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CHANGES IN LEADERSHIP STYLE DUE TO THE CRISIS OF
COVID-19 IN THE TECH SMES IN SWEDEN

Technology and Communication
2021

TIIVISTELMÄ

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| Tekijä | Hui Liang |
| Opinnäytetyön nimi | Changes in leadership style due to the crisis of covid-19 in the tech SMEs in Sweden |
| Vuosi | 2021 |
| Kieli | Englanti |
| Sivumäärä | 43 + 1 liitettä |
| Ohjaaja | Adebayo Agbejule |

Tutkimuksen tavoitteena oli selvittää kuinka COVID-19 kriisi on vaikuttanut ruotsalaisten teknologia-alan PK-yritysten johtamistapoihin ja käytäntöihin.

Tutkimusta varten haastateltiin viittä ruotsalaisessa PK-yrityksessä työskentelevää henkilöä, jotka työskentelivät yrityksessä projektipäällikkönä tai toimitusjohtajana. Haastatteluista saatu data analysoitiin käyttäen temaattista analyysiä sekä tutkimalla vastausten taajuushajontaa.

Saatujen tulosten perusteella COVID-19 kriisi on vaikuttanut teknologiayrityksiin ainoastaan vähäisesti tai kohtalaisesti. Sopeutumiseen vaikuttivat myönteisesti Ruotsin valtion maksamat avustukset, joiden turvin yritykset saivat palkat maksettua ja välttivät tarpeen henkilöstön lomauttamiseen.

Haastattelujen perusteella, projektipäälliköt ja toimitusjohtajat joutuivat kriisin vuoksi muuttamaan johtamistapaansa ainoastaan vähäisesti tai kohtalaisesti. Tästä johtuen, kriisin vaikutus johtamistapoihin ruotsalaisissa teknologia-alan PK-yrityksissä ei ollut merkittävä.

Suurin muutos johtamistapoihin aiheutui henkilöstön siirtymisestä etätyöskentelyyn. Johtajien oli kommunikoitava henkilöstölle virtuaalisia työkaluja hyödyntäen. Etätyöskentelyn tuoman vapauden ja joustavuuden vuoksi johtajien oli hyödynnettävä attribuutteja demokraattisen johtamistyyli ja tilannekohtaista johtamistyyli.

Avainsanat johtamistyyli, COVID-19-kriisi, projektinhallinta, ruotsalaiset
tekniset pk-yritykset

ABSTRACT

| | |
|--------------------|--|
| Author | Hui Liang |
| Title | Changes in Leadership Style due to the Covid-19 in the Tech SMEs in Sweden |
| Year | 2021 |
| Language | English |
| Pages | 43 + 1 Appendices |
| Name of Supervisor | Adebayo Agbejule |

The objective of this study was to find out how COVID-19 crisis has impacted the tech SMEs in Sweden, caused them to change their leadership style, and which leadership attributes were adopted by the leadership of the Swedish tech SMEs to deal with the COVID-19 crisis.

Interviews with five Project Managers/CEOs of the Swedish tech SMEs were conducted to collect primary data. The interview data was analysed using thematic analysis and frequency distribution analysis.

Based on the results obtained, the COVID-19 crisis has had only a minor or moderate impact on the Swedish tech SMEs. The adjustment was positively influenced by subsidies paid by the Swedish government, which enabled companies to pay salaries and avoid the need to lay off staff.

Based on the interviews, the project managers and CEOs had to change their management style only slightly or moderately due to the crisis. As a result, the impact of the crisis on management practices in Swedish technology SMEs was not significant.

The biggest change in management practices was caused by the transition of staff to tele-working. Managers had to communicate with staff using virtual tools. They had adopted the attributes of democratic leadership style and situational leadership

style while carrying out virtual leadership because they need to give freedom and flexibility to the team members remotely.

Keywords leadership style, COVID-19 crisis, project management, Swedish tech SMEs

ACKNOWLEDGEMENTS

I would like to thank my supervisor, Dr. Adebayo Agbejule, for his dedicated support and guidance. I would also like to thank all the project managers/leaders who participated in the study's interviews and enabled this research to be possible. Finally, I would like to thank my family and friends for all the unconditional support.

Hui Liang

CONTENTS

TIIVISTELMÄ

ABSTRACT

| | | |
|-------|--|----|
| 1 | INTRODUCTION | 1 |
| 1.1 | Background | 2 |
| 1.2 | Research problems | 2 |
| 1.3 | Purpose of the research | 3 |
| 1.4 | Structure of the thesis..... | 3 |
| 2 | THEORETICAL FRAME OF REFERENCE..... | 5 |
| 2.1 | Project management..... | 5 |
| 2.2 | Project management skills | 5 |
| 2.3 | Leadership theories | 7 |
| 2.4 | Leadership and leadership style..... | 7 |
| 2.5 | Trait-based perspective of leadership | 8 |
| 2.6 | Type of leadership styles | 9 |
| 2.6.1 | Transformational leadership..... | 9 |
| 2.6.2 | Authentic leadership..... | 10 |
| 2.6.3 | Ethical leadership..... | 11 |
| 2.6.4 | Contingency-based leadership | 12 |
| 2.6.5 | Transactional leadership..... | 12 |
| 2.6.6 | Laissez-faire leadership..... | 12 |
| 2.6.7 | Democratic leadership..... | 13 |
| 2.6.8 | Autocratic/authoritarian leadership..... | 13 |
| 2.7 | Virtual leadership..... | 13 |
| 2.7.1 | Trust | 14 |
| 2.7.2 | Communication | 15 |
| 2.7.3 | Distance and time | 15 |
| 2.7.4 | Diversity | 15 |
| 2.8 | Crisis leadership and attributes to use for the COVID-19 crisis..... | 16 |
| 2.9 | Theoretical framework..... | 16 |
| 3 | RESEARCH METHODOLOGY | 18 |
| 3.1 | Theory and qualitative research | 19 |

| | | |
|-----|---|----|
| 3.2 | Case study | 20 |
| 3.3 | Selecting research frame | 21 |
| 3.4 | Single case study..... | 21 |
| 3.5 | Data collection via interviews..... | 22 |
| 3.6 | Analyzing data | 23 |
| 3.7 | Reliability, validity and ethic considerations..... | 24 |
| 4 | RESULTS..... | 25 |
| 4.1 | Introduction..... | 25 |
| 4.2 | Thematic analysis..... | 25 |
| 4.3 | Frequency distribution analysis | 30 |
| 5 | CONCLUSIONS AND DISCUSSION | 34 |
| 5.1 | Theoretical contribution..... | 34 |
| 5.2 | Managerial contribution..... | 38 |
| 5.3 | Limitation and future research | 39 |
| | REFERENCES..... | 40 |
| | APPENDIX - INTERVIEW QUESTIONS | 44 |

APPENDICES

LIST OF FIGURES AND TABLES

| | |
|---|----|
| Figure 1. Focus of the study | 17 |
| Figure 2. Research Onion Framework (Saunders, 2012, p.138)..... | 19 |
| Figure 3. Steps to develop theory in inductive research (Huopainen, 2014, p12) | 20 |
| Figure 4. Frequency distribution result of Q5 and Q6 | 31 |
| Figure 5. Frequency distribution of Q13..... | 32 |
| Figure 6. Frequency distribution of Q14 and Q15 | 33 |
| | |
| Table 1. Outline of the study | 3 |
| Table 2. Elements of project management competence (IPMA, 2006) | 6 |
| Table 3. Summary of the interviewees | 23 |
| Table 4. Results of interview questions 1-4 | 25 |
| Table 5. Results of interview question 7 | 26 |
| Table 6. Results of interview question 8 | 26 |
| Table 7. Results of interview question 9 | 27 |
| Table 8. Results of interview question 10 | 28 |
| Table 9. Results of interview question 11 | 29 |
| Table 10. Results of interview question 12 | 30 |
| Table 11. Results of interview question 5 and 6 | 30 |
| Table 12. Results of interview questions 13-15 | 32 |

LIST OF APPENDICES

APPENDIX 1. Interview questions

1 INTRODUCTION

This study is focused on finding out whether the COVID-19 crisis changed leadership style in the tech small and medium-sized enterprises (SMEs) in Sweden. In literatures, there are various leadership styles such as authoritative, democratic, situational leadership, transactional leadership style, and transformational leadership (Nahavandi, 2016; Munyanyiwa & Nelson-Porter, 2015). As per situational leadership, different leadership styles can be used under different situations to meet the requirements of the situation (Hersey, Blanchard, & Johnson, 2008). The contingency-based leadership theory states that an effective leadership style is the one which is selected in line with the given situation (Nahavandi, 2016). According to Forbes business magazine, new leadership attributes must be adopted by leaders to manage businesses during and after the COVID-19 crises, including adaptability, flexibility, empathy, and candour (Brownlee, 2020). Based on the situational leadership and contingency-based leadership theory, it is argued that the managers/leaders of the Swedish tech SMEs have modified their leadership style during the COVID-19 crisis, to adapt to the change and lead their teams forward in a sustainable way.

The topic was selected because to the best of my knowledge up-till now no research has been conducted to find out how the COVID-19 crisis may have resulted in changes in the leadership style in tech SMEs in Sweden. Also, limited evidence exists in the past regarding the leadership style or attributes adapted by the leaders/managers of the tech SMEs in Sweden on how to deal with the crisis. This shows that this research is important because it is the first attempt to address the research topic. Moreover, the COVID-19 crisis has brought a disruptive change around the world and has caused businesses and organisations to drastically change their ways of operations. There is a need for tech SMEs, especially in Sweden, to have some research-based guidance to know how they shall change their leadership styles and what leadership attributes they shall adapt to deal with a major crisis like the COVID-19 crisis.

1.1 Background

The COVID-19 pandemic has emerged as a global crisis that has impacted almost all industries around the world (WHO, 2020). The spread of the COVID-19 pandemic in the European countries including Sweden have been high (WHO, 2020). Like in the rest of the world, various industries in Sweden have been hit with a major downturn (BBC News, 2020). The leaderships of the companies have had to modify their approach and business activities to be able to cope up with the disaster that they have never seen before (Brownlee, 2020). The Swedish tech industry's contribution is significant in the economy and it is a major source of Swedish exports of services to the world (O'Dwyer, 2018). Around 12.5 billion Euros worth of data-based services were exported by the country in 2017 (O'Dwyer, 2018). However, due to the COVID-19 crisis, the demand for Swedish service exports declined drastically and tech SMEs faced a business downturn. In this regard, it can be questioned whether the COVID-19 crisis has greatly impacted the Swedish tech SMEs, causing them to change their leadership style, and which leadership style or leadership attributes were adopted by the Swedish tech SMEs to deal with the COVID-19 crisis.

1.2 Research problems

For Swedish tech SMEs there is limited to no empirical evidence available to provide guidance regarding the appropriate leadership style or attributes which the leadership of these companies shall adopt in order to deal with the COVID-19 crisis or similar crisis in future. So, it is important that a research is conducted to fill the gap present in the literature. The research problem of this study is focused on answering the following three research questions, which will be answered upon completion of this study.

Q1. How have Swedish tech SMEs been affected by the COVID-19 crisis?

Q2. Has the COVID-19 crisis resulted in a change of leadership style in the tech SMEs in Sweden?

Q3. Which leadership attributes were adopted by the leadership of tech SMEs to adapt the change and lead the team, moving forward sustainably while dealing with the COVID-19 crisis?

1.3 Purpose of the research

In line with the research questions stated above, the purpose of this study is to find out how the COVID-19 crisis has impacted the Swedish tech SMEs, caused them to change their leadership style, and which leadership attributes have been adopted by the leadership of the Swedish tech SMEs to deal with the COVID-19 crisis. To achieve this research purpose, primary research based on qualitative research method and exploratory design is conducted, where a sample of managers/leaders in the tech industry of Sweden were interviewed. Thematic analysis is employed to analyse the interview responses to answer how the COVID-19 crisis has impacted the Swedish tech SMEs, caused them to change their leadership style, and which leadership style or leadership attributes were adopted by the Swedish tech SMEs to deal with the COVID-19 crisis.

1.4 Structure of the thesis

The structure of the thesis is summarized in **Table 1** below.

Table 1. Outline of the study

| Chapter index and topic | Sub chapters | Description |
|--|--------------|--|
| Chapter 1 - Introduction | 1.1-1.4 | General introduction of the background information, research questions and purpose of the research. Research mythologies of the thesis. |
| Chapter 2 - Theoretical frame of reference | 2.1-2.6 | Brief description of leadership theories mentioned in this thesis. Literature review of general leadership and types of leadership styles. |

| | | |
|---------------------------------------|-----------|--|
| | 2.7-2.8 | Literature review of virtual leadership, leadership in crisis management and attributes to adopt in the COVID-19 crisis. Theoretical framework of the study. |
| Chapter 3 – Research methodology | 3.1-3.7 | The research methodology selected to explore the research question. |
| Chapter 4 – Results | 4.1 – 4.3 | Analysis of the results collected in the interviews. |
| Chapter 5 – Conclusion and discussion | 5.1 – 5.3 | The detailed theoretical and managerial contribution of the research. The discussion of the research results. |

2 THEORETICAL FRAME OF REFERENCE

In this chapter the past theoretical literature and research on project management, project management skills, leadership and leadership styles are reviewed. In the literature various leadership styles can be found and different leadership attributes are associated with different leadership styles in managing projects. In this chapter different leadership styles are discussed, which will help in identifying which leadership styles can be best suitable to use in uncertain and crisis situations like that of the COVID-19 crisis.

2.1 Project management

Project Management Institute (PMI) (2013) defined project management as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. The objective of project management is to deliver the project to the client within the pre-defined constraints, which are scope, time and budget (PMI 2013). The project manager is the individual who is responsible for leading the project team and delivering the project to meet the expectations of the project stakeholders.

2.2 Project management skills

When leading and directing the project, the project manager needs to utilize various management skills in order to deliver a successful project to the client. According to the PMBOK (Project Management Body of Knowledge) a guide issued by the Project Management Institute (PMI), in order to manage the projects successfully and effectively, project managers must be equipped with eight interpersonal and managerial skills, which are leadership, motivation, communication, team building, influencing, political and cultural awareness, decision making and negotiation (Rose K H 2013). IPMA (2006) categorized the project manager's competences into three categories as follows: technical competences, behavioral competences and contextual competences. Below **Table 2** shows the elements of each category.

It can be seen that leadership is one of the behavioral competences a project manager shall possess.

Table 2. Elements of project management competence (IPMA, 2006)

| 1. Technical competences | 2. Behavioural competences | 3. Contextual competences |
|--|----------------------------|---|
| 1.01 Project management success | 2.01 Leadership | 3.01 Project orientation |
| 1.02 Interested parties | 2.02 Engagement | 3.02 Programme orientation |
| 1.03 Project requirements & objectives | 2.03 Self-control | 3.03 Portfolio orientation |
| 1.04 Risk & opportunity | 2.04 Assertiveness | 3.04 Project, programme & portfolio implementation (PPP implementation) |
| 1.05 Quality | 2.05 Relaxation | 3.05 permanent organisation |
| 1.06 Project organisation | 2.06 Openness | 3.06 Business |
| 1.07 Teamwork | 2.07 Creativity | 3.07 Systems, products & technology |
| 1.08 Problem resolution | 2.08 Results orientation | 3.08 Personnel management |
| 1.09 Project structures | 2.09 Efficiency | 3.09 Health, security, safety & environment |
| 1.10 Scope & deliverables | 2.10 Consultation | 3.10 Finance |
| 1.11 Time & project phases | 2.11 Negotiation | 3.11 Legal |
| 1.12 Resources | 2.12 Conflict & crisis | |
| 1.13 Cost & finance | 2.13 Reliability | |
| 1.14 Procurement & contract | 2.14 Values appreciation | |
| 1.15 Changes | 2.15 Ethics | |
| 1.16 Control & reports | | |
| 1.17 Information & documentation | | |
| 1.18 Communication | | |
| 1.19 Start-up | | |
| 1.20 Close-out | | |

This study will focus on the leadership skills of the project manager and articles regarding leadership will be reviewed in the following sub chapters.

2.3 Leadership theories

This section reviews the literature related to different leadership theories, which are situational leadership, contingency-based leadership theory, and virtual leadership. According to the contingency theory of leadership, the effectiveness of a leader is supposed to be contingent in a particular scenario whether his/her leadership style suits it or not (Fiedler, 1993). In situational leadership theory, the leadership style of a leader shall change in accordance with the needs of the situation, when a situation changes and a new situation emerges then the leader must modify his/her old style to adapt to the new situation (Hersey, Blanchard, & Johnson, 2008). In virtual leadership theory team members or employees are managed while working from geographically remote locations (Powell & Piccoli, 2004). These theories are discussed in more detail later in this chapter.

2.4 Leadership and leadership style

Leadership is a process or ability by which a person engages, mobilizes, and directs other people and resources towards attainment of some common goals. Corporate leadership style generally refers to the various characteristics of habitual leadership styles. The habitual leadership style gradually forms in long-term personal experience and leadership practice and has a strong individuality in the leadership practice either consciously or unconsciously. Every leader has his or her own style, which is related to his or her work environment, experience, and personality, which is different from other leaders. The theoretical value and practical significance of leadership style research lies in that it can better reflect realistic leadership activities and explain differences in leadership effectiveness.

Leaders inspire, encourage others. They are equipped with a set of skills to motivate and help others to see the common future and believe it is possible. For any organization or form of administration, presence of effective leadership is very important

for proper performance of organizational activities as well as for obtaining the desired results and performance from its workforce. There are different theories and concepts of leadership, such as, transformational leadership theory, trait-based leadership theory and ethical leadership.

Several traits are related to leadership style, and leaders use these characteristics while interacting with their subordinates (Kouzes & Posner, 2017). Harris et al., (2007) suggest that an individual uses leadership style as a relationship while making individuals work together to accomplish a common goal. Contemporary leadership styles are comprised of transformational, transactional, visionary, and charismatic leaderships (Achua & Lussier, 2013). The study of Sajuyigbe (2012), found that there is a significant relationship between organizational performances with leadership style. Obiwuru, Okwu, Akpa, and Nwankwere (2011), have also studied the major influence of several leadership styles on SMEs performance. Based on the study findings, it was also observed that the transformational leadership style has a positive but insignificant impact on the performance of SMEs. The earlier literature review of leadership theories and styles by Ahmed, Nawaz, and Khan (2016) suggests that the most effective leader for enhancing the performance of subordinates is a transformational leader.

2.5 Trait-based perspective of leadership

The trait-based perspective of leadership is a concept of leadership which states that leadership is based on certain special qualities and attributes on the basis of which a person becomes a leader (Zaccaro, 2007). Those attributes of an effective leader include knowledge of human nature, interpersonal skills, speech fluency, moral habits, accuracy in work, decisiveness in judgment, and administrative abilities as stable leader qualities. Few decades ago, it was believed that leaders are born with leadership traits and therefore these leadership traits cannot be self-developed or acquired by a person in order to become a leader (Zaccaro, 2007). Because of this reason trait-based leadership was rejected by many researchers in various fields. However, in the first half of the 20th century this concept changed and since then leadership traits refer to integrated, coherent and enduring personal characteristics

that are capable of maintaining effective and consistent leadership in various situations (Kouzes & Posner, 2017).

The presence of leadership traits in isolation is not enough for being an effective leader, it is necessary for the constellations of attributes to be present collectively in integration (Achua & Lussier, 2013). Besides understanding that it is necessary to have multiple personal attributes for being a leader, it is also essential to how these attributes work together so that performance can be influenced in the desired manner (Achua & Lussier, 2013). It is necessary to have inclusiveness of variety of personal qualities because by having various qualities a leader becomes capable of handling different situations accordingly. As a result, the stability of effective leadership will be endorsed and sustained. Therefore, leadership traits are not limited to a collection of personality attributes but also include values, motives, problem solving and social skills, and cognitive abilities and expertise (Achua & Lussier, 2013).

2.6 Type of leadership styles

In this chapter, different types of leadership styles and their attributes are discussed based on the reviewed literature.

2.6.1 Transformational leadership

It is a style of leadership approach in which the leader inspires his/her followers and transfer his attributes to his followers in such a way that they develop a sense of identity and a sense of responsibility towards the mission and the organization (Northouse, 2010). Development of followers into future leaders is the end goal of transformational leadership because it provides self-development and growth opportunity for the followers. Transformational leaders understand the strengths and weaknesses of their followers so that they can align tasks according to the strengths and capabilities of each follower. In this way all the followers will be able to accomplish their tasks effectively and due to which they will feel contented with their performance and hence they will be self-motivated and ready to strive for the optimization of the performance (Northouse, 2010).

Transformational leadership enables the development of similar leaders' and followers' perception about significance of each individual organizational goal and therefore it will rightfully develop a dyadic relationship between leaders and followers (Northouse, 2010). As a result, a high level of positive reinforcement and satisfaction will be gained by the followers. Moreover, because of this a high-quality relationship will be developed due to which followers' trust will develop more on their leader. A high-quality exchange relationship between leaders and followers is directly related to their job satisfaction, satisfaction with their leader, and organizational commitment (Northouse, 2010). Additionally, by means of developing dyadic relationship followers will direct their efforts directly towards organizational goals. Having followers' job satisfaction is very essential for their proper performance and compliance of orders. Because of having high-quality relationship, similar perception, trust in leadership and sense of achievement by accomplishing the organizational tasks the followers will be content with themselves as well as with their job and experience job satisfaction (Northouse, 2010).

2.6.2 Authentic leadership

Authentic leadership is a leadership style in which the leaders have trust, integrity, fairness, transparency, openness in communication, and genuine concern for others (Kalshoven & Boon, 2012). It is a sub-division of transformational leadership because transformational leadership can be unauthentic. Nevertheless, the authenticity of transformational leadership is imperative to promote true compliance within subordinates. It is authentic leadership if a transformational-type leader who believes in what he/she espouses. In contrast, it is unauthentic leadership. In the literature, several definitions of authentic leadership could be found.

According to Wulffers (2017), authentic leadership is indeed a position-transcending leadership by presence. This suggests that sometimes the authentic leaders can also be their followers since such people recognize the capabilities and encourage themselves to be inspired by those leaders who might be designated at a lower level of organization.

The study of Walumbwa, Christensen, and Hailey (2011) explains that employees, followers, as well as organizations are positively influenced by an authentic leader. Talents of subordinates flourish and are transformed into strengths with the behavior of authentic leadership. Subordinates believe that an authentic leader follows what he/she preaches and suggests in the subordinate's best interest. Authentic leaders are viewed by followers as real, ethical, natural, as well as reliable leaders. When empowering the subordinates, the authentic leaders lead in a manner that can be easily identified as authentic. Authentic leadership, according to practice and research, elicits confidence in subordinates and seeks to endorse authenticity and follow the leader's suggestions. In such a manner, a leader's authenticity helps him or her to attain greater effectiveness. Authentic leaders promote ethical conduct in society or an institution that significantly enhances inter-relational clarity and confidence of subordinates in leadership.

2.6.3 Ethical leadership

According to Treviño and Brown (2006), qualities such as integrity, caring, respect, justice, impartial decisions, skills to maintain consistent ethical principles, as well as the capability to interact clearly with staff are the basic attributes of ethical leadership. In the opinion of Stansbury (2009), ethical leadership is a leadership style that honors the interests of others, this leadership also trusts and imposes ethical conduct. In recent times, corporate scandals such as Enron and Lehman Brothers are the main cause to boost the significance of the role of leadership ethics (Neubert, Wu, & Roberts, 2013). Ethical leadership refers to the worker's morale since they agree that their leadership is truthful, equitable, humane, honest, and respectful. According to Brown et al. (2005), ethical leadership's role is to be an ethical role model, to be trustworthy, to assure worker's best interest, to fairly treat employees, to maintain employee's ethical compliance, as well as to undertake corrective measures whenever a violation of ethical standards occurred. Teimouri, Hosseini, and Ardeshiri (2018), discovered that the psychological well-being of workers is positively influenced by ethical leadership.

2.6.4 Contingency-based leadership

According to the contingency theory of leadership, effectiveness of a leader is considered to be contingent in a particular scenario whether their leadership style suits it or not (Northouse, 2010). Moreover, the theory also suggests that a person could be effective or maybe an ineffective leader in different situations. This theory proposed that one could increase the chances to become an effective leader by being capable enough to analyze the situation and identify whether or not the leadership style would be effective. In certain situations, one should be objective, self-aware, and adaptable (Northouse, 2010).

2.6.5 Transactional leadership

It is a leadership style where leaders induce workers or subordinates to carry out a task in exchange of reward in return (Northouse, 2010). The reward can be in terms of promotions, extra responsibilities, increased compensation, and benefits. Through rewards and penalties obedience and compliance are motivated among employees, where better performers will gain greater rewards. Employees are rewarded by leaders according to their behavior in transactional leadership (Ahmed, Nawaz, & Khan, 2016).

2.6.6 Laissez-faire leadership

Leaders seem to be hands-off in a laissez-faire leadership style, giving the subordinate entire authority while leading and taking decisions (Alice, Johannesen-Schmidt & Engen, 2003). Delegative management is also known as this form of leadership. Moreover, the individuals following this leadership style are known as self-rulers, nevertheless, support and supervision are also provided at times when needed. The followers are supervised by the leaders when requested but leaders do not directly participate in decision making (Alice, Johannesen-Schmidt & Engen, 2003).

2.6.7 Democratic leadership

This leadership style emphasis decision-making in a decentralized manner and all followers share it. The type of democratic leadership has a strong risk of poor performance and bad decisions. the leadership style is popular for inspiring workers to do well since these leaders give value to their viewpoints and perspectives (Ahmed et al., 2016).

2.6.8 Autocratic/authoritarian leadership

This style of leadership protects the freedom to make decisions on leader's own (Obiwuru, et al., 2011). These leaders seem bossy and insist that their supporters operate according to what suits their own will. These types of leaders support one-sided communications and are likely to be non-creative. This leadership style is deemed to be successful in an institution for only a short time (Bhargavi & Yaseen, 2016). Communications and socializing practices are confined by an autocratic leader, even through those are essential for productive and successful organizational efficiency. Conflicts emerge with this leadership style and it may have an adverse impact on the overall performance of an organization (Iqbal, Anwar & Haider, 2015).

2.7 Virtual leadership

Virtual leadership is a leadership which involves management of teams or individuals which are working from geographically remote locations (Cascio, 2000). Just like traditional leadership, in virtual leadership the focus is on motivating employees, building a team, good performance, and achievement of goals (Cascio, 2000). For virtual leadership to work properly it is necessary to have efficient technology such as reliable internet connections (Powell & Piccoli, 2004).

Mehtab, Rehman, Ishfaq and Jamil (2017) reviewed past studies regarding virtual teams and virtual leadership to evaluate the emergence of virtual teams in today's technologically advance world. It was found that for virtual teams' success and goals achievement it is necessary to have trust and right communications amongst

the team members. All team elements shall be united by the virtual leadership in virtual organization because inherently communication has limitations because the team members work remotely from each other (Mehtab, Rehman, Ishfaq & Jamil, 2017).

In today's competitive business environment, virtual organizations have posed greater challenges in addressing the dynamic and emerging needs of their businesses (Gazor, 2012). Virtual teams are on rise to improve performance and utilize talent and recourses in most productive manner possible (Gazor, 2012). Virtual teams enable an organisation to acquire expertise by transcending geographical and time limitations to meet the growing needs of the competitive business environment (Gazor, 2012). Virtual work provides great flexibility and increased responsiveness of an organization. However, to enhance performance of the virtual organizations it is necessary to address the challenges associated with virtual organizations. E-leaders might need to convert the challenges into opportunities to be adaptive and effective in the virtual team (Lilian, 2014). It is found that four main challenges faced by **the** E-leaders are building and maintaining trust, distance and time-related issues, issues emerging from cultural differences and diversity (Lilian, 2014).

2.7.1 Trust

It is found that trust is more essential in virtual environments than in the conventional environment. Trust is formed by settings the team expectations and delivering the results that meet or surpass those expectations repeatedly (Cascio & Shurygailo, 2003). Lilian (2014) reviewed past studies of the role of trust in virtual environments and found that trust is facilitated by the E-leaders through setting up common expectations, through improving coherence, and through motivating team members to promote team success.

2.7.2 Communication

Clear and effective communication is also highly important for the virtual leadership to work because there are increased changes of miscommunication while working remotely. For well-coordinated teamwork, communication is mandatory and without it virtual leadership cannot achieve its purpose (Mehtab et al., 2017).

2.7.3 Distance and time

Distance and time are also challenges for the E-leaders in a virtual team. Lack of physical contact and overlapped working hours brings issues when coordinating tasks within the team, such as social isolation, time related stress and slow responses. E-leaders shall communicate with individuals on a regular basis. Leaders shall care about team members' general well-being. In addition, E-leaders must react quickly to the needs of the team and actively utilize team building techniques and training sessions to increase social closeness, such as organizing special events for offline meetings occasionally, setting up game-based training or competition within the team (MSG, n.d.).

2.7.4 Diversity

Team diversity is one of the important factors when leading a virtual team with team members coming from different countries since every country has its own specific culture, working practices and ways of thinking. Diversity increases the complexity of the communication and in diverse conditions it takes more time for the team members to form a working process. It is essential that the E-leader can provide a clear vision for the entire team to keep everyone involved. The E-leader shall also promote team building activities to increase the sense of belonging and help to resolve any conflict caused by the diversity. In addition, it will benefit the whole team if the E-leaders can find a way to turn the challenges into opportunities (Lilian, 2014).

2.8 Crisis leadership and attributes to use for the COVID-19 crisis

Fenera and Cevikb (2015) conducted a study and argued that various crises can occur in today's world that can have major impact on business and economy and to deal with such crises, leadership in crisis management is required. To handle a crisis situation, it is required that leadership is able to carry out scenario analyses and achieve team coordination. Moreover, leadership in crisis management shall permit staff to states their opinion and show their concerns without restrictions so that their uncertainties and doubts can be clarified (Fenera & Cevikb, 2015).

OECD (2020) suggested that the COVID-19 pandemic has drastically declined the demand for Swedish service exports and SMEs faced a business downturn. The economy has declined economically, however the government had provided financial support by injecting money funds into the economy and supporting SMEs so that employees' salaries are paid and they are not laid off (OECD, 2020).

Brownlee (2020) suggested seven attributes of leadership which shall be adapted by a leader/manager to be able to deal with the COVID-19 crises, namely: active listening, humility, candour, empathy, adaptability and flexibility, ability to manage hybrid teams, and a constant and reliable communications based on facts. When there is no doubt about someone's honesty it is referred as candor (Brown-lee, 2020). Arguably, candor is regarded as the only antidote for cynicism and anxiety within a workplace environment. Individuals react to known much better (even in case of bad news), as compared to unknown (that seems to create more anxiety) and respond worst in case of deceptive half-truths or naive optimism (that could destroy trust) (Brownlee, 2020).

During the COVID-19 crisis there is a need of such a leadership style which is capable of crisis management and can prove effective in enabling organisations to deal with the present situation.

2.9 Theoretical framework

The theoretical framework of this study is focused to find out whether the COVID-19 crisis changed leadership style in Swedish tech companies as shown in **Figure**

1. Previous research showed there are various leadership styles such as: authoritative, democratic, situational leadership, transactional leadership style, and transformational leadership (Nahavandi, 2016; Munyanyiwa & Nelson-Porter, 2015). As per situational leadership, different leadership styles can be used under the situation to meet the requirements of the situation (Hersey, Blanchard, & Johnson, 2008). The contingency-based leadership theory states that an effective leadership style is the one which is selected in line with the given situation (Nahavandi, 2016). According to the Forbes business magazine, new leadership attributes must be adopted by leaders to manage businesses during and after the COVID-19 crises, such as; adaptability, flexibility, empathy, and candour (Brownlee, 2020). Based on the situational leadership and contingency-based leadership theory, it is argued that the leadership of the SMEs in the tech industry of Sweden would have modified their leadership style due to the COVID-19 crisis, to adapt with the change and lead the team forward in a sustainable way. Virtual leadership is highly useful in situations where it is not possible for the employees or team members to work in close proximity, or when they are located at geographically different locations. This was the case during the COVID-19 crisis where due to social restrictions people were given the suggestion to work from home, and therefore virtual leadership is highly applicable in this situation.

The theoretical framework outlined below explains how the COVID-19 crisis may have resulted in changes in the leadership style in Swedish tech SMEs.



Figure 1. Focus of the study

3 RESEARCH METHODOLOGY

Two methods could be used to conduct this study, qualitative and quantitative research methods. However, instead of the quantitative research method the qualitative research method is used in this study because the present study is exploratory in nature. Qualitative research is a research method in which data is analyzed and results are determined on the basis of qualitative aspects. Personal interview technique is a well-known qualitative research method which is widely used in the academic and other researches. When exploratory in nature it is appropriate to use quantitative research method (Saunders, 2011). Qualitative research helps in determining in-depth perceptions, opinions, views, beliefs, motivations and attitudes of people and the data collected through qualitative research is known as qualitative data (Cohen, Manion, & Morrison, 2013).

To achieve the research purpose, primary research based on qualitative method and exploratory design was employed to complete this study. According to the literature exploratory research is appropriate to use when the research question which is to be studied was never studied previously (Cohen et al., 2013), which is the case in this study. Because it is the first attempt to find out how the COVID-19 crisis may have resulted in changes in the leadership style in tech SMEs in Sweden and limited evidence exists in the past regarding it.

A framework which researchers employ to carry out a study can be referred to as a research design. It is like a blueprint which outlines the research process to be followed to conduct a particular study (Bryman & Bell, 2015). Different research designs can be developed in accordance with the research aim and the intended purpose of a research (Polonsky & Waller, 2010).

A research design for a particular study can be selected appropriately by utilizing a research framework known as research onion (Saunders, Lewis, & Thornhill, 2012). In view of this the research design in this present study was selected by utilizing research onion framework as shown in **Figure 2**.

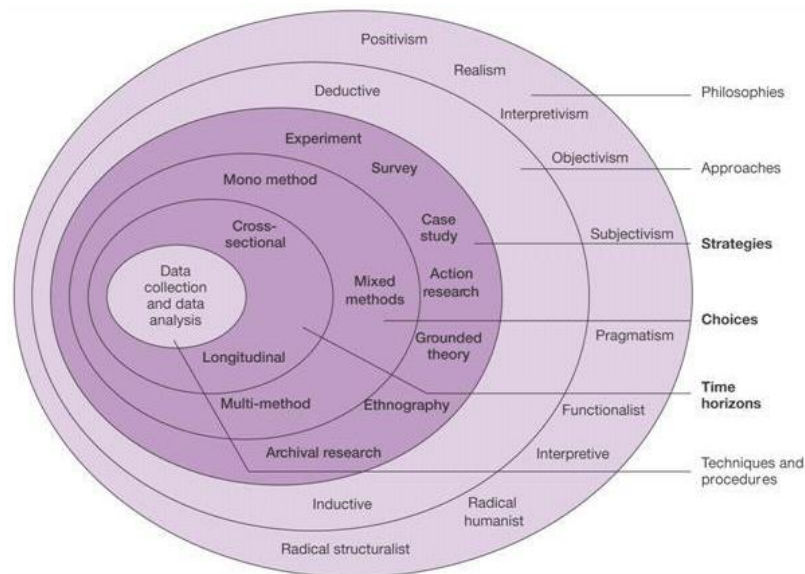


Figure 2. Research Onion Framework (Saunders, 2012, p.138)

The research onion framework is comprised of six layers, where each layer of the research design is interdependent and permits selection of an element of the research design (Saunders, 2012). The outer most layer of the research onion is related to the selection of the most appropriate research philosophy for a particular research. A research philosophy is based on the nature of knowledge being investigated (Saunders, 2012). In this study the qualitative data is to be analysed qualitatively therefore it was appropriate to select the interpretivist research philosophy and inductive as per the research onion framework (Saunders, 2012).

3.1 Theory and qualitative research

Inductive and deductive are two approaches which could be used in a research (Cohen et al., 2013). In this study, the inductive research is used to create theory and move from general to specific generalization of the findings (Saunders, 2011). The theory is intended to be created based on the qualitative research which was conducted by carrying out case study interviews with a sample of managers/leaders working in the tech SMEs of Sweden (Saunders, 2011). The inductive research involves in-depth analysis of the qualitative data, which helps in findings patterns of theory, leading towards development of theory (Saunders, 2012). As per Huopainen

(2014, p. 12) the following steps in **Figure 3** are involved in inductive research to develop a theory.

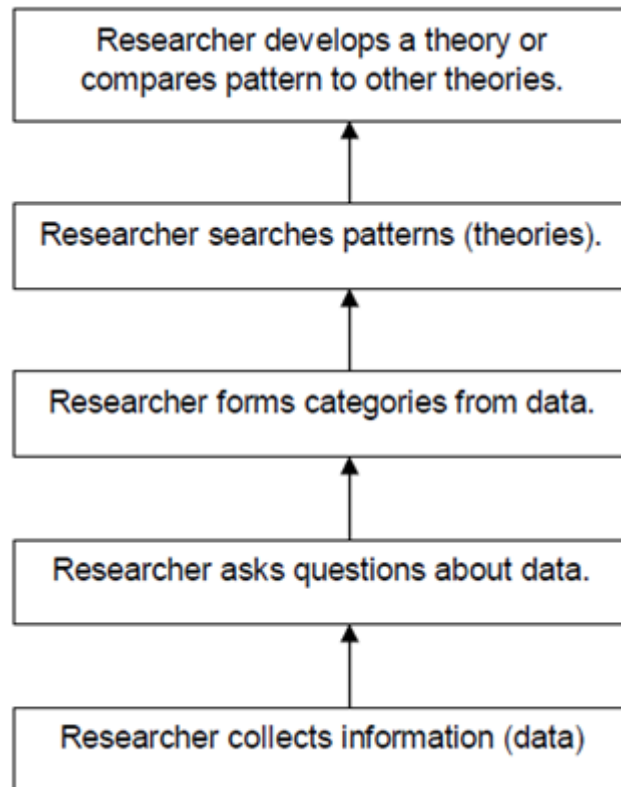


Figure 3. Steps to develop theory in inductive research (Huopainen, 2014, p12)

3.2 Case study

Case study is a research method in which a research is conducted in an industry, organisation, or specific group of organisations, or individuals (Saunders, 2011). In case study research, data is collected from a specific target population, in that particular industry, organisation, or specific group of organisations, or individuals and the research findings are only limited to the target population (Saunders, 2011). An example of a case study is examination based on group of organisations, which is the case in this study. Case study can be conducted using qualitative and quantitative data collection and analysis methods (Saunders, 2012). This research study is based on single case study of the tech SMEs of Sweden.

3.3 Selecting research frame

The research frame is the manner in which data is analysed and conclusions are drawn (Huopainen, 2014). In this study the interview responses of different manager/leader in the tech SMEs of Sweden are compared and contrasted to identify similar themes and therefore a comparative case study research frame is used (Huopainen, 2014).

3.4 Single case study

In this study a single case study is conducted where the managers/leaders in the tech SMEs of Sweden were selected as the target population to collect data from and where Snow Ball sampling method was employed to reach a sample of five managers/leaders working in the tech SMEs of Sweden (Saunders, 2011). The Swedish tech SMEs include all the SMEs which design software or hardware products/tools or provide software or hardware consulting services (such as website or mobile application development, hardware circuit board design, product development etc. services). The tech SMEs are comprised of a smaller team, typically comprising around 10 to 50 employees. Below is a brief description of the employers of the five managers/leaders who accepted the interview.

Company A:

A small engineering company providing software development and consulting services in the automation industry. It also manufactures and sells few hardware products in the same industry. The main markets are in Europe. There are around nine employees in total.

Company B:

An engineering company that designs and manufactures Intelligent hardware products in the transportation industry. The main markets are in Europe. There are approximately 50 employees.

Company C:

A software startup company designs cross-platform software tools for the automotive industry. The main markets are in Europe, China, Japan, and the U.S. It has a distributed team of about 10 members. Team members are located in the Northern Europe, Eastern Europe and Asia.

Company D:

An engineering company engaged in hardware and software development, and then mainly in the embedded system development. The focus is to provide consulting services to the medium and large companies in Sweden. There are approximately 20 employees in total.

Company E:

An engineering company that operates in multiple countries. It is the tier 1 supplier in the automotive industry. There is a branch office in Sweden with around 50 employees.

The Snowball sampling was appropriate to use in this study because it is ideal to use when it is difficult for the researcher to reach the participants (Saunders, Lewis & Thornhill, 2012). In Snowball sampling, the target sample is reached by contacting the first respondent, who then finds more respondents and this sequence of referring goes on until the desired sample size is reached (Bryman & Bell, 2015). The first manager/leader in the tech SMEs of Sweden were reached through friends on social media.

3.5 Data collection via interviews

A semi-structured interview was used to collect quantitative data from the aforementioned respondents' sample. The interviews were conducted online via Zoom meetings. The summary of the 5 interviewees is presented in **Table 3**. Due to confidentiality reasons the name of the companies and interviewees have been left out.

Table 3. Summary of the interviewees

| Com- pany name | Title | Work experience (<5, 5-10,10-15, 15> years) | Project man- agement expe- rience (<5, 5-10, 10- 15, 15> years) | Date of the inter- view |
|-------------------------------|--------------------------------|--|---|--|
| A | CEO | 15> | 15> | 20.10.2020 |
| B | Head of System Software TDC | 15> | 5-10 | 23.10.2020 |
| C | Project lead | 5-10 | <5 | 26.10.2020 |
| D | Project Manager (PM) | 5-10 | <5 | 27.10.2020 |
| E | Software lead | 5-10 | 5-10 | 26.10.2020 |

During each interview, 15 questions were asked, out of which 10 questions were open-ended, through which the respondents' in-depth perception were obtained, while 5 questions were closed-ended based on 5-point Likert type scale. In the closed-ended questions the interviewees were asked to choose 1 of the given 5 answer options, such as (a) Not at all, (b) Slightly, (c) Moderately, (d) Greatly, and (e) Extremely, indicating the extent to which they were agree with the statements of the questions. Moreover, the literature found in the news, articles and other reliable sources of literature related with COVID-19 crisis and the past theoretical and empirical literature related with leadership styles and change was reviewed to provide a theoretical basis which was used to develop interview questions.

3.6 Analyzing data

Thematic analysis and interpretative approach were employed to analyze the collected quantitative responses (Sekaran & Bougie, 2016). The quantitative data was organized, compared and contrasting to identify the similar themes present in the

answers of the respondents. Similar themes regarding the research questions were identified thematically. Moreover, the closed ended questions of the interviews were analyzed using frequency distribution analysis, where the majority of the views of the participants were identified for every closed ended question.

3.7 Reliability, validity and ethic considerations

In this study, only 5 interviews were conducted and so the statistical reliability of the results such as internal consistency of the data could not be analyzed. However, it was ensured that the collected information is reliable and so the 5 interviews were conducted with the MPs/CEOs of the Swedish tech SMEs, who could provide required information regarding the impact of the COVID-19 crisis on the Swedish tech SMEs and the leadership style and attributes of their managers/leaders.

Some ethical consideration related to informed consent of the participants, collection of data, anonymity and data privacy were acknowledged before conducting this study. Before starting data collection, the participants were contacted and informed about the purpose of this study, their rights, and the voluntary nature of their participation so that they could give their informed consent that they are participating in the study on their own free will. It was communicated that they can stop to participate in the study and withdraw their consent at any time after opting to participate in the study. During the interviews, it was ensured not to ask personal questions and the anonymity and privacy of data was fully maintained. To ensure anonymity and privacy the names of the participants were not disclosed in the research and any collected information was saved in password-protected files and its access was limited to the researcher alone. Following the research guidelines provided by the university was ensured.

4 RESULTS

4.1 Introduction

In this section the results of the thematic analysis and the frequency distribution analysis of the responses of the interviews are provided. The interview questions were answered by five Project Managers (PMs)/CEO of Swedish tech SMEs.

4.2 Thematic analysis

The results of the thematic analysis of the open-ended interview questions are presented in this sub-section. The interview questions 1 to 4 are related with the demographics of the five interviewed PMs/CEOs and their results are given below in **Table 4**.

Table 4. Results of interview questions 1-4

| Company name | Q1. What's your title? | Q2. What's your duty? | Q3. How many employees in your business unit? | Q4. How many team members do you manage? |
|---------------------|-------------------------------|--|--|---|
| A | CEO | Administration and sales | 9 | 9 |
| B | Head of System Software TDC | Lead software development | 10 | 10 |
| C | Project lead | Pre-sales and leader of custom software projects | 6 | 4 |
| D | Project Manager (PM) | Software development PM | 5 | 4 |
| E | Software lead | Manage delivery of software | Unknown | 4 |

The results indicated that the five interviews were conducted with a CEO, Head of System Software TDC, Project Lead, PM, and a Software Lead in the Swedish tech SMEs. The maximum number of employees in the business department of the interviewees was 10, and it was found that the participated PM/CEO manages 4 to 10 team members. The results of the remaining open-ended questions are given in **Table 8** to **Table 10**.

Table 5. Results of interview question 7

| Com-pany name | PMs/CEOs | Q.7 How your company has been affected by the COVID-19 crisis? |
|----------------------|-----------------------------|---|
| A | CEO | Economically turn-over has been lower than previous year but still manageable and no personnel permits has been needed. Personnel has been working remotely during this period according to governmental propose. In general, the crisis has not hit us that bad, so far. |
| B | Head of System Software TDC | Work reduction to 40% between April to September. Bus factories closed, reduce orders, reduced shipment. Now recovering. |
| C | Project lead | Financially no new sales between April to August. Be able to survive with investment funding, therefore no salary cuts and no lay off. Hope to recover soon. |
| D | Project Manager (PM) | Revenue reduced dramatically during the summer. Customer projects on hold, not many new sales from abroad. Domestic projects also on hold due to clients (big companies) reduced the workload for almost everyone. |
| E | Software lead | Production has been shut down for a while. Work time reduced. Global travel has been suspended. Leaders started to write articles on the social media and internal network to share their thoughts about the impact of the crisis. |

Table 6. Results of interview question 8

| Com-pany name | PMs/CEOs | Q8. What impact the COVID-19 crisis had on your company and its operations? |
|----------------------|-----------------|--|
| A | CEO | As mentioned above, turn-over has been less than last year, product deliveries to customers has been a bit less but consultation projects have been covering this turn-over fall |

| | | |
|---|-----------------------------|---|
| | | pretty well. The biggest difference compared to time before crisis is the amount remote-working and on-line meetings needed. |
| B | Head of System Software TDC | Less work capacity, only 40% for 4 months since March 2020. Reduction of consultant to reduce cost. Lower order inflow. |
| C | Project lead | Customer consulting projects freeze between April to August. Now it slightly getting back. Not many new sales, cannot visit customer due to the travel restrictions. Customer projects going slowly forward. Now we moved to 100% work-from-home compared to previously 80% remote working. |
| D | Project Manager (PM) | Due to reduce in income, had to cut salaries to 60% of previous salary. The other 40% was covered by the funds from the government for supporting SMEs during the pandemic period. Hope to survive this year, if not, will have to lay off 1-2 full time employees. As for the operations, we need to setup more working gears for employees that can have at home, such as switching from desktop PC to laptops, setup system testing rig at the office and setup office VPN for employees to access the office network remotely. It brings more IT work & challenging than before. Luckily, we have the knowledge to do such work since we are working with software. |
| E | Software lead | Sales declined. Customer project paused. Cost reduction has been performed. |

Table 7. Results of interview question 9

| Company name | PMs/CEOs | Q9. Does the COVID-19 crisis have caused you to change your leadership style? |
|---------------------|-----------------------------|---|
| A | CEO | Both yes and no, I have felt that my leadership style has been very much letting the people do their own decisions and give them their freedom, only guiding has been my role. The new things I have had to learn is the communication with remotely working personnel. |
| B | Head of System Software TDC | Not directly because I have worked with remote leadership since the last 5 years and my team is used to that. The difference is that more people work from home which has made it more flexible and more accepted to not always work in office. The new normal |

| | | |
|---|----------------------|--|
| | | would be to have distributed team and challenge is the social interaction and creating team spirit |
| C | Project lead | Now we have remote meeting on a weekly basis. no more face-to-face meetings. It is a difficult time that all the team members understand. |
| D | Project Manager (PM) | Yes, we have to work more and more from home due to the crisis. We are more relying on tools such as zoom meeting. Face to face meeting is not happening any more for a while, therefore we had to adapt ourselves to the new normal with lots of IT tools. My own leadership style did not change that much during this period; however, we are more eager to getting more sales or investments. Together with our team, we fight for the common goal at the same time. Much better than before since nowadays team members understand the situation as well. If the company and employee move forward to the same direction, it will improve the performance of the company. |
| E | Software lead | More short online follow up meeting planned. |

Table 8. Results of interview question 10

| Com- pany name | PMs/CEOs | Q10. How you (leadership of the company) led the employees and team forward sustainably while dealing with COVID-19 crisis? |
|-------------------------------|-------------------------|--|
| A | CEO | By checking daily basis, the feeling and health status of the personnel. Discussing with each and every one, also about small things, not only work-related issues. |
| B | Head of System Software | Same as before. Daily sync, transparency, weekly team meetings. Actually, it is interesting how this pandemic has changed the culture of leadership and that work is not a place but a result. This make it easier to build international team and not been restricted that a team working on a product has to sit in same office |
| C | Project lead | Try to lead the project/arrange the work that suit each team member's situation. Before web meeting starts, we usually have a small talk that discuss about some other things that is not related to work, to keep everyone in a good mood since nowadays most people work from home, the social life from work is reduced due to the crisis. But we try to keep the online coffee break on a regular basis. |
| D | Project Manager (PM) | For me I need to care more about our team members everyday work remotely & frequently. Started to |

| | | |
|---|---------------|---|
| | | pay more attention to how to improve the productivities & performance of the team in the long run. Try to help them get rid of the disturbances & difficulties if they need to work from home. In fact, the productivity of the team was improved during this period, we are thinking of gradually reduce the office size, not only to save fixed monthly costs but also to get more money spent for the employees. |
| E | Software lead | we are doing everything as usual. |

Table 9. Results of interview question 11

| Com- pany name | PMs/CEOs | Q11. How you motivated your staff while addressing their fears and concerns regarding their job security, downsizing and salary cuts? |
|-------------------------------|--------------------------------|---|
| A | CEO | As we have been in the lucky situation that we haven't needed to cut salaries nor lay-off people there has not been a need for such a motivation for above mentioned fears. |
| B | Head of System Software TDC | No issue. Everybody understood the situation and we got governmental funding for salary during work reduction |
| C | Project lead | We set the common goal and make it as a "challenging game with reward". this brings more fun and motivates the team members at work. We need to fight together to keep the company and employee her/himself moving forward together. Our team members understand the situation so it's not that difficult to manage/communicate. Luckily the Swedish social welfare system gives a strong sense of security for all of us, both individual and the company. The fears and concerns are less compared to other countries in the world. |
| D | Project Manager (PM) | Our employees understand the situation of the company pretty well, they accept the salary cuts for the moment. Thanks to the help from the government fund. To reduce the fears and concerns in the long run, we have to work together towards a common goal. Now when we have new projects/leads, everyone is welcomed to discuss together, we would like everyone from the team to contribute ideas. They become more creative than before. |
| E | Software lead | I have never faced these problems. |

Table 10. Results of interview question 12

| Com-pany name | PMs/CEOs | Q12. Which leadership attributes you (leadership of the company) adopted to adapt with the change? Please list them? |
|----------------------|-----------------------------|---|
| A | CEO | By discussing frequently with personnel. By listening them very closely. By coaching them to get the correct information of the pandemic and how it might affect the health. |
| B | Head of System Software TDC | Manage remote teams is key for future. The ability of leader to build virtual and international team and make all team members being engaged although not meeting everyday would be challenge as leader. On the other hand, I feel to communication and cooperation has been improved because of E-meeting with MS teams is working much more stable. That has increased number of meetings and avoided also a lot of travels. So I meet my international colleagues more frequently. A physical meeting is no longer necessary which saves time, money and speeds up decision and encourage cooperation. |
| C | Project lead | Changes are from democratic leadership to situational leadership style, since we need to consider the crisis more into the project planning. |
| D | Project Manager (PM) | By clarifying goals, establishing realistic expectations, assigning qualified personnel and allocating sufficient resources and funding, I articulate a clear direction that my team can follow. |
| E | Software lead | It is not my task. Jobs done by the line manager. |

4.3 Frequency distribution analysis

The responses of the five closed-ended questions are given below in **Table 11** and **Table 12**, and the frequency distribution analyses of the results are given in **Figure 4** to **Figure 6**.

Table 11. Results of interview question 5 and 6

| Company name | A | B | C | D | E |
|---------------------|------------|------------------------------------|---------------------|-----------|----------------------|
| Title | CEO | Head of System Software TDC | Project lead | PM | Software lead |

| | | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Q5. How often do you work at the office before the covid-19 pandemic? | 5 days per week | 1 day per week | 5 days per week | 5 days per week | 5 days per week |
| Q6. How often do you work at the office during/after the covid-19 pandemic? | 3 days per week | 0 days per week | 2 days per week | 3 days per week | 1 day per week |

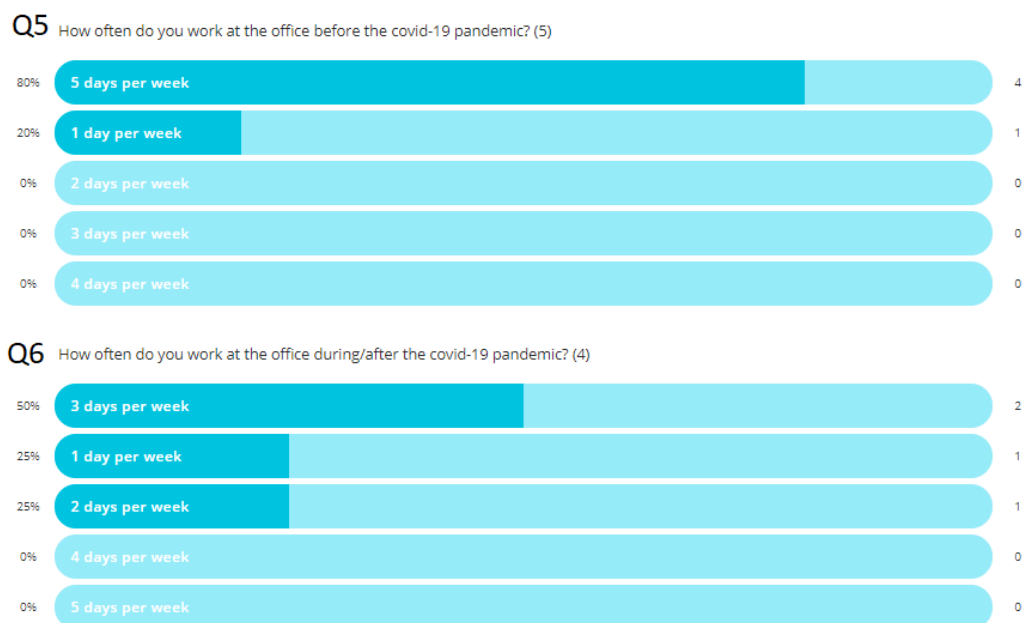
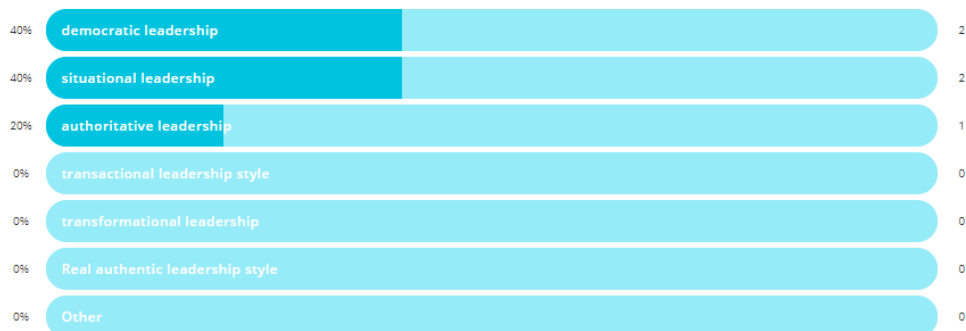


Figure 4. Frequency distribution result of Q5 and Q6

The frequency distribution analysis depicted that the majority (80%) of the participants used to go to work 5 days per week before the **COVID-19** pandemic. However, the results indicated that during/after the COVID-19 pandemic the number of days per week went down to 1, 2 and 3 days per week. During/after the COVID-19 pandemic the majority (50%) of the participants used to go to the office 3 days per week at most.

Table 12. Results of interview questions 13-15

| Company name | A | B | C | D | E |
|--|------------------------|------------------------------------|------------------------|-----------------------|--------------------------|
| Title | CEO | Head of System Software TDC | Project lead | PM | Software lead |
| Q13. Which of the following leadership styles was proved most effective in dealing with COVID-19 crisis, and why? Please select one option: | Situational leadership | Democratic leadership | Situational leadership | Democratic leadership | Authoritative leadership |
| Q14. To what extent the COVID-19 crisis has impacted your company? Please select one option | Slightly | Moderately | Slightly | Moderately | Moderately |
| Q15. To what extent the COVID-19 crisis has caused you to change your leadership style? Please select one option | Moderately | Slightly | Slightly | Slightly | Moderately |

Q13 Which of the following leadership styles was proved most effective in dealing with COVID-19 crisis, and why? Please select one option; (5)**Figure 5.** Frequency distribution of Q13

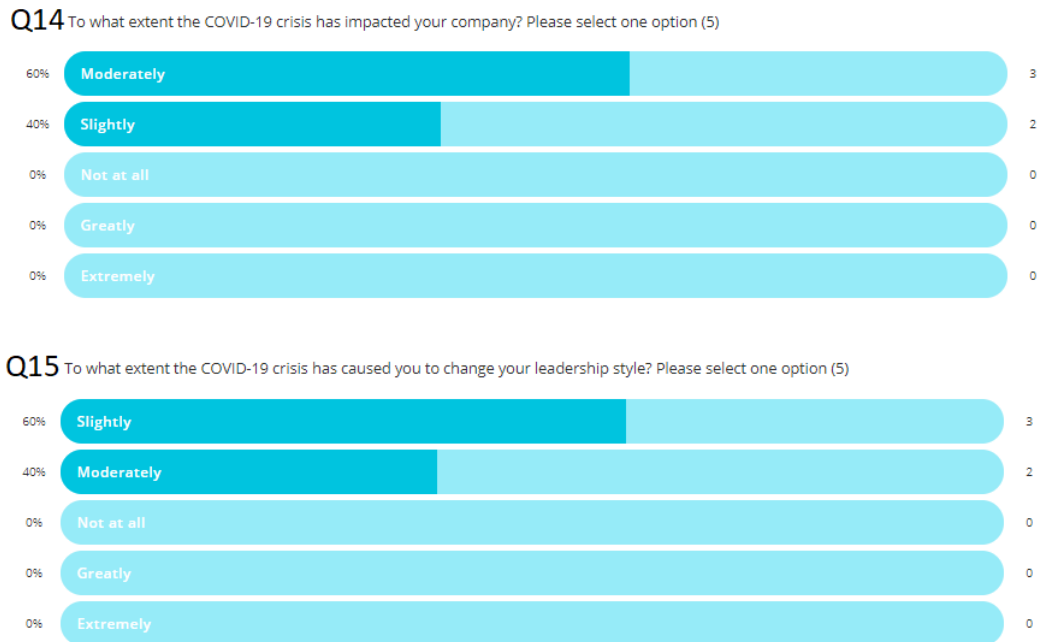


Figure 6. Frequency distribution of Q14 and Q15

The results of frequency distribution analysis further indicate that 40% of the participants stated the democratic leadership style was proved most effective in dealing with the COVID-19 crisis, and 40% of the participants agreed that situational leadership style was proved most effective in dealing with the COVID-19 crisis, and 20% of the participants believed that authoritative leadership style was proved most effective in dealing with the COVID-19 crisis.

Moreover, it was found that 60% of the participants believed that the COVID-19 crisis has moderately impacted their company, while 40% of the participants stated that the COVID-19 crisis has slightly impacted their company. Furthermore, the results suggested that the 60% of the participants believed that the COVID-19 crisis has caused them to slightly change their leadership style, however 40% of the participants said that the COVID-19 crisis has caused them to moderately change their leadership style.

5 CONCLUSIONS AND DISCUSSION

5.1 Theoretical contribution

In this section, the results of thematic analysis and frequency distribution analysis which were provided in the previous chapter are discussed to answer the research questions outlined at the start of this study.

Q1. How Swedish tech SMEs have been affected by the COVID-19 crisis?

How Swedish tech SMEs have been affected by the COVID-19 crisis was reviewed in chapter 2.8, where it was highlighted that due to the COVID-19 pandemic, the demand for Swedish service exports was drastically declined and SMEs faced a business downturn (OECD, 2020). The economy has declined economically and financially, however government had provided financial support by injecting money funds in the economy and supporting SMEs so that employees' salaries are paid and they are not laid off (OECD, 2020).

Similar findings were found in this study based on thematic analysis of the interviews responses of the five PMs/CEOs of the Swedish tech SMEs. It was found that the SMEs have been economically, financially, and operationally affected by the COVID-19 crisis. Regarding the impact which the COVID-19 crisis had on the Swedish tech SMEs operations, it was found that the operations of the Swedish tech SMEs have been negatively impacted by the COVID-19 crisis. It is because there were no new orders, not many new sales from abroad, temporarily production shuts down and existing orders were frozen due to which the operational activities and the output have been lower. Moreover, reduced work time also contributed to reduced operational activities and reduced cost and production output. Further-more, cost-cutting measures were employed such as reduced working hours. One of the impacts of the COVID-19 crisis on the operations of the SMEs was that it had modified the operational activities towards remote-working and the team members/employees have to communicate and coordinate work online via online meeting platforms such as Zoom meetings, Microsoft Teams. Before the crisis most of the PMs/CEOs of the Swedish tech SMEs were working at the office for five days per

week, however, after the pandemic, their work load is reduced and they were working at the office for three days at most. Besides, there was no travelling and visits to customers' sites due to the travel restrictions and this was a major operational change because now 100% of the work was done from home. Other operational changes which were made included: setting up working equipment for employees to work from home, such as switching from desktop PCs to laptops and setting up office VPNs for employees to access the office network remotely. Nevertheless, the crisis did not affect the Swedish tech SMEs that much and the personnel has been working remotely during the period. The government provided funds for supporting the SMEs so that they can pay salaries to their employees during the pandemic period. The SMEs have been working during the pandemic to around 50% to 40% of their capacities. Some of them have limited salary cuts. However, the industry was able to recover from the COVID-19 crisis. These findings support the literature discussed in chapter 2.8 by OECD (2020).

Q2. Has the COVID-19 crisis resulted in a change of leadership style in the tech SMEs in Sweden?

The result of the COVID-19 crisis on leadership style in Swedish tech SMEs was reviewed in chapter 2.8, where it was highlighted by Brownlee (2020) that companies had to change their leadership/management approach and business activities to be able to cope up with the COVID-19 crisis they had never seen before. The COVID-19 crisis has caused the PMs/CEOs of the Swedish tech SMEs to slightly or moderately change their leadership style, and so the impact of the COVID-19 crisis on the change in leadership style in the Swedish tech SMEs was not major. There was no need for the leaders to adopt to drastic changes in their leadership styles because the government provided financial support to the SMEs to give salaries and there were no lay-offs and employees were self-motivated. However, the only new element in the leadership style during the COVID-19 crisis was to carryout leadership functions virtually while communicating and managing teams/employees remotely. While working remotely (-working personnel) a guiding role has been played by the leadership and more flexibility was offered to the teams/employees. The leadership was focused towards creating team spirit and unity while

giving more freedom and flexibility to the team members. In such situation virtual leaderships was necessary. Regarding virtual leadership Mehtab et al. (2017) suggested in chapter 2.7 that all team elements shall be united by the virtual leadership in a virtual organization because inherently communication has limitations because the team members work remote away from each other. The present study provided similar findings that for virtual leaderships to work effectively in this situation it is necessary to have trust and open communication to address uncertainty, demotivation, and concerns of the employees and team members during a crisis such as COVID-19.

Moreover, the results of the thematic analysis suggested that the leadership of the SMEs led the employees and team forward sustainably while dealing with the COVID-19 crisis by carrying out various activities, making improvements, and also focusing on nonwork-related issues. It was evident that on daily basis leadership was inquiring the personnel about their feelings and health statuses, which indicates that the leadership had become more humane. The leadership was ensuring transparency while paying more attention to improving the productivity and performance of the team. Moreover, before officially starting an online meeting keeping everyone in a good mood is ensured by carrying out a small talk where some other issues were discussed. The leadership came to realize that to get work done all the team members do not need to sit in an office and therefore it is cost-effective to reduce the office size and employ remote teams/employees to improve productivity. All these leadership attributes are those attributes which are demonstrated by virtual leadership as represented by Mehtab et al. (2017) in chapter 2.4.

Q3. Which leadership attributes were adopted by the leadership of tech SMEs to adapt the change and lead the team, moving forward sustainably while dealing with COVID-19 crisis?

As per Brownlee (2020) seven new leadership attributes must be adopted by leaders to manage businesses during and after the COVID-19 crises. These are adaptability, flexibility, empathy, and candour. The findings of the present study support the

findings of Brownlee (2020). The leadership of tech SMEs have adopted the attributes of democratic leadership and situational leadership style while working remotely because they have to give freedom and flexibility to the employees and team members while working from home. The only change in leadership style was due to working remotely and so the leaders managed and communicated with the personnel remotely while giving freedom and hence adopting democratic or situational leadership style. The detailed conclusion is explained in the following paragraph.

Regarding how leaders motivated their staff while addressing their fears and concerns regarding their job security, downsizing and salary cuts in the Swedish tech SMEs, it was identified that none of the PMs/CEOs in the SMEs faced this problem. There were no job security issues or downsizing in any of the SMEs and there were no layoffs, so there was no need for such motivation to dealing with above-mentioned fears. However, in some SMEs, there were salaries cut but no lay-offs and everybody understood the situation. In addition, the SMEs got government funding to pay salaries during the pandemic and so there were no such fears or concerns. Therefore, leaders did not need to motivate their staff in the Swedish tech SMEs during the crisis. Instead, everyone was self-motivated and was taking it as a challenge to fight together to keep the company and themselves moving forward together. The Swedish social welfare system which gave a strong sense of security for all of the Swedish people was a major factor which prevented the employees, team members and managers from getting feared or concerned about the situation as compared to the rest of the world.

The results of the thematic analysis indicated that the leadership of the SMEs adopted the following leadership attributes to adapt with the change; active listening, coaching, managing remotely, correct communication, giving clear directions, and cooperation. However, some of the PMs/CEOs had changed their leadership style from democratic leadership to situational leadership. These attributes correspond with the leadership attributes suggested by Brownlee (2020) to adapt to be able to cope with the crisis such as COVID-19.

The results of the frequency distribution analysis suggested that democratic leadership styles and situational leadership styles were found to be most effective in dealing with the COVID-19 crisis. The results of the frequency distribution analysis further indicated that the COVID-19 crisis has slightly or moderately impacted the Swedish tech SMEs and so the impact was not a major one and was tolerated by the industry. In addition, it was found that the COVID-19 crisis has caused the PMs/CEOs of the Swedish tech SMEs to change their leadership style from slightly or moderately, and so the impact of the COVID-19 crisis on the change in leadership style in the Swedish tech SMEs was not significant.

5.2 Managerial contribution

Upon completion of this study, the three research questions were sufficiently answered.

The first research question was focused to find out how Swedish tech SMEs have been affected by the COVID-19 crisis. Based on the results, it was found SMEs have been economically, financially, and operationally affected by the COVID-19 crisis. The orders, shipment, revenues, work time, and output of the SMEs were reduced due to the COVID-19 crisis and the customer projects were on hold, and there were no many new sales from abroad. The employees working from home was one of the major changes which occurred due to the COVID-19 crisis because most of the workforce was working remotely during the special period, and the SMEs were able to adapt with this change. Therefore it was concluded that the COVID-19 crisis has slightly or moderately impacted the Swedish tech SMEs and so the impact was not a major one and therefore it was tolerated by the industry. The government funds were provided for paying the salaries which prevented the employees being laid off.

The second research question focused on finding out whether the COVID-19 crisis has resulted in a change of leadership style in the Swedish tech SMEs whereas the third research questions focused on answering which leadership attributes were adopted by the leadership of tech SMEs to adapt the change and lead the team, moving towards sustainability while dealing with the COVID-19 crisis.

Based on the results it was found that the COVID-19 crisis has caused the PMs/CEOs of the Swedish tech SMEs to slightly or moderately to change their leadership style, and so the impact of the COVID-19 crisis on the change in leadership style in the Swedish tech SMEs was not major. There was no need for the leaders to adopt drastic changes in their leadership styles because the government provided financial support to the SMEs for paying salaries and there were no layoffs and the employees were self-motivated. However, they have adopted the attributes of democratic leadership and situational leadership style while working remotely because they have to give freedom and flexibility to the employees and team members while working from their own homes. Therefore it is concluded that the impact of the COVID-19 crisis on Swedish tech SMEs was not consider and there was no significant change in the leadership style of the leaders. The only change in leadership style was due to working remotely and so the leaders managed and communicated with the personnel remotely while giving freedom and, hence, adopting democratic or situational leadership styles.

5.3 Limitation and future research

This research can be used as a basis to conduct future research to evaluate the impact of the COVID-19 crisis on the Swedish tech SMEs. However, in future research, it is recommended to employ a quantitative research method such as closed-ended questionnaire so that the statistical reliability of the questionnaire can be analyzed. By using a closed-ended questionnaire it would be possible to collect data from a large number of PMs/CEOs of the Swedish tech SMEs. Moreover, a similar study can be conducted in other countries such as Norway and Denmark using the same research method and interview questions which were used in this present study.

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APPENDIX - INTERVIEW QUESTIONS

| | |
|---|--|
| Q1. What's your title? | |
| Q2. What's your duty? | |
| Q3. How many employees in your business unit? | |
| Q4. How many team members do you manage? | |
| Q5. How often do you work at the office before the COVID-19 pandemic? | |
| Q6. How often do you work at the office during/after the COVID-19 pandemic? | |
| Q7. How your company has been affected by the COVID-19 crisis? | |
| Q8. What impact the COVID-19 crisis had on your company and its operations? | |
| Q9. Does the COVID-19 crisis have caused you to change your leadership style? | |
| Q10. How you (leadership of the company) led the employees and team forward sustainably while dealing with the COVID-19 crisis? | |
| Q11. How you motivated your staff while addressing their fears and concerns regarding their job security, downsizing and salary cuts? | |
| Q12. Which leadership attributes you (leadership of the company) adopted to adapt with the change? Please list them? | |
| Q13. Which of the following leadership styles was proved most effective in dealing with the COVID-19 crisis, and why? Please select one option; | (a) authoritative leadership, (b) democratic leadership, (c) situational leadership, (d) transactional leadership style (e) transformational leadership (f) Real authentic leadership style, and (g) Other_____. |
| Q14. To what extent the COVID-19 crisis has impacted your company? Please select one option. | (a) Not at all, (b) Slightly, (c) Moderately, (d) Greatly, and (e) Extremely. |
| Q15. To what extent the COVID-19 crisis has caused you to change your leadership style? Please select one option. | (a) Not at all, (b) Slightly, (c) Moderately, (d) Greatly, and (e) Extremely. |