decision process is too slow, project pace slows down. In some projects there is a different leader for each phase. If leaders are changing tasks, continuance and documentation need to be passed to a new leader. Interviewed contractors appreciate quick decision making and results are presented below:

“Something which they have released in our company from upper-level is responsibility, which is given to lower- level where it is needed.”

“Specialist makes proposal including whole entity during the Skype meeting. After that, the project manager or project lead takes over the project and communicates with the customer.”

“Continuance is the key word here.”

5.2 Diversely working team and leadership challenges

Here are presented results of different types of teamwork and answers to second sub-question:” *What leadership challenges might occur if the team works diversely and consists of The Finnish Defence Forces personnel and contractors?*

The researched team is applying different types of teamwork and the leader needs to adjust leadership style according to situation. Teams are adapting to the different project phases and there could be for example a planning phase where team is using virtual connections and actions are mainly self-managed. After planning there is possibly temporal workshop phase and the high-performance workers complete their work with others. After the workshop phase the team continues work development virtually and independently.

5.2.1 Temporarily working project team

The researched team works temporarily whenever there is need for their work. Schedule is usually tight and request for participation comes sometimes suddenly and there is not always time for adequate preparations.

The Finnish Defence Forces personnel's view on temporary teamwork and leadership

Temporary team members tend to have an independent attitude towards their work. Typically, their expectations are on a reasonable level and they are able to work independently. Independent work is related to a relationship between a leader and sub-ordinates. The leader expects that a sub-ordinate is capable to solve problems without support, but there is always a possibility to rely on the leader in difficult cases. One interviewed person described independency in the teamwork as follows:

“I am used to in training activities, that I do not expect to get everything ready on plate, I also have to figure out things by myself.”

Team leader's main task is to provide accurate information for the team. If the team is not able to find required knowledge elsewhere, the team leader will provide this information. The team leader handles issues which concern a lack of knowledge among some team members. Knowledge workers appreciate the support that they get from their leaders or other team members. Received guidance impacts positively on teamwork and in some cases received guidance is critically important for some team members as one interviewed person described:

“Currently technical support which is given to our field of expertise is nationally top-level support.”

Working in temporary team can give new ideas for daily work. Exercises and other workshops enhance workers' knowledge. The amount of knowledge sharing depends on the team. If team members are very experienced, they are able to share their knowledge with others. Teamwork is cooperation with others and people tend

to share their knowledge with others if needed. In this organization, knowledge is shared with team members openly. There is no reason to hide any required information. The results show that temporary work gives new ideas for some workers.

“We worked with totally different team than normally in some exercises... it is very good thing.”

Leaders have multiple tasks and it is sometimes difficult for them to find time to support their teams. Sometimes a team is working with very complex projects and it is hard for a team leader to follow their work continuously. For this kind of team, it is perhaps better if they use their network connections to find required information. Project leadership has developed a lot and organization is nowadays very networked. Interpersonal relationships are used for information sourcing and knowledge sharing in all levels. Large network and good relations enhance work and improves problem-solving. There are different views about support of the team leader.

“For sure I cannot give (support) all the time.”

“If you know many people and you have good relationships with them, they give you time and they explain all things and guide you and even make something ready for you.”

The contractors' view on temporary teamwork and leadership

Workshops are an efficient way to gather professionals working together and accomplish temporary teamwork. This cooperation enhances development process. Discussion among professionals may bring up some new ideas. When professionals are working together problems are easier to overcome, because solutions are nearby. In temporarily working group guidance is needed when products are unfamiliar for technical workers. They need a proper introduction when they start to use new equipment. Contractors appreciate cooperation with other team members.

“Those discussions, that we have together regarding development are many times good and bring up different technologies and subjects.”

Networking with colleagues enhances information resourcing nowadays. Common background makes information exchange easier due to common language and experience. It is important to know who to contact when specific information is needed. Time matters and there is a need for finding answers quickly so that development process can continue without interruptions. Manufacturers provide support for developers which are using their product. Contractors get support also from their own employers. One interviewed person emphasized the importance of networking:

“Personally, I always know who to call and I will always get the answer from that resource right away but if I would not have common work background with these people it would be of course a little bit more difficult.”

When contractors and professionals are working with complex projects, it is necessary to find correct information for their work. They are working independently and they are not able to continue their work until they get the required facts. There is always a risk when complex systems are operated that if information is not accurate, it may impact negatively on whole system. Requirement for information is described by one person in this way:

“Good expert tells when (he/she) is not be able to continue before getting required information.”

5.2.2 Virtually working team in the preparation phase

The team works virtually mainly in preparation phase and sometimes where continues after the workshop phase. Virtual teamwork and leadership is challenging for the team and team leader.

The Finnish Defence Forces personnel's view on virtual teamwork and leadership

A virtual team leader should encourage subordinates to participate in work-related events by providing them material and pre-assignments and preparing all events well. Engagement towards a virtual meeting is necessary and a team leader needs to find the way how people stay concentrated during those virtual meetings. Very long meetings are not effective and participants tend to lose their interest or they do some other work at the same time. On the other hand, working with multiple projects during the meetings can be also positive if there are things, which do not concern their work but they still have to participate. Team leader's task is to arrange meetings and carry on the discussion between team members. Two interviewed persons mentioned meetings to be part of their daily work.

"Network meetings and virtual events require preparations and people should concentrate only on that event."

"You can participate and you can be listening or participating depending on how much the discussed matter is related to own tasks."

In the beginning of the project a leader divides the work to each person and explains goals and requirements. It is important that everybody understands what they are expected to accomplish. After the first meeting workers are able to continue their work in a virtual environment. The first meeting should be prepared well, but it does not have to be necessarily perfect. More important is to get work started. More specific issues can be discussed later on in the virtual environment. Workers need also a reasonable amount of time for their independent work. Virtual teamwork is noted in the interviews in following way:

"Perhaps it is good in that phase that the leader brings up those goals, shares and divides work and tries to gather time for independent work and after that matters can be discussed in this virtual environment."

"This is what I mean that we are not looking for perfect performance."

Virtual teamwork is challenging for some workers. Their opinion is that preparations and reviews are possible to accomplish virtually, but it is hard to see the bigger picture. Their opinion is also that things are easier, if team members are able to meet face-to-face and discuss matters. Interviewed persons revealed some challenges with virtual work.

“Overall you are able to prepare things quite well but, in some way this bigger picture remains abridged.”

“This creative work and this kind of thinking needs to be done over the table.”

It is good to have short meetings to monitor the work phase. Working schedule should be changeable when problems are discovered. It is better to change the schedule early enough rather than to continue and try to solve problems within the same schedule. Workers need guidance to accomplish their tasks. There should be a common understanding in virtual team before the actual work starts. If the team lacks guidance, there is a risk that something is going in the wrong way. There is no reason to have continuous VTC- or phone connection and meetings can be arranged when needed. There were multiple matters with virtual work in the interview results.

“Schedule should be changeable.”

“Nothing should be done before it is decided together that we are going do it this way.”

“It does not require continuous VTC- connection or phone connection.”

Knowledge sharing is a part of the virtual teamwork. Wise leader and team member shares reasonable amount of knowledge. Overwhelming amount of knowledge sharing leads to situations that nobody is not reading all the messages. Consequently, some highly prioritized messages are not handled as one interviewed person described:

“If you share everything with everybody, quite soon you are facing the situation that nobody is enthusiastic to read messages coming three times per day anymore.”

Virtual teamwork is based on network connections. It is sometimes hard to follow same formal patterns which are used typically in the military discussions. Open-minded conversation style works better with virtual connections. Some part of virtual work is done independently. Team leader needs to trust the team and release certain amount of authority to lower level. When workers have authority to work independently, they are able to finish projects earlier. The FDF’s personnel is open-minded toward independent work and low-level authority.

“Not too military type open-minded conversation style is the best.”

“The kind of leader who trusts subordinates and gives authority what is needed and also supports them if they need something.”

The contractors’ view on virtual teamwork and leadership

Contractors need to know the framework of the project to start their work. They have to know basic goals to fulfill expectations. Schedule is usually tight so they need to know the exact dates when they have to work. Some of the contractors do not feel that virtual meetings are very useful, but it is sometimes the only way to get some information. Some companies tend to have virtual meetings in the morning and in the afternoon to monitor the work. Those meetings are typically very short and later on when superiors have better trust towards subordinates these meetings are not necessary required. The contractors describe meetings as follows:

“We know what we are trying to reach and schedules.”

“We can exchange at least some information.”

“It takes maximum 10 minutes when the group gathers.”

Contractors often use phone to communicate with the customer. Communication happens usually after the project has started when there is a need for organizing

and handling many matters. In their own companies, they have VTC-systems which they use to communicate with each other. They have also several systems which they use for knowledge sharing purposes. Email is considered also one way to share tasks and other information. Virtual meetings are easy to organize, but contractors prefer to have face-to-face meetings at least in the beginning of the project. They feel that it is complicated to have meetings with the strangers over the network. Virtual tools benefit events which consists discussions and paperwork. Some technical workers face difficulties when they want to show some device or technical solution. This type of demonstration requires educational equipment for filming and it is still difficult to understand the idea from the monitor screen. VTC- meetings are where useful, but the interview results show some difficulties also.

“VTC- meetings with strangers are sometimes stiff.”

“If there is some device that you want to show, it is usually technically difficult, that you have to have filming systems and everything.”

5.2.3 High-performing team in the workshop phase

High-performance workers role is important in the workshop phase. It is a challenging task for the leader to get all different personalities work together as a team.

The Finnish Defence Forces personnel's view on high-performance teamwork and leadership

In the workshop phase high-performance workers need challenges and inspirations for work. One way to enhance creative thinking is to use problem solving. If a team always gets direct answers, they do not have to use their creative thinking. Leader of high-performance team needs to be open-minded towards new ideas. Obstinate attitude gives a good example for team members. Creative thinking gives more possibilities to solve problems in several ways. High-performance team works well, if members are excited about their work.

“So, in this way that (he/she) does not give up easily and tries to bring up some new perspectives all the time.”

“So definitely they should be excited and willing to reach something.”

Common goals are important for high-performance team, because they need to know which way they are heading. Some high-performance workers need more exact work assignments to organize their work. These workers do not require any answers, it is better instead that they find answers independently. An experienced leader is able to guide the team and share knowledge with team members. It is useful to receive information about past projects and some things are not worth of testing again. High-performance workers have many ideas and the leader needs to guide the team to the right direction. Answers of the interviewed persons support these ideas.

“Work assignment should be quite particular what needs to be done.”

“Of course, based on my own experience he/she is trying to give some guidance which has worked earlier in some work assignments.”

Team members respect colleagues experience, even if they are not necessary friends or they might have some disagreements. Interpersonal relationships are meaningful for successful teamwork. Team spirit should be in the level that workers get along with others and are able to work as a team. One interviewed person described the teamwork in this way:

“I would not say that you have to be best friends or agree on everything, but in a way expertise and interpersonal chemistry are also quite precious in teamwork.”

A team leader is not necessarily always the highest expert in the team. In this kind of situation team leader should concentrate on other subjects. Resources and support are definitely important for the high-performance team members. If working conditions are good and they have required tools, they are able to accomplish their work more efficiently. Leader`s task is to listen subordinates and gather information

about working conditions and difficulties. The leader has to take this very seriously and try to solve these issues quickly. The results of these matters are shown below.

“The leader should concentrate leading in the background (resources and goal).”

“(Leader) should listen if (he/she) is told things which makes work difficult and bothers accomplishment of their work, but also react to those.”

Creativity and innovativeness require certain kind of environment. Team members have to feel safe to present their new ideas and innovations. Environment should promote different thinking and opinions. Curiosity is good quality and all members should be encouraged to question old ways of thinking. Respectful discussion among team members improves team performance overall. One part of innovative work is testing new things. Psychologically safe environment encourages team members to try new things without a fear of failure. One interviewed person described freedom of movement in this way:

“In a way, there should be freedom to be able to do something and then make changes, if it is necessary after certain analyzes.”

Teambuilding is conducted by the team leader. Efficient leader is able to recognize strengths and weaknesses of team members. Strong relationships between a leader and subordinates helps the leader to learn each individual's skills. The leader is able to apply this knowledge when there is a problem which needs to be solved. If team leader is recruiting new staff, best is to gather combination of experts whose expertise complement each other. There are several opinions about the teambuilding and the results show some of them.

“The leader needs to learn to recognize those people's weaknesses and strengths and lead the work based on that.”

“Maybe by choosing the right people to that team and then in a way they have sufficient expertise in their own area.”

High professionals value trust highly. Without trust it is impossible accomplish creative work assignments. Independency tend to be important for these professionals. When they have freedom to work as they prefer, they are more efficient and successful. Monitoring functions might impact negatively on workers and leaders should avoid constant questions about unfinished work. One interviewed person presented an idea about role of the leader.

“Team leader should concentrate on leadership, not concentrate on those things which are being done, professionals will handle that task.”

The contractors' view on high-performance teamwork and leadership

High-performance team members are very experienced and creative, because they have more ways to solve the problem. These professionals are able to apply their experience and create multiple solutions for the problem. Cooperation with the customer is definitely challenging for both parties. By discussing and challenging the customer will receive the needed products and services. Good relationships with customers are useful for a contractor to receive all relevant information concerning the project. The interviewed contractors emphasized the importance of experience.

“You are more creative, because you have more options to accomplish same thing.”

“Of course, you have to have good contacts from your customer's side to get all the answers.”

Clear goals predict that team is going to right direction. If there are certain issues, it is difficult to continue the work effectively. High-performing professionals need to concentrate on learning new subjects. Technology is developing continuously and they need to have recent knowledge which is related to their work. To contractors described meaning of clear goals as follows:

“Goals need to be clarified so that we are going to right direction.”

“Generally, I would say that this sector where we are working, this technology requires that you are studying all the time.”

Contractors feel that environment should encourage everybody to express their ideas and opinions. They need also to be able to admit their ignorance about some issues or the fact that they need help. Open-minded environment where team members are honest about all issues makes daily work easier. Team members should feel confident to present their new ideas. When there is a meeting, they should be able to show their ideas quickly and receive instant feedback. It is presented in the results that working environment matters for the contractors:

“That kind of honesty and trust towards everybody and to be able to say that I don’t know or I need help.”

“If you have some ideas, it is important that you are able to present those and get feedback.”

If the team members are not on the same level, it is more difficult to achieve good results. There is also a possibility that the schedule is too tight if the team is not able to cooperate. Team leader is responsible for choosing right people to accomplish certain tasks. The leader has to understand the task and requirements.

“When all are high-level (professionals), then final results are fast and high-level, but if you have individuals in different levels in the team, results vary more.”

“It is probable that one understands contents of the tasks and who is capable even completing those.”

Flexibility is sometimes required with some projects. There are multiple ways to be flexible but in military projects this usually refers to flexibility towards other team members. On the other hand, sometimes workers need to be flexible with their working schedule. Contractors prefer working together with other team members. From their point of view, they get the best results when they are working together.

In this way, they are able to solve problems more efficiently which shows in the results:

“You have to be flexible sometimes.”

“That we have all resources in the same place that we are able to do development work and also problem-solving right away.”

The team leader need to understand the context where the team is working. Technical team achieves best results when they are working with the technical leader. Some team members feel that it is disturbing, if the leader does not understand what they are doing and concentrates on secondary matters. Some team members sometimes forget that they are working as a team. Team leader’s task is to prevent it happening that some people are thinking that they are more important than the others. Team members need to trust each other and team leader’s task is to provide required resources for team members. The team is able to proceed quite independently, but there are some situations where the team needs approval from their leader to conduct some specific actions. The contractors need certain level guidance and independence given by their team leader:

“In that situation ‘Now we are doing this pam, pam, pam’ is more needed instead of ‘Tell me how is your dog?’ ”

“Those (professionals) need to be given quite free hands, but then you should also be able to provide them those the resources what they need.”

“(He/she) needs to support by giving acceptance if we are about to do something very special.”

5.2.4 Self-managing team in the multiple project phases

Self-managed teamwork is typical when the team has clear objective and directions. This kind of work can be done during all teamwork phases, but mainly self-managed work is done during the preparations phase.

The Finnish Defence Forces personnel's view on self-managed teamwork and leadership

The self-managed team can work quite independently after they have received clear work assignments. They are able to accomplish all routine tasks which are clearly defined. They are also capable of completing tasks related to research. Sometimes the leader needs to make a decision, if some orders are confusing or the team needs to do something which is against the orders. In this situation leader takes responsibility and team is able to continue the work. The team leader is reporting to higher level regularly. If team faces problems or lacks resources, the leader has to ask support from superiors. The FDF's personnel needs support from their leaders in certain cases:

"But if we have to do something against orders, that is something that we cannot do, so those need to come from the leader."

"Maybe (the leader) is acting as a link to higher-level."

Team members need feedback. If they are uncertain that some phase is accomplished, they are not able to proceed to the next phase. Mid-goals help team leader to follow the project. Independently working team is more efficient if they are aware of their goals. Team leader's task is to follow the project and make sure that the team is going to right direction. Independently working team requires rudiments, but otherwise guidance is not so necessary. Team members are experienced professionals and they are usually able to figure out solutions without external support. The feedback and the rudiments are base for successful teamwork as the interview results show:

"For sure everybody needs feedback, that superior tells us if some part is accomplished."

"If you just get the rudiments, those are something that you cannot find by yourself."

The self-managed team works independently and some team members give support to others. Sometimes the team separates and team members work independently with different sub-categories. After independent work phase, the team leader gathers the team together and all parts of the system are combined. In independently working team members need to have ability to research. They need to find answers by themselves and be confident enough to request information. When team members are working independently they do not usually require any assistance from their leader. Due to technical development, they still need to rely on other people. Quite often it is possible to receive support from other team member who has stronger technical background.

“Entity is built up from those parts afterwards.”

“Only thing is that technology develops all the time and sometimes you have to ask help from the others.”

The team is able to work manage themselves when there is a need to go through some ideas or topics. Self-directed teamwork can be part of the larger entity which they prepare together. They need to understand the bigger picture and relations between different matters. Team leader’s task is to provide the team with resources and follow the process. If there is a need for human resources, there is a possibility that team leader will find external workforce to solve the most difficult issues. The resources are meaningful for the project success. If the team lacks resources, that work does not proceed.

“If we are preparing something in smaller units it should be something which is possible to attach to a larger entity.”

“In this self-directed team leader’s task is to mainly monitor and create these resources which the team requires.”

“Many times, it happens that (he/she) will bring this extra specialist and this way this problem can be solved.”

The self-managed team uses self-organization to solve some smaller issues together. The team leader does not involve in forming these pairs or small teams. Workers organize these by themselves. These teams can do multiple things together. This type of team does not necessarily have any real leader and the person-in-charge is usually the most experienced one. This type of self-organization enhances work and some things are easier to accomplish if the team is very small. These small teams are more productive, because they are able to work with several matters at the same time and they are able to organize their own work.

“Usually the leader is the person who is the most experienced rather than who has the highest military rank.”

“We are able to do wide range of activities at the same time.”

Self-managed team’s leader does not take part in the teamwork, unless there are some issues which need to be solved. Interpersonal conflicts are one reason for the team leader to get more involved with teamwork. Self-managed team members are enthusiastic towards their work. It is team leader’s responsibility to monitor work and make sure that workers have reasonable number of tasks so that they do not feel overloaded. Self-managed team’s leader has an important role with conflict management.

“If there are some disagreements, then settlement of those, but leader does not necessarily take part in the work which is being done.”

“Team leader keeps the entity together and looks after that individuals are not overloaded in that organization.”

The contractors’ view on self-managed teamwork and leadership

The team which consists self-managed working contractors needs to have clear goals and structure for its work. All team members need to understand why they are working and what is the main goal. Unclear goals tend to effect negatively to their work. If goals are clear, the team is working more effectively. Contractors feel that they are working often independently and represent their own field of expertise.

There are some situations where they need help, in which situations they are able to rely on others. Most of the work is possible to do independently. There are still some things which should be done with the team. New features or things which are not tested before should not be taken into use independently without any support. From the contractors' point of view self-managed team leader's task is to give guidance and directions.

"When it is clear what we are doing and what are the goals, self-directed actions are much easier and more effective."

"It is very clearly defined problem or delivery or some technical feature or something."

"Somehow this is independent work when you are working as an expert in one field. You should have competence to do things, but as I said earlier there is help if I ask for it."

"New features or something like that, those should not be taken into use precisely independently."

Team can be self-managed and accomplish most of the tasks independently. In software development, self-directed work can be used for code-overviews where the other person can help the other by reviewing the code. It is possible to become "blind" for own work and other person is able to find errors more efficiently. This a way to avoid any unnecessary mistakes. The contractors use pair-work to ensure quality of their work.

"For example, in software development that kind of code-overviews are quite good."

"In pair work, there is code-overview when we cross check and overview the other code if it is okay and efficiency and quality increased a lot."

The self-managed team uses self-organizing to do some part of the work together. These self-organized teams share their knowledge with others and team members are able to solve their problems by using others knowledge. Self-organization can

be complicated when tasks are coming directly from managers. Consultants are not necessarily able to convene a meeting to agree teamwork with others, because they are working for different customers. Manager is the person who is dealing with all requests for teamwork. Self-organizing is part of contractors' work, but according to the interview results it is not always possible to arrange.

"Always when people are doing the same work or related work they are trying to form groups who can share knowledge with each other as well as get answers to their problems easily from the others."

"Not exactly in this way, because we still have so much work, or we can ask but we need to ask the person who is responsible for schedules."

Self-managed team's leader is responsible for the team, even if the team is working independently. Interpersonal relations are even more meaningful as the team leader is not monitoring the team continuously. The team consists of different people and the manager is responsible that they have psychologically safe environment to work. Cooperation with others is important and if there are some interpersonal conflicts that, affects the whole team and their work. In difficult situations the team leader is the key person to solve the problem.

"You have to be able to manage different people and get them to cooperate. That psychological part is very meaningful."

"If there something which slows down or prevents reaching goals, (leader) needs to be able to react and remove obstacles and bottlenecks."

Monitoring functions are rather difficult to arrange, if team is located in different place than the leader. Team leader is able to monitor the team by organizing meetings or other events where team members are expected to report status of their tasks. The team leader provides information and guides the team to right direction if something is going wrong. Micromanagement is very harmful for self-managed team, because team leader is not able to lead very specific subjects. Even when the team is working independently, the team leader is still responsible for their work progress.

“Leader’s responsibility and task is to monitor that those people can do as much as possible without constant micromanagement.”

“Team leader is carrying the responsibility.”

5.3 Agile leadership in the military focused companies

Agile methods are used in Finland nowadays in many companies which are taking part in software development. This sub-chapter presents the results from contractors who are applying agile methods in their companies and provides answers to the third sub-research question: *“Team leader’s agile leading practices?”*

The Finnish Defense Forces is building capability to use agile methods in project management and later on these methods will possibly spread to different levels in organization. Due to this reason it was not possible to collect interior results from both sides. This chapter presents only the contractors opinions about agile leadership and agile methods generally.

The contractors’ perspective on agile leadership

Agile methods speed up projects and make the process more flexible. Agile team’s leader keeps track on several different projects or parts of the project. For agile team the goals are important and they tend to have typically short timescale goals. Many companies organize their schedule by creating one- or two-week sprints. Within these sprints workers are supposed to produce a complete product or certain part of the product. Results are presented to the entire team and team members are asked to give feedback about the project. The goal orientation and feedback are necessary matters for the contractors as follows:

“It is good to see the goals and the way we are going and also what is the situation right now.”

“After two weeks, the whole team gives feedback what went well, what went wrong, what should we do more and what we should not do ever again.”

Companies which use agile methods tend to use those in their customer projects. Customers do not necessarily recognize that these methods are applied in their projects. Main ideas remain the same, but it is easier for software developers to follow same patterns which they use with other projects. Agile methods are used with different types of projects. These methods are developed mainly for short-term projects. One essential idea is to produce some products or services with short iterations. Agile methods are used also in long-term projects, but these are more suitable for projects which do not last for a long time as it is described in the interview results:

“In customer projects, we do not specifically mention that we use these (methods), but many times we have same characteristics in those projects.”

“It suits the best to those where you can really deliver something new with short iterations.”

Agile methods can be applied to different kinds of projects. If the project requires customization, it is possible to use these methods differently depending on the project. Directions are flexible and if there is a reason to change something, it is possible to execute. Agile project team works independently and they have authority to make decisions concerning the project. They receive guidance and goals from their leader, but after that they are independent to organize their work.

“If there should be one-week phase in the scrum, we have two-weeks phases.”

“There is somebody who is the superior but this kind of leadership does not exist in that team. In meaning that someone is giving commands and the others are doing. It is clearly teamwork.”

Monitoring and regularly held meetings are part of agile development process. Meetings are mandatory and a part of the company's strategy. Typically, companies use two weeks iterations and after that they have meeting where they summarize their progress.

Team may have a discussion about their challenges and share knowledge with others. Meetings provide information about bottlenecks and the team is discussing how they are able to avoid the same issues appearing in the future. One interviewed person described meetings in this way:

“In software development, we have meetings and in those we have that kind of retrospect where we check how we accomplished last two weeks, was there some impediments or bottlenecks and then we analyze what we can do to avoid those.”

Scrum master who leads multiple smaller work teams is very interested about possible impediments. The most scrum-meetings are very short and normally if there are some impediments, those are discussed and dealt after official meeting. Scrum master or some other person gathers all impediments and makes sure that those are solved immediately. Leadership needs to adapt to the team. In agile product development concept of leadership is considered to be very different. Team leader provides resources for work. Team leader takes care of managerial issues when the team is working with one sprint and team leader plans next sprint schedule so that team is able to concentrate on their work.

“It should be short, because it takes time. But if you have some impediments after the meeting, scrum master or somebody else who has taken it over deals with it.”

“Probably team leader’s main task is to manage a lifecycle of one sprint and plan the next sprint.”

5.4 Qualitative research findings

The following table is a summary of qualitative research findings. The table is divided into three main categories according to the sub-questions of this thesis: 1. Factors of effective teamwork and leadership, 2. Diversely working team and leadership challenges and 3. Agile leadership. These main categories are divided into sub-categories. The second and third column of the table consist of keywords which represent FDF’s personnel and contactors opinions and ideas.

Sub-category	FDF's personnel, key words	Contractors, key words
Factors of effective teamwork and leadership		
Expertise and background	<i>Authority</i> <i>Common language</i> <i>Diverse work</i> <i>Experience</i> <i>Innovations</i> <i>Knowledge</i> <i>Limited time</i> <i>Monitoring function</i> <i>Planning</i> <i>Shared leadership</i>	<i>Experience</i> <i>Effectiveness</i> <i>Independent work</i> <i>Knowledge</i> <i>Limited time</i> <i>Multicultural challenges</i> <i>Teamwork</i>
Teamwork	<i>Goal orientation</i> <i>Independent work</i> <i>Knowledge sharing</i> <i>Managerial support</i> <i>Psychological safety</i> <i>Switching time</i> <i>Team commitment</i>	<i>Conflict management</i> <i>Teamwork</i> <i>Limited time</i> <i>Psychological safety</i> <i>Trust</i>
Leadership	<i>Adaptive leadership</i> <i>Conversational leadership</i> <i>Project phases</i> <i>Psychological safety</i> <i>Team leadership</i> <i>Trust</i>	<i>Change management</i> <i>Continuance</i> <i>Knowledge sharing</i> <i>Team leadership</i> <i>Trust</i>
Diversely working team and leadership challenges		
Temporary team	Independent work Knowledge sharing Leadership Networking Support	Discussion Networking Independent work
Virtual team	<i>Engagement</i> <i>Flexibility</i> <i>Guidance</i> <i>Knowledge sharing</i> <i>Limited time</i> <i>Psychological safety</i> <i>Trust</i> <i>Virtual leadership</i> <i>Virtual teamwork</i>	<i>Goal orientation</i> <i>Knowledge sharing</i> <i>Monitoring</i> <i>Virtual teamwork</i> <i>Virtual tools</i>

High-performance team	<i>Creativity</i> <i>Effective teamwork</i> <i>Goal orientation</i> <i>Guidance</i> <i>Interpersonal chemistry</i> <i>Resources</i> <i>Support</i> <i>Team building</i> <i>Trust</i>	<i>Authority</i> <i>Confidence</i> <i>Creativity</i> <i>Flexibility</i> <i>Goal orientation</i> <i>Knowledge sharing</i> <i>Learning</i> <i>Psychological safety</i> <i>Resources</i> <i>Team building</i> <i>Team leadership</i> <i>Teamwork</i>
Self-managed team	<i>Authority</i> <i>Communication</i> <i>Conflict management</i> <i>Feedback</i> <i>Goal orientation</i> <i>Guidance</i> <i>Human resources</i> <i>Independent work</i> <i>Knowledge sharing</i> <i>Leadership</i> <i>Work stress</i> <i>Limited time</i> <i>Resources</i> <i>Self-directivity</i> <i>Self-organization</i>	<i>Independent work</i> <i>Knowledge sharing</i> <i>Agile leadership</i> <i>Monitoring</i> <i>Responsibility</i> <i>Self-directivity</i> <i>Self-organization</i> <i>Task orientation</i>
Agile Leadership		
Agile methods	<i>Agile projects</i> <i>Feedback</i> <i>Flexibility</i> <i>Goal orientation</i> <i>Agile leadership</i> <i>Meetings</i> <i>Scrum meeting</i>	<i>At the moment, agile methods are not used widely in the Finnish Defence Forces.</i>

Table 3. Qualitative research findings

6 DISCUSSION AND CONCLUSIONS

This final chapter answers main research question and sub-questions. Leadership contains factors, which need to be consider in leadership activities. Certain challenges appear in different situations and a team leader has to be ready to conquer these obstacles. In this chapter the ideas were analyzed in the a way how they affect team members.

6.1 Influencing factors of team leadership

“What factors influence on the effective team leadership?” was the first sub-question of this thesis. The results to that question are presented below. Results which appeared in both FDF’s and contractor’s side were chosen to these conclusions.

Past *experience* affects positively on team performance. (Hyllengren et al., 2011; Chandrasekaran et al., 2015; Klug & Bagrow, 2016; Prikladnicki et al., 2017) When the team confronts difficult situations, team members are obligated to use their experience to solve the problem. They are able to see the big picture and connections between different matters. Team works quickly, because they have faced similar situations before.

Independent work is important for the team and too strict goals tend to decrease their innovativeness. Independent work requires effective knowledge sharing and well-organized working conditions. (Moe et al., 2008; Fausing, 2013) If authority is in too high-level and decisions define work too strictly, it is more difficult to find new solutions. Team members should have adequate freedom to make decisions concerning the project.

Milgram (1967) noticed that *knowledge* can be found from networks between people and all people are actually very close to each other. FDF personnel has different backgrounds and knowledge. Working with different people provides new information and ideas. Team members tend to share information and knowledge among team members. Information sharing happens when a team member provides information to other team member and they have conversation about exchanged

information. (Mohammed & Dumville, 2001) In FDF knowledge sharing is a very typical way to start new projects. From contractor point of view, it works even better than in business environment where information remains often incomplete. Accurate documentation ensures that all team members have the same knowledge about the project.

Knowledge sharing happens through cooperation and actions. (Nonaka & Takeuchi, 1995) Documentation and other materials should be prepared in cooperation with the team members. The team leader has to decide the amount of knowledge which is being shared.

If team has *limited time* for the project, it focuses more on current issues. (Bakker, R. et al., 2013) Task orientation is one key factor in short-term projects. (Nisula & Kianto, 2016) Sometimes limited time affects in a way that employees are required to have more working hours due to too tight schedule.

There are some important factors in *team leadership* which need to be noted to achieve good results, such as dynamic environment, communication style and the correct leadership style. (Collyer, 2016) Transformational leadership style predicts project's success (Chi, 2011; Aga et al., 2016; Hassan et al., 2017) Both contractors and FDF's personnel prefer to have a productive type of leader who has good knowledge about people. An efficient leader is not always too friendly. Sometimes the leader has to be very strict, if something needs to be done quickly.

Psychologically safe environment empowers workers to express their feelings and share their knowledge (Edmondson, 1999; Cordery & Soo, 2008) Mistakes should be considered as a learning experience to achieve more efficiently working innovative team. (Bessant, 2010) According to the results, it does not matter, if interpersonal relationships are not particularly good, if organization has psychologically safe environment where everybody can express their new ideas and opinions. In that kind of environment workers have are able to try new things and feel safe to be unsuccessful sometimes.

Trust is the key is when people are working together. It is easier to build trust inside small teams where people are communicating with each other (Moldjord & Iversen, 2015) Positive environment affects on trust building. (Sharma & Bhatnagar, 2017; Goswami et al., 2016) Trustful relationship between a leader and a team member predicts high level of creativity. (Jaiswal & Dhar, 2017) The results show that authority should be there where people are working. Too high-level authority makes work more difficult and delays occur more often. In good organization responsibilities and trust are shared and the leader takes responsibility for own actions and projects.

6.2 Leadership challenges with multi-organizational diversely working team

“What leadership challenges might occur if the team works diversely and consists of The Finnish Defence Forces personnel and contractors?” was the question and here are presented answers to that question.

There are certain challenges which appeared in diverse team’s interviews in either FDF’s or contractors side. If there is a problem with either one personnel group, it need to be solved as quickly as possible to ensure good cooperation in the future. For the leader it may be challenging to lead a team with team members coming from diverse backgrounds and organizations. Organizational background or personality defines the leadership style which needs to be used. Team is also working diversely and team leader’s challenges related to innovation creation and productizing.

Knowledge sharing should be supported in technical and social levels. (Alsharo et al. 2016) Knowledge sharing is well-known problem in many organizations. (Behrend & Erwee, 2009; Swart & Harvey, 2011) In FDF’s projects the team is changing continuously. Knowledge sharing and documentation help a new the team member to start working with the project.

Team is getting *support* when it is not able to resolve issues independently. If the team leader supports the team by providing required information, it impacts positively on team members. (Liao, 2017) Yammarino et al. (2012) study showed that one of team leader’s tasks is to be a coordinator. In FDF a team leader has

several other duties and sometimes there is not enough time to provide support for the team. In this case team members find answers for their questions independently. The team leader has to listen team members and react to issues. In FDF innovations projects team leader is typically taking care of the resources. If the team is lacking some tools or other resources the team leader will offer assistance. (Cordery & Soo, 2008) Transformational leaders' support affects positively on employee's creativity. (Cheung & Wong, 2011) This is one reason that all problems should be taken seriously and a reaction should be immediate. Senior management is able to provide some support, resources and higher-level contacts. If the project is presented to senior management regularly, it is more likely that they will help with the resources. The team leader has to have adequate knowledge about the project to be able to support the team.

Leadership affects on team diversely. Creativity exists in a higher level in those teams where leaders have good relationships with the members. (Jaiswal & Dhar, 2017) Leaders' main task is to concentrate on leading team members. Leader have to trust team members and let them accomplish their tasks without unnecessary interruption. A relationship between a leader and team members are meaningful for creativity.

Conflict management impacts positively on team performance. In FDF the team leader solves conflicts, but does not participate in actual work. (Nesterkin & Porterfield et al., 2016) Conflict at work can be positive or negative. Positive cognitive conflict increases goal orientation, but on the other hand negative conflict decreases creativity and team members are concentrating on less important matters. (Appelbaum et al., 1999) The results of this thesis show that team leader should analyze reasons for conflict in detail and try to solve everything in a way that end result is positive. The team leader is responsible for the schedule. Switching time causes delays and unnecessary work pressure. Schedule should be organized in a way that workers are not always working with multiple projects. Unnecessary meetings tend to interrupt productive work. Meetings should be scheduled so that workers have adequate amount of time for their innovative work. The results of this thesis also show that high-skilled professionals need a peaceful working

environment. The contractors are from different sized companies. Some new ideas presented by the team members may risk small contractor's entire business which may cause conflicts in the team. Uncertain project task is one particular reason for a conflict. Other reasons are intra-personal differences and organization's cultural diversity.

Military environment is not always *psychologically safe* and suitable for innovative work. Team members feel that sometimes environment prevents introduction of new ideas. This same issue affects on both FDF's personnel and contractors. It may lead to a situation where safest option will be chosen due to a lack of courage. Leadership and a relationship between leader and team members affects on creativity. (Xu et al.,2017) According to the results a virtual environment causes sometimes even more misunderstanding and problems. Interaction between a team leader and team members should be conversational and not too military style.

Many companies work daily in *multicultural environment*. Separate locations and different languages are challenging for team members. Multicultural teams tend to have problems with communication and some invisible cultural norms. (Behrend & Erwee, 2009; Rix et al., 2010) Organizational culture is different and this causes some problems for some contractors. The biggest difficulties are with documentation, areas of responsibility and language misunderstandings.

Contractors appreciate a leader who sets the goals high enough and takes care of his/her own duties. Well-organized leadership focuses on goals and secondary matters are not discussed. *Leadership* style is related to project success. (Chi, 2011; Aga et al., 2016) Transformational leadership style may impact positively, but it might also cause negative side effects. (Arnold, 2001) Leader's task is to prevent bottlenecks and obstacles which slow down the project. Effective leadership varies depending on project environment and characteristics.

6.3 Team leader's agile leading practices

"Team leader's agile leading practices?" was the last sub-research question. The results, which were related to agile methods are discussed in this chapter generally and these results are based on the contractors' interviews and literature review.

Use of agile methods may improve the leadership of diversely working team. Based on previous studies, by utilizing empirical research it possible to compare different models and give some suggestions what model suits the best for each team.

Agile leadership is very different compared to traditional leadership. Agile team works iteratively and a team leader is responsible for planning sprints for each iteration and reporting possible bottlenecks and problems to higher level. (Meyer, 2014) Contractors from those companies which use agile methods mentioned that these are some main principals of agile work. Agilely working team does not require traditional leadership. Shared leadership increases knowledge sharing among team members. (Pearce, 2004) The results support this view in a way that the team leader is a part of the team and a typical chain of command does not exist. The team leader needs to participate in teamwork and work as a team member.

Leadership affects on *creativity* in many ways. (Appelbaum et al., 1999; Svensson, et al., 2015) Encouraging leadership style rises level of creativity remarkably. (Ruggieri, 2009) Individual creativity effects on team performance. (Açıkgöz & Günsel, 2016) The results show that an enthusiastic leader with new ideas inspires the whole team. Experienced individuals share their knowledge with the team. Based on their past expertise they are more creative, because have multiple ways to solve the problem.

Feedback is important for workers and the whole organization. (Crowell & Kaye, 2014) Leaders are required to give fair and correct feedback to workers. Too strict feedback affects negatively on team. (Poutanen & Ståhle, 2014) By setting self-goals, individually working team members are able to get feedback about their accomplishments. (Hauschildt & Konradt, 2012) The results show that in agilely working software companies feedback is given after two weeks period. Feedback

consists of positive and negative sides of the project. It includes suggestions and guidance for future projects.

Organizations need to adapt *flexibly* into new situations. (Townsend et al., 1998; Tyssen, 2013) Agilely acting leader needs to have flexible attitude towards new challenges. (Stowell & Mead, 2016) The results from interviews show that innovative leaders should have a more flexible point of view when they are aiming for better results. Agile methods are applied also in flexible ways. Usually companies are following given agile-guidance, but they are also able to make changes if those are needed.

Goal orientation is an essential part of leadership. An employee needs to understand exactly what are the goals and expectations. (Lee & Yang, 2015) When the goal is clear, it is possible to concentrate on other matters. (Svensson, et al., 2015) Workers prefer to have a particular work assignment which includes all work tasks. Leader can apply different leadership styles to explain goals and tasks. The team leader should set up clear goals so that the team knows that they are going to the right direction.

Team leader's task is to organize *knowledge sharing* among team members. Working conditions should be organized in a way that team members are allowed to share their knowledge. (Mueller, 2012) Organization's IT-system should support knowledge sharing. (Zakaria et al. 2004; Chamakiotis et al. 2013; Killingsworth et al. 2016) The team leader can also receive valuable information from team members. (Zaccaro et al. 2001) The findings show that knowledge sharing happens easily with new team members. In virtual environment knowledge sharing is sometimes difficult, but team members are able to share at least some information.

Networking is necessary in a large organization where receiving information tends to be difficult. (O'Connor & McDermott, 2004) Worker's networks predict the quality of future information sourcing. (Behrend & Erwee, 2009) Findings of this thesis were that those team members who own wide network receive answers for their questions quickly. Technological development affects on team members' daily work. Request

for adequate information is constant and the team leader is obligated to support information sharing functions.

Meetings are a part of agilely working team's daily or weekly schedule and teams use agile retrospect to analyze their work. (Moe et al. 2008; Meyer, 2014) Meetings last typically very short time and all external issues are discussed after the meeting. Team analyzes their work and accomplishments very precisely. The team leader need to consider meetings as a learning experience to find out direct goals and impediments.

Team requires multiple *resources* to accomplish work effectively. (Herath et al. 2017; Bishop & Scott, 2000) FDF personnel's and contractors' opinions were that in some cases leaders should concentrate leading background resources and goals. Team leader's task is to provide resources for the team. Resources can be material or human resources. When the team focuses on difficult task, one solution is to provide external workforce to solve the problem.

In this thesis *self-management* includes independent work, self-directivity and self-organization. Self-managed team members remarked that their work is more satisfying compared to traditional teams. (Cohen & Ledford, 1994) Team leader is also required to possess good communication skills. (Gust-Thomason & Yantis, 1998) According to the interview results team members are able to work independently. Work assignments are typically some parts of a larger entity which are combined after independent work phase. Workers tend to use pairs for code interviews. (Meyer, 2014) Self-organization happens typically when there is a task which requires diverse knowledge.

Team building practices improve team member's goal orientation and communication inside the team. (Aga et al. 2016) Social loafing is one negative side of teamwork and heterogeneous team works better in short-term projects. (Rubino, 2014) According to the results the team leader needs to build the team where team members have sufficient expertise in certain areas. Is important to recognize team leader's strengths and weaknesses to be able to divide tasks in the right way.

Heterogeneous team is working efficiently, but the team leader has to prevent any social loafing among team members.

Virtual teamwork requires efficiently working tools and information systems must allow adequate information exchange. (Zakaria et al.; 2004, Killingsworth et al. 2016) Virtual teamwork is suitable for some work, but thinking and modeling of new ideas is easier to do at the same place where team members can share their knowledge with others. Some ideas are possible to present by using virtual connections. Although if there is a need for showing some equipment, it seemed to be harder to accomplish tasks. The team leader has to find correct situations where virtual tools can be used in the way that workers are able to take the most advantage of those. There is also a fine line between moderation and “too much” in a way that if something is not working it is not worth of using.

6.4 Agile leadership model

In this thesis leadership was analyzed from team leader’s point of view. For the team leader it is more convenient to influence and concentrate on matters which are same for both FDF’s personnel and contractors. Table 4. includes those matters which appear in the interview results of both. Other results can be found in Table 3. (Summary of qualitative research findings). These other findings are important also and can be used in different contexts depending on situation or the team composition.

Table 4. presents three different lists of components which can be used for planning purposes. *Influencing factors* are especially important to be taken into account when leadership functions are planned. *Challenges* can be confronted with efficient risk management plan. It is necessary to understand which are the main challenges to be able to prepare good working conditions and activities. Team leader’s *leading practices* include means which can be used to achieve good results with leadership actions. These leading practices are a combination which is gathered from interview results which address multi-dimensional nature of teamwork. Presented matters support direct or indirect leadership actions.

Influencing Factors	Leadership Challenges	Agile Leading Practices
<ul style="list-style-type: none"> • Experience • Independent work • Knowledge • Knowledge sharing • Limited time • Psychological safety • Team leadership • Trust 	<ul style="list-style-type: none"> • Conflict management • Leadership • Knowledge sharing • Multi-culturality • Psychologically safety • Support 	<ul style="list-style-type: none"> • Agile Leadership • Creativity • Feedback • Flexibility • Goal orientation • Networking • Meetings • Resources • Self-management • Team building • Virtual teamwork

Table 4. Factors, challenges and leading practices of team leadership

Team leader plays relatively important part in this new model. Team leader has three remarkable dimensions (Table 4.) to consider with leadership actions. These dimensions are collected from interview results and compared with theoretical literature. It is challenging to link these three dimensions to particular team functions or to direct or indirect leadership, because these are influencing and improving team work in multiple ways.

The team leader conducts the team interactively communicating with the team and uses agile methods to make work processes more efficient. Face-to-face meetings improve teamwork and make the cooperation more fluent. The team leader should have sufficient knowledge about projects which team is working on to be able to support team members. Meetings should be essential part of the teamwork.

Agile Leadership is considered to be a link between the team and the leader. Use of agile methods improves teamwork and leadership. According to Agile Manifesto (agilemanifesto.org) main idea is to have good cooperation between workers. Result of the ongoing project should be working product which is made following customers request. There is always certain plan for the project, but there is also possibility to make changes to the original plan due to changing conditions.

As mentioned earlier in the Finnish Defense Forces concept of agile methods is emerging matter and there is certainly need for more agile project leadership and development. Main idea is to improve project management and leadership generally.

Agile methods consist parts which influence individuals directly and indirectly. This agile leadership model is influenced by Hunter & Cushenbery (2011) model which presents direct leadership and indirect leadership influences. Indirect leadership is considered in this model to include functions which the team leader and team use to enhance team climate and improve teamwork without influencing team members directly. The team leader who uses agile leadership should be able to conduct direct leadership functions. Additionally, the leader need to know how high-performance team works and what are indirect ways to make teamwork even better. Communication is following agile method's guidance and idea is to have efficient communication between team and the leader. Virtual communication with an efficient collaboration tools is mandatory.

The team is working under pressure due to limited time and changing conditions. Projects are diverse and include multiple different phases. In this model, the team applies agile methods and communicates with the team leader flexibly. The team has given authority to work independently and team leader is helping teamwork by providing needed knowledge resources, human resources and other tools. The team is required to accomplish tasks in certain amount of time and progress is monitored regularly. There are four (temporal, virtual, high-performance and self-managed) main functions which affect on teamwork. These functions are part of the daily work. It is considered in agile methods (agilemethods.org) that different forms of work should be supported.

The interview results support earlier team and leadership studies overall. The new idea of this thesis is to combine agile leadership with direct- and indirect leadership influences and also include to this model temporal, virtual, high-performance and self-managed teamwork dimensions.

Figure 16. presents how leadership should be arranged for the innovative team. Agile leadership creates balance between team and leader. Direct and indirect leadership are used to give guidance and for creating suitable working environment.

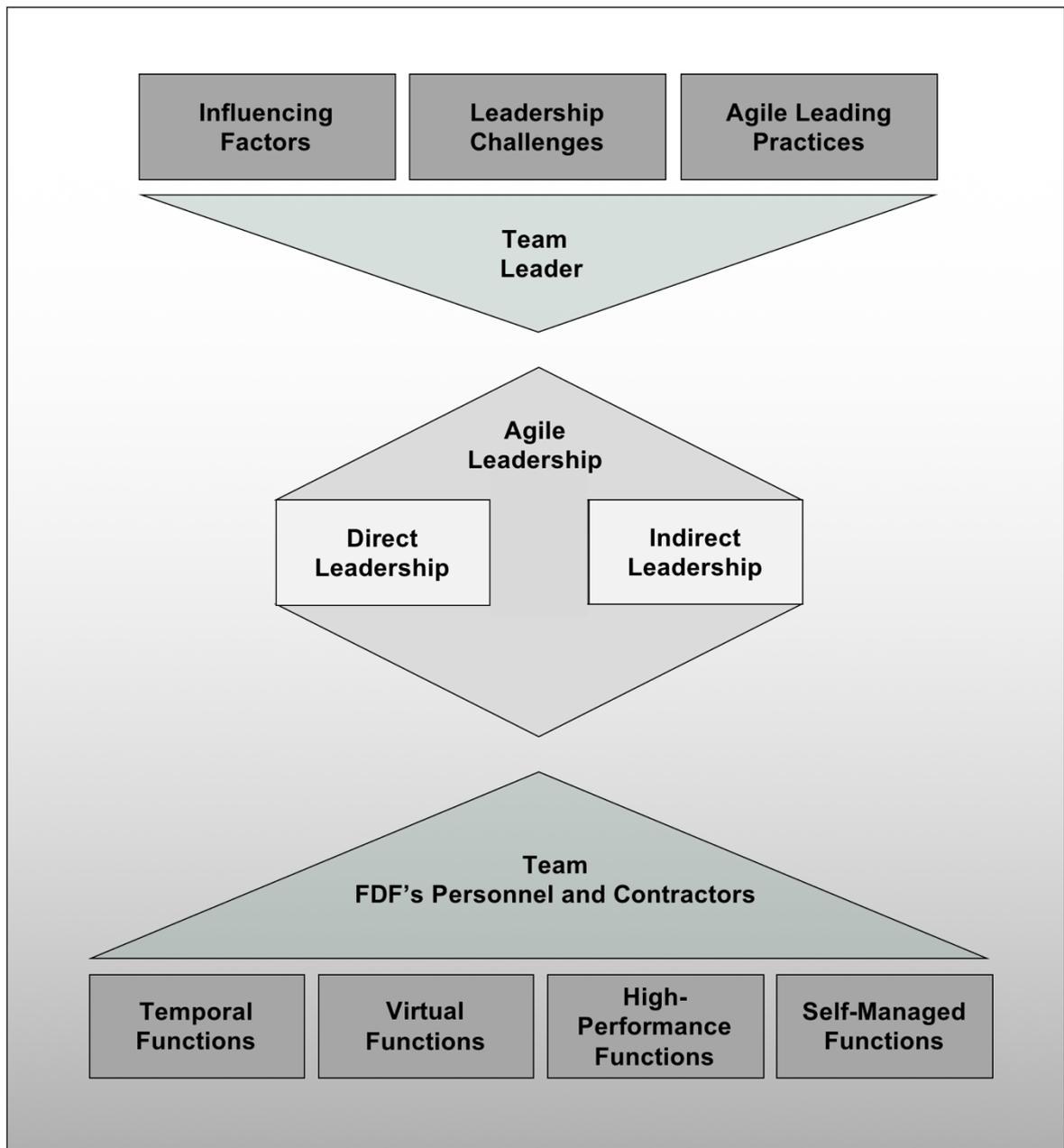


Figure 16. Agile Leadership Model for Temporarily Composed Innovative Team in The Finnish Defence Forces.

6.5 Reliability and limitations

According to Koskinen et al. (2005) the goal of the qualitative research is usually a description or explanation which helps to understand some organization's or company's characteristics. This thesis includes the same idea in the way that the goal is to understand how leadership should be arranged in one particular organization. A precondition for this kind of qualitative research is that researcher collects versatile and abundant material. (Koskinen et al. 2005) In this thesis data was collected by conducting theme interviews. These interviews covered all subject areas and the data was analyzed precisely. The data analyzes process is presented in sub-chapter 4.3 and process was carried out by using this model.

The amount of data was adequate and it was sufficiently easy to make conclusions about material. The results are presented extensively in sub-chapters 5.3 - 5.5. Results which were selected to be the most meaningful were those which affected the whole team including FDF's personnel and contractors.

Leadership challenges were noted equally from both sides and other characteristics were not included on this study. The agile methods affected the most on leader's practices. There were multiple good ideas from both sides which were left out. It is still possible to use those separately with each side or in different situations.

There are some limitations in this thesis. Although different matters were covered widely, some certain areas were rather difficult to study. Agile-methods are a fairly new concept in FDF and it was not possible to gather information from that side according to these methods. Agile methods were discussed generally and different methods were not compared. The idea was to research this matter in ideological level to improve the leadership actions overall.

The researched team consists of FDF's personnel and contractors. In this study permanent FDF's personnel represented the majority of the sample. Almost all personnel groups were included in FDF's sample. Diversity of working locations was on high level, but most of them work under same military branch.

6.6 Conclusions and suggestions for future research

Team leadership is a complex multi-dimensional subject. Here are presented some of the ideas which emerged during this research process. These ideas are usable especially in technical projects where high-performance professionals are working with innovative projects. The main research question was: “*How temporarily composed innovative team is led effectively and agilely in The Finnish Defense Forces?*” and here are answers for that question:

1. *Agile methods should be taken into use in technical projects to support development process. Agile leadership can be applied by using direct and indirect leadership to achieve the best results. Flexibility and constant feedback inspires team members to develop even better products and services.*
2. *Innovative work requires different kind of leadership for the reason that team functions are changing during the project. Use of suitable leadership style impacts positively on leadership in different situations.*
3. *Team leader is obligated to provide appropriate background support, including resources and tools to ensure functionality. Team needs to mainly concentrate on high-performance work.*
4. *Creative and innovative workers need trustful environment where they can present and test their new ideas without a fear of failure. Team leader’s task is to support and encourage team members as well as set up clear goals and accurate schedule for their work.*
5. *Efficient communication is particularly important for an organization which works independently in a virtual environment. Due to an independent and dispersed nature of self-managed and virtual functions, team leader’s well-organized communication with the team is mandatory.*

Further studies should concentrate more on agile-methods in order to find out which methods should be used with different projects. Agile-methods are developed originally for software development purposes, but there are possibilities to integrate these methods to other innovative projects.

REFERENCES

Aga, D.A., Noorderhaven, N. & Vallejo, B. 2016. Transformational leadership and project success: The mediating role of team-building. *International Journal of Project Management*, vol. 34, pp.806- 818.

Alipour, K.K., Mohammed, S. & Martinez, P.N. 2017. Incorporating temporality into implicit leadership and followership theories: Exploring inconsistencies between time- based expectations and actual behaviors. *The Leadership Quarterly*, vol. 28, pp.300-316.

Alsharo, M., Gregg, D. & Ramirez, R. 2016. Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management*, vol. 54 (4), pp.479-490.

Açıkgöz, A. & Günsel, A. 2016. Individual Creativity and Team Climate in Software Development Projects: The Mediating Role of Team Decision Processes. *Creativity and Innovation Management*, vol. 25 (4), pp.445-463

Açıkgöz, A., Günsel, A. & Seçgin, G. 2016. Functional Diversity, Absorptive Capability and Product Success: The Moderating Role of Project Complexity in New Product Development Teams. *Creativity and Innovation Management*, vol. 25 (1), pp.90-109.

Akron, S., Feinblit, O., Hareli, S. & Tzafrir, S.S. 2016. Employment arrangements diversity and work group performance. *Team Performance Management*, vol. 22 (5), pp.310-330.

Ammeter, A. P. & Dukerich, J.M. 2002. Leadership, Team Building, and Team Member Characteristics in High Performance Project Teams. *Engineering Management Journal*, vol.14 (4), pp.3-10.

Appelbaum, S.H., Abdallah, C. & Shapiro, B.T. 1999. The self-directed team: A conflict resolution analysis. *Team Performance Management: An International Journal*, vol. 5 (2), pp.60-77.

Arnold, K.A., Barling, J. & Kelloway, E.K. 2001. Transformational leadership or the iron cage: which predicts trust, commitment and team efficacy? *Leadership & Organization Development Journal*, vol. 22 (7), pp.315-320.

Baer, M. and Oldham, G.R. 2006. The curvilinear relation between experienced creative time pressure and creativity: moderating effects of openness to experience and support for creativity. *The Journal of Applied Psychology*, vol. 91 (4), pp.963–970.

Bakker, R.M., DeFillippi, R.J., Schwab, A. & Sydow, J. 2016. Temporary Organizing: Promises, Processes, Problems. *Organization Studies*, Vol. 37 (12), pp.1703–1719.

Barker, J.R. 1993. Tightening the iron cage: concertive control in self-managing teams. *Administrative Science Quarterly*, vol. 38, pp.408-37.

Behrend, F.D. & Erwee, R. 2009. Mapping knowledge flows in virtual teams with SNA. *Journal of Knowledge Management*, vol. 13 (4), pp.99-114.

Belbin, M. (1981) *Management teams. Why they succeed or fail.* Butterworth-Heinemann: Oxford.

Bessant, J., 2010. *Innovation - Creativity, Culture, Concepts, Process, Implementation.* E-Pub-version. Dorling Kindersley Limited: London.

Bishop, J.W. & Scott, K.D. 2000. An Examination of Organizational and Team Commitment in a Self-Directed Team Environment. *Journal of Applied Psychology*, vol. 85 (3), pp.439-450.

Boon, A., Vangrieken, K. & Dochy, F. 2016. Team creativity versus team learning: transcending conceptual boundaries to inspire future framework building. *Human Resource Development International*, vol. 19 (1), pp.67-90.

Carte, A.C., Chidambaram, L. & Becker, A. 2006. Emergent Leadership in Self-Managed Virtual Teams A Longitudinal Study of Concentrated and Shared Leadership Behaviors. *Group Decision and Negotiation*, vol. 15, 323–343

Chamakiotis, P., Dekoninck, E.A. & Panteli, N. 2013. Factors Influencing Creativity in Virtual Design Teams: An Interplay between Technology, Teams and Individuals. *Creativity and Innovation Management*, vol. 22 (3), pp.265-279.

Chandrasekaran, A., Linderman, K. & Schroeder, R. 2015. The Role of Project and Organizational Context in Managing High-tech R&D Projects. *Production and Operations Management*, vol. 24 (4), pp.560–586.

Chang, W-L. & Lee, C-Y. 2013. Virtual team e-leadership: The effects of leadership style and conflict management mode on the online learning performance of students in a business-planning course. *British Journal of Educational Technology*, vol. 44(6), pp.986–999.

Chekwa, C. & Thomas, E. Jr. 2013. Is Interpersonal Conflict Death Sentence to Team Building? *International Journal of Business and Public Administration*, vol. 10 (2), pp.30-44.

Cheshin, A., Rafaeli, A. & Bos, N. 2011. Anger and happiness in virtual teams: Emotional influences of text and behavior on others' affect in the absence of non-verbal cues. *Organizational Behavior and Human Decision Processes*, vol. 116, pp.2–16.

Chen, J. & Nadkarni, S. 2016. It's about Time! CEOs' Temporal Dispositions, *Temporal Leadership, and Corporate Entrepreneurship*, vol. 62 (1), pp.31–66.

Chen, N. & Rau, P-L.P.2017. Cooperation with friends or new encounters: tie strength and shared leadership behaviors. *Social behavior and personality*, vol. 45 (4), pp.573-582.

Chi, N-W., Chung, Y-Y. & Tsai, W-C. 2011. How Do Happy Leaders Enhance Team Success? The Mediating Roles of Transformational Leadership, Group Affective Tone, and Team Processes. *Journal of Applied Social Psychology*, vol. 41 (6), pp.1421–1454.

Cheung, M.F.Y. & Wong, C-S. 2011. Transformational leadership, leader support, and employee creativity. *Leadership & Organization Development Journal*, vol. 32 (7), pp.656-672.

Chou, S.Y., Chang, T. 2016. The costs of being rejected: A theoretical analysis of rejections to newcomers' interpersonal helping behaviours in teams. *Team Performance Management*, vol. 22 (3), pp.181-203.

Cohen, S. G., & Ledford, G. E. (1994). The effectiveness of self-managing teams: a quasi-experiment. *Human Relations*, vol. 47 (1), pp.13-43.

Collyer, S. 2016. Culture, Communication, and Leadership for Projects in Dynamic Environments. *Project Management Journal*, vol. 47 (6), pp.111–125.

Cordery, J.L. & Soo, C. 2008. Overcoming Impediments to Virtual Team Effectiveness. *Human Factors and Ergonomics in Manufacturing*, vol. 18 (5), pp.487–500.

Courtney, H.S., Navarro, E. & O'Hare, C.A. 2007. The Dynamic Organic Transformational (D.O.T.) team model for high-performance knowledge-worker teams. *Team Performance Management: An International Journal*, vol. 13 (1) pp.34-46.

Crowell, B. & Kaye, B. 2014. Build Your Dream Team. *Leadership Excellence Essentials*, vol. 31(4), 19-20.

Dansereau, F. Graen, G. & Haga, W.J. (1975). A Vertical Dyad Linkage Approach to Leadership Within Formal Organizations. *Organizational Behavior and Human Performance*, vol. 13, 46-78.

De Bakker, R. M., Boros, S., Kenis, P. & Oerlemans, L. 2013. It's Only Temporary: Time Frame and the Dynamics of Creative Project Teams. *British Journal of Management*, vol. 24, pp.383- 397.

De Blois, M., Lizarralde, G. & De Coninck, P. 2016. Iterative Project Processes Within Temporary Multi-Organizations in Construction: The Self-, Eco-, Re-Organizing Projects. *Project Management Journal*, vol. 47 (1) pp. 27-44.

De Rue, D.S., Barnes, C.M. & Morgeson, F.P. 2010. Understanding the motivational contingencies of team leadership. *Small Group Research*, vol. 41 (5) pp.621-651.

De Visser, M. & Faems, D. 2015. Exploration and Exploitation within Firms: The Impact of CEOs' Cognitive Style on Incremental and Radical Innovation Performance. *Creativity and Innovation Management*, vol. 24 (3), pp.359-372.

Domeyer, D. 2015. Building your dream team 8 essential tips to build the marketing team you need. *Target Marketing Magazine*, vol. Nov/Dec 23-27.

Duff, A.J. 2013. Performance management coaching: servant leadership and gender implications. *Leadership & Organization Development Journal*, vol. 34(3), pp.204-221.

Dulebohn, J.H & Hoch, J.E. 2017. Virtual teams in organizations, *Human Resource Management Review*, Volume 27 (4), pp.569-574.

Dust, S.B. & Ziegert, J.C. 2016. Multi-Leader Teams in Review: A Contingent-Configuration Perspective of Effectiveness. *International Journal of Management Reviews*, vol. 18, pp.518–541.

Druskat, V. U., & Wheeler, J. V. 2003. Managing from the boundary: The effective leadership of self-managing work teams. *Academy of Management Journal*, vol. 46 pp.435–457.

El-Sofany, H., Alwadani, H. & Alwadani, A. 2014. Managing Virtual Team Work in IT Projects: Survey. *ijAC*, vol. 7(4), pp.28-33.

Engelbrecht, A.S., Heine, G. & Mahembe, B. 2017. "Integrity, ethical leadership, trust and work engagement. *Leadership & Organization Development Journal*, vol. 38 (3), pp.368-379.

Eriksson, P. & Kovalainen, A. 2016. *Qualitative Methods in Business Research*. E-Pub-version. SAGE Publications Ltd. CPI Group: Croydon.

Eskola J. & Suoranta J. 1998. *Johdatus laadulliseen tutkimukseen*. E-Pub-version. Tampere: Vastapaino.

Fausing, M.S., Jeppesen, H.J., Jønsson, T.S., Lewandowski, J. & Bligh, M.C. 2013. Moderators of shared leadership: work function and team autonomy. *Team Performance Management: An International Journal*, vol. 19 (5), pp.244-262.

Fausing, M.S., Joensson, T.S., Lewandowski, J. & Bligh, M. 2015. "Antecedents of shared leadership: empowering leadership and interdependence. *Leadership & Organization Development Journal*, vol. 36 (3), pp.271-291.

Feng, Y., Hao, B., Iles, P. & Bown, N. 2017. Rethinking distributed leadership: dimensions, antecedents and team effectiveness. *Leadership & Organization Development Journal*, vol. 38 (2), pp.284-302.

Frederiksen, M.H. & Knudsen, M.P. 2017. From Creative Ideas to Innovation Performance: The Role of Assessment Criteria. *Creativity and Innovation Management*, vol. 26 (1), pp.60-74.

Frishammar, J., Dahlskog, E., Krumlinde & Yazgan, K. 2016. The Front End of Radical Innovation: A Case Study of Idea and Concept Development of Prime Group. *Creativity and Innovation Management*, vol. 25 (2) pp. 179-198.

Ford, R.C., Piccolo, R.F. & Ford, L.R. 2017. Strategies for building effective virtual teams: Trust is key. *Business Horizons*, vol. 60 (1), pp. 25-34.

Furukawa, C. 2016. Dynamics of a critical problem-solving project team and creativity in a multiple-project environment. *Team Performance Management*, vol. 22 (1), pp.92-110.

Grawitch, M., Munz, D., Elliott E. & Mathis, A. 2003. Promoting Creativity in Temporary Problem-Solving Groups: The Effects of Positive Mood and Autonomy in Problem Definition on Idea-Generating Performance. *Group Dynamics: Theory, Research and Practice*, vol. 7(3), pp.200-213.

Goswami, A., Nair, P., Beehr, T. & Grossenbacher, M. 2016. The relationship of leaders' humor and employees' work engagement mediated by positive emotions: Moderating effect of leaders' transformational leadership style. *Leadership & Organization Development Journal*, vol. 37 (8), pp.1083-1099.

Goodman, R. A., & Goodman, L. P. 1976. Some management issues in temporary systems: A study of professional development and manpower—the theater case. *Administrative Science Quarterly*, 21, pp.494–501.

Gust-Thomason, S., & Yantis, J. T. 1998. Assessment of team leader effectiveness within self-managed teams. *Community College Journal of Research and Practice*, vol. 22 (2), pp.159-167.

Hans J. & Thamhain, H.J. 1999. Effective Project Leadership in Complex Self-Directed Team Environments. Proceedings of the 32nd Hawaii International Conference on System Sciences.

Hassan, M.M., Bashir, S. & Abbas, S.M. 2017. The Impact of Project Managers' Personality on Project Success in NGOs: The Mediating Role of Transformational Leadership. *Project Management Journal*, vol. 48 (2), pp.74–87.

Hauschildt, K. & Konradt, U. 2012. Self-leadership team members' work role performance. *Journal of Managerial Psychology*, vol. 27 (5), pp.497-517.

He, J. 2011. The Temporal Aspect of Team Cognition: Proposing the Construct of Team Temporal Cognitions. *Journal of Leadership, Accountability and Ethics*, vol. 8 (3), pp.22-29.

He, J., Butler, B.S. & King, W.R. 2007. Team Cognition: Development and Evolution in Software Project Teams. *Journal of Management Information Systems*, vol. 24 (2), pp.261-292.

Herath, D., Costello, J. & Homberg, F. 2017. Team problem solving and motivation under disorganization – an agent-based modeling approach. *Team Performance Management: An International Journal*, vol. 23 (1), pp.46-65.

Hinsz, V. 2015. Teams as technology: strengths, weaknesses, and trade-offs in cognitive task performance. *Team Performance Management*, vol. 21 (5), pp.218-230.

Hunter, S.T. & Cushenbery, L. (2011). Leading for innovation: Direct and indirect influences. *Advances in Developing Human Resource*, vol. 13 (3) pp.248-265.

Hyllengren, P. Larsson, G. Fors, M., Sjöberg, M. Eid, J. & Olsen, O.K. 2011. Swift trust in leaders in temporary military groups. *Team Performance Management: An International Journal*, vol. 17 (7), pp.354-368.

Huang, R., Kahai, S. & Jestice, R. 2010. The contingent effects of leadership on team collaboration in virtual teams. *Computers in Human Behavior*, vol. 26, 1098–1110.

Huo, X., Zhang, L. & Guo, H. 2016. Antecedents of Relationship Conflict in Cross-Functional Project Teams. *Project Management Journal*, vol. 47 (5), pp.52–69.

Hunter, S. T. & Cushenbery, L. 2011. Model of direct and indirect leadership influences on the processes of innovation. *Advances in Developing Human Resources* vol.13(3) pp. 248–265

Jaiswal, N.K. & Dhar, R.L. 2017. The influence of servant leadership, trust in leader and thriving on employee creativity. *Leadership & Organization Development Journal*, vol. 38 (1), pp.2-21.

Jarvenpaa, S.L. & Leidner, D. E. 1998. Communication and Trust in Global Virtual Teams. *Journal of computer mediated communication*, vol. 3(4).

Jomini, B. 2005 (originally published 1836) Translated by Mendell, G.H. & Craighill, W.P. EL Paso Norte Press: Texas.

Kanawattanachai, P. & Yoo, Y. 2007. The Impact of Knowledge Coordination on Virtual Team Performance Over Time. *MIS Quarterly*, vol. 31(4), 783- 808.

Katzenbach, J.R. & Smith, D.K. 2008 (origin. publ.1993). *The Discipline of Teams*. E-Pub-version. Harvard Business Press: Boston.

Kauffeld, S. 2006. Self-directed work groups and team competence. *Journal of Occupational and Organizational Psychology*, vol. 79, 1-21.

Kayworth, T.R. & Leidner, D.E. 2002. Leadership Effectiveness in Global Virtual Teams, *Journal of Management Information Systems*, 18 (3) pp. 7-40.

Khedhaouria, A. & Jamal, A. 2015. Sourcing knowledge for innovation: knowledge reuse and creation in project teams. *Journal of Knowledge Management*, vol. 19 (5), pp.932-948.

Killingsworth, B., Xue, Y. & Liu, Y. 2016. Factors influencing knowledge sharing among global virtual teams. *Team Performance Management*, vol. 22 (5), pp.284-300.

Kinnunen, T., Herrala, J., Perheentupa, C., Aalto, J., Intke, P., Ohrankämmen, O., Halonen, P., Pukaralammi, P., Collin, R., Hyppönen, H., Pesonen, J., Horila J., Lehtonen, Y., Leskinen, J., Westersund & M., Jokitalo, J. 2012. Johtajan käsikirja. E-Pub-version. Tampere: Juvenes Print Oy.

Klug, M. & Bagrow, J. 2016. Understanding the group dynamics and success of teams. <http://dx.doi.org/10.1098/rsos.160007>, pp.510-512.

Koskinen, I., Alasuutari, P. & Peltonen, T. 2005. Laadulliset menetelmät kauppatieteissä. E-Pub-version. Tampere: Vastapaino.

Kozlowski, S. W. J., & Bell, B. S. 2008. Team learning, development, and adaptation. In V. I. Sessa & M. London (Eds.) *Group learning*, pp.15-44.

Krumm, S., Kanthak, J., Hartmann, K., & Herte, G. 2016. What does it take to be a virtual team player? The knowledge, skills, abilities, and other characteristics required in virtual teams. *Human Performance*, vol. 29 (2), pp.123–142.

Lee Endres M. & Rhoad, K.T. 2016. What makes a high performer share knowledge? *Team Performance Management*, vol. 22 (5), pp.269-283.

Lee, H-H. & Yang, T-T. 2015. Employee Goal Orientation, Work Unit Goal Orientation and Employee Creativity. *Creativity and Innovation Management*, vol. 24 (4), pp.659-674.

Leite, M., Baptista, A.J. & Ribeiro, A.M.R. 2017. A trap of optimizing skills use when allocating human resources to a multiple projects environment. *Team Performance Management: An International Journal*, vol. 3 (4), pp. 1-15.

Lencioni, P.M. 2012, *The Advantage. Why Organizational Health Trumps Everything Else in Business*, Jossey Bass: San Francisco, CA.

Lewin, K. 1939. Patterns of aggressive behavior in experimentally created social climates. *Journal of Social Psychology*, vol. 10 (2), pp.271-299.

Lockwood, J. 2015. Virtual team management: what is causing communication breakdown? *Language and Intercultural Communication*, vol. 15 (1), pp.125-140.

Liao, C. 2017. Leadership in virtual teams: A multilevel perspective. *Human Resource Management Review*, 27(4), 648-659.

Liden, R.C., Wayne, S.J., Zhao, H. and Henderson, D. 2008. Servant leadership: development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly*, vol. 19 (2), pp.161-177.

London, M. 2014. Team processes for adaptive and innovative outcomes. *Team Performance Management*, vol. 20 (1), pp.19-38.

Malhotra, A.& Majchrzak, A. 2004. Enabling knowledge creation in far-flung teams: best practices for IT support and knowledge sharing. *Journal of Knowledge Management*, vol. 8(4), pp.75-88.

Manz, C. C., & Sims, H. P., Jr. 1980. Self-management as a substitute for leadership: A social learning perspective. *Academy of Management Review*, vol. 5, 361-367.

Manz, C. C., & Sims, H. P., Jr. 2001 *Leading others to lead themselves*. E-Pub-version. Berrett-Koehler Publishers Inc: San Francisco.

March, J.G. 1991. Exploration and Exploitation in Organizational Learning. *Organization Science*, vol. 2, 71–87.

Maruping, L., Venkatesh, V., Thatcher, S.M.B. & Pankaj, C.P. 2015. Folding under pressure or rising to the occasion? Perceived time pressure and the moderating role of team temporal leadership. *Academy of Management Journal*, vol. 58 (5), pp.1313–1333.

Matta, F.K., Scott, B.A., Koopman, J. & Conlon, D.E. 2015. Does Seeing Eye-to-eye Affect Work Engagement and Organizational Citizenship Behavior? A Role Theory Perspective on LMX Agreement. *Academy of Management Journal* 58 (6) pp.1686–1708.

Meyer, B. 2014. Agile! The Good, the Hype and the Ugly. E-Pub-version. Springer International Publishing: Switzerland.

McAdam, R. & McClelland, J. 2002. Individual and Team Based Idea Generation within Innovation Management: *Organisational and Research Agendas*. *European Journal of Innovation Management*, vol. 5 (2), pp.86-97.

Meads, D.E. 1970. The Task Force at Work- - The New 'Ad-Hocracy' *Columbia Journal of World Business*, vol. 5(6), pp.30-36.

Mencil, J., Wefald, A.J. & van Ittersum, K.W. 2016. Transformational leader attributes: interpersonal skills, engagement, and well-being. *Leadership & Organization Development Journal*, vol. 37 (5), pp.635-657.

McGrath, J.E. 1978. Small Group Research: A short history of group research field... *The American Behavioral Scientist*, vol. 21 (5), pp.651-674.

Milgram, S. 1967. The Small-World Problem. *Psychology Today*, vol. 1(1), pp.61-67.

Moe, N.B., Dingsøyr, T. & Dybå, T. 2008. Understanding Self-Organizing Teams in Agile Software Development. Conference Paper 26-28 March. 19th Australian Conference on Software Engineering pp.76-85.

Mohammed, S. & Nadkarni, S. 2011. Temporal Diversity and Team Performance: The Moderating Role of Team Temporal Leadership. *The Academy of Management Journal*, vol. 54 (3), pp.489-508.

Mohammed, S.& Dumville C.B. 2001. Team mental models in team knowledge framework: expanding theory and measurements across disciplinary boundaries. *Journal of Organizational Behavior*, vol. 22, 89-106.

Mohammed, S. Hamilton, K., Tesler, R., Mancuso, V. & McNeese, M. 2015. Time for temporal team mental models: Expanding beyond “what “ and ”how” to incorporate “when”. *European Journal of Work and Organizational Psychology*, vol. 24(5), pp.693-709.

Mohrman, S.A., Cohen, S.G. & Mohrman, A.M. Jr. 1995. Designing Team-based Organizations - New Forms for Knowledge Work. Jossey-Bass Publishers: San Francisco.

Moldjord, C. & Iversen, A. 2015. Developing vulnerability trust in temporary high-performance teams. *Team Performance Management*, vol. 21 (5), pp.231-246.

Moran, A. 2015. Managing Agile - Strategy, Implementation, Organization and People. E-pub-version. Springer International Publishing: Switzerland.

Mueller, J. 2012. Knowledge sharing between project teams and its cultural antecedents. *Journal of Knowledge Management*, vol. 16 (3), pp.435-447.

Nesterkin, D. & Porterfield, T. 2016. Conflict management and performance of information technology development teams. *Team Performance Management*, vol. 22 (5), pp.242-256.

Nissinen, V. 2001. Military Leadership Critical Constructivist Approach to Conceptualizing, Modeling and Measuring Military Leadership in the Finnish Defence Forces. Oy Edita Ab. Helsinki: 2001.

Nissinen, V. 2004. Syväjohtaminen. Talentum: Helsinki.

Nisula, A-M. & Kianto, A. 2016. Group Climate and Creativity in Temporary Innovation Settings. *Creativity and Innovation Management*, vol. 25 (1), pp.157-166.

Nisula, A-M. & Kianto, A. 2016. The Antecedents of Individual Innovative Behavior in Temporary Group Innovation. *Creativity and Innovation Management*, vol. 25 (4), pp.431-444.

Nonaka, I. & Toyama, R. 2005. The theory of the knowledge-creating firm: subjectivity, objectivity and synthesis. *Industrial and Corporate Change*, vol. 14 (3), pp.419–436.

Nonaka, I. & Takeuchi, H. 1995. The knowledge-creating company: how Japanese companies create the dynamics of innovation. New York: Oxford University Press.

Nuhn, F.R.H., Heidenreich, S. & Wald, A. 2016. The role of task related antecedents for the development of turnover intentions in temporary project teams. *The international Journal of Human Resource Management*. <http://dx.doi.org/10.1080/09585192.2016.1239219>, pp.1-19.

O'Connor, G.C. & DeMartino, R. 2006. Organizing for Radical Innovation: An Exploratory Study of the Structural Aspects of RI Management Systems in Large Established Firms. *The Journal of Product Innovation Management*, 23, pp. 475-497.

O'Connor, G.C. & Rice, M.P. A Comprehensive Model of Uncertainty Associated with Radical Innovation. *The Journal of Product Innovation Management*, 30 (1), pp.2-18.

O'Connor, G.C. & McDermott, C.M. 2004. The human side of radical innovation. *Journal of Engineering and Technology Management*, 21, pp.11–30.

Oluikpe, P.I. 2015. Knowledge creation and utilization in project teams. *Journal of Knowledge Management*, vol. 19 (2), pp.351-371.

Parent, M.M., MacIntos, E.W. 2013. Organizational culture evolution in temporary organizations: the case of the 2010 Olympic Winter Games. *Canadian Journal of Administrative Sciences*, vol. 30 (4), pp.223- 237.

Parker, D.W., Holesgrove, M. & Pathak, R. 2015. Improving productivity with self-organised teams and agile leadership. *International Journal of Productivity and Performance Management*, vol. 64 (1), pp.112-128.

Pazos, P. 2012. Conflict management and effectiveness in virtual teams. *Team Performance Management*, vol. 18 (7), pp.401- 417.

Pauleen, D.J. 2003. Leadership in a global virtual team: an action learning approach. *Leadership & Organization Development Journal*, vol. 24 (3), pp.153-162.

Pearce, C.L. 2004. The future of leadership: combining vertical and shared leadership to transform knowledge work. *Academy of Management Executive*, vol. 18 (1), pp.47-57.

Pettersen Buvik, M. & Danielsen Tvedt, S. 2016. The impact of commitment and climate strength on the relationship between trust and performance in cross-functional project teams: A moderated mediation analysis. *Team Performance Management*, vol. 22 (3), pp.114-138.

Pfeffer, J. and Baron, J.N. 1988. Taking the workers back out – recent trends in the structuring of employment. *Research in Organizational Behavior*, vol. 10, 257–303.

Politis, J.D. 2006. Self-leadership behavioural-focused strategies and team performance: The mediating influence of job satisfaction. *Leadership & Organization Development Journal* 27 (3) pp.203-216.

Poutanen, P. & Stähle, P. 2014. Creativity in Short-term Self-directed groups: An analysis using complexity-based framework. *International Journal of Complexity in Leadership and Management*, vol. 2 (4), pp.259-277.

Prikladnicki, R., Gattermann Perin M., Marczak, S. & Smolenaars Dutra C. A. 2017. The Best Software Development Teams Might be Temporary. *IEEE Software*, vol. 34, (2) pp.22-25.

Raes, E., Boon, A., Kyndt, E. & Dochy, F. 2017. Exploring the occurrence of team learning behaviours in project teams over time, *Research Papers in Education*, vol. 32 (3), 376-401.

Rantapelkonen J. & Koistinen, L. 2016. Pohdintoja sotatieteellisistä käsitteistä. E-Pub-version. Maanpuolustuskorkeakoulu, Sotataidon laitos 2 (1).

Rix, J., Lowe, T & The Heritage Forum 2010. Including people with learning difficulties in cultural and heritage sites. *International Journal of Heritage Studies*, vol. 16 (3), pp.207-224.

Rosing, K., Frese, M. and Bausch, A. 2011. Explaining the heterogeneity of the leadership- innovation relationship: ambidextrous leadership. *Leadership Quarterly*, vol. 22 (5), pp.956-974.

Rousseau, V., Aubé, C. & Tremblay, S. 2013. Team coaching and innovation in work teams: An examination of the motivational and behavioral intervening mechanisms. *Leadership & Organization Development Journal*, vol. 34 (4), pp.344-364.

Rubin, H. J. & Rubin, I. S. 2012. Qualitative interviewing: the art of hearing. E-Pub-version. SAGE Publications Inc: California.

Rubino, C., Avery, D.R., Volpone, S.D. & Ford, L. 2014. Does Teaming Obscure Low Performance? Exploring the Temporal Effects of Team Performance Diversity, *Human Performance*, 27 (5), pp.416-434.

Ruggieri, S. 2009. Leadership in virtual teams: A Comparison of transformational and transactional leaders. *Social behavior and personality*, vol. 37(8), pp.1017-1022.

Sandoff, M. & Nilsson, K. 2016. How staff experience teamwork challenges in a new organizational structure. *Team Performance Management*, vol. 22 (7), pp.415-427.

Santos, C.M., Uitdewilligen, S. and Passos, A.M. 2015. Why is Your Team More Creative Than Mine? The Influence of Shared Mental Models on Intra-group Conflict, Team Creativity and Effectiveness. *Creativity and Innovation Management*, vol. 24 (4), pp.645-658.

Santos, C.M., Passos, A.M. Uitdewilligen, S & Nübold, A. 2016. Shared temporal cognitions as substitute for temporal leadership: An analysis of their effects on temporal conflict and team performance. *The Leadership Quarterly*, vol. 27 pp.574-587.

Schreuder, F., Schalk, R. & De Jong, J. 2017. Psychological contracts in self-directed work teams: development of a validated scale and its effects on team commitment. *Team Performance Management: An International Journal*, vol. 23 (3), pp.1-33.

Schulze, J., Schulze, M., West, S.G & Krumm, S. 2017. The Knowledge, Skills, Abilities, and Other Characteristics Required for Face-to-Face Versus Computer-Mediated Communication: Similar or Distinct Constructs? *Journal of Business and Psychology*, vol. 32, pp.283-300.

Serçe, F.C., Swigger, K., Ferda Nur Alpaslan, F.N., Brazile, R., Dafoulas, G. & Lopez, V. 2011. Online collaboration: Collaborative behavior patterns and factors affecting globally distributed team performance. *Computers in Human Behavior*, vol. 27, pp.490-503.

Sharma, A. & Bhatnagar, J. 2017. Emergence of team engagement under time pressure: role of team leader and team climate. *Team Performance Management: An International Journal*, vol. 23 (3), pp.1-33.

Silverman, D. 2005. *Doing Qualitative Research*. SAGE Publications Ltd. Cromwell Press Ltd: Wiltshire.

Simmons, N & Striley, K. 2014. Twisted Leadership: A Visual Example of Leadership Style Using a Human Knot. *Communication Teacher*, vol. 28 (2), pp. 80-84.

Stewart, G. L., Courtright, S. H., & Manz, C. C. 2011. Self-Leadership: A multilevel review. *Journal of Management*, vol. 37(1), pp.185-222.

Stowell, S.J. & Mead, S. *The Art of Strategic Leadership. How Leaders at All Levels Prepare Themselves, Their Teams, and Organizations for the Future*. John Wiley & Sons, Inc: Hoboken, New Jersey.

Sun Tzu, 1963. *The Art of War* (Translated by Griffith, S.B.) Clarendon Press: Oxford.

Svensson, S., Vinberg, S. & Larsson, J. 2015. External workers' perception of leadership behaviour – a study of Swedish temporary agency workers and contractors. *Human Resource Management Journal*, vol. 25 (2), pp.250–266.

Swart, J. & Harvey, P. 2011. Identifying knowledge boundaries: the case of networked projects. *Journal of Knowledge Management*, vol. 15 (5), pp.703-721.

Tidd, J. & Bessant, J. 2016. *Managing Innovation. Integrating Technological, Market and Organizational Change*. Fifth Edition. John Wiley & Sons Ltd: West Sussex.

Thompson, L.L. & Choi, H-S. 2006. (Smith, S.M., Gerkens, D.R., Shah, J.J. & Vargas- Hernandez, N.) *Creativity and Innovation in Organizational Teams*. E-pub version. Lawrence Erlbaum Associates Publishers: Mahwah, New Jersey.

Townsend, A., DeMarie, S., & Hendrickson, A. 1998. Virtual teams: Technology and the workplace of the future. *Academy of Management Executive*, vol. 12 (3), pp. 17-29.

Tregaskis, O., Daniels, K. Glover, L., Butler, P. & Meyer, M. 2013. High Performance Work Practices and Firm Performance: A Longitudinal Case Study. *British Journal of Management*, vol. 24, 225–244.

Tschohl, J. 2013. Build Your Dream Team. *Print + Promo*, vol. 51 (8), pp.16.

Tuffley, D. 2012. Optimising virtual team leadership in Global Software Development. *IET Software*, vol. 6 (3), pp.176–184.

Turner, J.R., Zimmerman, T. & Allen, J.M. 2012. Teams as a sub-process for knowledge management. *Journal of Knowledge Management*, vol. 16 (6), pp.963-977.

Turel, O. & Zhang, Y.J. (2010) Does virtual team composition matter? Trait and problem-solving configuration effects on team performance, *Behaviour & Information Technology*, 29 (4), pp.363-375.

Tyssen, A.K., Wald, A. & Spieth, P. 2013. Leadership in Temporary Organizations: A Review of Leadership Theories and a Research Agenda. *Project Management Journal*, vol. 44 (6), pp.52–67.

Uzzi, B. & Spiro, J. 2005. Collaboration and Creativity: The Small World Problem. *American Journal of Sociology*, vol. 111 (2), pp.447-504.

Von Clausewitz, C. Edited and translated by Howard, M. & Paret, P. 1989. On War. E-pub version. Princeton University Press: Princeton.

Whitten, N. 2014. Building dream team. PM Network Oct 20-21.

Waite, M. Paperback Oxford English Dictionary (seventh edition). 2012. Oxford University Press: Oxford.

Xu, B-D., Zhao, S-K., Li, C-R. & Lin, C-J. 2017. Authentic leadership and employee creativity: testing the multilevel mediation model. *Leadership & Organization Development Journal*, vol. 38 (3), pp.482-498.

Yammarino, F.J., Salas, E., Serban, A., Shirrefs, K. & Suffler, M. 2012. Collectivistic Leadership Approaches: Putting the “We” in Leadership Science and Practice. *Industrial and Organizational Psychology*, vol. 5, 382–402.

Zaccaro, S. J., Rittman, A. L., & Marks, M. A. 2001. *Team leadership*. *Leadership Quarterly*, vol. 12 (4), pp.451-483.

Zacher, H. & Rosing, K. 2015. Ambidextrous leadership and team innovation. *Leadership & Organization Development Journal*, vol. 36 (1), pp.54-68.

Zakaria, N., Amelinckx, A & Wilemon, D. 2004. Working Together Apart? Building a Knowledge-Sharing Culture for Global Virtual Teams. *Creativity and Innovation Management*, vol. 13(1), pp.15-29.

Zhang, W., Zhang, Q. & Song, M. 2015. How do Individual-Level Factors Affect the Creative Solution Formation Process of Teams? *Creativity and Innovation Management*, vol. 24 (3), pp.508-524.

Zhang, Z., Waldman, D., Carey, W.P. & Wang, Z. 2012. A Multilevel investigation of leader member exchange, informal leader emerge, an individual and team performance. *Personnel Psychology*, vol. 65, pp.49-78.

Ziek, P. & Smulowitz, S. 2014. The impact of emergent virtual leadership competencies on team effectiveness. *Leadership & Organization Development Journal*, vol. 35 (2), pp.106-120.

Web-references:

<http://agilemanifesto.org> (Ref. 4.2.2017)

Cambridge online dictionary:

<http://dictionary.cambridge.org/dictionary/english/self-directed> (Ref. 20.8.2017)

Cambridge online dictionary:

<http://dictionary.cambridge.org/dictionary/english/temporary> (Ref.20.8.2017)

<http://puolustusvoimat.fi/en/commander-of-the-finnish-defence-forces>
(Ref.3.10.2017)

<http://puolustusvoimat.fi/en/about-us> (Ref. 3.10.2017)

http://puolustusvoimat.fi/documents/1948673/2267037/PEVIESTOS_Henkilöstötilinpäätös+2016.pdf/8e59a66f-8a66-47fa-b990-9e30aae2394e (Ref. 14.10.2017)

APPENDICES

APPENDIX 1

Questions:

Guidance: Try to find out negative and positive sides of all questions.

- 1. Can you tell me about your work background? What kind of team work and projects you have accomplished? Do you take part of projects and teamwork often or just occasionally?*
- 2. What kind of is your typical work week? Do you take part of many projects at the same time?*
- 3. Can you describe one successful project or teamwork you have been taking part of? What kind of team was in that project? Do you think that your work is easier if you have team members with different backgrounds?*
- 4. What are the most important things in teamwork? What things effect on your creativity and effectiveness?*
- 5. What things effect on your work or bother your teamwork? What things would you like to change?*
- 6. How leadership effects on teamwork efficiency and creativity? How do you describe a good leader and what is important in leadership?*
- 7. Do you feel that you get enough support (technical and other guidance) when working in temporary team?*
- 8. Do you feel that you have enough knowledge to use your creativity solve work-related issues independently?*
- 9. How your team leader supports your creative problem solving?*
- 10. When you prepare workshop or other event virtually, what things you need to accomplish your work. What things are easy or difficult to accomplish?*

11. *What kind of leadership style is the best when work is prepared virtually?*
12. *What things effect the most on high performance Dream Team´s success?*
13. *What kind of leadership need to be used to achieve best results with high performance professionals?*
14. *What kind of work can be done self-directly? What kind of tasks you can accomplish independently without support from your leader?*
15. *Are you using self-organization to accomplish some parts of your work? And what kind of tasks can be done in these self-organized teams?*
16. *What are team leader´s main duties and role if team is self-directed?*
17. *If the project includes multiple phases (for example virtual preparation phase, temporary workshop, virtual work and research), how do you see the transformation of the leadership and the role of the leader? Is it important that leadership style varies in different phases?*
18. *How Agile-methods are shown in your organization? (Question is for those organizations which are using Agile-methods in their work.)*