



**VILNIUS UNIVERSITY
BUSINESS SCHOOL**

INTERNATIONAL PROJECT MANAGEMENT

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MASTER'S THESIS

<i>Adaptyvioji lyderystė projektų valdyme: savęs įgalinimo poveikis</i> LITHUANIAN	<i>Adaptive Leadership in Project Management: The Impact of Self-efficacy</i> ENGLISH
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SUMMARY (LT)

VILNIAUS UNIVERSITETO VERSLO MOKYKLA

TARPTAUTINĖS PROJEKTŲ VADYBOS PROGRAMA

GRETA REMEIKAITĖ

ADAPTYVIOJI LYDERYSTĖ PROJEKTŲ VALDYME: SAVĖS ĮGALINIMO POVEIKIS

MB darbo kuratorė – Assoc. Prof. Eglė Daunienė

MB darbas paruoštas – 2022, Vilnius

MB darbo tyrimo apimtis – 75 puslapiai

Lentelių skaičius MB darbe – 11

Figūrų skaičius MB darbe – 18

Šaltinių skaičius – 35

Trumpas MB darbo aprašymas:

Šiame magistro baigiamajame darbe, pagrindinis dėmesys yra skiriamas ryšiui, tarp individų savęs įgalinimo (saviveiksmingumo) lygio bei vadovų gebėjimo užsiimti adaptyviosios lyderystės praktika, nustatyti. Šiam santykiui nustatyti yra naudojama Adaptyviosios Lyderystės Skalė, sukurta Mohammed Raei (2018) ir bendroji savęs įgalinimo (saviveiksmingumo) skalė. Analizuojant ryšį tarp skalių, šiame magistro baigiamajame darbe yra paaiškinamos tokios sąvokos kaip adaptyvioji lyderystė, kompleksinė adaptyviosios lyderystės teorija, Raei Adaptyviosios Lyderystės Skalė, savęs įgalinimas (saviveiksmingumas) ir projektų valdymas. Ryšiui tarp identifikuotų kintamųjų nustatyti yra taikomi kiekybiniai metodai. Elektroninių anketų pagalba surinkti duomenys analizuojami naudojant koreliacijų ir regresijų analizes. Pagrindinės išvados nurodo, jog teigiamas ryšys gali būti randamas tarp daugumos nustatytų kintamųjų. Remiantis padarytomis išvadomis, taip pat pateikiamos rekomendacijos projektų vadovams norintiems praktikuoti adaptyviają lyderystę, stiprinti savęs įgalinimo (saviveiksmingumo) lygį bei įgūdžius.

MB Darbo tikslai ir uždaviniai:

Tikslas: Šio magistro baigiamojo darbo tikslas yra išanalizuoti savęs įgalinimo (saviveiksmingumo) poveikį daromą adaptyviosios lyderystės pritaikymui projektų vadybos kontekste.

Uždaviniai: Šio magistro baigiamojo darbo uždaviniai yra nustatyti:

1. Ryšį tarp individų savęs įgalinimo (saviveiksmingumo) lygmens ir adaptyviosios lyderystės skalės subkonstruktų
2. Ryšį tarp individo savęs įgalinimo (saviveiksmingumo) lygmens ir bendrojo adaptyviosios lyderystės skalės balo

3. Padaryti išvadas, kokioms projektų vadybos kompetencijoms įtaką daro projektų vadovo savęs įgalinimo (saviveiksmingumo) lygis bei pasirinkti adaptyviosios lyderystės metodai

Metodai naudoti MB darbe: kiekybiniai metodai

Atlikti tyrimai ir gauti rezultatai:

Kiekybinių metodų tyrimo rezultatai parodė teigiamus koreliacijų rezultatus tarp adaptyviosios lyderystės subkonstrukto 2-7 kintamųjų ir individo savęs įgalinimo (saviveiksmingumo) skalės bendrojo balo. Sąveika tarp subkonstrukto numeris 1 ir bendro individo savęs įgalinimo (saviveiksmingumo) balo buvo nereikšmingai teigiama. Siekiant išanalizuoti ryšius tarp kintamųjų, taip pat buvo atlikta regresijų analizė. Analizė patvirtino koreliacijų suteiktas prielaidas ir pateikė duomenų validumo rodiklius.

Pagrindinės išvados:

Atlikus tyrimą buvo padarytos šios išvados:

1. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi nežymios įtakos jų gebėjimui atskirti adaptyviuosius bei techninius iššūkius
2. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką gebėjimui identifikuoti suinteresuotąsias šalis bei jų patiriamus nuostolius
3. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką jų gebėjimui kurti ir palaikyti teigiamą aplinkos jausmą komandoms
4. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką jų gebėjimui reguliuoti stresines situacijas komandoje
5. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką jų gebėjimui gražinti darbą komandoms nariams
6. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką jų gebėjimui suteikti galios vadovų be oficialaus autoriteto nuomonei
7. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką jų bendriesiems bruožams, reikalingiems adaptyviosios lyderystės metodams naudoti
8. Vadovų savęs įgalinimo (saviveiksmingumo) lygmuo turi didelę teigiamą įtaką adaptyviosios lyderystės metodų taikymui projektų valdyme

Norint atsakyti į tyrimo klausimą „Kokią įtaką individo savęs įgalinimo (saviveiksmingumo) lygmuo daro projektų vadovų gebėjimams praktikuoti adaptyviają lyderystę?“ galima teigti, jog aukštas projektų vadovų savęs įgalinimo (saviveiksmingumo) rodiklis suteikia jiems daugiau pasitikėjimo savo, kaip vadovo, sugebėjimais užsiimant adaptyviosios lyderystės kompetencijų praktika. Lyderio gebėjimui prisitaikyti, įtakos taip pat turi jo pasitikėjimas savimi bei veiksmingumas, bandant įveikti iškilusius adaptyviuosius iššūkius. Vadovai, turintys aukštą savęs įgalinimo (saviveiksmingumo) lygį yra labiau linkę tikėti ne tik savo vadybinėmis kompetencijomis, bet ir savo komandos nariais, saugo tuos, kurie neturi oficialios lyderio pozicijos, supranta ir pripažįsta klaidas, bei leidžia komandos nariams rasti sau tinkamus darbo būdus ir skatina juos kiekviename projekto žingsnyje.

SUMMARY (EN)

VILNIUS UNIVERSITY BUSINESS SCHOOL

INTERNATIONAL PROJECT MANAGEMENT PROGRAMME

GRETA REMEIKAITĖ

ADAPTIVE LEADERSHIP IN PROJECT MANAGEMENT: THE IMPACT OF SELF-EFFICACY

MA thesis supervisor – Assoc. Prof. Eglė Daunienė

MA thesis prepared – 2022, Vilnius

MA thesis scope – 75 pages

Number of tables in MA thesis – 11

Number of figures in MA thesis – 18

Number of references – 35

Short description of MA thesis:

This MA thesis focuses on the relationship between individuals' level of self-efficacy and their ability to practice adaptive leadership. Adaptive leadership scale created by Mohammed Raei (2018) and General Self-Efficacy scale is used to determine that relationship. With reference to analysis of the relationship between the scales, concepts such as adaptive leadership, complex adaptive leadership theory, Raei's Adaptive Leadership Scale, self-efficacy, and project management are explained and elaborated in this thesis. Quantitative methods are used to determine the relationship between identified variables and data collected through online questionnaires is analyzed using correlation and regression analysis. Main conclusions of positive relationships between majority of the variables are drawn with discussion and recommendations for project managers practicing adaptive leadership to enhance their skills in self-efficacy.

Aims and objectives of MA thesis:

Aim: The aim of the research is to analyze the impact of self-efficacy on adaptive leadership in the context of project management.

Objectives: the purpose of this research is to determine:

1. The relationships between individuals' level of self-efficacy and sub-construct of adaptive leadership scale
2. The relationship between individual's level of self-efficacy and the total score of adaptive leadership scale
3. Draw conclusions what competencies of project management are affected by levels of self-efficacy and adaptive leadership approach

Methods used in MA thesis: Quantitative methods

Research carried out and results obtained:

Quantitative research was conducted, and results of significant positive correlations were obtained between variables 2 to 7 of adaptive leadership sub-constructs and with the self-efficacy scale total score. Sub-construct 1 and total score of self-efficacy scale showed insignificant positive relationship between the variables. The regression analysis was conducted as well to analyze the relationships between variables. The analysis supported the correlation analysis assumptions and provided validity measures of the data.

Main conclusions:

The research conducted lead to the following conclusions:

1. Managers' level of self-efficacy has insignificant impact on their ability to distinguish between adaptive and technical challenges
2. Managers' level of self-efficacy has significant positive impact on the ability to identify stakeholders and their losses
3. Managers' level of self-efficacy has significant positive impact on their ability to create the holding environment
4. Managers' level of self-efficacy has significant positive impact on their ability to regulate distress
5. Managers' level of self-efficacy has significant positive impact on their ability to give the work back
6. Managers' level of self-efficacy has significant positive impact on their ability to protect the voices of leadership without authority
7. Managers' level of self-efficacy has significant positive impact on their general traits necessary for adaptive leaders (use of self)
8. Managers' level of self-efficacy has significant positive impact on the usage of adaptive leadership approach

To answer the research question of “How does the level of self-efficacy influence project managers' capabilities to practice adaptive leadership?” a statement can be claimed that – high level of project managers' self-efficacy provides the leader more trust in their abilities to perform as a manager and practice adaptive leadership competencies. The adaptiveness of the leader is influenced by their self-confidence and self-efficiency in terms of willingness to tackle the arisen adaptive challenges. Managers with high level of self-efficacy tend to believe more not only in their own managerial competencies but also in their team members by protecting those without official authority, understanding mistakes, letting the individuals find their own ways of working and encouraging them every step of the way.

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INTRODUCTION

Managers encounter challenges on daily basis in their work environment. In the fast-paced world, managers and leaders must know how to evolve together with the change, hence there is a need for adaptive leadership approach in management. Adaptive leaders must hold some organizational and personal traits to be able to tackle widely avoided adaptive challenges and lead their teams towards the project success. Self-efficacy could be one of the traits of the manager that could have impact on their ability to be a great adaptive leader. Self-efficacy as a concept can be described as ones' capabilities to take the course of action to manage particular situations (Riopel, 2021) or ones' belief in personal capabilities to attain certain goals in variety of situations (Chen, Gully, & Eden, 2001). According to literature, both, self-efficacy, and adaptive leadership, are still growing concepts and are not as widely used and examined together. This leads to possible research field if both aforementioned concepts can influence each other and make a difference. As Heifetz et.al (2009) states, for biological changes to happen in human DNA, there is a need for an extended period of time through which only a small change can occur but make an enormous difference. What if level of self-efficacy could be the small change that could change a lot about the understanding and usage of adaptive leadership in project management?

Adaptive leadership puts individuals in a position that requires assessing, adapting, managing, using the environmental and assignment context, hence self-efficacy could be seen as one of the assessment and management ways of the adaptive leadership phenomena (Ronald Heifetz, Alexander Grashow, & Martin Linsky, 2009b). Managers would have to step back, look at the bigger picture of the situation, evaluate their inner capabilities as well as their teams' and come to best possible decision in terms of team performance and the project success. On the other hand, many may say that especially in companies that traditional management and leadership ways are used widely, employees might be afraid of change (R. Heifetz et al., 2009b). Despite that, literature indicates that in abundance of cases employee reaction to change depends on the change itself and how it is implemented (R. Heifetz et al., 2009b). Hence, an assumption can be made that if leader puts their employees first using adaptive leadership skills acquired, the team members might adapt to change well and react to it positively.

This research will focus on Mohammed Raei Adaptive Leadership Scale (2018) and General Self-Efficacy scale to identify what impact does the level of self-efficacy have on project managers' capabilities to practice adaptive leadership. Hypotheses with regards to adaptive leadership scale sub-construct relationship with self-efficacy level will be determined and analyzed in order to bring the answer to the research question.

Research question:

How does the level of self-efficacy influence project managers' capabilities to practice adaptive leadership?

Problem/ research gap: in the scholarly community there are no studies evaluating the relationship between self-efficacy and adaptive leadership in project management. Some studies conducted focus only on adaptive leadership and some individual traits of managers whilst others focus on the psychology behind self-efficacy and possible influence on project management decision making. Hence, this study analyses two constraints – adaptive leadership and self-efficacy, searching for possible connection between the two in the light of project management.

Aim: The aim of the research is to analyze the impact of self-efficacy on adaptive leadership in the context of project management.

Objectives: the purpose of this research is to determine:

1. The relationships between individuals' level of self-efficacy and sub-construct of adaptive leadership scale
2. The relationship between individual's level of self-efficacy and the total score of adaptive leadership scale
3. Draw conclusions what competencies of project management are affected by levels of self-efficacy and adaptive leadership approach

This research paper will start with in-depth literature analysis of leadership, adaptive and technical challenges, adaptive leadership, complex adaptive leadership theory as well as definition of self-efficacy, and project management. Further in the chapter 4, the methodology of the quantitative research and its methods will be described, and the timeline of the data collection and analysis identified. Chapter 5 contains research findings and results analyzed through statistical methods of means, frequencies, correlations, and linear regressions between multiple variables. The statistical analysis will focus on the relationship between separate sub-constructs of adaptive leadership and level of self-efficacy. To answer the research question, the interpretation of the results will be provided further in section 5, followed by discussion, recommendations, and limitations in chapter 6. The main limitations of the research are the relatively small scope of the respondents and representation of data from different demographic aspects.

1. ADAPTIVE LEADERSHIP

1.1. Leadership

Leadership as a concept can be found in various aspects of individual and organizational lives (Jefferies, 2017). There is a constantly ongoing discussion among individuals and scholars whether leaders are made or born, but some studies argue that it is more likely that leadership can be acquired (Amanchukwu, Stanley, & Ololube, 2015). Evidence suggest that leadership development appears through continuous process of self-study, training, accumulation of relevant past experiences and learning (Amanchukwu et al., 2015). What is more, leadership is found to be extremely sophisticated and complex phenomena that sometimes is hard to understand and analyse (Amanchukwu et al., 2015). The difficulty of understanding of this phenomenon comes from constantly evolving and changing internal organizational environments as well as external market changes (Kellis & Ran, 2013). In the recent years, scholarly research of leadership focuses heavily on the difficulties that emerge from the vast changing complex environments and its effects on leaders' functional efficiency (Kellis & Ran, 2013). Some conducted researches suggests, that it is crucial for effective leaders to adapt and learn accordingly to changing environments (Kellis & Ran, 2013).

There are a few potential sources of leadership that are defined through locus of leadership and formality of leadership (Morgeson, DeRue, & Karam, 2010). Locus of leadership dimension refers to whether the leader is a member of the team (internal) or is an outside leader (external), while the formality of leadership dimension refers whether the responsibility for the outcome of teams' performance is within the organization (formal) or the responsibility for teams' performance is indirect (informal) (Morgeson et al., 2010). As it can be seen in Figure 1, different managerial and leadership roles can be added to this matrix according to the internal/external and formal/informal sources of leadership (Morgeson et al., 2010).

		Formality of Leadership	
		Formal	Informal
Locus of leadership	Internal	Team leader Project manager	Shared Emergent
	External	Sponsor Coach Team advisor	Mentor Champion Executive coordinator

Figure 1: Sources of Leadership

Source: Morgenson et al., 2010, p. 5

Project managers and team leaders are identified in the top left part of the sources of leadership matrix. These two positions are well known to all individuals in one way or another – whether it is sports activities or a corporate job. Team leaders and managers are formal leaders of the group and their focus and responsibilities for the team are internal (Morgenson et al., 2010). The formal leadership status of managers can also be called leadership with authority (R. Heifetz, 1994). In Heifetz's (1994) theory of leadership, the main focus fell on adaptive leaders and their level of authority within teams.

According to Heifetz (1994), leadership with authority includes:

1. identifying the arisen challenge and diagnosing the situation;
2. controlling the levels of distress for the team;
3. keeping teams focus on the ripening issues and controlling activities that cause distractions;
4. giving the work back to the team, but making sure the team can handle it and has the relevant skills for it;
5. protecting individuals in the team that take the place of leader without authority (p. 128)

Literature shows that authority for leaders imposes expectations to provide direction and orientation for the followers, alongside with protection and conflict control (Raei, 2018). Leadership with authority entitles managers to observe the team as well as focus on self-management, leadership styles and personal behaviour. Previous studies show that behavioural leadership depends on the situation that it might be applied to and also on the individuals' willingness and adaptation to the challenge (Obolensky, 2010). That is why, the Situational Leadership model was created to identify what styles of leadership can be used in different situations (Obolensky, 2010). According to Hersey and Blanchard, the creators of the Situational Leadership model, 4 different styles of Telling, Selling, Consulting and Delegating can be used with reference to contrasting situations (Thompson & Glasø, 2015). Aforementioned theory aligned with another leadership model relating to emotional intelligence by Daniel Goleman creates a trend that can be seen between relationship orientation and task orientation in management (Obolensky, 2010). Hence, leaders with authority not only have to look into the arisen situation as a whole picture, but they also have to identify what challenges their teams are about to tackle. As a consequence of the leaders' view to the big picture, managers with authority sometimes lack an up-close view of a single issue that might affect the team (Raei, 2018).

In contrast, in some teams and organizations, leaders without formal authority emerge. Those individuals take place in the internal locus of leadership with informal leadership sense (Morgeson et al., 2010). Like leadership with authority, leadership without authority also come with some advantages and limitations. Firstly, according to Raeli (2018) and Heifetz (1994), leaders without authority can give more focus to a single issue and have more freedom for creative problem solving. What is more, since leaders without authority can emerge from any part of the team or organization, they usually have more in depth raw information about the issue or challenge that management might not have access to due to authority barrier (Raeli, 2018). In contrast, the in depth knowledge of the situation and lack of authority might make them a target in the team regarding arisen issues – people might come to the emerged unofficial leader with their issues and complaints, asking for solutions which might become a burden and additional responsibility for the individual just wanting to help (Raeli, 2018). That is why, it can be argued that leaders with authority and emerged leaders without authority should join knowledge in order to adapt to the situation and identify what type of challenge they are facing.

The analysis of this research will focus on leaders with authority with reference to project managers in companies. Nowadays many complicated challenges arise in organisations that require more flexible and innovative solutions that for some might even seem controversial. Leaders with authority have the possibility to step back and evaluate the situation and in the case of this research – identify the type of challenge that the company or team is facing. Leaders identifying arisen adaptive challenges should evaluate their leadership approach and act as adaptive leaders to tackle the challenge. Adaptive leadership will be the focus of this study in order to find the connection between self-efficacy of leaders and the adaptiveness of their leadership approaches in order to answer the raised research question.

1.2. Adaptive challenges

In nowadays organizations, tackling challenges for management or even simple specialists is a daily task. Due to fast evolving and changing organizational environments as well as changes in many different markets, challenges and changes are inevitable. Many challenges come easy to be identified and solved, whilst others require in depth analysis, strategizing and specific traits and methods to be solved. The importance of identification what challenges the organization or management is facing comes from the difference in solution and approach methods that might be needed. What is more, emerged challenges in the organization has vast impact on the type of leadership to be used. In order to determine what kind of leadership the organization or team should be led by; it is important to identify the type of challenges that are being faced. There are several different types of challenges and in the midst of that, technical and adaptive challenges can be identified.

Technical challenges in literature and management world can be described and seen as challenges that arise through issues that management might already have knowledge how to solve (Pronovost, 2011). For these challenges, there is a clearly defined problem that leads to clear solution and implementation of it, therefore it leads to technical work being done (Raei, 2018). What is more, there is not much learning required about the situation or the management itself, hence leaders can use their existing expertise or previous experiences to solve the arisen issue (Doyle, 2017). On the other hand, in the midst of tackling technical challenges, it is common for leaders to be expected to take the role of a hero (Raei, 2018). People expect leaders tackling technical issues and practicing traditional leadership styles to become the hero and provide all the answers for the emerged issue. The leader is also expected to have all the necessary skills and knowledge already to address the problem whilst others would just follow the lead of the manager (Raei, 2018).

On the other side of the spectrum, there are adaptive challenges. Adaptive problems are usually more complex, there is no clear solution, nor members of the organization have clear knowledge where and how to start tackling these challenges (Doyle, 2017). Literature has shown, that adaptive challenges can be addressed through learning about the situation, changing people's habits, beliefs, way of working, challenging the "normal" (Pronovost, 2011). This phenomenon arises from the fact that the problem that defines the adaptive challenge itself usually requires a moderate level of learning about the situation, implementation and individuals that attempt to work with the challenge (Raei, 2018). What is more, adaptive challenge is also identified as "the gap between the values people stands for (that constitute thriving) and the reality they face (their current lack of capacity to realize those values in their environment)" (Heifetz et al., 2009 as cited in Raei, 2018). These identified gaps in organizations can be seen as activities to be avoided because it drives the analysis of what the company values are and how the individuals in the organization actually behave (Banerjee, 2013). Many organizations and teams have the tendency to avoid dealing with areas of work that show uncertainty and require personal and organizational analysis. The analysis of values and the rise of possible new ways of working lead to change and in many cases, change is seen as a phenomenon to be avoided (Raei, 2018).

Adaptive challenges can also rise from competing commitments in the organization (R. Heifetz et al., 2009b). Competing commitments appear when an organization has many different commitments that can come into conflict in one way or another (R. Heifetz et al., 2009b). For example, when an organization needs to have more employees to fulfill the yearly plans but also needs to cut down on costs, hence the management team faces a dilemma how to manage this challenge. In competing commitment change situation, leaders have to analyze the situation well, in order to determine what actions should be taken to

choose the best outcome for all. In the case of the aforementioned example, leaders would have to analyze and learn about the current organizational situation in detail and only then make the decision based on the outcome that would have higher priority (Banerjee, 2013). Comparing this example to the mentioned technical challenges, no manager could become or be seen as a hero. No leader could know right away what is the solution or act according to previously made template decisions. The adaptiveness of the leader has to come from the situational analysis and creation of the environment where improvements can be made (Raei, 2018).

Furthermore, speaking the unspeakable can also call out for adaptive challenge in an organization (R. Heifetz et al., 2009b). In many cases, people tend to speak only a part of what they are actually thinking, and in the corporate world, that tendency is found to be extremely strong. Many employees might often have radical ideas, a want to point out difficult already arisen issues but are afraid to express their thoughts (R. Heifetz et al., 2009b). In this case, people that decide to speak the unspeakable are the creators of the adaptive challenge (Banerjee, 2013). The thoughts that others might want to hide and avoid, might bring out the change that will require not only individual learning and adaptation, but also organizational learning. Lastly, adaptive challenges can create work avoidance (R. Heifetz et al., 2009b). Studies have shown, that people in organizations want to prevent themselves from the discomfort that can come from the prospect of change (R. Heifetz et al., 2009b). Employees often have the tendency to only focus on the technical parts of the challenge and work in the way they are comfortable, avoiding the need for adaptation in the existing processes (Banerjee, 2013). On the contrary, many more arising challenges in nowadays organizations cannot be dealt with the old ways of working, without stepping out of the comfort zone. New adaptive challenges require exquisite amount of learning and collaboration, hence adaptive leadership methods and theories must be used.

The selected analysis field of project management can be identified as adaptive challenge field. Projects might have many of the above-mentioned features that generate the adaptive challenges arising. As for example, a single project can have contrasting goals that might be hard to achieve without new ways of working or adapting to the situation. People that are assigned to work on the project might also have different ideas and clashing points of view, that might force the project manager to bring out the unspeakable thoughts on the table which can cause many issues and even new challenges to tackle. That is where the importance of identification of challenges and most importantly, adaptive challenges, is crucial in project management field which this research will be focusing on. Project managers should not be seen or act as heroes or experts, they should be able to see the big picture of the whole project and create environment for stakeholders to grow and develop ideas for problem solution as well as continuously learn throughout the

span of the project (Raei, 2018). The identification of the arisen problem can be seen as an issue itself, because as it can be seen in Table 1, adaptive challenges can be hard to identify and easy to deny whilst technical problems can be recognized easier. What is more, as mentioned before, project managers often can be expected to have the solution to the problem straight away and act as experts in the arisen situation which should not be the case in the sense of adaptive challenges – the project manager should make effort in understanding the root of the problem and analyze the issue throughout the different levels of authority, organization and environment (R. A. Heifetz & Laurie, 2001). The process can be met with resistance which contrasts to the technical problem solutions where individuals are quick to tackle the issue with the already implemented and trusted process.

Table 1: Technical problems vs. Adaptive challenges

Technical problems	Adaptive challenges
<ul style="list-style-type: none"> • Easy to identify 	<ul style="list-style-type: none"> • Difficult to identify and easy to deny
<ul style="list-style-type: none"> • Often can be met with easy and specific solutions 	<ul style="list-style-type: none"> • When tackling adaptive challenge, leaders need to understand the origin of the problem which is time and energy consuming. Systematical method of thinking is crucial
<ul style="list-style-type: none"> • Often can be solved by an expert of individual with authority 	<ul style="list-style-type: none"> • Changes in beliefs, values, relationship, roles, and approaches are to be made in order to accomplish goals
<ul style="list-style-type: none"> • Individuals are usually amenable to technical solutions 	<ul style="list-style-type: none"> • Change is needed through multiple levels and places – cross organization boundaries to be crossed
<ul style="list-style-type: none"> • Technical solutions can be implemented quickly 	<ul style="list-style-type: none"> • Adaptive changes are met with resistance even when acknowledged
	<ul style="list-style-type: none"> • Adaptive challenges require lengthy experimentation processes to discover new ways of working

Source: R.A. Heifetz & Laurie, 2001

1.3. Adaptive leadership

While other leadership concepts might focus more on the technical tasks, goals or the organization itself, adaptive leadership can be seen as a practice that prepares people to tackle individual and organizational adaptive challenges and succeed (R. Heifetz et al., 2009b). Adaptive leadership encourages the leader to be amongst their employees and does not define individuals by the power or position they hold

(Jefferies, 2017). Studies have shown that adaptive leadership could be exercised without position (Raei, 2018). This leadership approach focuses on the task itself from the perspective of how employees can fulfil it the best as well as encourages adaptive learning by initiating tough and sometimes uncomfortable conversations, while changing people's expectations (Jefferies, 2017; Raei, 2018).

Heifetz et al. (2009) also describes adaptive leadership as:

...an approach to making progress on the most important challenges you face in your piece and part of the world, presumably in your professional life but perhaps in your personal life as well. (p. 3)

This description can be either criticized or supplemented by further research studies stating that the progresses and behaviours must be relevant for the arisen challenges (Yukl & Mahsud, 2010). In order for the leader to make effective choices and be adaptive, they have to weigh the possibility of risks and competing values that might arise in the situation (Yukl & Mahsud, 2010). It is essential to identify the technical and adaptive components of the challenge to make a well-rounded decision (Nelson & Squires, 2017). Identifying what is best for the situation and balancing different variables requires the leader to step back and do not rush to make an abrupt decision (Nelson & Squires, 2017). The ability to balance the aforementioned values, risks and components to fit the situation can be portrayed as a great example of flexible and adaptive leadership (Yukl & Mahsud, 2010).

What is more, literature indicate that one of the main tasks of the adaptive leader is to prevent teams to avoid adaptive change (Heifetz, 1994, as cited in Raei, 2018). As mentioned before, employees have the tendency to avoid uncertainty and try to stay to some old and well-known technical ways of working that might not be suitable to tackle adaptive changes. That is why, adaptive leaders should focus on creating the "new normal" – the movement of working with adaptive challenges (Raei, 2018). As Heifetz (1994) stressed, leaders should also maintain the stress levels within teams that tackle the adaptive challenges. People need guidance and a certain amount of push from the management to make difficult decisions that might rise from adaptive challenges in the organization. That is why, the team leader should keep their hand on the thermostat of the situation (Ronald Heifetz, Alexander Grashow, & Marty Linsky, 2009a). Heifetz et. all (2009a) stated that:

If the heat is too low, people won't make difficult decisions. If it's too high, they might panic. (p.5)

With reference to this statement, adaptive leaders could also be seen as mediators and evaluators of the situation. Studies have shown that good adaptive leaders know at what point of the project or situation they should push their employees in order to achieve the needed results and where they could lower the

“heat” to help their employees to rest and re-focus (R. Heifetz et al., 2009a). On the contrary, the role of leadership should not be made personal (Raei, 2018). The pushing of team members should not cross the line of becoming a personal attack, it should be a mediator for discussions and disagreement that bring growth to the team (Raei, 2018).

Furthermore, the evaluation of the situation and search for the best solution requires the ability to step back and see the big picture of the challenge as a whole for the organization and its’ employees. Hence, adaptive leadership requires individuals to be proactive in planning how to foresee upcoming problems as well as being decisive in response to immediate issues (Yukl & Mahsud, 2010). Adaptive leadership in practice can be described as repetitive process of a few activities such as observing patterns and events, interpreting the observations and designing actions to tackle the adaptive challenge (Raei, 2018). The diagnosing step of the process involves diagnosis of the adaptive challenge itself as well as the stakeholders that are included in the project or activity. Second step of making interpretations requires the leader to shift the view of groups to systematic, conflictual and adaptive challenge orientation (Raei, 2018). The leader must make an effect on the group perception and drive the team towards orientation of adaptive challenges, that is where the intervention designing step comes into place. In practice, individuals with leadership positions should also look into themselves and their own behaviours. Literature indicate that leaders should also evaluate and deploy their values, connection to the purpose and see what they can bring to the team and the challenge from their own personal experiences and traits (Raei, 2018).

On the contrary, not only teams or their managers have impact on the adaptive challenges and adaptive change. The traits and ways of working of the organization itself tends to have great impact on the aforementioned changes. Some organizations push their employees to speak up and identify the “elephants in the room” in order to tackle the most sensitive and up to date issues. Adaptive organizations also encourage their employees to reflect on their work experiences and stimulate continuous growth and learning. By doing so, companies can “grow” their own leaders that once were followers. For example, some companies initiate shadowing initiatives for their employees to see what other teams or departments do in order to create better understanding of the company as a whole as well as encourage personal career development. Through these shadowing sessions, pro-active employees can learn what path they would like to take further in their career or on the contrary, see what they would not want to pursue. These initiatives and activities require employees to be curious and be driven to accept change and to be ready to become leaders instead of followers. On the other hand, change often also require losses, hence people often have the tendency to avoid disrupting the settled flow where they are comfortable. That is why, it can be argued that adaptive leadership and change also require individuals to have certain personal traits.

1.4. Complex Adaptive Leadership theory

Complex Adaptive Leadership (CAL) theory refers to complex adaptive organizations that depend on interaction with its' stakeholders (Kowch, 2013). Research has shown, that nowadays organizations in fast paced markets can be seen as complex adaptive systems of people who communicate within the environment of the organization and do not lay most emphasis on the hierarchical top-down structure of the corporate world (Kowch, 2013). The need for more adaptive leadership approach comes from the twenty-first-century management emphasis of decentralization in companies, hence the hierarchical view of leadership tends to lose its' practicality (Lichtenstein et al., 2006).

Research has shown, that the interactions between different agents of the organizations generate organizational system-wide learning processes, enhancing the capabilities, adaptability and innovations (Lichtenstein et al., 2006). This phenomena introduces a new view of leadership which puts more emphasis on the action or event that has emerged rather than a person as a leader (Lichtenstein et al., 2006). In relation to aforementioned Situational Leadership theory, three main challenges can be highlighted in terms of CAL:

- 1) Executives need to let go more
- 2) Executives are demonstrating the 'Red Queen effect'
- 3) A lot of executives are spending their time on unimportant things (Obolensky, 2010).

Unnecessary leadership stress can rise from the above-mentioned challenges. When executives, in the case of this study – project managers, are too afraid to let go of some tasks or some level of authority, they might over manage simple processes or their team members (Obolensky, 2010). The fear of letting go can also cause the mentioned "Red Queen Effect" meaning that project managers might work very hard on something without getting clear and valid results – basically "running hard but getting nowhere fast" (Obolensky, 2010). Working too hard and trying to do everything themselves also can act as a demotivating factor for the team members. The team seeing how hard working the project manager is whilst the project aims are still not being met, can develop low motivation levels to try their hardest to reach the project goals (Obolensky, 2010). Lastly, project managers spending too much time on unimportant things can also be tied to them working very hard and trying to overachieve. Focusing on sometimes small unimportant things can also be an example of fear of letting things go, because the manager might be afraid of what their team members will think about them if they do not keep an eye on everything that is running in the project (Obolensky, 2010). If all of aforementioned challenges overlap, unnecessary leadership stress is created for the manager (as shown in Figure 2). In complex organizations or work processes, it is rather difficult to always avoid the 3 mentioned challenges and for project managers, the unnecessary leadership stress might

occur. That is why, it is important for the manager to gain trust in their teams, have the ability to delegate work and most importantly – have trust in themselves, which is where their personal traits, and in the case of this research, their level of self-efficacy can have an effect on their performance. With the possible help of their personal skills and abilities, adaptive leaders have to find ways to conquer these challenges in order to proceed working with CAL approach (Obolensky, 2010).



Figure 2: The stress of leadership

Source: Obolensky, 2010, p. 143

1.5. Current challenges of leadership concept

Identifying the competencies of adaptive leadership is crucial for this research in order to analyze the possible impact of managers' individual capabilities towards it. Regardless, it is also important to emphasize that adaptive leadership is still relatively new and for some unknown approach, hence its maturity level is also playing an extensive role in analyzing the impact of different variables on one another. Thus, analyzing the theories and approaches that adaptive leadership entail, a current challenge of adaptive leadership level of maturity arises. As research indicates, leaders, including adaptive leaders, are not born, hence there has to be constant learning and evolution (Jefferies, 2017). Constant evolution and growth could be an indicator that this leadership style is still in its' growth stage and does not have as wide usage as the traditional top-down leadership styles. What is more, adaptive leadership model requires ones' dedication and willingness to learn, adapt and be inclusive towards change, which can supplement the assumption that adaptive leadership is still in its' growth stage (Jefferies, 2017). Adaptive leadership being a still growing and evolving construct, it can be stated that some people might be leading as adaptive leaders and tackling adaptive challenges without knowing that they are practicing adaptive leadership. Rاعي's adaptive

leadership scale (which will be identified and discussed in detail further in this paper) in this research does not use any specific terms related to adaptive leadership approach in order to maintain respondents focus on their way of working without them starting to analyze if they are truly adaptive leaders or not.

Furthermore, as adaptive leadership model relies on individuals' interpretation of the situation, looking in the situation from afar to see the bigger picture, it can be stated that this model is still in development (Jefferies, 2017). Interpretations can vary from one trained leader to another according to their past experiences, their teams and organizations. For example, in the case of change of management, different views and interpretations of different leaders can disbalance the work environment of the team which could be harmful for the process and end result (Jefferies, 2017). On the other hand, in terms of change in management there is also a great risk that behaviors and skills that were the strengths of a leader in one team/assignment can become weaknesses in a new position if a leader does not practice leadership methods that are flexible enough (Yukl & Mahsud, 2010). Theory also suggests that the abundance of different types of leadership positions as well as challenges encountered early on ones' career might positively influence the ability to be adaptive and flexible (Yukl & Mahsud, 2010). Hence, it can be stated that to execute the adaptive leadership model, an individual must have previous leadership experiences which lead to assumption that adaptive leadership model cannot stand alone without the support of other leadership models (Jefferies, 2017).

Another point regarding leadership maturity as a whole can be seen in the phenomena that numerous companies nowadays hire leadership coaches to train their managers to be great leaders. This action of companies can be seen as a key point of proof that many still do not know what leadership entitles. Many argue that leaders are born whilst other claim that leadership skills can be learnt hence there is still a lot of discussion about leadership concept as a whole. Then taking into consideration adaptive leadership concept, it could be stated that as a relatively new model, discovered only in 90's, adaptive leadership can have even more uncertainty and misunderstandings amongst managers and leaders. Adaptive leadership approach can be found confusing and strange to individuals due to the change of focus from a person as a leader to individuals' traits and actions. Which is why, at first sight, many might think that adaptive leadership is equal to change management and that is another point that can support the fact that maturity and understanding of adaptive leadership is still in its' growth phase – still introducing itself to the world of management.

Furthermore, adaptive leadership itself as a concept is found to be challenging. Due to the interpersonal nature of this phenomena, it is difficult to find the right level of pressure towards the task as

well as the difficulty of the task (Raei, 2018). If tasks are too difficult for the team, they might face burn-out or frustration towards the task itself or even the management, whilst if the task is too simple, boredom might occur, which can lead to poor task performance. Adaptive leader needs to find the middle spot, where the team and their skills are matched, whilst is still challenging enough to keep teams' interest. The task of finding the perfect balance is challenging because of differences between teams' personal attitudes, past experiences and ways of working. Due to its challenging nature, adaptive leadership methods sometimes can be abandoned by leaders and return to the technical solutions for the arisen challenge can develop.

Moreover, the difficulties of adaptive leadership rise from the implication that adaptive leaders should stop being problem solvers. Instead, they should look for solutions for arisen challenges and help their teams to adapt to change, using the solution (Raei, 2018). The solutions might sometimes also bring losses which can seem unreasonable for the team and even the company, hence adaptive leaders must clearly state what is the reason behind the adaptive solution and work on ensuring their teams that the outcome of the new process can bring greater results than the old ways of working. Leaders can lack skills of high reflection and political stance, hence, to support the statement of lack of maturity in adaptive leadership, it can be stated that nowadays leaders willing to work as adaptive leaders have a steep learning curve.

1.6. Adaptive leadership scale

In order to determine whether the leadership approach selected by a project manager is compliant with adaptive leadership approach, this research will focus on 7 adaptive leadership competencies (as listed in the table 2 below) identified by Mohammed Raei in 2018 in his research "Development and Validation of the Adaptive Leadership with Authority Scale". These competencies will also act as sub-constructs in this research whilst analyzing data and the impact of self-efficacy variable towards them.

Table 2: Raei Adaptive Leadership Competencies

<ol style="list-style-type: none"> 1. Distinguish between adaptive and technical challenges 2. Identify the stakeholders and their losses 3. Create the holding environment 4. Regulate the distress 5. Give the work back 6. Protect voices of leadership without authority 7. Use of self
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Source: Raei, 2018

Raei (2018) identified these 7 sub-constructs from multiple aspects that the adaptive leadership approach refers to. Sub-construct of the *ability to distinguish between adaptive and technical challenges* was drawn from managers' willingness to invite others to participate in the search for solution, creating and organizing the problem solving team as well as the determination to cross boundaries to gain better perspective on the problem (Raei, 2018). The second sub-constraint *identifying the stakeholders* refers to soliciting everyone's input which compliments the first sub-construct because it would be difficult to cross the boundaries and get input from the members of the organization without willful participation of stakeholders. *Creating the holding environment*, the third sub-construct, was designed including managers' abilities to bring people together and creating a safe space for the individuals working on the assignment. The third sub-construct also has some similarities with the first one in terms of managers' ability to create and organize the team as well as getting input from the members, but in contrast, this construct focusses more on the comfort and safety created more on the personal level. With regards to *giving the work back*, the focus falls on the managers' abilities to provide direction and the vision to their peers, knowing when it is needed to step out of their way, letting the team members to deal with their problems their own way but also collaborating with them whilst solving problems. This sub-construct can also be related to the *regulating the distress* of the team. Aforementioned sub-construct is also related to the ability to provide support, solutions, resources and ideas alongside with encouraging the team, getting people on board, getting peers focused and of course being accountable and trustworthy. It is crucial for adaptive leaders to stay "cold" in heated and intense situations, to be the trusted figure that the team members can count and rely on. Furthermore, the sub-construct of *protecting the voices of leadership without authority* refers to manager's ability to stand for their team and to make sure that their opinions, ideas and suggestions are heard as well. And lastly, the *use of self* sub-construct refers to the leaders' personal abilities to keep cool in difficult and stressful situations, knowing how to listen to their team members which can refer to the 6th sub-construct of protecting the voices of leadership without authority as well. Leader would not be able to provide the support for leaders without authority within the team needs without the ability to listen and understand what is needed for the members. Use of self construct also focuses on the positive attitude of the leader as well as their perseverance, which all can tie to one definition of leaders portraying their individual skills and becoming a figure the team members can rely on and trust. It can be argued that being more of an authority figure in the team can be seen as a role model which might be misunderstood as seeing the leader as a hero just like in traditional leadership approaches tackling technical challenges but being a role model in adaptive leadership practices is more than just giving the solution for the problem and being an expert in some particular field. Role model or an authority figure for the team to rely on, in terms of

adaptive leadership approach, is more related to the individuals' traits, ways of working and acting as an example, than providing answers to issues. In project management world, perseverance and other mentioned personal traits of the manager, could be tied to ones' belief in their abilities to succeed based on how the individual thinks, behaves and feels which can refer to managers' levels of self-efficacy (Riopel, 2021). Further in this paper, section 2 will explain in detail what self-efficacy entails and how it could be used in adaptive leadership and project management fields.

2. SELF-EFFICACY

2.1. Background and definition of self-efficacy

Albert Bandura, an influential social cognitive psychologist, describes concept of self-efficacy as:

The belief in ones' capabilities to organize and execute the course of action required to manage prospective situations (Riopel, 2021)

Due to its' nature of possible affection towards managerial decisions, self-efficacy is a popular topic amongst psychologists in nowadays fast paced organizations (Riopel, 2021). As one of the constructs of social cognitive theory, self-efficacy is often used as a tool to predict, explain and change behaviors (Burrell, Allan, Williams, & Johnston, 2018).

There are numerous tools and scales created to measure self-efficacy. The original self-efficacy survey (SES) was created to evaluate ten areas of ones' life: intellectual, family, educational, professional, social, religious, erotic, moral, life standard and health (Panc, Mihalcea, & Panc, 2012). Despite the original SES, throughout the years, different types of self-efficacy scales were also created to identify slightly different points about what self-efficacy means or entitles to. Bandura's scale identifies self-efficacy more as someone's perceived capability or resources they can find to use rather than what they have (Riopel, 2021). On the other hand, new general self-efficacy scale measures one's belief that they can achieve their goals, despite the difficulties they face (Riopel, 2021).

Furthermore, another definition of self-efficacy found in literature is:

Self-efficacy is defined as people's beliefs regarding their capability to success and attain a given level of performance (Sitzmann & Yeo, 2013).

This definition can lead to assumptions that self-efficacy can be strongly correlated to performance of individuals in various aspects of life such as personal goals, work goals or motivation. Literature suggests that people with high levels of self-efficacy address stressful tasks and situations easier, they also have stronger sense towards achieving objectives and has a shorter recovery period after failures within performing tasks (Panc et al., 2012). It does not necessarily refer to ones' certain skills but rather to estimation of what an individual can achieve with the skills they possess (Jacobs & Kamohi, 2014). In terms of project management, self-efficacy can refer to how project managers relate to themselves in certain projects or situations (Jacobs & Kamohi, 2014). The phenomena of self-efficacy can also be seen in terms of increase in motivation or higher quality decision making (Zulkosky, 2009). Synonyms to self-efficacy are identified as effectiveness and productiveness, hence it can be assumed that self-efficacy could have

strong relevance to project managers and the maturity of their practice of adaptive leadership (Zulkosky, 2009).

3. SELF-EFFICACY IMPACT ON ADAPTIVE LEADERSHIP IN PROJECT MANAGEMENT

3.1. Project management

Project management as a field of work has been receiving more and more attention and interest over the years. Heagney (2016) states, that a project is "... a temporary endeavor to produce unique product, service, or result" (Heagney, 2016, p.2) and "... a problem scheduled for solution (J. M. Juran as cited in Heagney, 2016, p.2). Hence, the project needs close management in order to deliver the scheduled solution of a problem. Project management itself can be defined as application of different skills, techniques and tools that are applied in different stages of the project cycle (Heagney, 2016). Some say that project management might be only a variant of general management whilst others argue that it is a completely different discipline from general management (Heagney, 2016). What is more, project management also can be identified as a mix of science and art – the former referring to the managers' abilities to manage and the later to the accepted step-by-step process of managing the project (Mulcahy, 2006). The science behind project management comes from the systematic process of initiating, planning, executing, controlling and closing the project (Mulcahy, 2006). These steps can also be seen as performance competencies of project management (Cartwright & Yinger, 2007).

1. Initiation of the project: this step requires all of the individuals involved in the project to be on the same page. The project manager should be identified in this step and benefits of the project should also be outlined (Kerzner & Kerzner, 2013). Communication between management, sponsors and stakeholders need to be aligned and clear. Possible limitations and constraints of the project must be identified as well. The end result of the stage should be a completed and signed project charter which will act as a guide for the remaining of the project (Mulcahy, 2006).
2. Planning of the project: second step of project management system is identified as the key step of the process. In some companies or projects, this step might take up to 60% of the whole scheduled project time (Mulcahy, 2006). Start and end of the project must be discussed and clarified, resource needed identified and everyone involved in the project should be aware of their role in the project. The end result of this stage is completed project plan for the whole project (Kerzner & Kerzner, 2013; Mulcahy, 2006).
3. Executing the project: during this stage of the project, the project plan should be put in action (Mulcahy, 2006). Project managers act as mediators during this stage, they take the responsibility

to direct and manage the work as well as working together with the team to improve their performance (Kerzner & Kerzner, 2013).

4. Monitoring and controlling the project: this step requires close attention to the progress of the project, drawing of comparison between the actual outcome of parts of the project to predicted outcomes (Kerzner & Kerzner, 2013). In case of differences between predicted and actual outcomes, adjustments could be made to the project in order to meet the predictions in the end (Kerzner & Kerzner, 2013).
5. Closing of the project: this stage requires verification of the work that has been completed. Project manager should check if all of the requirements of customers, sponsors and stakeholders are met, show everyone the success of the project (Mulcahy, 2006). What is more, contractual, financial and administrative closure of documents should be performed to portray the official end of the project (Kerzner & Kerzner, 2013).

The five steps of project management process require vast amount of dedication, skills and competencies from the project manager that is designated to the project. Literature indicate that project managers should manage the work throughout aforementioned steps in order to maintain the main flow of the company and bring value to the organization (Kerzner & Kerzner, 2013). Competencies in literature are defined as clusters of related knowledge, skills, attitude and personal characteristics (Cartwright & Yinger, 2007), hence this research will focus on a few specific project managers' traits that might correlate to adaptiveness of their leadership styles.

According to IPMA Eye of Competence, individuals must have three types of competences in project management: perspective competences, people competences and practice competences (IPMA, 2015). The perspective competence refer to context of the project, people competence focus on personal and social topics, whilst practice competence focus falls on specific technical capabilities for managing the project (IPMA, 2015). Perspective competence area refers to the understanding of the strategy part of the project along side with the processes and structures of projects. These sub-parts of the perspective competence require managers to hold design thinking skills that can be tied to the adaptive leadership construct of identifying the distinction between technical and adaptive challenges (IPMA, 2015; Raei, 2018). Identifying and tackling challenges require managers' understanding of the organizational structure, strategies and already established processes. What is more, perspective competence requires managers to make sure the project is compliant with company standards, governance and regulations which calls out for skills of critical thinking, high levels of communication and most importantly – ability to lead by example (IPMA, 2015). As mentioned above in chapter 1, sub-construct use of self in AL scale suggests for the

adaptive leaders to become the trusted individuals in their teams that team members can rely on. The individuals that team members choose to lean on, often can become role model like individuals, showing the example of ways of working or personal traits necessary. In the case of this study, such managers could be followed by the team, hence connection between the perspective competence of project management and adaptive leadership can be seen.

The project management people area refers to personal and social competencies of the manager (IPMA, 2015). Its' elements contain ones self-management and self-reflection as well as personal integrity, reliability, communication, relationship management, conflict management, leadership and teamwork (IPMA, 2015). These competencies can be closely related to adaptive leadership scale because firstly, it contains required skills such as delegation of tasks, sharing the values and vision of the task as well as dealing with mistakes and failures, hence the competencies can be related to the AL sub-construct of giving the work back to the team (IPMA, 2015). Secondly, the people competence requires the leader to have high levels of stress resistance, resilience, efficiency, and resourcefulness which can be tied to the regulation of distress sub-construct. Thirdly, people competence of project management encourages leaders to combine the helicopter view with attention to essential details but also to think outside the box looking for solutions how to tackle arisen issues which can also, as the perspective competencies, can relate to distinguishing adaptive and technical challenges in the organization (IPMA, 2015; Raei, 2018). Lastly, according to people competence, managers should also be empathetic, have advanced listening skills, be self-reflective ad well as have positive attitude, hence use of self sub-construct can be identified among project managers (IPMA, 2015).

As literature analysis shows, there is a vast number of ties and similarities of skills that project managers and adaptive leaders are expected to hold. To answer the research question of how the level of self-efficacy impacts project managers' capabilities practice adaptive leadership, adaptiveness of project managers will be examined and evaluated in this research. What is more, due to the personal nature of skills and competencies integrated in both, project management and adaptive leadership, hypothesis 8 is raised with reference to self-efficacy:

H8: Managers' level of self-efficacy has positive impact on the usage of adaptive leadership approach

3.2. Self-efficacy and project management

Research results in previous literature state that there is strong correlation between self-efficacy and performance (Sitzmann & Yeo, 2013). What is more, literature suggests that self-efficacy is found to be a strong indicator of academic success of individuals, hence assumptions can be made that self-efficacy could

influence project performance (Riopel, 2021). For example, Zimmerman's self-efficacy scale created for students test how students with higher self-efficacy tend to choose more difficult and challenging task while those with low self-efficacy tend to choose the easier way (Riopel, 2021). In management positions, this scale could be adapted to managers choosing an easier solution not paying attention to how it would influence their team members, knowing that it is only best for the project, and it is a safer way to act. It could be argued that a good adaptive manager would challenge their team and themselves to take up harder tasks and projects, aim higher for the sake of the team and organizational growth. It also can be assumed that reflection on the outcome of the project itself could be visible - managers with higher levels of self-efficacy and belief in their team can achieve better outcomes of the same project in comparison to those managers who do not believe in themselves of their team. This phenomenon can be seen not only as ones' self-efficacy but also team efficacy (Riopel, 2021).

What is more, researchers also focus on more trait-like general dimensions of self-efficacy through general self-efficacy view (Chen et al., 2001). General self-efficacy is defined as:

One's belief in one's overall competence to effect requisite performances across a wide variety of achievement situations (Chen et al., 2001)

In project management, the belief in competencies that the manager has could affect the overall feeling and work performance in the team. Manager's self-belief can influence how they lead their team and what approaches they choose. Under the light of arising challenges at work, managers self-confidence and in this case, level of self-efficacy could influence whether the manager chooses the adaptive leadership path or tries to keep the old ways of working in their team. The decision making of the leadership style of management could also be connected to another definition of general self-efficacy. GSE is also described as "individuals' perception of their ability to perform across a variety of different situations" (Chen et al., 2001, p. 63). Managers' confidence that they can tackle variety of issues and tasks is also extremely important in terms of ability to manage. If a manager is not confident enough that they can perform a certain task or tackle a certain issue, it can become difficult for them to lead the team through adaptive challenges and processes that follow it. Hence, an assumption can be made that adaptive leader should have high self-efficacy levels.

Analyzing Zimmerman's self-efficacy scale for students and Bandura's general self-efficacy scale, GSE was selected for this research. The general self-efficacy scale appeared to be more relevant due to its nature to analyze the confidence of the individual towards created issues and tasks and ones' belief to accomplish them. Project management as a concept is tightly related to fulfillment of tasks as well as skills

of self-reflection, awareness and self-analysis as mentioned previously in section 3.1, hence general self-efficacy questions focusing on the personal view of individual capabilities fit the concept of self-analysis. Hence, in conclusion to literature review of concepts of leadership, technical and adaptive challenges, adaptive leadership, project management and its' competencies, as well as self-efficacy as a psychological concept of ones' personal confidence, Raei adaptive leadership scale will be analyzed together with General Self-efficacy scale in the context of project management. As the figure below indicates, the variables drawn from the sub-constructs of Raei Adaptive Leadership Scale and GSE scale score relationships will be analyzed.

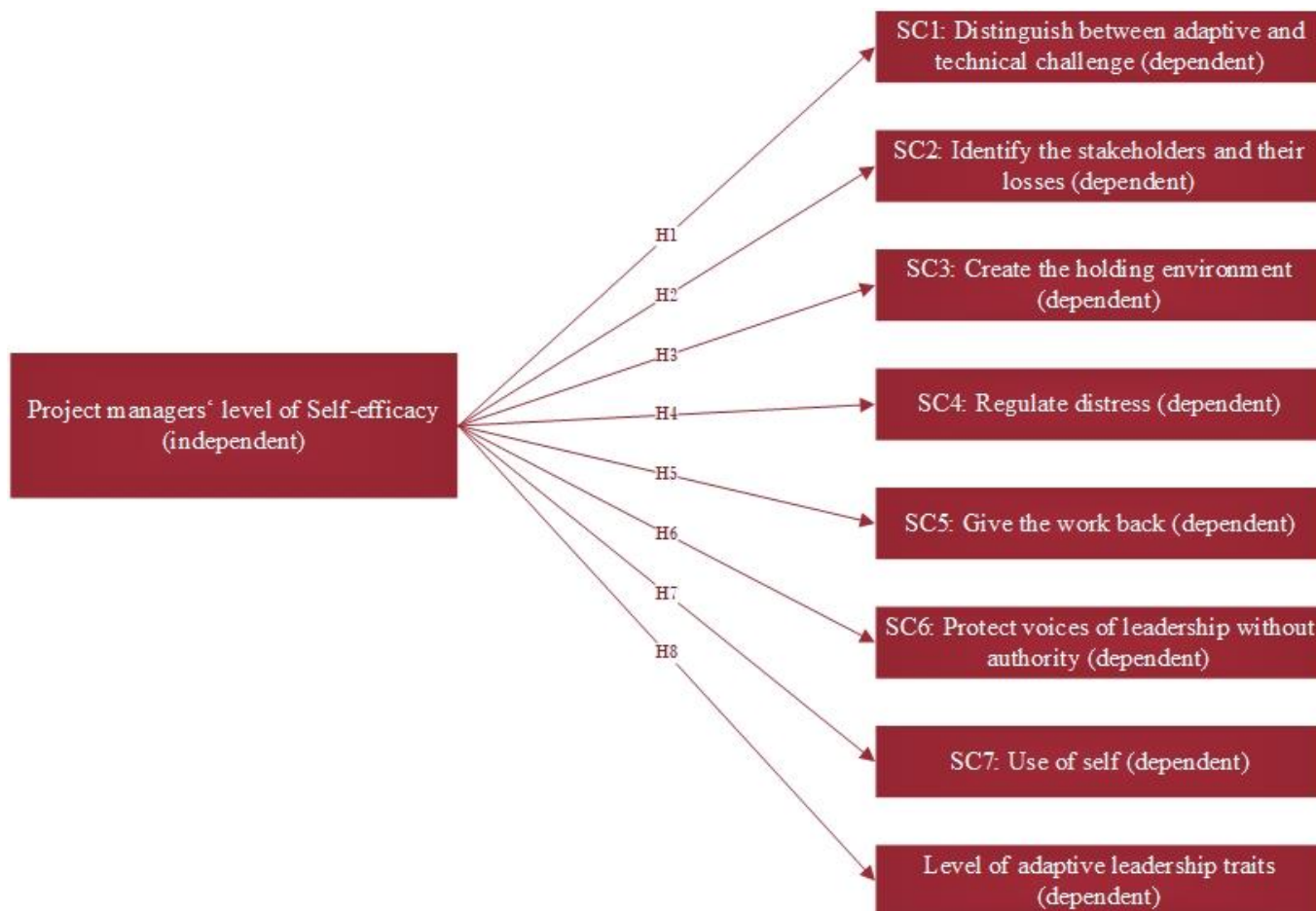


Figure 3: Research variables

In relation to AL and GSE scales, research hypotheses were formed:

H1: Managers' level of self-efficacy has positive impact on their ability to distinguish between adaptive and technical challenges

H2: Managers' level of self-efficacy has positive impact on their ability to identify stakeholders and their losses

H3: Managers' level of self-efficacy has positive impact on their ability to create the holding environment

H4: Managers' level of self-efficacy has positive impact on their ability to regulate distress

H5: Managers' level of self-efficacy has positive impact on their ability to give the work back

H6: Managers' level of self-efficacy has positive impact on their ability to protect the voices of leadership without authority

H7: Managers' level of self-efficacy has positive impact on their general traits necessary for adaptive leaders (use of self)

H8: Managers' level of self-efficacy has positive impact on the usage of adaptive leadership approach

Hypothesis 1 to Hypothesis 7 refer to individual connection between each sub-construct of adaptive leadership scale and project managers self-efficacy score from GSE scale, whilst hypothesis 8 refers to the overall score of the adaptiveness of the leader from all sub-constructs of AL scale in relationship to general self-efficacy score. With the information gathered through the literature review, the analysis of the relationship between aforementioned variables will provide the answer to research question of:

How does the level of self-efficacy impact project managers' capabilities to practice adaptive leadership?

4. RESEARCH METHODOLOGY

4.1. Introduction

In this section of the paper the approach of the research will be explained alongside with the design of the research. Main theoretical parts of the selected designs will be explained as well. Discussion of research methodology will continue introducing the research scope, timeline, and approach.

4.2. Research strategies

4.2.1. Quantitative approach

The methodology of this paper research consists of data analysis via quantitative approach. Quantitative research can be defined as a systematic research of a particular occurrence by collecting quantifiable data and using mathematical and statistical techniques to analyze it (Quinlan & Zikmund, 2015). On the contrary, scholars argue that quantitative approach to the research is not tied to the statistics (Kumar, 2011). Kumar (2011) states that statistics act as a test to confirm or contradict some of the conclusions drawn from the understanding of analyzed data. Statistics also help to quantify the span of relationships between variables as well as identify the effect of different variables on one another (Kumar, 2011). In addition to Kumar's definition, J.W. Crewell and J.D. Creswell (2018) also defines quantitative research as an approach for testing objective theories by the help of relationship among variables examination. What is more, quantitative approach is structured methodology, that has emphasis on greater sample size and brings reliability and objectivity to the study (Kumar, 2011).

4.2.2. Research design

The research instrument for the quantitative method of this research selected is online questionnaire. The survey will be distributed via online platforms such as Facebook, LinkedIn and other modes of communication via internet (personal messages to selected participants via Teams, etc.). This design method was selected because it is found to be relatively inexpensive, can be administered remotely (beneficial under the situation of COVID-19) and the fact that the standardized questions can make the measurements more precise given the fact that adaptive leadership and self-efficacy could be understood very differently among individuals (Creswell & Creswell, 2018). Giving the participants the standardized questions from designed scales, enforces uniform definition among them (Creswell & Creswell, 2018). What is more, online surveys are to have high speed, high anonymity levels as well as higher levels of data received (Kumar, 2011). On the contrary, the disadvantages of survey method arise from inability to control the environment, high risk of incompleteness (the dropout rate will be discussed among the analysis of the data) as well as inaccurate

responses due to participant disinterest which might bring the occurrence of respondent error (Creswell & Creswell, 2018).

What is more, research design survey was selected for this research due to existing self-efficacy and adaptive leadership scales. Adaptive leadership scale designed and tested by Raei (2018) and general self-efficacy scale designed by Bandura. Both scale method of opinion measurement will be based on Likert 5-point scale formed as strongly disagree – neutral – strongly agree scale in order to centralize the responses. The survey will be created using the QuestionPro online tool, due to its ability to create scale-based matrices. The findings and data will be analyzed using SPSS software and excel.

Following the European GDPR policies, statement of confidentiality will be placed at the beginning of the survey to ensure the participants that the data will be confidential and no personal data such as names or place of work will be collected to avoid identification of individuals.

4.2.3. Research sampling

Stratified sampling method was chosen for this research. The selective probability sampling was selected due to the need to identify certain participants for the responses to be relevant to the research questions and hypotheses. As it can be seen in table 3, the selection criteria for the participants were based on age, employment status and project management experience. Prior to creation of the survey, I have done the pre-screening of potential respondents from my circles of work and friends.

Table 3: Rationale for participant selection criteria

Criteria	Rationale
Age	Has some work experience
Employed	Survey is asking about work situations
Project management experience	Survey is asking about project related instances

The strata created for this research was based on the selection criteria, hence, project managers with work experience in the PM field were the description of the strata.

Following the strata criteria, when distributing the survey, I set the filter of project manager position on LinkedIn platform and contacted managers explaining what my research was focusing on and asking them to fill in my survey. The aim of the number of respondents were varying from 100 to 150 respondents. Since there were no studies conducted towards the self-efficacy scales and adaptive leadership scale, it was difficult to find studies that I could refer to in terms of respondent count. I have looked into different

quantitative studies referring to individuals with single type of position at work and drew a conclusion that respondent count between 100-150 could be valid enough for my study.

4.3. Research timeline

After conducting literature review, the online questionnaire was designed based on discovered adaptive leadership scale created by Mohammed Raei and general self-efficacy scale created by Bandura. The questionnaire focus is on the variables identified from Raei Adaptive leadership scale and the General Self-efficacy scale. The general self-efficacy scale was selected among the other scales because it focuses more on the individual traits and beliefs of a person which suits the study well – I want to test if there is any correlation between the level of self-efficacy and adaptive leadership decisions among project managers.

The survey also has a few demographic questions such as age, gender, place of work and project management experience. Added together with the above-mentioned scales, the survey was distributed to 10 close friends and colleagues to test if the survey is clear enough, if the flow of the questions is logical. I have received some criticism regarding wording of the questions and a few suggestions to add more demography-based questions. Taking into considerations the received feedback, I have amended the survey and fixed the logic of it as well. After the amendments were made, I re-sent the survey to a few more friends and colleagues to get another set of feedback. This time, there were no more suggestions made and there were no more errors identified in the survey.

Even before the instrument was finalized, I already had some conversations with potential candidates that would fit my research scope and asked for their help with the survey. I have also looked through my contacts on LinkedIn focusing on those individuals who have positions in project management field, planning to contact them. This pre-screening process was necessary to have approximate numbers of people I could reach out as well to make sure the responses received are well fit for my identified scope of research. Furthermore, I started distributing the survey and having conversations with professionals within my work field and beyond. I have done some research on individuals that work in project management field through LinkedIn and reached out to them asking to fill in the survey. The outcome of this exercise was great – around 40 respondents responded to my messages with a few questions about my study and showed interest in the survey. My close friends and family also helped me to distribute the survey to their circles of connections, so the research has wider spectrum of respondents.

The survey was active for approximately 3 weeks, which gave time for participants to react to my messages and for me to have some more conversations with individuals in my social circles. After 3 weeks, I have reached the target count of respondents and the survey was closed.

Some of the data provided by the survey platform had to be decoded – such as gender, age group and work industry to retrieve the frequencies of the responses. The data analysis was conducted through SPSS and Excel tools with the help of Visio to create visuals for the research. In depth analysis of variables, correlations and regressions took place, which will be discussed further in this research paper, followed by limitations, conclusions and implications.

5. RESEARCH FINDINGS AND RESULTS

5.1. Analysis of demographic indicators

The distributed survey created in QuestionPro platform was viewed 202 times with total responses of 146. 26 of the total responses were incomplete, hence had to be removed from the final count of respondents. After the removal of dropouts, 120 valid responses remained indicating that the completion rate of the survey was 82,19%. As mentioned in the methodology section of this paper, quantitative research method of online questionnaire has the disadvantage of the possibility of number of dropouts due to participant disinterest or other unforeseen events.

Some of the original data retrieved from the survey tool had to be decoded in order to analyze the demographic statistics of the respondents. Data regarding such variables as gender, participant country, work experience and education was adjusted in order to align the answers and prepare the data for statistical analysis. Decoding of data was performed using excel and SPSS tools.

Analysis of basic demographic indicators revealed that 63% of the respondents were female (frequency 76) and 37% were male (frequency 44). The respondent gender distribution could lead to a possible implication of a limitation of the study referring to slight inequality of gender distribution. What is more, as indicated in table 4, the most frequent respondent age groups were aligned between mid-late-20s (25-30) to 30s. The distribution of the age above the age of 25 can be seen logical since the selection criteria of the respondents indicated that they should have some work experience. Project management positions are not entry level positions - hence it takes time for individuals to reach the management positions.

Table 4: Participant age

Age	Frequency	%
Under 25	13	11
25-30	51	43
31-40	36	30
41-50	17	14
51-60	3	3
Total	120	100

Looking into the statistics of participant education, relatively equal distribution among bachelors' (49%) and masters' (44%) degrees can be seen (refer to table 5). Only a few participants had lower education level than college. Referring to the gathered data, it can be stated that the representation of bachelors' and masters' graduates is good, and the analysis of other variables compared to this data can be valid. Another

question referring to one's education level was referring to participant formal project management education with regards to courses, degrees, or trainings. 39% of participants (frequency 47) stated that they have formal project management training, whilst 61% participants (frequency 73) had no such educational experience. I have compared the highest level of education to the formal PM education and according to the findings shown in Figure 4, it can be seen that some individuals that have lower than bachelors' degree education, have some project management training as well, whilst 69% of bachelors' graduates and 53% of masters' graduates have formal PM training. Since project management trainings and courses can also imply to leadership trainings, the findings can be addressed in the light of the statement that leadership can be learnt and leaders are not born (Amanchukwu et al., 2015).

Table 5: Participant education level

Education level	Frequency	%
Did not finish high school	1	1
High school	1	1
College	5	4
Trade/vocational/technical education	1	1
Bachelors' degree	59	49
Masters' degree	53	44
Doctoral degree	0	0
Other	0	0
Total	120	100

Row Labels	Count of Respondent	
<input type="checkbox"/> Bachelors degree	59	
Yes	18	31%
No	41	69%
<input type="checkbox"/> College	5	
Yes	3	60%
No	2	40%
<input type="checkbox"/> Did not finish high school	1	
Yes	1	
<input type="checkbox"/> High school	1	
No	1	
<input type="checkbox"/> Masters degree	53	
Yes	25	47%
No	28	53%
<input type="checkbox"/> Trade/vocational/technical education	1	
No	1	
Grand Total	120	

Figure 4: Highest level of education vs. formal PM training

Furthermore, descriptive demographic statistics of the participant current country of residence indicated that majority of the respondents – 67% are located in Lithuania (frequency 80) followed by 21% respondents from the United Kingdom (frequency 25). Figure 5 below, indicates other few countries that were registered by the participants such as China, Malaysia, Norway, Latvia, and others. Referring to the data collected, it can be stated that this research contains moderate representation of Lithuania and United Kingdom based workers.

Participant work industry and the status of the organization were also a part of the demographic analysis with relatively wide industry spread among the different options. Highest percentage of the participant (23%, with frequency of 28) works in telecommunication field, whilst 18% of participants (frequency of 21) are working under IT related industries (refer to table 6). Evaluating these findings, an assumption can be made that telecommunication and IT sectors are very suitable for this research due to their fast pace and constantly evolving natures. With emerging new technologies and processes, leaders in the aforementioned sectors would have to make difficult decisions and search for adaptive solutions in daily work environment. Both sectors could also be identified as adaptive work environment because there is a constant search for new ways of producing the goods with nowadays scarce resources (for example microchips), hence the assumption of the need for adaptive work can be made. With regards to company operations internationally and locally, 71% of respondents (frequency of 85) indicated that their company operated internationally, whilst 29% (frequency 35) of respondent companies operate locally. The status level distribution can also be claimed as moderate for both, international and local companies.

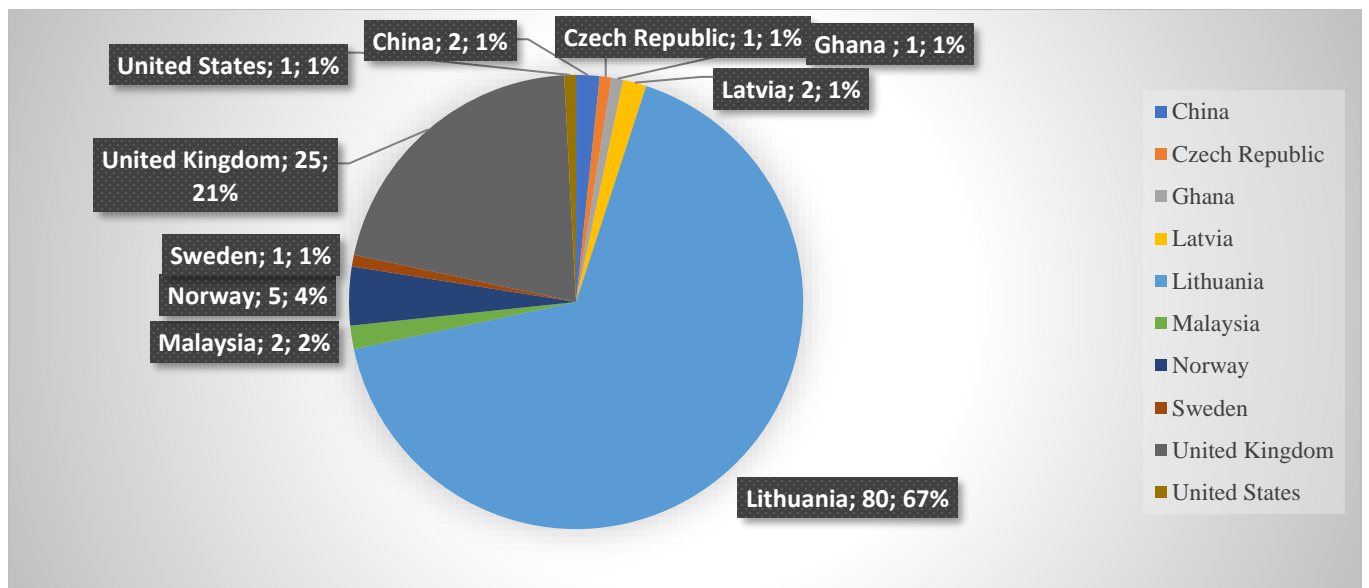


Figure 5: Participants' country of residence

Table 6: Participant work industry

Industry	Frequency	%
Commerce	9	8
Education	4	3
Fashion	1	1
Finance	10	8
Government	3	3
Health care	3	3
Hospitality	8	7
Insurance	1	1
IT	21	18
Manufacturing	4	3
Real estate	2	2
Start-up	3	3
Telecommunication	28	23
Other	23	19
Total	120	100

(Note: please refer to Appendix 4 for industries identified as "Other").

One of the most crucial questions referring to the project management capabilities of the respondent in the questionnaire was the work experience they have in project management field. As it can be seen in table 7, the majority of the respondents – 47% - have 1-5 years of project management experience followed by new project managers with less than 1 year experience (31%). This data can also be analyzed through the correlation between participant age and participant level of education. Run Pearson Correlation analysis between variables of age group and work experience in project management field indicated strong positive correlation of 0,558 (correlation being significant at the 0,01 level). These findings can be identified as logical due to the assumption that the older the participant is, the longer they might have worked with projects. On the other hand, Pearson Correlation run between variables of highest level of education and work experience has shown lower correlation coefficient of 0,153 which can indicate that not all project managers should have some sort of formal training or high levels of education to lead projects and their teams. Project management and leadership skills as well as success in achieving the project management position could be an effect of one's personal strengths and skills, as in this research case, self-efficacy.

Table 7: Years of PM work experience

Years of work experience	Frequency	%
Less than 1 year	37	
1-5 years	56	
6-10 years	15	
More than 10 years	12	
Total	120	100

5.2. Descriptive analysis of variables

5.2.1. Adaptive leadership scale

As indicated before in this paper, Raei Adaptive leadership scale contains 7 sub-constructs that are drawn from 11 questions. The relationship between the questions and the sub-constructs can be seen in figure 6. The identified sub-constructs will act as main variables further in the analysis as well as individual questions and their relevance to the study will be discussed.

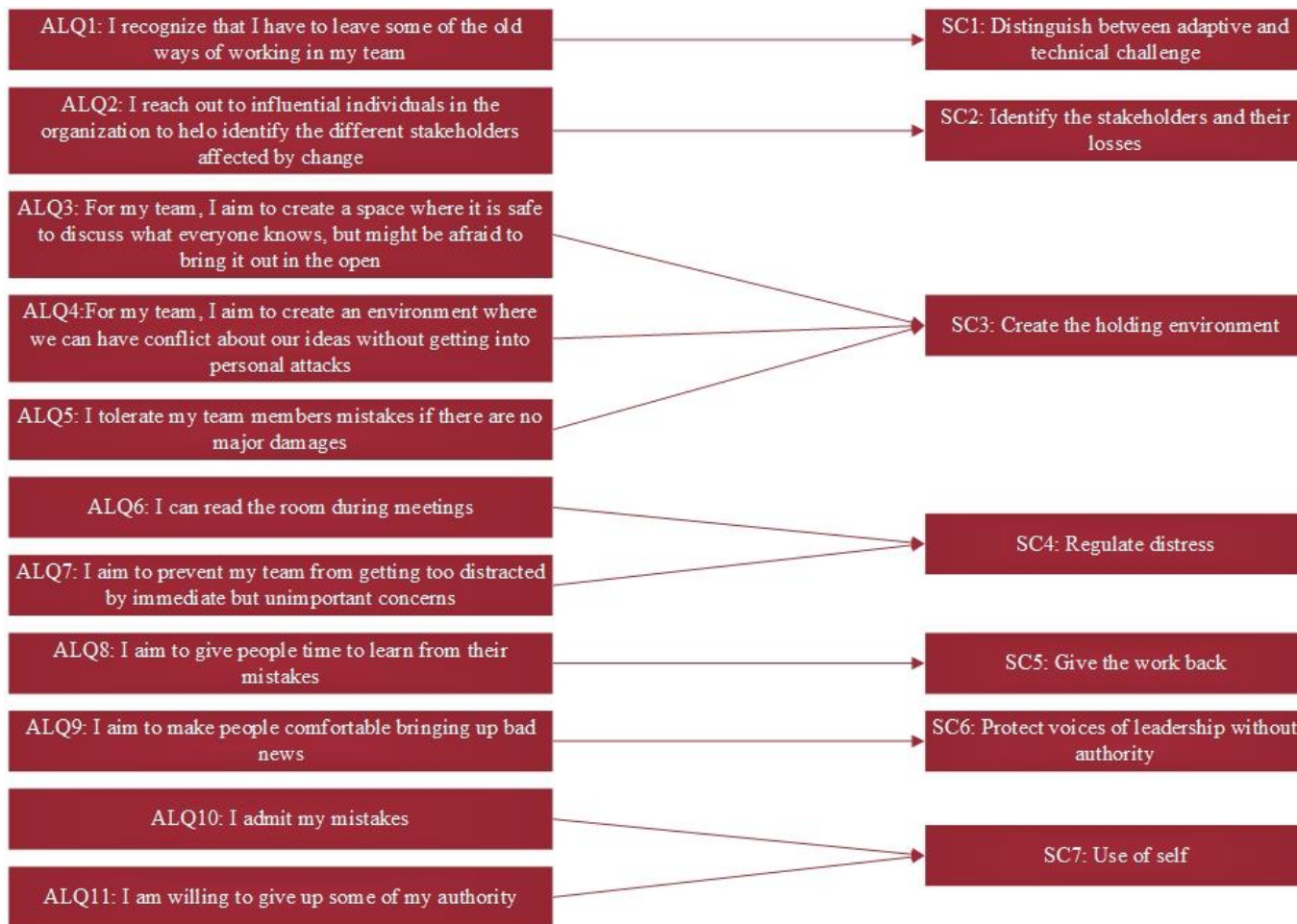


Figure 6: AL scale questions and sub-constructs

First analysis of all the adaptive leadership scale questions indicate that all questions have a variance on means between 3,70 and 4,16 – lowest mean for ALQ1 indicating that there was a tendency between respondents to rate their recognition towards old ways of working slightly lower whilst the highest mean of 4,16 for AQL4 where respondents tend to create a safe environment for conflict without personal effects. Furthermore, analyzing the variability of the data set collected using standard deviation, it can be stated that all the data is relatively closely packed around the mean of the answers. All answers having similar standard deviation around 0,85 to 0,95 with a few exceptions of ALQ2 having the lowest SD score indicating that

most of the participants were selecting answers close to the mean of 3,77. In contrast, ALQ3 with SD indicator or 1,106 indicating the participant answer selection to be more widely distributed around the mean 4,11 (refer to table 8).

Table 8: Descriptive statistics of AL

Variable/sub-construct name	Item	Mean	Standard Deviation	Skewness	Kurtosis
SC1: Distinguish between adaptive and technical challenges	ALQ1: I recognize that I have to leave some of the old ways of working in my team	3,70	0,967	-0,839	0,350
SC2: Identify the stakeholders and their losses	ALQ2: I reach out to influential individuals in the organization to help identify the different stakeholders affected by change	3,77	0,786	-0,512	0,089
SC3: Create the holding environment	ALQ3: For my team, I aim to create a space where it is safe to discuss what everyone knows, but might be afraid to bring it out into the open	4,11	1,106	-1,241	0,854
	ALQ4: For my team, I aim to create an environment where we can have conflict about our ideas without getting into personal attacks	4,16	0,860	-0,877	0,205
	ALQ5: I tolerate my team members mistakes if there are no major damages	4,08	0,900	-1,205	2,002
SC4: Regulating distress	ALQ6: I can read the room during meetings	4,08	0,862	-0,627	-0,316
	ALQ7: I aim to prevent my team from getting too distracted by immediate but unimportant concerns	3,74	0,921	-1,035	1,564
SC5: Giving the work back	ALQ8: I aim to give people time to learn from their mistakes	4,06	0,873	-1,041	1,498
SC6: Protect voices of leadership without authority	ALQ9: I aim to make people comfortable bringing up bad news	3,89	1,035	-1,073	0,887
SC7: Use of self	ALQ10: I admit my mistakes	4,06	0,998	-1,561	2,069
	ALQ11: I am willing to give up some of my authority	3,88	0,927	-0,664	0,013

High skewness and/or kurtosis indicate that the data deviates more from normal distribution (Ho & Yu, 2015). The acceptable values of skewness and kurtosis are below 2,0 and 3,0. Only ALQ5 and ALQ10 contained levels of kurtosis higher than 2,0 which indicates that the platykurtic curve of data has longer tails at both ends of extremes and the peak of the curve is slightly lower and broader (Ho & Yu, 2015). This indicates that there was a tendency among respondents to select the extremes of the scale (1 or 5) whilst answering the questions. Since the ALQ5 refers to tolerating team members' mistakes and ALQ10 refers to ones' mistakes, it can be stated that managers have slightly more sensitive reactions to mistakes and it might be connected to their levels of trust in their team members and themselves. On the other hand, since both discussed measures fit into the frame of acceptable skewness and kurtosis, neither of the measures were removed from the data set.

Same statistical descriptive analysis was run for sub-constructs of AL scale. Mean of questions was calculated for the sub-constructs that contained more than one question and the data portrayed in Table 9 was calculated. SC1, SC2, SC5 and SC6 statistics remained the same due to single questions in the survey referring to the constructs. Whilst other 3 sub-constructs had 2-3 questions each. As it can be seen in the table, SC3 has slightly lower mean than the separate questions but also lower standard deviation rate. This can implicate that there was more of a uniform opinion regarding one or other question among majority of respondents ability to create a holding environment within the team. In contrast, the kurtosis level rose higher to 2,228 indicating that there were a few more extremes at both ends of the scale. Regardless the skewness and kurtosis being more extreme, the variable was not taken out of the research analysis.

SC4 variable containing 2 questions merged, remained relatively steady mean and standard deviation measures. Kurtosis and skewness of the data appeared to be higher, but an implication could be made that due to ALQ6 kurtosis measure being on the negative side (the curve being steeper and with smaller tails at the ends) and ALQ7 kurtosis measure being on the mid-high positive side, the combined data can have a bit flatter rise of the curve with longer tails at both ends of extremes. Similar phenomena can be seen in data referring to SC7 – ALQ10 having high kurtosis measurement, whilst ALQ11 showing low kurtosis levels resulted in SC7 sub-construct showing still relatively high level of kurtosis. What is more, standard deviation level fell, indicating that the responses were clustered around the mean more.

Table 9: Descriptive statistics of AL sub-constructs

Variable/sub-construct name	Mean	Standard Deviation	Skewness	Kurtosis
SC1: Distinguish between adaptive and technical challenges	3,70	0,967	-0,839	0,350
SC2: Identify the stakeholders and their losses	3,77	0,786	-0,512	0,089
SC3: Create the holding environment (mean)	4,06	0,790	-1,225	2,228
SC4: Regulating distress (mean)	3,856	0,723	-1,050	1,933
SC5: Giving the work back	4,06	0,873	-1,041	1,498
SC6: Protect voices of leadership without authority	3,89	1,035	-1,073	0,887
SC7: Use of self (mean)	3,922	0,827	-1,210	1,835

All in all, all measurements of questions and sub-constructs indicate negative skewness which shows that the left tail of the distribution curve is longer and fatter on the right side. This indicates that less individuals chose low extremes of the scale and higher numbers of participants chose high scale indicators, hence the mean and the median of the analyzed data are less than the mode. What is more, most of the skewness indicators are between -1 and -0,5 which indicates that the data is moderately skewed, with some exceptions of data that had less than -1 skewness indicator which entices that the data is highly skewed (Doane & Seward, 2011). Tendency among the sub-construct analysis can be seen, that the skewness factor is higher for the variables calculated by the mean of multiple questions, which shows that there are more variations between the data (Doane & Seward, 2011).

5.2.2. Self-efficacy scale

To answer the research question of “How does the level of self-efficacy impact project managers’ capabilities to practice adaptive leadership?” self-efficacy scale has to be analyzed as well. Descriptive statistics analysis run for SE scale indicate that most question mean is equal to 4 or slightly higher, except for SE question 7 with 3,94 indicating that respondents had slightly lower belief in themselves compared to other people. With regards towards the overall score of SE (combined scores of all 8 questions per individual), the mean is high with reference to total score of 40 (refer to table 10). Standard deviation of all individual questions is low, indicating that the answers of the participants are closely clustered around the

mean, whilst the SD of total score of SE is higher compared to the individual questions, but due to higher mean and the variance indicator of 17,958, the SD value of 4,238 is considered fine. The frequency of the lowest scores of SE scale from 20-27 is only 10 out of 120 participants. The supporting values of curve kurtosis metric also indicates that the data curve contains lower peak and there are only a few extreme values. Skewness value of total SE score also indicate that data is symmetrical (Doane & Seward, 2011).

Table 10: Descriptive statistics of SE scale

Item	Mean	Standard Deviation	Skewness	Kurtosis
1. I believe I will be able to achieve most of the goals that I have set for myself	4,16	0,722	-0,794	1,017
2. When facing difficult tasks, I am certain that I will accomplish them	4,00	0,830	-1,076	2,023
3. In general, I think that I can obtain outcomes that are important to me	4,32	0,622	-0,337	-0,640
4. I believe I can succeed at almost any endeavor to which I set my mind to	4,12	0,822	-0,498	-0,626
5. I believe I will be able to successfully overcome many challenges	4,13	0,762	-0,910	1,115
6. I am confident that I can perform effectively on many different tasks	4,00	0,830	-0,538	-0,211
7. Compared to other people, I can do most tasks very well	3,94	0,843	-0,145	-1,033
8. Even when things are tough, I can perform quite well	4,08	0,717	-0,263	-0,560
Total SE score	32,74	4,238	-0,202	-0,144

5.3. Research question

To answer the research question of “How does the level of self-efficacy influence project managers’ capabilities to be an adaptive leader?” analysis between 7 variables of AL scale sub-constructs have to be analyzed. The sub-constructs can also be described as project managers capabilities to follow adaptive leadership method traits. The analysis of the relationship between sub-constructs and level of self-efficacy will also show the results of consistency with hypotheses 1 to 7.

5.3.1. SC1: Distinguish between adaptive and technical challenges vs. self-efficacy score

Linear regression analysis between the dependent variable of SC1 and independent variable of the level of self-efficacy was run using SPSS software. The Pearson correlation (and R value) between the two

variables was found very low at the rate of 0,036. The rate shows positive but very low, hence insignificant correlation between the two values. This outcome of data analysis can lead to the statement that the level of self-efficacy of the project manager might have very low to no effect on their ability to distinguish between adaptive and technical challenges in work environment. What is more, linear regression model summary indicated that the R Square value is only 0,001 which indicates that only 0,1% of the variability in the dependent variable (SC1) can be accounted for by the level of SE. The adjusted R Square value is even lower at -0,07 hence the accountability of the variable is statistically low. Furthermore, the coefficient analysis of the linear regression indicated that by increasing the level of self-efficacy by 1 point, the score of adaptive leadership sub-construct of ability to distinguish challenges rises by only 0.008 point (Figure 7). The intercept (constant) value of the axes between the two variables indicated that at the SE level of 0, the SC1 variable holds the measure of 3.429 which is considered close to the mean of all SC1 responses analysis (3.70).

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3,429	,693		4,949	<,001	2,057	4,801
	SE score	,008	,021	,036	,395	,694	-,033	,050

a. Dependent Variable: SC1 Distinguish between adaptive and technical challenges

Figure 7: Coefficients of SC1 and SE linear regression

According to Heifetz & Laurie (2001), adaptive challenges are difficult to identify and often can be easily denied. It also requires change in one's beliefs, challenging the set values and relationships among individuals (R. A. Heifetz & Laurie, 2001). On the other hand, identifying the adaptive challenges require managers to be willing to interact with other people, invite them to participate in the search of the problem solution and creating the team to tackle the arisen issue (Raei, 2018). While self-efficacy as a measure refers to individuals' belief in their capabilities to organize and execute the course of actions (Riopel, 2021), the analyzed data implicates that for the task of identifying challenges, managers' belief in their capabilities does not have significant effect. There is an insignificant positive relationship between identification of challenges and level of self-efficacy $r(118) = 0.036$, $p = 0.694$, hence the test results are inconsistent with hypothesis 1 - *Managers' level of self-efficacy has positive impact on their ability to distinguish between adaptive and technical challenges.*

5.3.2. SC2: Identify the stakeholders and their losses vs. self-efficacy score

The linear regression analysis between second set of variables of SC2 and SE score indicated that Pearson correlation (and R value) is positive and significant. The value of $r(118) = 0.222^{*1}$, $p = 0.015$ shows significant and positive relationship between SC2 and SE score variables. Regardless the significance of the data, the R square value indicates that only 4.9% (adjusted value 4.1%) of the variability in the dependent variable SC2 can be accounted by the level of SE (figure 8). The unstandardized B value of the linear regression indicates that increasing the level of self-efficacy of the manager, 0.041-point increase of their ability to identify the stakeholders and their losses can be expected. This data indicator can be seen as minor change but compared to the SC1 variable it is significantly higher. What is more, since the SC2 scale contains only values from 1 to 5 and SE combined scale contains values from 8 to 40, 0.041 increase of SC2 by each point of SE can have high influence on the variable.

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2,422	,549		4,408	<,001	1,334	3,510
	SE score	,041	,017	,222	2,467	,015	,008	,074

a. Dependent Variable: SC2 Identify the stakeholders and their losses

Figure 8: Coefficients of SC2 and SE linear regression

The intercept (constant) value of the linear regression is 2.422, which is lower than the mean of SC2 (3.77) which indicates that the respondents must have some level of self-efficacy to reach the mean value of the ability to identify stakeholders and their losses. The scatter plot of these 2 variables also shows the tendency of the level of SC2 increasing in accordance with the SE score. Although, there are some answers outside of the considered normal variance (refer to figure 9). The linear indicator is not considered steep, but it is gradually increasing as the SE score increases. With reference to the definition of what the identification of stakeholders and their losses imply to, it can be stated that managers need some level of confidence and effectiveness with their tasks in order to be able to solicitate everyone's input (Raei, 2018). The test result analysis and the p value of 0.015 indicates that the data is consistent with hypothesis 2 - *Managers' level of self-efficacy has positive impact on their ability to identify stakeholders and their losses.*

¹ *Correlation is significant at the 0.05 level (2-tailed)

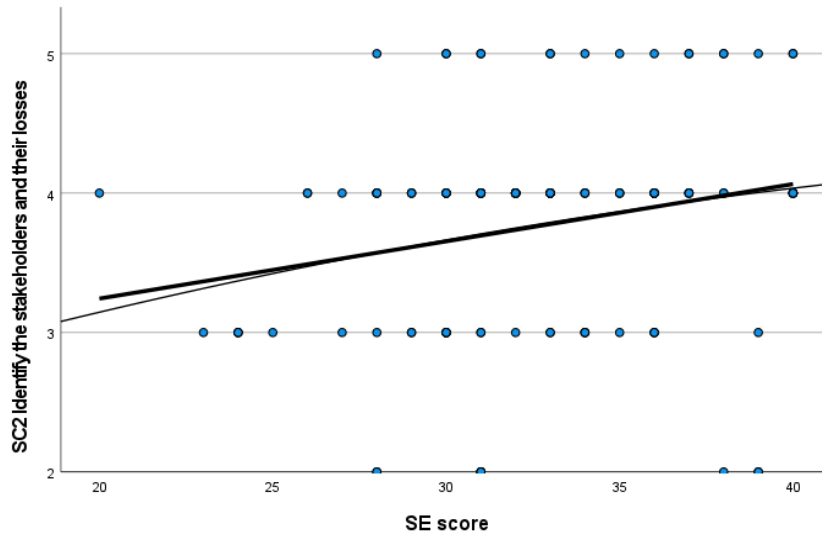


Figure 9: SC2 and SE score scatter plot

5.3.3. SC3: Create holding environment vs. self-efficacy score

SC3 (create holding environment) and SE score analysis indicated that there is a significant positive correlation between the two variables – $r(118) = 0.243^{*2}$, $p=0.007$. According to the R square value, in this data set, 5.9% (adjusted value 5.1%) of variability of the dependent variable (SC) can be accounted for by the level of SE. Furthermore, the intercept (constant) value between the SC3 and SE score is 2.575 (figure 10) which compared to the mean of SC3 of 4.06 is significantly lower. This implies, that managers having high level of abilities to create the holding environment for their employees, hold a moderate level of self-efficacy. On the other hand, the unstandardized B value indicates that by 1 point of level of SE, the SC3 variable rises by 0.045. With the same implication mentioned in section 5.3.2, due to differences between the measurements and scales, the 0.045 measure is considered high. What is more, the histogram of the frequencies of the dependent variable is considered normal and well distributed with a few peaks at the left tail (figure 11).

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95,0% Confidence Interval for B	
	B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	2,575	,550	4,683	<,001	1,486	3,664
	SE score	,045	,017	,243	,007	,012	,078

a. Dependent Variable: SC3 Create the holding environment mean

Figure 10: Coefficients of SC3 and SE linear regression

² *Correlation is significant at the 0.01 level (2-tailed)

Due to the sub-construct focus on the more emotional management and requires encounters with the team from more personal level, it can be stated that level of self-efficacy of the manager has impact on their ability to create the holding environment. Hence the analysis conducted, alongside with the p value of 0.007, the data can be claimed consistent with the hypothesis 3: *Managers' level of self-efficacy has positive impact on their ability to create the holding environment.*

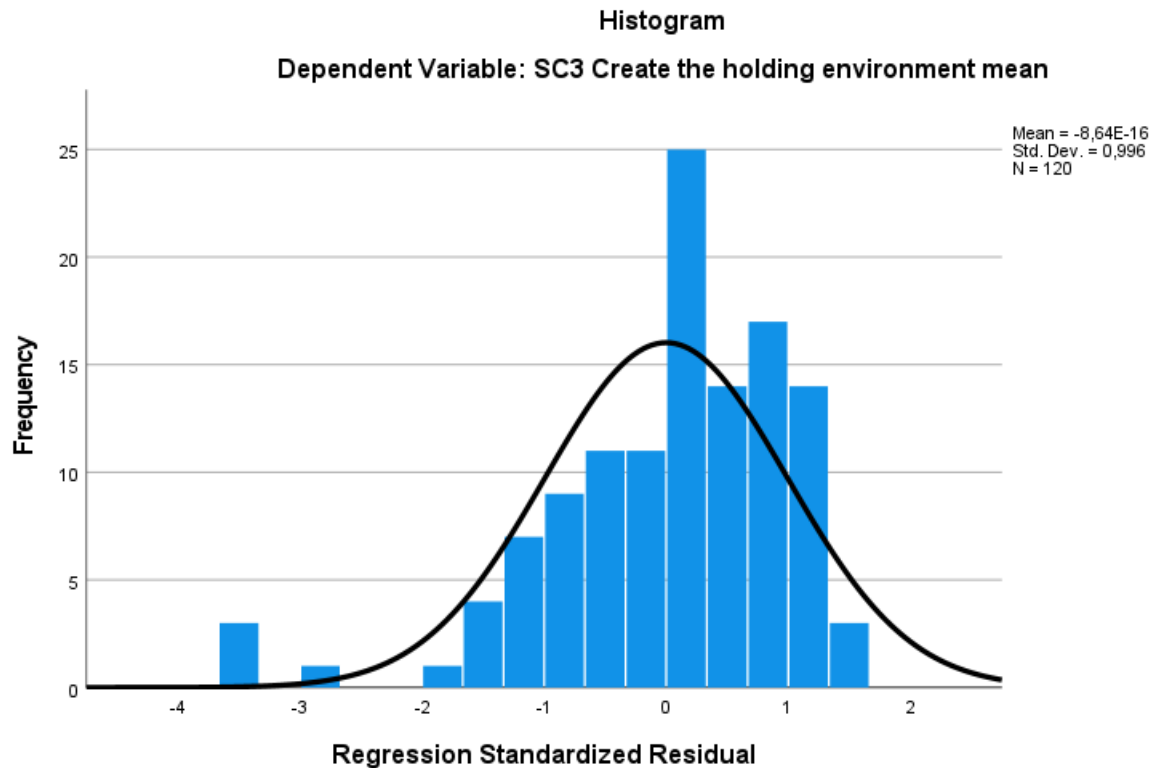


Figure 11: SC3 linear regression histogram

5.3.4. SC4: Regulating distress vs. SE score

Pearson correlation between managers ability to regulate distress and their self-efficacy score is significant and positive with $r(118) = 0.419^{*3}$, $p < 0.001$. The linear regression model summary R squared rate indicates that 17.6% (adjusted rate 16.9%) of SC4 variability can be accounted for with the relationship of SE score, which is the highest of all the data sets analyzed. What is more, the intercept value of the dependent variable against the SE score is only 1.513 which is 2.7 times lower than the mean of SC4. This indicator shows that high levels of self-efficacy must be held by the manager for the ability to regulate distress in their projects. The unstandardized B value against SE score indicates that each point of SE score measurement increases the SC4 measure by 0.072 (figure 12). The sub-construct of regulating distress requires managers to remain “cold” in heated situations and act the role of the figure team members can

³ *Correlation is significant at the 0.01 level (2-tailed)

rely on, hence it requires a lot of individual strength and belief in oneself. The assumption of the need for strong self-belief level as well as the statistical indicator of p value <0.001 allows to state that data analyzed, and findings drawn are consistent with hypothesis 4: *Managers' level of self-efficacy has positive impact on their ability to regulate distress.*

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,513	,471		3,215	,002	,581	2,445
	SE score	,072	,014	,419	5,018	<,001	,043	,100

a. Dependent Variable: SC4. Regulating distress (mean)

Figure 12: Coefficients of SC4 and SE linear regression

5.3.5. SC5: Giving the work back vs. SE score

Linear regression analysis of SC5 – managers ability to give the work back and SE score shows significant positive correlation of $r(118) = 0.322^{*4}$, $p < 0.001$. The squared R rate indicates that 10.4% (adjusted rate 9.6%) of the variability of the dependent variable can be accounted for by the SE score. The intercept (constant) point between SC5 and SE score is slightly higher compared to SC4 relationship with SC score, but still significantly lower than the mean of SC5 (mean 4.06, intercept point 1.885) (figure 13). Similar to SC4, sub-construct 5 refers to more personal skills of the manager that is needed to make decisions when to step away from the daily small tasks, micromanaging and letting the team to use their knowledge and skills to tackle the problem. Although the unstandardized B value of the coefficients from the regression analysis indicates that for each point of SE score increased, the measure of SC5 increases only by 0.066 point, it can be seen significant. The relationship between personal skills needed and efficiency of the manager with regards to giving the work back to the team members, alongside with the statistical value of $p < 0.001$, it can be stated that the findings of the data are consistent with hypothesis 5: *Managers' level of self-efficacy has positive impact on their ability to give the work back.*

⁴ *Correlation is significant at the 0.01 level (2-tailed)

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,886	,592		3,183	,002	,713	3,059
	SE score	,066	,018	,322	3,698	<,001	,031	,102

a. Dependent Variable: SC5. Giving the work back

Figure 13: Coefficients of SC5 and SE linear regression

5.3.6. SC6: Protect voices of leadership without authority vs. SE score

SC6 (protecting the voices of leadership without authority) and SE score analysis indicated that there is a significant positive correlation between the two variables – $r(118) = 0.0258^{*5}$, $p=0.004$. According to the R square value, in this data set, 6.6% (adjusted value 5.9%) of variability of the dependent variable (SC) can be accounted for by the level of SE. The unstandardized B value indicates that by 1 point of level of SE, the SC6 variable rises by 0.063, while the intercept (constant) value between the SC6 and SE score is 1.829 (figure 14) which compared to the mean of SC6 of 3.89 is significantly lower. This sub-construct, referring to managers ability to stand for their team, making sure that the voices of “unofficial” leaders are also heard, shows significant need for a higher score of self-efficacy of the manager. The low p value of 0.004 alongside with the assumptions for the need of high level of self-efficacy allows to determine that the findings are consistent with the raised hypothesis 6: *Managers’ level of self-efficacy has positive impact on their ability to protect the voices of leadership without authority.*

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,829	,717		2,549	,012	,408	3,250
	SE score	,063	,022	,258	2,899	,004	,020	,106

a. Dependent Variable: SC6. Protect voices of leadership without authority

Figure 14: Coefficients of SC6 and SE linear regression

5.3.7. SC7: Use of self vs SE score

Pearson correlation statistics of the relationship between SC7 (use of self) and managers level of self-efficacy show significant positive correlation $r(118) = 0.334^{*6}$, $p<0.001$. R squared value indicate that 11.2% (adjusted 10.4%) of variability of dependent variable SC7 can be accounted for by SE score.

⁵ *Correlation is significant at the 0.01 level (2-tailed)

⁶ *Correlation is significant at the 0.01 level (2-tailed)

The coefficients value of unstandardized B indicate that each additional point acquired through the SE score brings an extra 0.065 point raise towards the use of self sub-construct of adaptive leadership scale. Intercept (constant) value of 1.788 indicates that the due to the sensitive and highly personal skills needed for the use of self construct requires relatively high levels of self-efficacy of managers (figure 15). The skills of listening, and as mentioned in description of sub-construct of regulating distress, the ability to control the emotions in difficult situations are highly related to one's self-efficacy levels. That is why, the data analyzed is aligning with hypothesis 7: *Managers' level of self-efficacy has positive impact on their general traits necessary for adaptive leaders (use of self)*.

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1,788	,559		3,200	,002	,681	2,894
	SE score	,065	,017	,334	3,851	<,001	,032	,099

a. Dependent Variable: SC7. Use of self (mean)

Figure 15: Coefficients of SC7 and SE linear regression

5.3.8. Total Adaptive leadership scale score vs. self-efficacy score

Lastly, the relationship between the mean of participant adaptive leadership score and the level of self-efficacy was analyzed using correlations and linear regression model. Pearson correlation run between the mean of adaptive leadership sub-construct scores and SE score indicated significant positive correlation $r(118) = 0.352^{*7}$, $p < 0.001$. The findings indicate that the variable of AL score has significant dependencies towards self-efficacy level of the manger. What is more, the model summary of the linear regression indicates that 12.4% (adjusted R square 11.7%) of the measures of AL can be accounted for by SE score. The percentage can be seen as low, but compared to other variables in the data set, the percentage is significant. Furthermore, the intercept (constant) value is at the low of 2.174 between the variables indicating that the total level of AL of a manager is relatively low when they hold level of 0 points of self-efficacy (figure 16). Since the mean of total AL score is at 3.870, the intercept value is 1.78 times lower, which indicates that if the manager wants to reach the average level of adaptive leadership score, they must contain some level of self-efficacy. The unstandardized B value for the SE score against AL mean indicates that for each point of SE score, the AL level increases by 0.052.

⁷ *Correlation is significant at the 0.01 level (2-tailed)

What is more, it is important to look into the histogram of the distribution of the residuals between the two variables. As it can be seen in Figure 17, the histogram of standardized residuals is spread moderately equally which together with the standardized residual P-P plot (Figure 18) indicates that the validity of the data analyzed is high. The data is closely clustered around the residual line with no extreme deviations from the tendency, which indicates that the data is consistent with the sample from a normal distribution.

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2,174	,418		5,196	<,001	1,346	3,003
	SE score	,052	,013	,352	4,088	<,001	,027	,077

a. Dependent Variable: AL mean

Figure 16: Coefficients of AL mean and SE linear regression

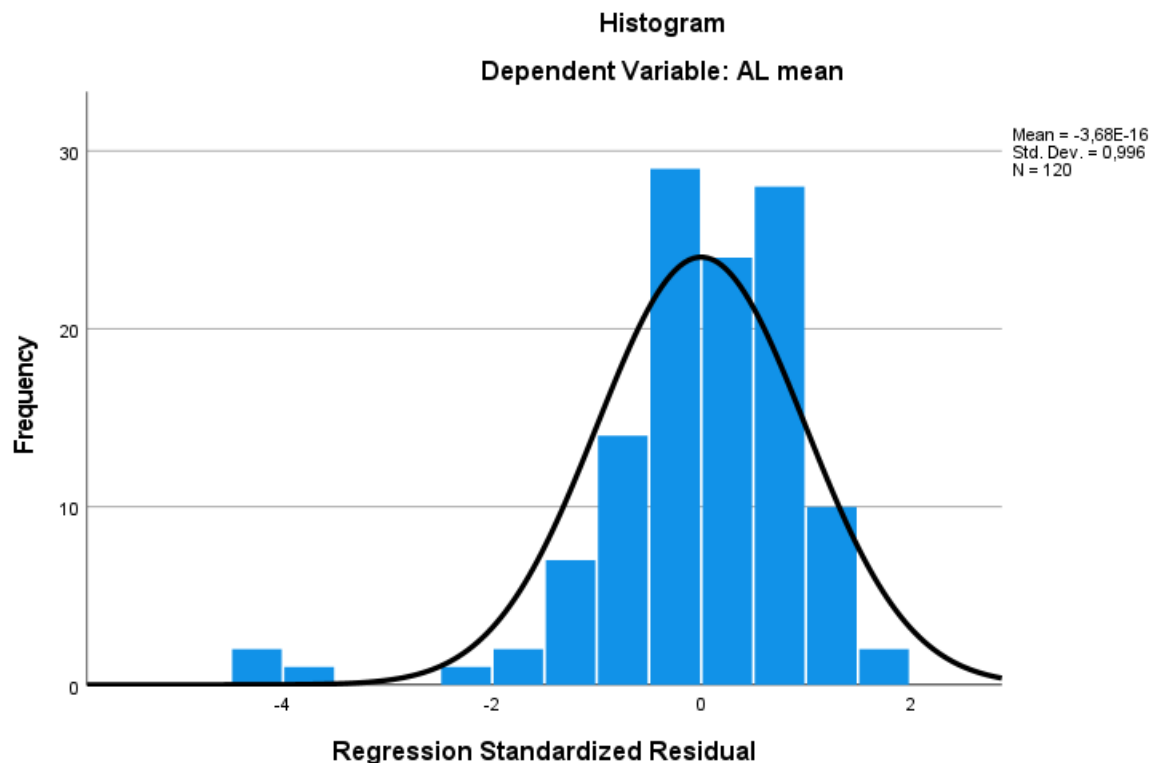


Figure 17: Histogram of regression standardized residual

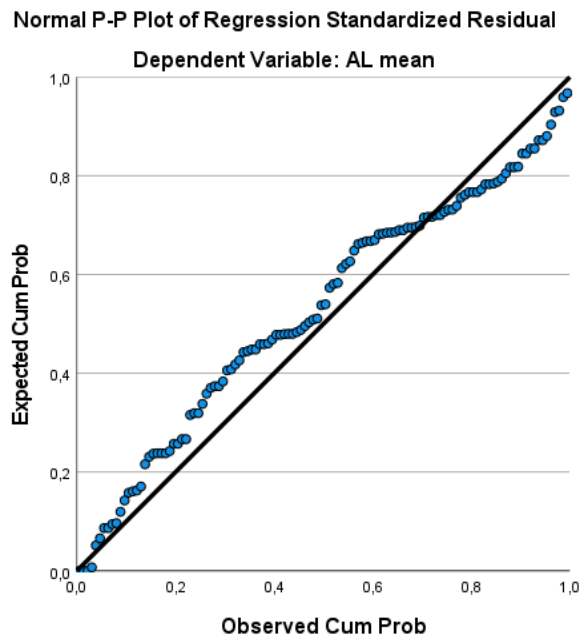


Figure 18: P-P plot of regression standardized residual

With the reference to the validity of the data, the p value of <0.001 and the overall importance of the self-efficacy towards AL indicators discussed in previous parts of the analysis, the conclusion for the hypothesis 8 can be drawn:

H8: Managers' level of self-efficacy has positive impact on the usage of adaptive leadership approach is supported by the alignment of the data set and analysis. The further discussion and interpretation of the analysis will be provided in the next section of the paper.

6. DISCUSSION AND RECOMMENDATIONS

Adaptive challenges are proven to be difficult to identify and complicated to solve. The leader tackling adaptive challenges must contain an in depth understanding of the issue arisen as well as manage the resistance that can come from the implementation of the adaptive solution towards the challenge. These tasks are proven to be difficult to fulfill without the strong personality and project management skills. Since the adaptive leadership concept is still in its maturing stage, scholars have not provided many answers what exact skills the adaptive leader should hold in terms of their emotional traits such as self-efficacy analyzed in this paper. As per the analysis of the data and supported majority of the hypotheses, self-efficacy and adaptive leadership in project management should be analyzed together as complimenting variables to one another. Literature has indicated that there is a strong relationship between self-efficacy and project management from the perspective of performance, but this study also indicates that there is a relationship between managers self-efficacy and their ability to practice adaptive leadership, not necessarily taking into account only the results of the project. Management belief in their level of competences that can be tied to the adaptive leadership competencies has impact not only on the performance of the project, but the overall feeling and work performance of the team.

6.1. Summary of key findings and interpretation

Given the relationship analysis between the self-efficacy trait of project manager and their ability to distinguish between adaptive and technical challenges, it can be stated that due to the possibility of the distinction process itself being more of a strategic work, high levels of self-trust and efficiency are not needed from the manager. The distinction of adaptive challenge as a concept is rather difficult due to the lack of knowledge regarding the concept itself. The level of self-efficacy does not refer to ones' level of knowledge or education, hence there is no strong relationship seen between the variables. In contrast, it is important for the manager to be able to see the differences between what can be solved in the old technical ways, but the specifics of the identification process do not require the manager to come up with an adaptive solution on the spot. Some criticism regarding the adaptive leadership scale question for the identification of technical and adaptive challenge can also be portrayed. The question itself of "*I. I recognize that I have to leave some of the old ways of working in my team*" might also be misleading to the respondents. The respondents could focus more on the technical work that their team works with on the daily basis and even when change is encountered, some of the old ways of working need to remain in the work environment. What is more, referring to the perspective competence area of project management, the leader should have the knowledge of the organizational structure and the processes of projects in order to identify the type of challenge they are facing. These knowledge-based skills might have some influence on ones' belief in their

abilities and competences but does not act as a significant indicator. In contrast, whilst analyzing the people competences of the project management, leaders should have the mind set of thinking outside the box as well as the ability to see the big picture of the project from the balcony (the helicopter view). These traits can also be related to the identification of technical and adaptive challenges, but it also could relate to the regulation of distress by providing potential solutions and ideas toward the project, so the competence of having a helicopter view could be re-adjusted and transferred to the discussion towards other sub-constructs of adaptive leadership due to the research results indicating that there is close to 0 correlation between AL sub-construct of identifying technical and adaptive challenges and SE score. Hence, even though the description by Raei (2018) of the ability to distinguish between adaptive and technical challenges indicated that it is related to managers willingness to invite others to solve the challenge as well as creating the team for it, evidence of this research suggests that the managers belief in their own capabilities does not have high level of impact towards adaptiveness of their leadership.

Furthermore, conducted research indicates that there is high positive relationship between ones' self-efficacy traits and the ability to identify the stakeholders and their losses when encountering change. The stakeholders are crucial part of projects, and its management should pay close attention to their wants, needs and communication with them. The solicitation part of the project manager towards project stakeholders requires numerous soft skills of communication, people management and resilience (IPMA, 2015). The ability to communicate well with the stakeholders, see and understand what specific outcomes of the project can leave negative impact on the stakeholder require the manager to hold strong belief in their own skills. Since self-efficacy focuses more on the estimation of what the individual can achieve with their possessed skills instead of the identification of necessary skills for the task needed, project managers can hold different soft skills that can help them with stakeholder management. What is more, communication with stakeholders can also be tied to one of the most crucial parts of adaptive leadership – preventing the individuals from change avoidance. Just as adaptive leaders work with their teams, in project management, stakeholders outside of the team frame can also be individuals that need managerial attention and support. Managers can act as the leaders for outside stakeholders and encourage them to face the changes instead of avoiding them. To deal with team members and stakeholders' avoidance of uncertainty, the project managers should have strong confidence in their own abilities, hence level of self-efficacy comes in place. Furthermore, project managers, as adaptive leaders, are often needed to take place of the mediator within and outside their teams. In the perspective of stakeholders, managers sometimes also have to push them to achieve the necessary results and that is where the competence of project management of resilience is

needed. Resilient individuals could display shorter recovery time after a setback or do not have the setback time at all (Raei, 2018), which is one of the crucial points of individual self-efficacy.

Complex Adaptive Leadership theory also implies that many complex nowadays organizations depend of interactions with their stakeholders, which indicates the importance of the adaptive leadership construct of stakeholder management (Kowch, 2013). Due to the decentralization of many companies, the role of leader as a position has lost some of its value and status. In the case of project management, the manager can sometimes tend to focus on unimportant things to maintain the status among the employees, try to stay on top of everything and have the fear of letting go. These actions can cause unnecessary stress of leadership that, in my opinion, could be avoided with higher levels of self-confidence and self-efficiency, in other words – self-efficacy. Under the task of identifying and managing stakeholders, an adaptive leader could also start focusing on too many unnecessary things, start playing charades with the stakeholders trying to identify their needs and wants without actually trusting the process they have chosen to tackle the challenge. That is why, the confidence not only in themselves, but also towards their decisions is crucial for this part of adaptive leadership approach. Summarizing the implications drawn from the previous research conducted combined with this research results of significant correlations (Table 11), the relationship between stakeholder management and identification of their losses is proven to be positive with managers self-efficacy level.

Table 11: Pearson correlation scores

AL sub-construct vs. SE score	Pearson correlation score
SC1: Distinguish between adaptive and technical challenges	0.036
SC2: Identify the stakeholders and their losses	0.222* ⁸
SC3: Create the holding environment	0.243** ⁹
SC4: Regulate distress	0.419**
SC5: Give the work back	0.322**
SC6: Protect the voices of leadership without authority	0.258**
SC7: Use of self	0.334**
Total AL score	0.352**

⁸ *Correlation is significant at the 0.05 level (2-tailed)

⁹ **Correlation is significant at the 0.01 level (2-tailed)

Interpreting the data gathered towards the adaptive leadership sub-construct 3: create the holding environment, wider range of data and potential factors affecting the data were included. As mentioned before, the sub-construct 3 contained 3 different questions in the scale:

ALQ3: For my team, I aim to create a space where it is safe to discuss what everyone knows, but might be afraid to bring it out in the open

ALQ4: For my team, I aim to create an environment where we can have conflict about our ideas without getting into personal attacks

ALQ5: I tolerate my team members mistakes if there are no major damages

As the definition of the sub-construct states, the focus of it is to create a safe and open-minded environment for the team to share their ideas and concerns. The correlation between the two variables (Table 11) of the analysis states that there is a significant positive correlation and literature, and previous research can support the statement as well. Even though the third sub-construct portrays some similarities with the sub-construct 1 (distinguish between adaptive and technical challenges) in terms of team leading and team creation, the sub-construct 3 focuses more on the emotional side of the team management and creation of safe and comfortable environment. The people competence of project management indicates that project managers should hold the skills of ability to use different ways of communication in vast range of situations, be empathetic active listeners (IPMA, 2015). These soft skills can be connected to the managers level of self-efficacy through the relationship of managers confidence that they can control the environment and they have the necessary skills to listen to and help their team members. As mentioned before, high levels of self-efficacy might not refer to actual acquired skills, but the usage of existing ones hence such skills as empathy and active listening might be skills that the manager will not learn but have genuinely from the passion and drive to understand their team and create a safe space for them. On the other hand, in the scenario of conflict within the team, negotiation skills might be necessary for the manager. An assumption can be made, that the actual skill of negotiating with different individuals might not be a natural skill that one might have, but it could be acquired. In this case, if the manager does not have the ability to negotiate, and in the SC3 case, mediate between team members in the encounter of conflict, the level of self-efficacy might not be a pivotal point in managers behavior.

Regulating the level of distress (SC4) indicated the highest correlation between in contrast to self-efficacy levels of the manager (Table 11). The sub-construct created from two questions – *ALQ6: I can read the room during meetings* and *ALQ7: I aim to prevent my team from getting too distracted by*

immediate but unimportant concerns resulted in significant positive correlation results. The second question of the sub-construct referring to unimportant and immediate concerns could also be added to the analysis of the complex adaptive leadership theory in terms of the manager themselves not focusing on too many unimportant things as well as leading by example and encouraging their teams to focus on the big picture and the tasks they are working on through the course of the project. The manager would not necessarily have to tell their team to stop focusing on some tasks but as regulating distress sub-construct indicates – lead them with encouragement and support, providing suggestions for possible solutions to tackle the adaptive challenge. Project management people competence indicates that it is important for managers to stay “cold” and calm in heated and stressful situations, hence referring to the complex leadership theory as well, leaders should not create unnecessary leadership stress for themselves in order to be the trustworthy and accountable manager for their team. The stress resistance and resilience of the manager are heavily impacted by the managers personal abilities and the way they feel and trust themselves. Furthermore, taking the arisen stressful situations in the project, managers should also evaluate the situation and sometimes take the risk to increase the heat of the situation or reduce it. The action of increasing the heat in the situation might also be needed in terms of motivating the team or to slightly pressure the team to prevent uncertainty and work avoidance. In some cases, team members could rely on their managers too much, expecting them to always lead the way and take control, hence team members could start avoiding taking their own decisions and working with the adaptive challenge. That is why, following the adaptive leadership approach, managerial task to regulate distress could go both ways – cooling the situation down when necessary to avoid harming the team, but also increasing the level of heat when needed to push the team to fulfill the task up to their potential. Previous research indicates that managers with higher levels of self-efficacy can address stressful situation with more ease and as mentioned before, could have a shorter setback time. This statement compliments the data analysis results indicating that not only the correlation between the variables is strong, but also as shown in Figure 12 analyzing the intercept value of SC4 and SE when SE is 0, in order to reach a moderate ability to regulate distress, managers should hold high levels of self-efficacy.

Adaptive leadership sub-construct of giving the work back can also be related to sub-construct 3 on the level of team member mistake management. Sub-construct 5 (give the work back) refers to the ALQ8 – *I aim to give people time to learn from their mistakes*. In contrast to sub-construct 3, this statement shows that the manager might not necessarily be forgiving towards their teams’ mistake, but at the same time not taking the task away from them and letting them solve the issue. The moderation and guidance project management skills come in action in this kind of situation. What is more, as per SC3, the manager claims that they tolerate the mistakes of their team as long as it does not result in major damages, whilst SC5 sub-

construct could imply that the manager would be willing the team to deal with the consequences of the mistake even on the more major level. Letting the team deal with arising issues or mistakes does not mean that the manager steps out of the way completely. They should still hold moderate amount of collaboration with the team and as mentioned before, support them by providing resources, advice, and encouragement. As mentioned in discussion regarding sub-construct 4, managers should be able to read the situation and same as taking the task of raising or lowering the heat of the arisen situation, they should also be able to take the risk of stepping back and trusting their teams and processes to handle the situation. This could also be tied to the statement of protecting voices of leadership without authority, because when the official leader takes a step back and lets the team to come up with solutions for the problem, some individuals could rise as unofficial leaders and provide great input handling the situation. Due to personal interactions within the team and the sensitive matter of mistake making, sub-construct of giving the work back holds moderate positive correlation with managers level of self-efficacy. Project management competence also refers to management skills of the ability to deal with mistakes and failures, and since it is impossible to conduct any project without some setbacks or changes (especially nowadays referring to the COVID-19 situation in the World), these skills are crucial for project management. The ability to deal with setbacks and mistakes, as mentioned before, can be highly impacted by managers level of self-confidence which can also affect the team dynamics and their level of dedication. Team enthusiasm and dedication towards the set goal can also be impacted by the way the manager treats the “unofficial” leaders of the team. These leaders can also be identified as leaders without authority which is portrayed through the sub-construct 6 of the AL scale. The question focusing and forming the sub-construct, refers to the manager aiming to make people comfortable whilst bringing up bad news. The question can also be related to the mistake management, because in many cases, if a mistake is made, the manager needs to talk to the employee and inform them of their wrongdoing or the wrong outcome of the task. Bringing up the bad news to team members can be very stressful and emotionally difficult to the manager. They should hold their basis, not get too emotional and trust their judgement while delivering the news. This also implies to one’s emotional intelligence as well as self-efficacy levels. What is more, protecting leaders without authority also implies that the manager should also believe in their team and stand for their team values, views, and decisions. For some managers it can be easy to forget that team members without the official title of a manager could also bring great and valuable ideas to the table, hence managers should always actively listen to the team and protect their opinions in the eyes of other stakeholders. On the contrary, an assumption can be made that manager with too high level of self-confidence and self-efficacy could become arrogant and simply stop listening to their team opinion and only act as they believe it is the best. This potentially negative relationship between too high levels of self-

efficacy was not analyzed in this research and the tendency in the retrieved data was not seen, hence more in-depth analysis with potential different self-efficacy scale should be conducted to support or disagree with this implication.

The last of the sub-constructs of the adaptive leadership scale implies to have the highest level of personal impact from the manager. The sub-construct of “use of self” refers to two questions: ALQ10: *I admit my mistakes* and ALQ11: *I am willing to give up some of my authority*. The first question can also be related to previously discussed sub-constructs SC3 and SC5 in terms of mistake management, but this question is related to managers willingness to be open with the stakeholders and their team about the mistakes of their own. The second question of the sub-construct referring to the ability to give up some authority can also be related to the sub-constructs 5 and 6 in terms of managers not only letting their team to solve the issues and possible mistakes themselves, but also give up some of their entitled authority within the team and the organization for the sake of the outcome of the project. Managers with high scores in “use of self” construct should have impeccable listening skills, have positive attitude, remain cool in heated situations and become a role model like, trusted figures for the team members. As discussed above, these traits of the manager are essential for project management as per analysis of people competencies. Furthermore, managers that lead by example should hold high levels of self-efficacy because in order to become an example for others and other to follow by it, an individual should believe in their competences owned and be self-reflective towards some impurities of their own skills. Positive correlation between the SC7 and SE score of the manager (Table 11) and the low intercept value of SE against SC7 (Figure 15) indicate that high levels of self-efficacy are indeed statistically needed in order to hold high scores of adaptive leadership in terms of use of self.

Finally, the combined score of adaptive leadership scale and self-efficacy relationship indicates that despite the insufficient scientific metric between SC1 and SE score, self-efficacy has positive impact on the adaptability of leadership in the context of project management. Projects are extremely complex activities with many variants from environmental issues to stakeholder and team management, hence project managers must contain vast variety of skills to accommodate all the arisen issues and challenges. In my opinion, the level of self-efficacy should also be included into the competencies of project management because working with individuals and teams require a lot of personal impact towards the work. In project management field, self-efficacy can be described as one’s belief in the overall competencies that can affect the performance of the project and the team on various levels and situations (Chen et al., 2001), hence it can be stated that self-efficacy is highly related to the competencies of the project manager as well. For the manager to be adaptive leader and grow together with the team, tackle adaptive challenges and look for best

new solutions available, the individual has to have high levels of self-belief, as well as efficiency and confidence. As analysis of sub-constructs of adaptive leadership indicates, adaptive leaders should lead by example and encourage the team to follow them.

6.2. Conclusions

The research conducted lead to the following conclusions:

1. Managers' level of self-efficacy has insignificant impact on their ability to distinguish between adaptive and technical challenges
2. Managers' level of self-efficacy has significant positive impact on the ability to identify stakeholders and their losses
3. Managers' level of self-efficacy has significant positive impact on their ability to create the holding environment
4. Managers' level of self-efficacy has significant positive impact on their ability to regulate distress
5. Managers' level of self-efficacy has significant positive impact on their ability to give the work back
6. Managers' level of self-efficacy has significant positive impact on their ability to protect the voices of leadership without authority
7. Managers' level of self-efficacy has significant positive impact on their general traits necessary for adaptive leaders (use of self)
8. Managers' level of self-efficacy has significant positive impact on the usage of adaptive leadership approach

To answer the research question of “How does the level of self-efficacy influence project managers' capabilities to practice adaptive leadership?” a statement can be claimed that – high level of project managers' self-efficacy provides the leader with more trust in their abilities to perform as a manager and a supporting individual who the team can trust and rely on. The adaptiveness of the leader is influenced by their self-confidence and self-efficiency in terms of willingness to tackle the arisen adaptive challenges. Managers with high level of self-efficacy tend to believe more not only in their own managerial competencies but also in their team members by protecting those without official authority, understanding mistakes, letting the individuals find their own ways of working and encouraging them every step of the way.

6.3. Limitations and recommendations

As per significance of the data analyzed for the scope of this research, the analysis, and the research itself comes with limitations. One of the most substantial limitations is the respondent numbers. As project

management is a fast-growing scope in most industries, the respondent numbers that were received in this research could portray slightly disturbed data that could not be applied to conclusions for the whole project management world. What is more, the respondent country representation is also limiting the analysis to mostly 2 countries – Lithuania and United Kingdom. In order to represent data and see what cultural changes might come in place between different countries, more in depth analysis of responses focused on a particular country should be performed. There could be assumptions made that culture and different work environment and regulations might also have impact on the level of managers leadership adaptiveness or their level of self-efficacy. Another limitation of this research, similarly to the respondent country of work, can be the industry individuals work in. For example, such industries as manufacturing and hospitality, or education and medical sector can have vast differences between needed project management skills and ways of working when encountering change, hence more in-depth studies should be conducted on the basis of a single or two contrasting industries. This study portrays a level of medium significance towards IT and telecommunication sectors, due to the higher percentage of respondents working in aforementioned fields.

The scales used for this study could also be adjusted in potential future research. The Raei Adaptive Leadership scale could contain more in-depth questions from Raei's research, gathering more significant data from multiple questions referring to the 7 sub-constructs. The expanded Raei AL scale could also be paired with different self-efficacy scales such as original Bandura's self-efficacy scale or Zimmerman's academic self-efficacy scale with adjustments to achievement orientation in project management. The different modes of analysis could allow the researcher to focus on the differences between managers' focus on the result of the project in contrast to the emotional side of team management. Hence, alternations between few different scales could be used for future research.

With reference to this research, recommendations for organizations practicing project management can be as follows:

1. Due to fast paced environment of project management and current state of all industries (fast changing guidelines in different countries due to Covid-19, shortage of raw materials, etc.) it is likely that many project managers can come in contact with challenges that might need adaptive solutions. As discussed in this research, there is still shortage of knowledge in companies regarding what adaptive leadership concept is, hence my recommendation for companies would be to talk more about different styles and approaches of leadership and introduce adaptive leadership to their employees.

2. For project managers practicing adaptive leadership approach, I would recommend focusing on themselves more, not only on their team and the goal. Adaptive leadership approach focusing on individuals' abilities, traits, and ways of working, not on their ability to find the solution of the problem, urges to shift the focus of management to the individual. Referring to the positive relationship found between adaptive leadership and self-efficacy through this research, I would suggest managers to work on enhancing their level of self-efficacy. Trust in oneself is crucial component in nowadays fast paced world and it can enhance the performance of adaptive leadership practice.
3. In projects, manager should not be seen as a hero or a "know-it-all" and control everything. Even though practicing adaptive leadership approach might seem unknown for many teams and companies, I would suggest project managers to start small from the inside of their team and their relationships. I would suggest managers to start having open conversations regarding their and their team members' expectations referring to work itself and the team dynamics. This exercise could create the bond between the manager and the team member that in the long run of changing from traditional leadership approach to adaptive leadership approach, could help with establishing trust within the team, the managers willingness to give the work back to the team, and accepting mistakes. This could also contribute to the managers ability to see when there is a need to push their employees (increase the heat) and when to provide a helping hand (lower the heat of the situation).


APPENDICES

Appendix 1: Permissions

Approval to use adaptive leadership scale created by Mohammed Raei:


Mohammed Raei, PhD
Consultant, Author, Scholar, Dissertation coach

⋮



Mohammed Raei, PhD · 1st
Consultant, Author, Scholar, Dissertation coach


TODAY



Greta Remeikaite · 10:30 AM

Master thesis - usage of adaptive leadership scale

Dear Mohammed Raei,
I am an international project management masters degree student from Vilnius University Business school and I am writing my thesis on adaptive leadership and self-efficacy effect on project management. My supervisor Eglė Daunienė has offered me to contact you regarding usage of your adaptive leadership scale created in the paper "Development and Validation of the Adaptive Leadership With Authority Scale". Could you please confirm if it is ok for me to use some parts of your scale in my research? If you'd like, I can share the link of my draft survey so you know what information will be used.
I am looking forward to hearing from you soon.
Best wishes,
Greta Remeikaite



Mohammed Raei, PhD · 10:50 AM

Hi Greta,

I hope you are well. I hereby grant you permission to use my adaptive leadership with authority scale items (pre, or post validation) for educational purposes only.

Good luck with your thesis.

Kind Regards,

Mo

Appendix 2: Scales of the survey

Adaptive Leadership Scale (Raei, 2018)

1. I recognize that I have to leave some of the old ways of working in my team
2. I reach out to influential individuals in the organization to help identify the different stakeholders affected by change
3. For my team, I aim to create a space where it is safe to discuss what everyone knows, but might be afraid to bring it out into the open
4. For my team, I aim to create an environment where we can have conflict about our ideas without getting into personal attacks
5. I tolerate my team members mistakes if there are no major damages
6. I can read the room during meetings
7. I aim to prevent my team from getting too distracted by immediate but unimportant concerns
8. I aim to give people time to learn from their mistakes
9. I aim to make people comfortable bringing up bad news
10. I admit my mistakes
11. I am willing to give up some of my authority

Sub-construct	Question
1. Distinguish between adaptive and technical challenges	ALQ1
2. Identify the stakeholders and their losses	ALQ2
3. Create the holding environment	ALQ3, ALQ4, ALQ5
4. Regulating distress	ALQ6, ALQ7
5. Giving the work back	ALQ8
6. Protect voices of leadership without authority	ALQ9
7. Use of self	ALQ10, ALQ11

Self-efficacy Scale (Bandura)

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at almost any endeavor to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.

Appendix 3: Survey



VILNIUS UNIVERSITY
BUSINESS SCHOOL

The role of self-efficacy and adaptive leadership in project management



Hello,

I am a student of International Project Management Master's program in Vilnius University Business School. My master thesis field of focus is adaptive leadership and self-efficacy in project management, hence I would like to ask you to answer a few questions regarding your experiences and how you, as an individual, see yourself in your field of work.

The survey will take approximately 10 minutes to complete.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions.

Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact me via LinkedIn, Facebook or by email (greta.remeikaite@vm.stud.vu.lt).

Thank you in advance!

Start

What is your gender?

- Female
- Male
- Other

What is your age group?

- Under 25
- 25-30
- 31-40
- 41-50
- 51-60
- 61-70
- >70

What is your highest level of education?

- Did not finish high school
- High school
- College
- Trade/vocational/technical education
- Bachelors degree
- Masters degree
- Doctorate degree
- Other

What country are you currently living in?

What is the status of your organization?

- My organization operates locally
- My organization operates internationally

In what industry are you currently working?

- Insurance
- Education
- Manufacturing
- Government
- Health care
- Fashion
- Energy
- Hospitality
- Start-up
- Real estate
- Finance
- Commerce
- Telecommunication
- IT
- Other

If you selected "other" in the previous question, please specify:

What is your work experience in project management field?

- Less than 1 year
- 1-5 years
- 6-10 years
- More than 10 years

Do you have any formal project management training? (courses, degree, etc.)

Yes

No

Encountering change at work:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I recognize that I have to leave some of the old ways of working in my team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I reach out to influential individuals in the organization to help identify the different stakeholders affected by change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. For my team, I aim to create a space where it is safe to discuss what everyone knows, but might be afraid to bring it out into the open	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. For my team, I aim to create an environment where we can have conflict about our ideas without getting into personal attacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I tolerate my team members mistakes if there are no major damages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I can read the room during meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I aim to prevent my team from getting too distracted by immediate but unimportant concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I aim to give people time to learn from their mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I aim to make people comfortable bringing up bad news	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I admit my mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I am willing to give up some of my authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

As an individual:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I believe I will be able to achieve most of the goals that I have set for myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. When facing difficult tasks, I am certain that I will accomplish them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In general, I think that I can obtain outcomes that are important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I believe I can succeed at almost any endeavor to which I set my mind to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I believe I will be able to successfully overcome many challenges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I am confident that I can perform effectively on many different tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Compared to other people, I can do most tasks very well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Even when things are tough, I can perform quite well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 4: Participant work industry

Row Labels	Count of Respondent
Other	23
Architecture	2
City development	1
Digital Marketing and Social Media	1
Entertainment	2
Export	1
Gambling	5
Investment Attraction and city development	1
Language	3
Legal	1
Local Economic Development Agency (NGO sector)	1
Manufacturing, telecommunication, energy	1
Marine/Fish Exports	1
NGO	1
Software	2
Grand Total	23

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