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Influence of culture in the acceptance of digital tools in leadership communication

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Abstract

Influence of culture in the acceptance of digital tools in leadership communication

The workplaces are changing with the increase in the use of technology, digital communication, the shift towards multicultural teams, and remote work due to COVID-19. Leaders need more collaboration and acceptance of digital communication tools such as Teams, Slack. This study aims to determine the influence of culture in the acceptance of digital tools in leadership communication. In the literature review, 3 cultures(organizational, national, Individual) were assumed. And Individual culture was tested using Schwartz (openness to change) value survey along with other qualitative questions in 1-1 interviews of Austrians and multinationals living in Austria. Analysis from findings suggests that culture plays an important role in technology acceptance of digital tools in leadership communication. This was confirmed by the Schein model and Schwartz value ratings. The culture comprises of organizational, national, regional, and individual culture. Individual culture plays an important role, but other cultural factors cannot be avoided. Key factors affecting the technology acceptance in Vorarlberg(Austria) are listed along with recommendations to leaders.

Acknowledgment

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List of Abbreviations

TAM- Technology acceptance model

GRPI- Goals, roles, process, and interpersonal relationship

UTAUT- Unified Theory of Acceptance and Use of Technology

SVS- Schwartz value survey

PVQ- Portrait value questionnaire

COVID-19- ‘CO’ stands for corona, ‘VI’ for a virus, and ‘D’ for disease in 2019

1. Chapter of Introduction

1.1 Introduction and starting point

It all started with my observation when was visiting Silicon Valley in September 2019. I saw that organizations, leaders, and team members are using digital tools such as slack and teams for communication, this was new for me at that time. These digital communication tools can be simply explained by taking an example of 'WhatsApp' because everyone is familiar with the 'WhatsApp' application. It is the simplest form of digital communication tool. It has revolutionized the way we communicate today by making it a simple and fast way to reach individuals or groups both personally and professionally.

Adoption and Usage of digital tools at the workplace

The workplace survey conducted across the US and Western Europe in July 2018. The survey measured the employee's attitude and adoption of digital technology in the workplace. According to this survey, WhatsApp ranked as the most widely used mobile app in business, cited by 30 percent of all respondents. Microsoft's Office 365 apps are used by 29 percent of respondents, while Google's G Suite and Dropbox share the third position with 22 percent each. Employees are not only using this in their personal life but also in the workplace for communicating with colleagues, customers, and suppliers. ('Employees See Fresh Forces Shaping the Workplace', 2018)

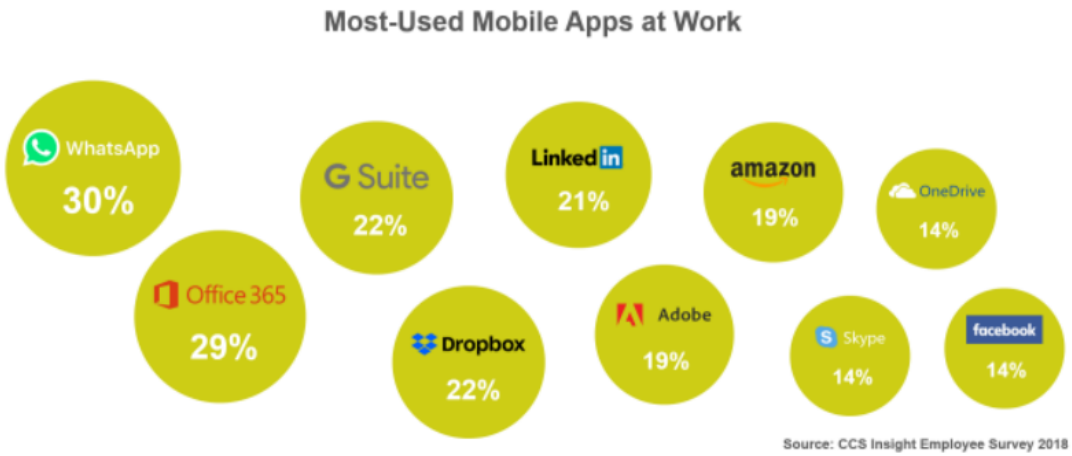

Figure 1: Most used mobile apps at work
Source: ('Employees See Fresh Forces Shaping the Workplace' 2018)

Professional collaboration and communication tools

Considering the professional usage and security concerns various companies have launched and upgraded the digital tools. Secondly, with technology advancement and communication, barriers have reduced from face to face communication to new forms of communication such as chat, audio, and video calls. This led to additions of all features

such as chat, audio, and video integrated into the single software application which is synced with email, calendar, etc. and all the professional features. This integrated software can be termed as professional collaboration and communication tools, for example, the slack, Microsoft teams, skype, and asana, etc. These tools are a new form of professional collaboration and communication.

Referring back to my Silicon Valley visit. As mentioned, these tools were completely new as I have never experienced and used them in Austria but on the other side, most of the people in the United States were using it regularly.

The above factors have triggered my initial idea of finding out more about digital communication tools and the reasons behind the acceptance of digital tools. Since it was not common to use these tools in Austria, does the acceptance of tools depends on culture.

Impact of COVID-19 pandemic

The COVID-19 has affected my master thesis in many ways and also in correlation to the topic. Due to the COVID-19 pandemic, people shifted to remote work globally and immediately started using digital communication tools. Because of that some of the companies like Facebook are planning to go 50% remote in the next 5-10 years. Hence we can say there is a rapid increase in communication and collaboration tools due to the COVID-19 pandemic. Thus this will continue to increase the digitalization at the workplace, and hence the need and demand for new technological tools will further rise. (‘Facebook Expects Half Its Employees To Work Remotely Permanently’ 2020)

Relevance and importance

With the increase in the use of technology at work, an increase in digital communication and collaboration, increase in remote work, moving from monoculture to multicultural teams. The organizations have to change or switch to new technologies tools. In the same way, leadership is changing, leaders have to change and adapt to new ways of working using digital technology. As leaders drive the change in the organization, first they have to accept new technology tools and from them, the teams and then organizations change. Which means it’s a cycle of change from leaders to the organization and vice versa. That is the reason why a leader's technology acceptance is important.

1.2 Motivation

As described already based on my visit to Silicon Valley where I got this information regarding the digital tools. Leadership is one of my favorite themes, followed by communication and intercultural studies. With the evolution of technology and digitalization, leadership and communication are also changing rapidly. Because of that leaders need to adapt to new technological and communication changes in the workplace.

With this topic, I would like to understand the key factors or challenges leaders face in terms of technology acceptance. Also as a future leader how could I bring the change in the teams and organizations? Based on my previous team experience, the leader has a significant impact on driving innovation and new technology among the team and organization. To bring change, I would also need to know the cultural aspects, so that it would be an effective change. Additionally, I am curious about people's behavior and technology. So these are some of the factors which motivated me to go for this topic and I believe that with my research I can bring value to other leaders and hence organizations.

1.3 Research question

To understand the leader's technology acceptance, the previous research of the technology acceptance model (UTAUT) was reviewed and was found out some of the factors such as gender, age, experience, and voluntariness of use influences the acceptance of the technology. However, it doesn't mention the influence of culture. Hence, there was a gap found in the technology acceptance model. Thus to understand the role of culture and its influence the below research question was constructed. (Im; Hong; Kang 2011; Davis; Bagozzi; Warshaw 1989; Venkatesh et al. 2003)

Research question: What is the influence of culture in the acceptance of digital tools in leadership communication?

Research Objective: Influence of Culture in the acceptance of digital tools in leadership communication.

To answer that question the research was conducted between Austrian native and multinational leaders living in Austria. To find out the key factors influencing technology acceptance and to analyze the influence of culture. Based on the literature review the different models are compared and the Schwartz value survey was selected, along with the GRPI model. The details are covered in the methodology section.

1.4 Structure

Overview of the literature review

Evolution of leadership in the digital era and collaboration

The first part talks about how leadership approaches, practices have evolved in the current digital era. It covers the behavior of leaders and the need for collaboration, co-creation, and communication at the workspace. This is one of the reasons leaders need these collaborative and communication tools. This part also indicates that it's not only the technology that is evolving but also the leadership, and with that leaders need to collaborate and communicate more and hence need digital tools.

Culture and technology in leadership

Since culture is one of the key elements in the master thesis, it is elaborated and described in detail in table 1 and below.

Challenges and TAM (Technology acceptance model)

The next part of the literature review talks about the challenges in the acceptance of these communication tools and then the technology acceptance model. Here is the gap that is emphasized as the culture part is missing in the technology acceptance (UTAUT) model given by Venkatesh. (Venkatesh et al. 2003).

Organizational, national and individual culture

The culture part is further described and assumed that three major cultures act on the leaders in the organizational context. These three cultures are the organization, national and individual culture are further reviewed from the literature. Different methods are described to measure the values. Then based on the comparison between different models, individual culture is chosen with Schwartz value survey to determine the leaders 'openness to change' parameter which determines the openness towards the technology acceptance and change. This parameter was further described in the methodology section.

Communication and technology in leadership

In this part, the effective leadership team model is discussed, which is further used to develop a methodology for qualitative interviews.

Methodology

Since this topic is relatively new, the nature of research is chosen as exploratory research. Using the deductive approach questionnaires were tested in qualitative 1-1 interviews. A total of 10 interviews was conducted. Which consisted of 5 Austrian native leaders and 5 Multinational leaders living in Austria. Along with 2 interviews from Silicon Valley. Further details are described in the methodology section.

Findings

Findings are categorized in quantitative and qualitative. In the discussion section, they are combined and further discussed. Followed by limitations.

Conclusion

The conclusion part covers the answer to the research question and summarizes the research.

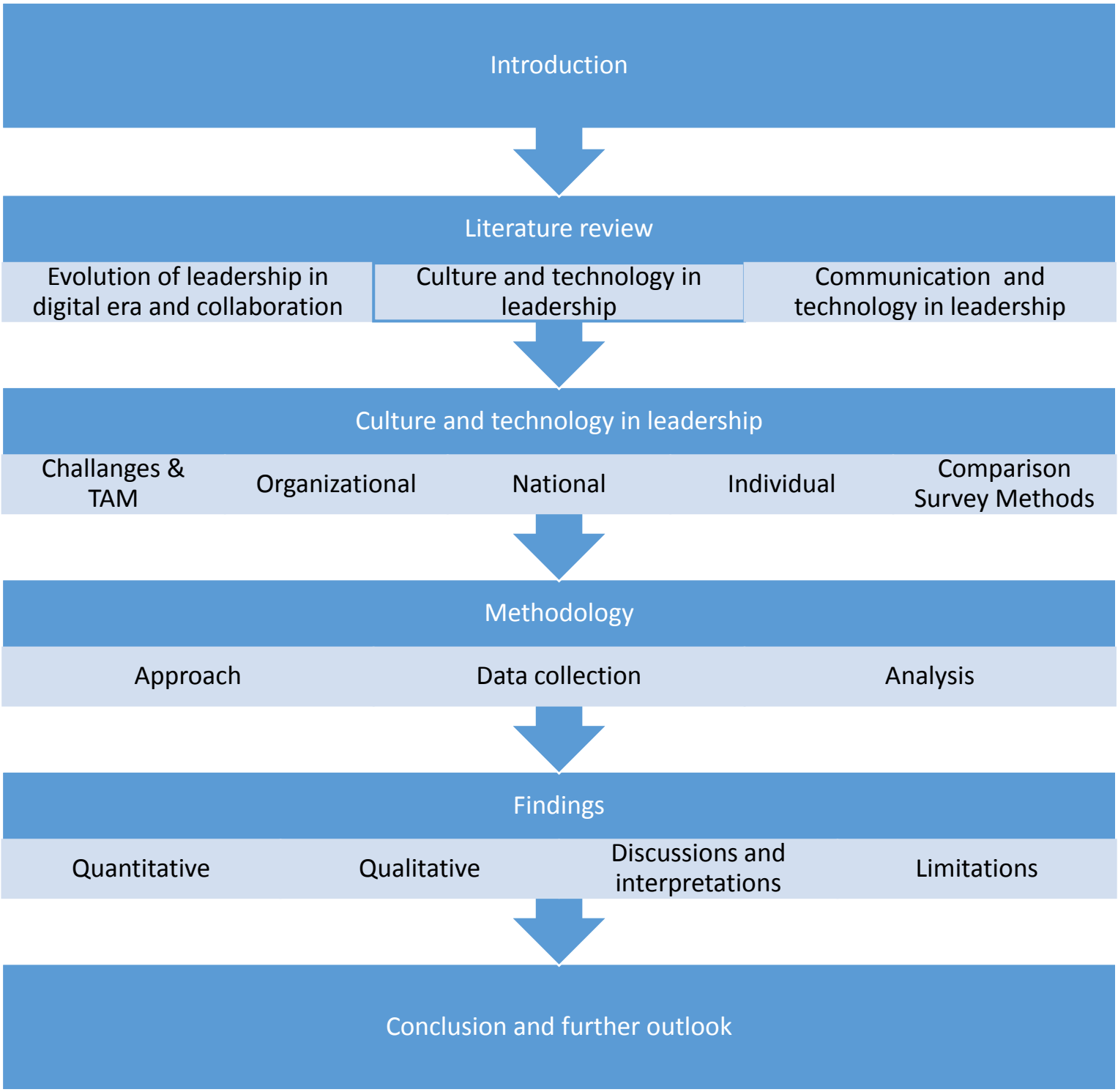

Table 1: Structure of the master thesis
Source: Self-creation

2. Literature review

2.1 Evolution of Leadership in the digital era and collaboration

Digitalization has changed our lives in the last decade in many ways. The way we live, communicate, work, and play and have a big impact on our daily lives. Digitalization has caused disruption not only in businesses but also in terms of leadership practices. The leadership practices have changed in past centuries. This is very contextual and could be correlated with the various impact which we have seen in manufacturing and production. The Leadership evolution is described in three layers Industry economy, knowledge economy, and in current mode creative economy. (Jakubik; Berazhny 2017)

The digital revolution has changed the way we work as it has made information more transparent, abundant, and less costly. The rise of the internet and communication practices has also shifted from physical communication to digital communication where we are all connected via the virtual or online world. We can stay connected without being physically present and with a simple touch on the mobile phone. Digitalization is the key to the 4th industrial revolution and thus also is the powerful reason for the implication in the current and future leadership practices. (Jakubik; Berazhny 2017)

In today's world, the competitive advantage of organizations is dependent on technology, culture, learning, creativity, and innovation which means the old or ancient ways of leading people will not work. In this emerging leadership paradigm the trust, collaborative learning, co-creation, sharing, and communicating in networks, connecting people are more important than commanding and controlling people. This means that it's not only the technology that is evolving but also the leadership, and with that leaders need to collaborate and communicate more, and hence they need digital tools. So this part will cover a brief overview of the evolution of leadership in the digital era and give an overview of collaboration tools. (Jakubik; Berazhny 2017)

2.1.1 Evolution of leadership approach

Humans and organizations have changed and developed in the last century. One way is to explain the four approaches to management which are Dogmatic, humanistic, pragmatic, and holistic. This also indicates that complexity in management has evolved and became more contextual during the years. (Bruce Jewell 1996)

Dogmatic approach (mid-1840's - the beginning of 1900s)

In a dogmatic approach to management, people were assumed to be 'rational economic animals', i.e. a rather mechanistic view of human work practices. The work was seen as fragmented and divided into independent tasks that could be measured to increase efficiency. (Jakubik; Berazhny 2017)

Humanistic approach (the 1930s–1940s)

The humanistic approach to management assumed that a human being was a 'social animal' and argued that good human relations improve the performance of people. Organizations were assumed to be informal, social systems. This school started to emphasize the democratic ways of leadership. (Jakubik; Berazhny 2017)

Pragmatic approach

The pragmatic approach focused on the organic view of organizations and assumed that leaders should put more emphasis on creativity rather than on efficiency. The leadership was seen as happening in a context, where history, time, and technology would play an important role in determining appropriate practices. (Jakubik; Berazhny 2017)

Holistic approach (beyond the 1950s)

Since the 1950's a holistic school of management started to evolve. This approach focuses on relationships between technology, human, and the environment. It sees leadership as a journey, as an evolving and dynamic process, escaping precise definitions, since our understanding of leadership has changed as the contexts in which leadership occurs evolve in the contexts of systems thinking, complexity, and wicked problems. (Jakubik; Berazhny 2017)

In summary, a humanistic, pragmatic, and holistic approach contributes to the current leadership and indicated that it's human, context-based, and continuously evolving. There are multiple definitions of leadership and that's very much dependent on different context and circumstances which can occur individually or simultaneously in the social, technological, economic, political, legal, and global perspective. Here the perspective is more related in context to an organizational and business environment where leaders are rapidly impacted highly by technology and rapid digitalization. (Jakubik; Berazhny 2017)

2.1.2 Rise of Altrocentric leaders vs traditional egocentric leaders

The above indicated new trends in the business environment require a new paradigm for future leadership. There is a move from the ego-centric or leader-centric leadership toward Altrocenric leadership. (Jakubik; Berazhny 2017; Sowcik et al. 2015)

Who is an Altrocentric leader?

The Altrocentric leader is the one who is intrinsically motivated by socialized power, and who draws strength and satisfaction from teaching, team building, and empowering others. Some of the key features of Altrocentric leaders listed below. (Vielmetter; Sell 2014).

Trust, collaboration, and teamwork

Altrocentric leaders know that they cannot be successful alone, they trust in collaboration, teamwork, they create and enable high-performing teams, communities, and they are in constant connection with stakeholders. They create meaning in their organizations, they delegate power, and they act with high maturity, integrity, and empathy. (Salicru 2015)

Open mindset

Altrocentric leaders understand they don't need to know or have all the answers and can ask for help in an open mindset. But with the right skills, they can easily handle the increased pressure of today and tomorrow's business environment. (Vielmetter; Sell 2014)

Difference between Egocentric and Altrocentric leaders:

Below are some of the key differences between Egocentric and Altrocentric leaders in terms of skills and practices. These skills are an essential part of leadership and will be further considered in the development of leadership and team communication.

Motivation: Egocentric leaders tend to be concerned only with personalized power – the power that gets them ahead. Altrocentric leaders, on the other hand, derive power from motivating, not controlling, others. (Vielmetter; Sell 2014)

Vision: Altrocentric leaders are visionary and are capable of thinking long-term. Also considering and covering both global and local perspectives. (Vielmetter; Sell 2014)

Coaching: Altrocentric leaders are naturally motivated by people's power and believe in the development of the team and employees. They draw strength and satisfaction by teaching, team building, and empowering others. So that they can handle easily the pressure of current and future business environment. (Vielmetter; Sell 2014)

Strong relationship and communication:

Altrocentric leaders understand that leadership is a relationship and therefore they primarily focus on other team members than themselves. They are skilled to engage people rather than commanding. The ability to understand that they don't need to have all the answers themselves but willing to find a solution. And ask for help from the others including the team members, it makes their life easy to handle stress-related situations. This applies more in terms of intercultural context when leaders don't know much about the general and detailed cultural context of colleagues and team members. This mindset of global and local collaboration and high engagement with team members makes them stand out in the current business environment. They believe themselves as just one integral part of the whole system. (Vielmetter; Sell 2014)

2.1.3 Emerging leadership paradigm: Collaboration & communication

Evolving leadership practices

The differences are also mainly because of the Context (figure 2) which is divided into three evolution frames although exact times are not mentioned the reference can give the bigger picture of current trends and where the society is moving in the future. Below are the examples of how we have communicated earlier.

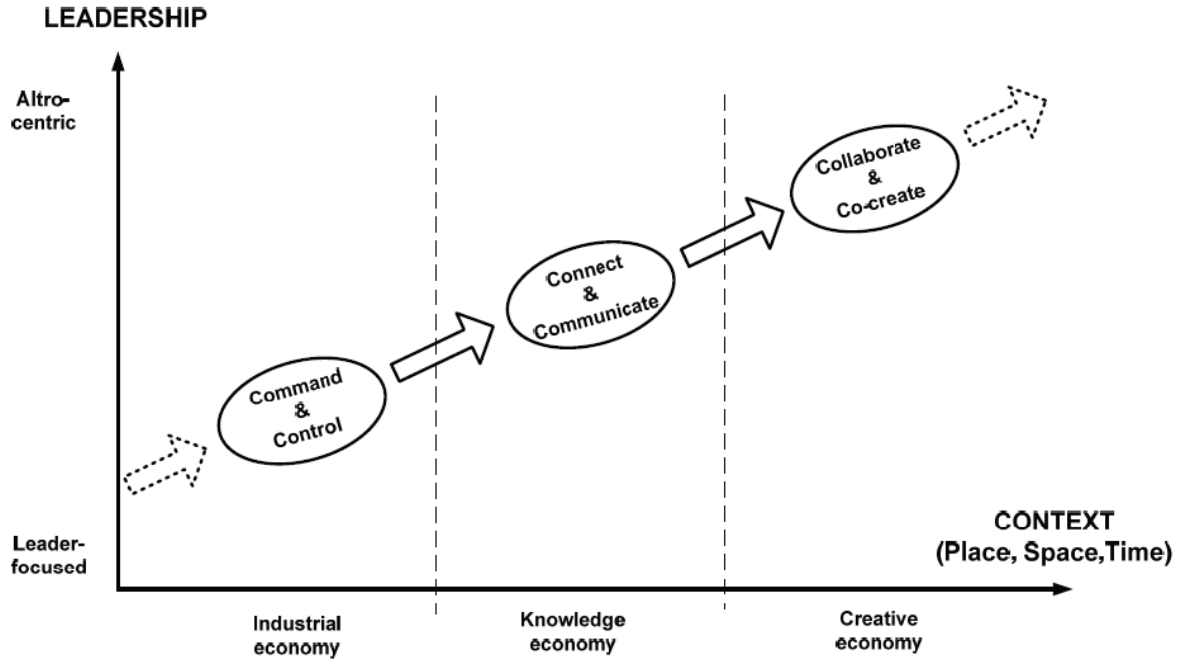

Figure 2: Evolving leadership practice
Source: (Jakubik; Berazhny 2017)

Industrial Economy: More a physical place, applying existing knowledge in the production systems. Communication is H2H (human to human). It can be compared to the industrial/ mechanical age. Here leaders were appointed or inherited. (Jakubik; Berazhny 2017)

Knowledge Economy: This is a more advanced version where communication has become more H2M (human to machine). Here leaders have voluntary followers based on the actions. (Jakubik; Berazhny 2017)

Creative Economy: In this version, everything became more digital and virtual. The communication became more M2H (machine to human) and M2M (machine to machine). Here leaders are emerging based on values and beliefs. (Jakubik; Berazhny 2017)

Emerging Leadership Paradigm: Collaboration, co-creation, and communication

Below table 2 represents the emerging new leadership paradigm which indicates the power shift, from the center to distributed forms of the leadership. Knowledge economy was connected and communicate which will further evolve in the creative economy. Where there is an increasing role of teams and communities and that will make the organizations more open and organic.

Time	Industrial Economy	Knowledge Economy	Creative Economy
Focus on context	Physical place	Place and space	Space (digital, virtual space)
Knowledge	Applying existing knowledge	Sharing knowledge	Enabling new knowledge creation, innovation
Organizations are	Formal	Informal, open systems	Organic, open systems
Communication	Human to human (H2H)	Human to machine (H2M)	Machine to Human (M2H), Machine to machine (M2M)
Becoming a leader	Inherited position, appointed by other leaders	Leader has voluntary followers based on his/her behaviour, actions	Leaders are emerging through their values, believes
Leadership	Leader-focused (egocentric)	Relational/Shared/distributed leadership	Altrocentric/ Phronetic/ Anticipatory/ Creative leadership
Leadership practices	Command &Control	Connect & Communicate	Collaborate & Co-create

(created by Jakubik)

Table 2: Emerging leadership paradigm
Source: (Jakubik; Berazhny 2017)

In the future, there will be fewer hierarchies and differences between leaders and followers. Everybody could be a leader and a follower at the same time. Workplaces will be more mobile, flexible, adaptable, multilingual, and culturally sensitive. Leadership practices face challenges in the future because geographical and physical presence will be less important due to digitalization. There will be virtual platforms for sharing, learning, and communicating. To cope up with those challenges, there are a lot of collaboration tools developed in the past decade and a lot of new tools are in the developing mode. The next part covers a brief overview of available tools to collaborate and communicate. (Jakubik; Berazhny 2017; Sowcik et al. 2015)

2.1.4 Overview of collaboration and communication tools

The collaboration tools are used to support the group of two or more individuals to achieve a common goal in both physical and digital form. Below are two examples:

Physical: Such as paper, flipchart, and whiteboards, etc. (‘Collaboration tool’ 2020)

Digital: Software and application tools for collaboration between team and leaders. (‘Collaboration tool’ 2020)

Below is the brief information about the digital collaboration tools and two categories, there can be multiple categories possible it depends on how to cluster them together. (‘Collaboration tool’ 2020)

Communication tools

Communication tools provide the exchange of information between individuals. Below are the different forms of communication.

E-Mail: The most used form of professional communication. Although email is still the most commonly used tool, however, it is not very efficient on a large scale. Some disadvantages are that you don't know the deadlines of certain tasks and it's not good for group conversations. Example outlook email. ('Collaboration tool' 2020)

Voicemail: Voicemail is just like a voice message, which can be delivered using a mobile or using a computer-based system. ('Collaboration tool' 2020)

Instant messaging (IM): Through instant messaging as a collaboration tool we can reach people within an organization or outside in real-time. ('Collaboration tool' 2020) An example is like WhatsApp, Microsoft teams chat messaging, etc.

Video conferencing: Way to connect two or more individual digitally it is the most effective form of communication after face to face meeting. ('Collaboration tool' 2020) For example, skype, zoom, google duo, etc.

Coordination tools

Coordination is defined as the deliberate and orderly alignment or adjustment of partners' actions to accomplish jointly determined goals. Collaboration tools supporting this are the ones who allow a person to set up group activities, schedules, and deliverables. Example of coordination tools is online calendars, time trackers, and spreadsheets. ('Collaboration tool' 2020) For example doodle, Trello, etc.

Examples of Tools available in Market

This thesis will not cover an extensive view on which tools to choose and select. But here are some of the example of digital tools which are available in the market such as Microsoft Teams, Google G-Suite, Slack, Skype, Basecamp, Jira, GoToMeeting/webinar, Asana, Doodle, and Trello. These tools can perform most of the above tasks either individually or together. Leaders can choose them based on their company policy and privacy norms. The below table 3 is an example of Microsoft based communication tools and how they are different from each other in terms of speed, audience, sharing of information, and knowledge transfer. ('Wondering when you should use Microsoft Teams?' 2017)

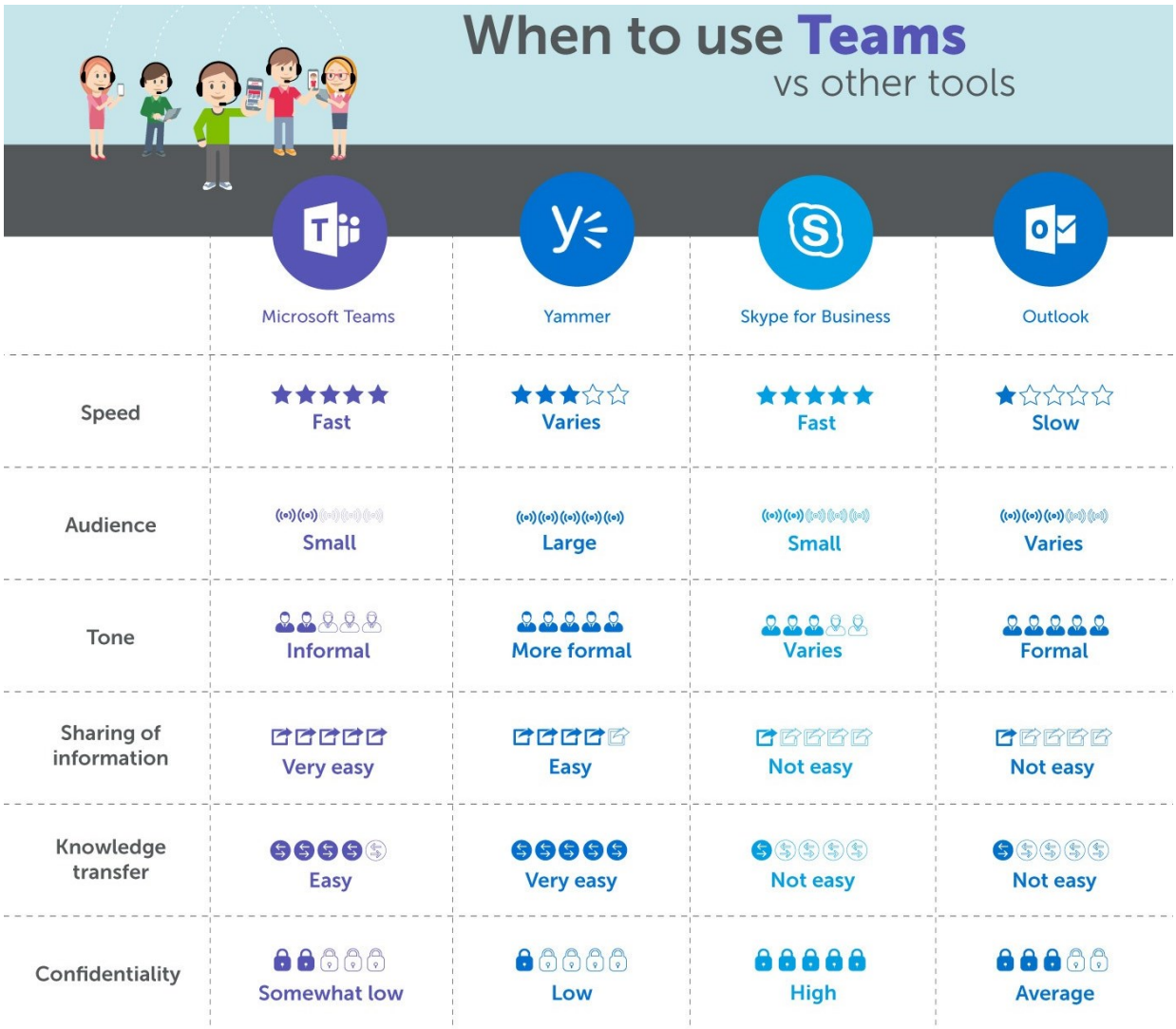

Table 3: When to use which communication and collaboration tool (Example Microsoft)
Source: ('Wondering when you should use Microsoft Teams?' 2017)

2.2 Culture and technology in leadership

2.2.1 Challenges in terms of technology acceptance

In the last part, we covered different collaboration and communication tools. But the usage of the above tools depends on the leaders' acceptance towards technology and whether they use these tools in their daily practice. Below is the list of challenges leaders face in terms of technology acceptance. Although due to the COVID-19 situation many things changed including this master thesis. Below list the first part which covers the challenges before corona time.

Challenges (before coronavirus outbreak in Europe)

Extensive impact of digitization is not recognized

The true extent to which digitalization and its consequences in day to day life have not been recognized by the leaders. Smooth present conditions without any major impact on the work, block the view, and prevent leaders from fully identifying the changing impact of digitization. That could be one of the reasons they might not go out of their comfort zone to check if there is something already present in the markets. For example, what kind of digital tools are present and how can these tools help them to be more productive and effective at the workplace. (Vey, Fandel-Meyer, Zipp, & Schneider, 2017).

Lack of agility and insufficient encouragement towards innovation

Even if the company's leaders fully recognize the current digital trends and development. And would have the vision to react to it. However, the company's culture, organization, and structure might not be built to be flexible and agile. This is valid for many companies where many people are using an existing platform and used to existing tools. (Vey et al. 2017)

Lack of relevant competencies (skills, knowledge, attitude)

In a situation where there is awareness about digitalization among the organization. And it's a top-down mandate to implement the new technology, this our case 'digital tools'. These new tools can't be successfully executed if leaders and employees do not have the right skills. Competencies such as technical skills, knowledge, and attitude are the key factors needed for digital technology acceptance among the organization. And organizational transformation cannot succeed without competent leaders and individuals who truly understand the meaning and complexity of digitization. (Vey et al. 2017)

2.2.2 Technology acceptance model (TAM)

Even if the leaders have the right set of skills the next question arises whether they accept the technology in their daily usage. This can be analyzed by the technology acceptance model (TAM).

The TAM model introduced by Fred Davis around three decades ago became a leading model in investigating factors that are affecting users' acceptance of the technology. This model suggests that when users are presented with new technology, several factors influence their decision about how and when they will use the technology. TAM is an adaptation of TRA (Theory of Reasoned Action) which was specially tailored for modeling user acceptance of information systems and technology. TAM posits that two particular beliefs, perceived usefulness and perceived ease of use, are of primary relevance for computer acceptance behaviors (Figure 3). (Davis, Bagozzi, & Warshaw, 1989)

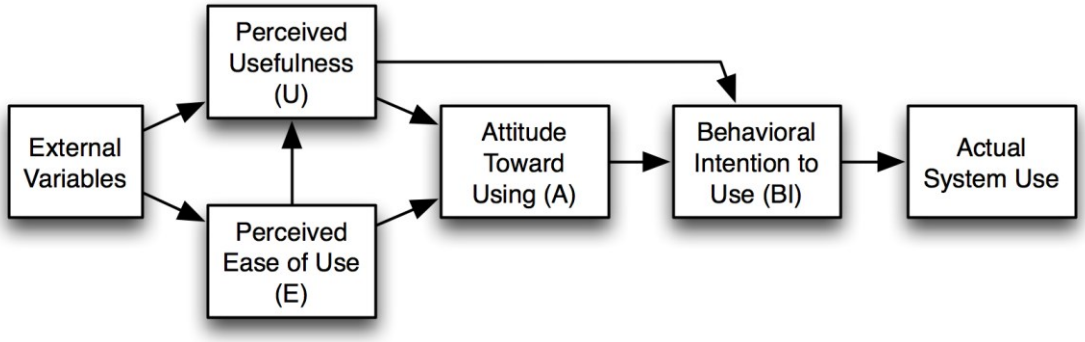

Figure 3: Technology acceptance model TAM)
Source: (Davis; Bagozzi; Warshaw 1989)

1. **Perceived usefulness (U):** As defined by Davis “It is the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context”(Davis; Bagozzi; Warshaw 1989)
2. **Perceived ease of use (EOU):** Davis defined this as "the degree to which a person believes that using a particular system would be free from effort"(Davis; Bagozzi; Warshaw 1989)

In basic terms, TAM suggests that technology usage is determined by Behavioral Intention (BI), which is, directly and indirectly, depends on the persons' attitude toward using the system (A) and perceived usefulness (U), with is linked to Perceived Ease of Use. This model was further developed by Venkatesh where he compared and tested the variables in eight different models of users’ technology acceptance and subsequently, proposed a Unified Theory of Acceptance and Use of Technology (UTAUT). (Im; Hong; Kang 2011; Davis; Bagozzi; Warshaw 1989)

Venkatesh described the UTAUT model (Figure 4) with four core variables(Venkatesh et al. 2003)

1. Performance expectancy
2. Effort expectancy
3. Social influence
4. Facilitating conditions

and four moderating variables (Venkatesh et al. 2003)

1. Gender
2. Age
3. Experience
4. Voluntariness of use

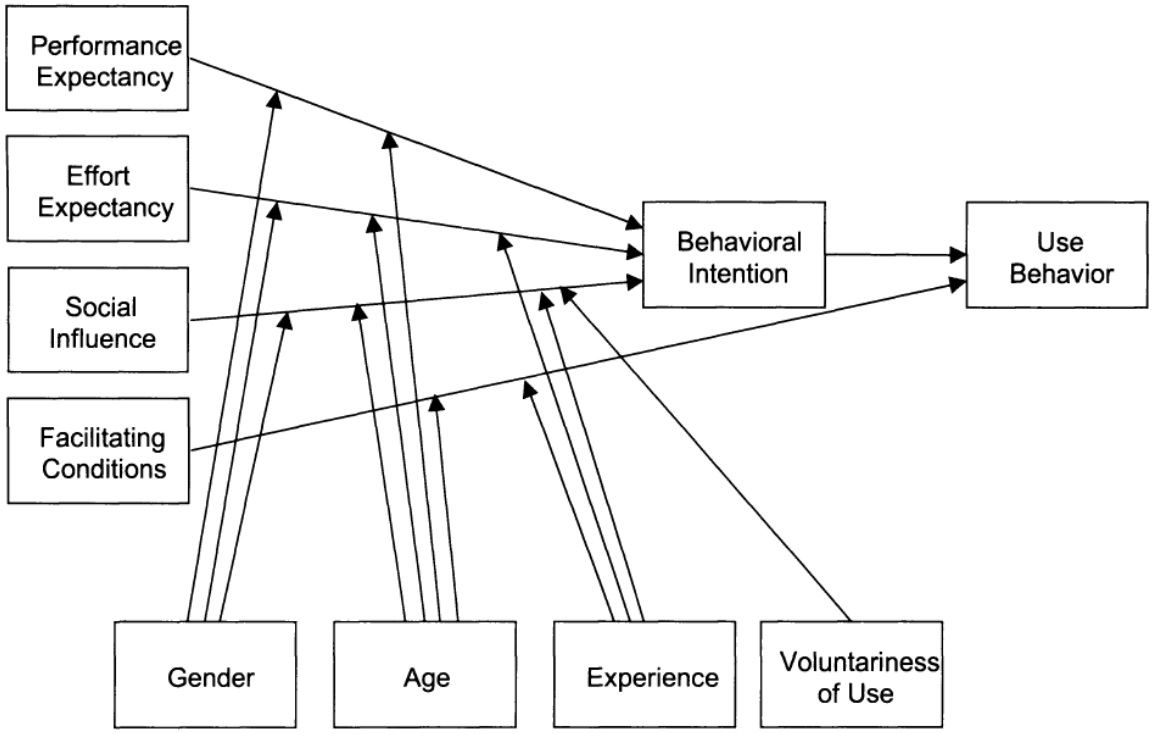

Figure 4: Technology acceptance (UTAUT) model
Source: (Venkatesh et al. 2003)

Research Gap

The UTAUT model is an important concept because it integrated eight major theories and was tested on a large real-world data set. The UTAUT model covers different factors such as gender, age, experience, and voluntariness of use. However, it doesn't mention the importance of culture in this model. This is the gap in the model. (Im; Hong; Kang 2011; Davis; Bagozzi; Warshaw 1989)

On the other hand the core variables such as social influence, facilitating conditions, performance, and effort expectancy. These variables vary differently across different countries and cultures. Also, the experience and voluntariness depend on the background of the studies and history of the users which can again be different across the culture. For example, some countries have technology preferences in education while others not. Since all of these factors vary across the cultures, thus there is a significant link between culture and UTAUT model. To further understand this gap, let's understand the culture and its

potential impact on technology acceptance. (Im; Hong; Kang 2011; Davis; Bagozzi; Warshaw 1989)

2.2.3 Culture impact on technology acceptance

Culture analysis is described by Edgar Schein. (Schein; Schein 2016)

> *"Culture, in general, can be analyzed at several different levels, with the term level meaning the degree to which the cultural phenomenon is visible to you as participant or observer. These three levels range from the very tangible overt manifestations that you can see and feel to the deeply embedded, unconscious, basic assumptions that we are defining as the essence of culture or its DNA. In between these three layers are various espoused beliefs, values, norms, and rules of behavior that members of the culture used as a way of depicting the culture to themselves and others". (Schein; Schein 2016)*

When we talk about technology acceptance in terms of digital tools in leadership communication there can be multiple ways to address it. But In this context there are key factors such as technology acceptance, communication and leadership are acting together. These are driven by mainly three key aspects of culture in an international organization setup. These three factors are Individual culture, organizational and national culture. These cultures can be interlinked and correlated to each other, as one corresponds or relates to another. In the end, either one or a combination of these three impacts the acceptance of technology in leaders. In the next steps, these three cultural elements and their importance are further described.

2.2.4 Role of organizational culture in technology acceptance

Effect of Organizational Culture in Technology acceptance

Three levels of culture, as described by Schein. (Schein; Schein 2016)

1. "Artifacts
    a. Visible and feelable structures and process
    b. Observed behavior
        i. Difficult to decipher" (Schein; Schein 2016)

2. Espoused beliefs and values
    a. Ideals, goals, values, aspirations
    b. Ideologies
    c. Rationalizations
        i. May or may not be congruent with behavior and other artifacts (Schein; Schein 2016)

3. Basic underlying assumptions
    a. Unconscious, taken-for-granted beliefs and values
        i. Determine behavior, perception thought and feeling" (Schein; Schein 2016)

Artifacts

Artifacts, as indicated in figure 5 below, are the most visible level of culture which consists of both the physical and social environment of an organization. Communication is part of culture including different modes of communication physical and digital platforms. Technology is also an essential part of the culture since it reflects the values through operations, materials, and knowledge. Also, it includes leadership practices and work traditions. Thus we can say that leadership communication using technology tools is an artifact. This artifact is visible just like the surface of the iceberg but its acceptance and usage depend on the hidden factors inside which could be as deep as iceberg depth. Let discuss that in detail further in the next parts. (Lim 1995; 'Schein's model of organizational culture' 2019)

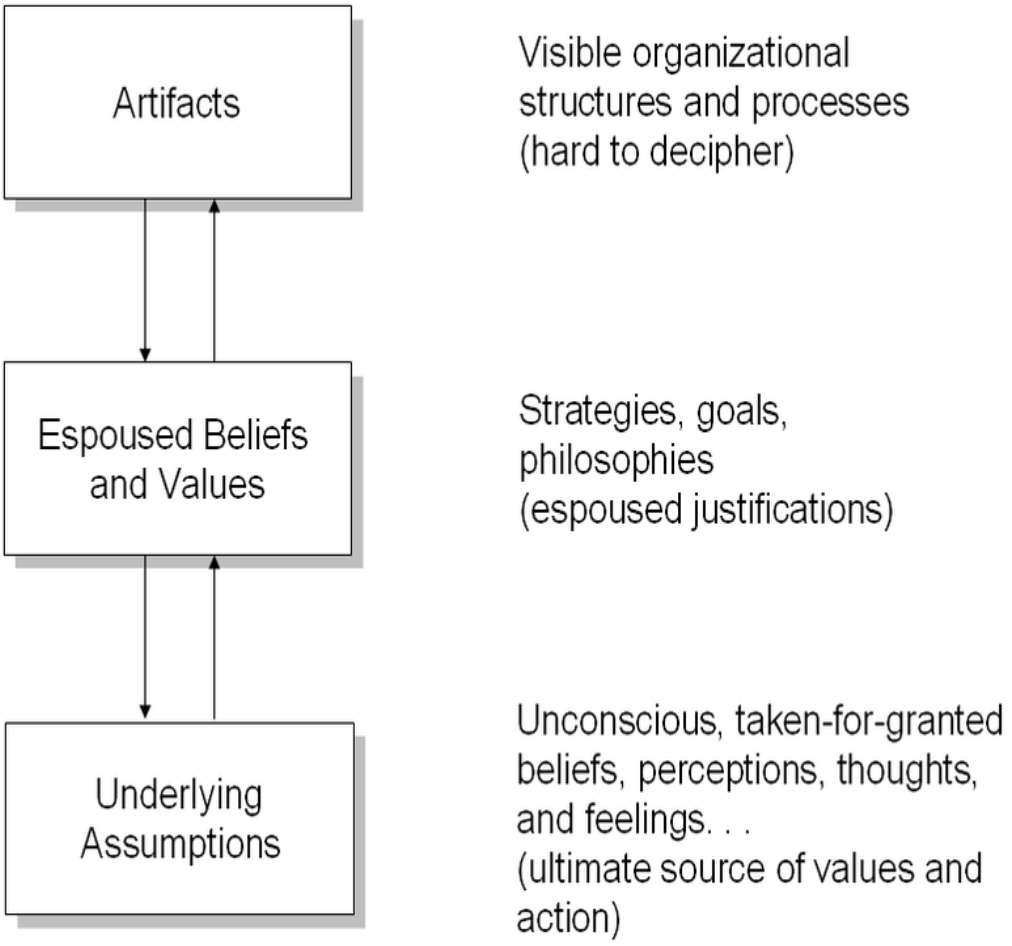

Figure 5: Schein model
Source: ('File:OCT.jpg - IS Theory' n. y.; Schein; Schein 2016)

Espoused beliefs and values

This level of culture provides the underlying meanings and interrelations. This can determine the ways how the different patterns of behaviors and artifacts are interpreted refer to figure 5. Espoused values are the organization values, they are often expressed in forms of official/ public statements. It can be linked to future projection or vision. For example, if the company would like to have digitalization as the key cultural element, it will be reflected in its vision or future strategy mission. This embraces the use of technology in the organizational culture. ('Schein's model of organizational culture' 2019; Alvesson 1989)

Basic underlying assumptions

This represents the unconscious level of culture which has been transformed slowly over a long time. This is invisible and taken for granted by the organizations as either they cannot see it or just ignore it as they are quite accustomed to it. This is not written down anywhere in company rules, but it exists and has a powerful impact on the culture. This can be linked to regional/ national culture values that exist in a particular company and since most of its employees portray similar values. This is often not visible at least inside the organization. It can have both negative and positive impacts. It can possess strong threat especially when the company goes through difficult circumstances and have to change like in case of rapid digitalization. It impacts people and leaders at an individual level as basic assumptions are difficult to relearn and change. For example, technology acceptance can be linked to national culture openness towards technology. Which can be difficult for people to change when being impacted at an individual level. (Lim 1995; 'Schein's model of organizational culture' 2019)

Organizational culture technology acceptance and leadership

Organizational culture is playing an indirect but important role in influencing behavior by using management tools. Some examples of management tools are strategic direction, goals, tasks, technology, structure, communication, decision making, corporation, and interpersonal relationships. The combination of one or more of these tools influences the organization's behavior and hence culture. Thus every company has its own culture as a unique identity. Hence the acceptance of tools depends on the organizational openness towards technology usage and how the people use technology in the overall organization. However, on the other hand, the culture of an organization affects how the people involved in it feel in the organization and how they perform for the organization. Thus culture can be influenced by the leaders as they are an essential part of organizational decision making. Thus we can conclude overall organizational culture and both leader's individual or collective culture can have a significant impact on technology acceptance. (Martins; Terblanche 2003; Schein; Schein 2016; 'Schein's model of organizational culture' 2019)

2.2.5 Role of National Culture in technology acceptance

Each country people have a distinctive character that determines their behavior and personality characteristics. The countries are a source of a considerable amount of common mental programming of their citizens and national culture is a fundamental factor that distinguishes consumers of one country from those of another country. (Dwyer, Mesak, & Hsu, 2005; Hofstede, 1991)

2.2.5.1 Hofstede cultural values

Hofstede defined the below values embedded in the national culture. (Dwyer, Mesak, & Hsu, 2005; Hofstede, 1991)

1. Power distance index (PDI)
2. Individualism vs. collectivism (IDV)
3. Uncertainty avoidance (UAI)
4. Masculinity vs. femininity (MAS)
5. Long-term orientation vs. short-term orientation (LTO)

Some of these values can have a direct or indirect impact on technology acceptance. (Dwyer, Mesak, & Hsu, 2005; Hofstede, 1991)

National Culture and diffusion of innovation

The study conducted across Europe examines the direct influence of national culture on the cross-national diffusion of innovations. It suggests that national culture explains a relatively sizable amount of variation in cross-national diffusion rates while examining the parameters of individualism, masculinity, power distance, and long-term orientation to cross-national product acceptance. For example, the parameter uncertainty avoidance links to avoid new changes. Figure 6 represents the Austrian national scores of 70 on the uncertainty avoidance dimension and thus has a high preference for avoiding uncertainty. Uncertainty can be linked to the acceptance of new technology or tools. High value also indicates people are intolerant for uncertain changes for new ideas and innovation. Secondly, Austria is an individualistic society with a score of 55 on Individualism. Which indicates individuals are more concerned about themselves. In terms of organizational context, the management is the management of individuals, which reflects the importance of Individual culture in the Austrian nation context. (Dwyer; Mesak; Hsu 2005; 'Country Comparison' 2020)

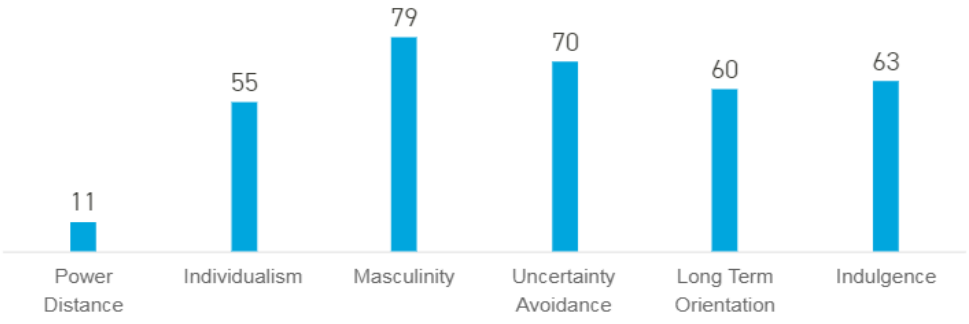

Figure 6: Hofstede insights for Austria
Source: ('Country Comparison' 2020)

2.2.5.2 Inglehart-Welzel value survey

Inglehart- Welzel value survey also called a world value survey reflects how scores of different nations and societies are located on the below dimensions. Traditional values versus secular-rational values and survival values versus Self-expression values. ('WVS Database' 2020)

Traditional values: These values are found in societies that have a high level of national pride and a nationalistic outlook. It emphasizes the importance of religion, parent-child ties, deference to authority, and traditional family values. ('WVS Database' 2020)

Secular-rational values: It is the opposite of traditional values. These values are found in societies that place less emphasis on religion, traditional family values, and authority. Divorce, abortion, euthanasia, and suicide are seen as relatively acceptable. ('WVS Database' 2020)

Survival values: These values focus on economic and physical security. It is linked with a relatively ethnocentric outlook and low levels of trust and tolerance. ('WVS Database' 2020)

Self-expression values: These values are linked to environmental protection, growing tolerance of foreigners, homosexuality, and rising demands for participation in decision-making in economic and political life. ('WVS Database' 2020)

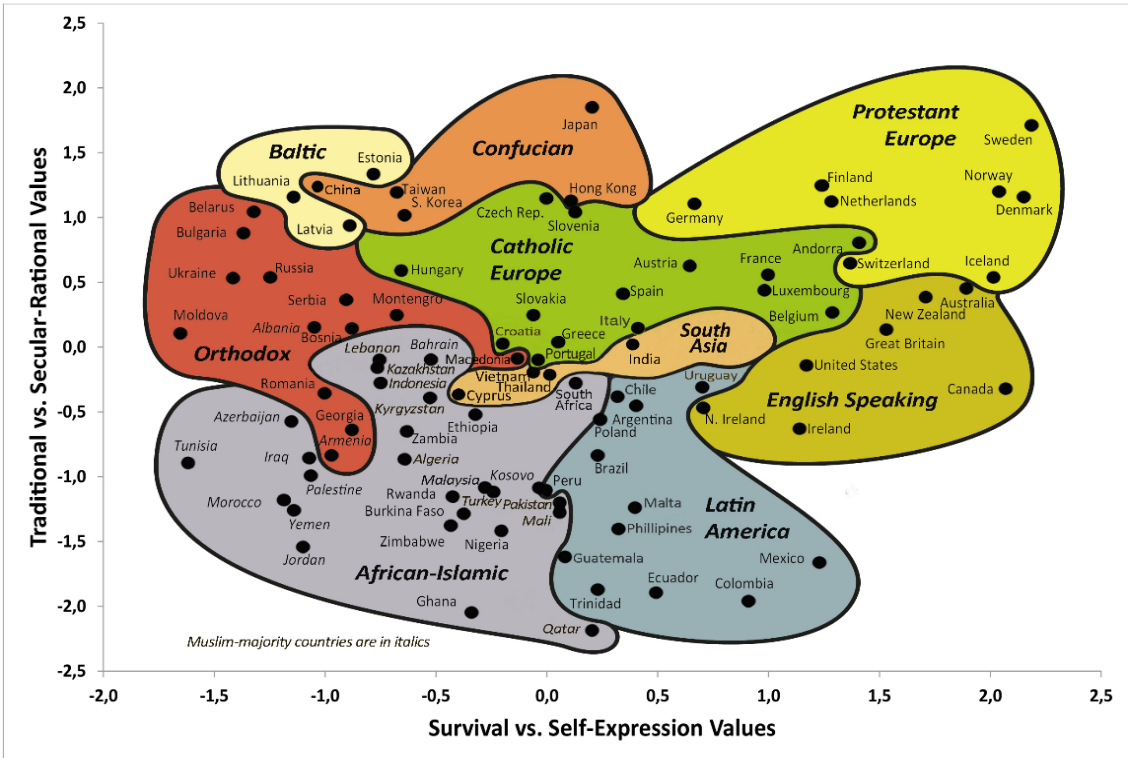

Figure 7: Cultural map – World value survey 6 (2010-2014)
Source: ('WVS Database' 2020)

Cultural map - WVS wave 6 (2010-2014)

Figure 7 shows the overall position of Austria, which is indicated more in the center, which indicates that Austria has relatively less secular and fewer self-expression values compared to Sweden, Norway, Denmark, and even Germany. This scale also shows the presence of traditional values and survival values which can potentially stop people to adapt to new technology or take any risks. But this scale is more on a societal level again not indicates any personal or individual characteristics. So these values may or may not have any direct correlation with the openness towards technology acceptance, as it focuses more on the national and religious outlook. ('WVS Database' 2020)

2.2.6 Role of Individual culture in technology acceptance

Why an individual level from Schein perspective

Individual cultural identity can also be analyzed in terms of artifacts, espoused beliefs and values, and underlying basic assumptions. Within us, we all carry assumptions about the state of the world and different ways to engage in communication and relationships. The below quote from Schein describes it well. (Schein; Schein 2016)

> *"These assumptions and rules derive from the macro culture that every society has learned from its history what level of communication and openness is workable for people to get along." (Schein; Schein 2016)*

All societies evolve rules of etiquette which are being taught to us when young from our family or friends. We learn that from our growing environment. The basic assumptions about why do we do certain things remain below consciousness and the process by which you learned them is forgotten. As an individual, we can all be observed at the artifact level, but we all have espoused beliefs and values that may or may not be in line with our behavior. We all have a deeper level of assumptions about why we do what we do. It is the degree of alignment between the three levels which determines how individual integrity is being judged by others. The next part covers the basic human values which determine deeper level assumptions of individual beliefs, values, and assumptions. (Schein; Schein 2016; Schwartz 2003)

Basic human values

Individual culture can be determined by the basic human values, which are being embedded in us as we are born or raised in society. These human values are motivationally different, broad, and derived from three universal requirements of the human condition and are described below by Schwartz. (Schwartz 2003, 2012)

1. Needs of individuals as biological organisms (Schwartz 2003, 2012)
2. Basics of coordinated social interaction (Schwartz 2003, 2012)
3. Survival and welfare needs of groups. (Schwartz 2003, 2012)

2.2.6.1 Schwartz values

The Theory of Basic Human Values recognizes ten universal values, which can be classified into four higher-order groups. These groups are open to change, Self-enhancement, Conservation, Self-transcendence. Each of these basic values can be characterized by describing its central motivational goal. Below enlists ten values and 4 groups, each defined in terms of its central goal. Specific single value items that primarily represent each basic value appear in parentheses. (Schwartz 2003, 2012)

Basic human values and 4 groups as described by Schwartz. (Schwartz 2003, 2012)

Self-Enhancement

Power

Social status and prestige, control or dominance over people and resources. (social power, authority, wealth, preserving my public image) (Schwartz 2012)

Achievement

Personal success through demonstrating competence according to social standards. (successful, capable, ambitious, influential) (Schwartz 2012)

Self-Transcendence

Universalism

Understanding, appreciation, tolerance, and protection for the welfare of all people and nature. (broadminded, wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature, protecting the environment) (Schwartz 2012)

Benevolence

Preservation and enhancement of the welfare of people with whom one is in frequent personal contact. (helpful, honest, forgiving, loyal, responsible) (Schwartz 2012)

Openness to change

Self-Direction

Independent thought and action--choosing, creating, exploring. (creativity, freedom, independent, curious, choosing own goals) (Schwartz 2012)

Stimulation

Excitement, novelty, and challenge in life. (daring, a varied life, an exciting life) (Schwartz 2012)

Hedonism

Pleasure or sensuous gratification for oneself. (pleasure, enjoying life, self-indulgence) (Schwartz 2012)

Conservation

Security

Safety, harmony, and stability of society, of relationships, and self. (family security, national security, social order, clean, reciprocation of favors) (Schwartz 2012)

Conformity

Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms. (politeness, obedient, self-discipline, honoring parents and elders) (Schwartz 2012)

Tradition

Respect, commitment, and acceptance of the customs and ideas that one's culture or religion provides(humble, accepting my portion in life, devout, respect for tradition, moderate). (Schwartz 2012)

Openness to change and Conservation

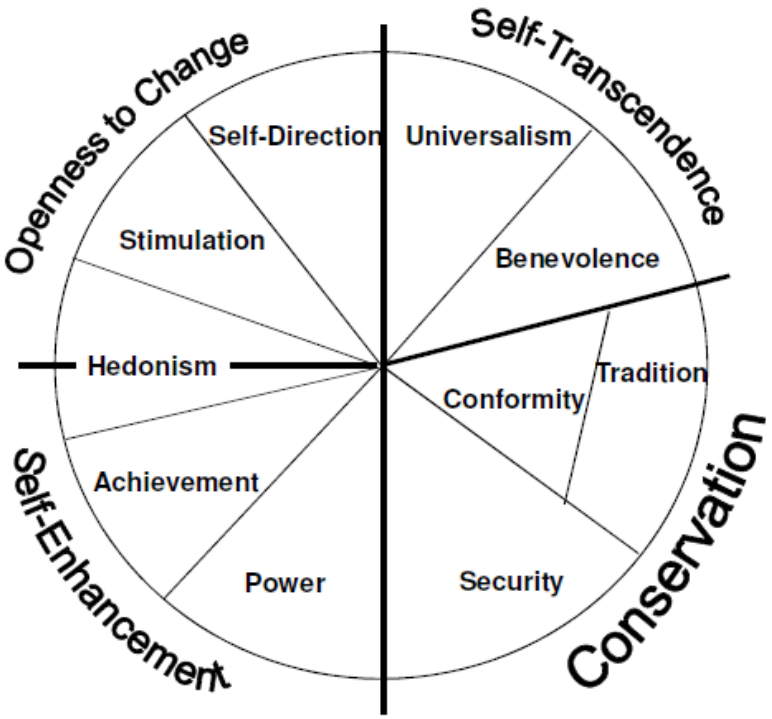

Figure 8: Schwartz theoretical model of relations among 10 types of values
Source: (Schwartz 2012)

The contrast between Openness to change and conservation

Figure 8 shows, the contrast between ‘openness to change’ and ‘conservation’ group values. This model captures the conflict between values that emphasize openness, independence of thought, action, and feelings and readiness for change (self-direction, stimulation) and values that emphasize order, self-restriction, preservation of the past, and resistance to change (security, conformity, tradition). Thus Schwartz value survey offers a good option to measure the openness to change at an individual level. Testing one group such as openness to change with self-direction and stimulation value on leaders, will automatically show the contrast. Also, it will indicate how much leaders are open for the change at an individual level. (Schwartz 2012)

2.2.6.2 Rokeach Individual Value Survey

The Rokeach value survey is designed on a total of 30 values, including 18 terminal values and 18 instrumental values. The task of Individual participants is to rank these values as an order of importance and as a guiding principle in their life. (Rokeach 1973)

Terminal Values refer to desirable end-states of existence. These are the goals that a person would like to achieve during his or her lifetime. These values vary among different groups of people in different cultures. Referring to Schwartz's values, here many factors linked to openness such as “Freedom” and “an exciting life”. (Rokeach 1973; Schwartz 2003)

Instrumental Values refer to preferable modes of behavior. These are preferable modes of behavior or means of achieving the terminal values. Again referring to Schwartz's values, the factors linked to openness can be “Imagination”, “Independence”, and “Broadmindedness”. (Rokeach 1973)

2.2.7 Comparison and selection of value surveys

2.2.7.1 Comparison of different survey methods

In the literature above the different methods were described to measure values such as Rokeach, Schwartz, Hofstede, and Inglehart-Welzel. Below table 4 describes the comparison and summary of each method. (Schwartz 2003)

Model name & Features	**Inglehart-Welzel(WVS) method**	**Hofstede method**	**Rokeach method**	**Schwartz value method**
Measurement level	individual(indirectly) to national	National level	Individual	Individual
Value Parameters Measured by the survey	Traditional values vs Secular rational values, Survival vs self-expression values	Power distance, individualism vs collectivism, uncertainty avoidance, masculinity vs femininity, long - term orientations vs short term orientations	Terminal values and Instrumental values	10 Basic human values/ 4 groups (For simplification 1 group is considered **openness to change**)
Preferred /Desired for	Political, economic, religious, tradition, and expressions	Focused more on work values at the national scale	Individual lifetime goals and behavior to achieve goals	All Individuals
Openness to acceptance of technology (openness to change)	No, it's more about an individual view on society	partially at the national scale	Yes, but difficult to measure	Yes, and easy to measure using **self-direction** and **stimulation values**
Disadvantages/ Limitations	Talk more about self-expression but do not talk individually about openness to change.	Not accurately determine the individual values and their link to opinions or behavior	36 values are too long, difficult to measure and to get precise outcomes, ad-hoc not theory-driven	**Advantages**-Theory-based values orientations. Can be measured.

Table 4: Comparison of different value surveys
Source: self-creation (using different models described above)

Openness towards technology acceptance and change

Based on table 4 comparison the Schwartz value survey is most suitable to find the influence of culture in technology acceptance at the Individual level. The Schwartz value group openness to change can be interpreted as the openness towards digital communication technology tools and change to accept it. So by checking this theory, two implications can be derived openness towards technology and change. (Schwartz 2003)

An easy form of measurement using PVQ

The original Schwartz value survey overall consist of 56 specific value measures. To simplify the whole measurement process the adapted form of Schwartz value survey called a Portrait value questionnaire (PVQ) was chosen. The PVQ was designed to measure the same values as Schwartz. However, it is more concrete and less complex as compared to the original Schwartz value survey. Because of its simplicity, it is easy for people to understand respond. PVQ consists of 21 questions but not all of them are relevant for measurement of openness to change. From the model and figure described before (figure 8), the value parameters Self-Direction and Stimulation were selected as it represents openness to change as a whole. The third parameter hedonism is not taken into consideration as it also lies in another group's self-enhancement and secondly, to reduce the complexity. Thus only two parameters self-direction and stimulation were selected to check for technology acceptance and change. (Schwartz 2003)

Measurements of self-direction and stimulation values

As described above PVQ consist of 21 questions but all of them are not relevant for measurement of openness to change. As mentioned before the below two parameters self-direction and stimulation and further broken down into the form of a questionnaire described using the PVQ method by Schwartz below. (Schwartz 2003).

Self-Direction

> *"Thinking up new ideas and being creative is important to him. He likes to do things in his own original way"(Schwartz 2003)*
>
> *"It is important to him to make his own decisions about what he does. He likes to be free to plan and to choose his activities for himself" (Schwartz 2003)*

Stimulation

> *"He likes surprises and is always looking for new things to do. He thinks it is important to do lots of different things in life" (Schwartz 2003)*
>
> *"He looks for adventures and likes to take risks. He wants to have an exciting life" (Schwartz 2003)*

To test the differences at the individual level. The Schwartz values survey method in the form of PVQ was selected as it can measure openness to technology acceptance and change. This can be further analyzed using self-direction and stimulation values using the above sub-questions. (Schwartz 2003)

2.2.7.2 Limitations of other survey methods

Due to the above-stated reason and referring from table 4, the Schwartz value survey was selected. As none of the methods is close as Schwartz value survey to find out the reason for individual leader openness towards new technology tools. Below are the indicated limitations of other methods, in comparison to the Schwartz value survey. (Schwartz 2003)

Limitations of the Rokeach Value survey

It covers a range of human values but the selection is ad hoc and based on the predictions. So there is no structure to find out the right values as the Individual has to select and rank from all sets of values. It gives a wide variety of choices to an individual to select and cannot be focused on one value and its importance. So it will not be accurate to measure technology acceptance and openness to change. Secondly, it's too long with 36 values and is too abstract to analyze. In terms of validity, it will not be consistent as people will not be ranking the same values. (Gibbins; Walker 1993; Schwartz 2003; Rokeach 1973)

Limitations of Inglehart-Welzel or world value survey

It asks about preferences among possible goals for one's country, not about personal goals. Thus Inglehart scales measure an individual's values only indirectly. It talks more about self-expression, which covers economic, political, and security aspects at the country level but not in terms of self-direction. It also not describes the openness to change related values at the Individual level, which are well described by Schwartz values. Third, the Inglehart scale measures only a single value dimension for overall country prediction. Compared to Schwartz where every value has a different meaning and can be measured individually and separately based on the requirements. (Schwartz 2003; 'WVS Database' 2020)

Limitations of Hofstede

Hofstede has four value dimensions in terms of comparing the cultures. It describes the overall national values. But it does not accurately determine the individual values and their link to opinions or behavior. Some of the dimensions it measures such as individualism and power distance, differentiate among nation cultures and not among the individual level. Additionally, Hofstede's values are more focused on work values and don't consider the range of human values which are more relevant in our general lives. (Schwartz 2003)

2.3 Communication and technology in leadership

2.3.1 Leadership and team communication: GRPI model

The GRPI model of effective team

Some of the key goals of leaders in terms of team communication are to improve team effectiveness, ensuring productivity, efficiency, and quality and at the same time enhancing the way teamwork together. This can be achieved by utilizing the GRPI model introduced by Richard Beckhard in 1972. It highlights the different aspects of team cooperation by identifying and setting common goals, clarifying roles, responsibilities, and processes, and the interpersonal relationships of team members. (Raue et al. 2013)

GRPI is an acronym describing the different dimensions characterizing a team, arranged in cascading priorities towards performance. In figure 9, leadership communication requirements such as Goals, roles, and processes can be linked to more task-focused communication, and at base interpersonal relationships linked to more relationship-based communication. This is applicable in both the scenarios, whether leaders communicate in 1-1 or 1-many team members' setup. (Raue et al. 2013; Tichy; Cohen 1998)

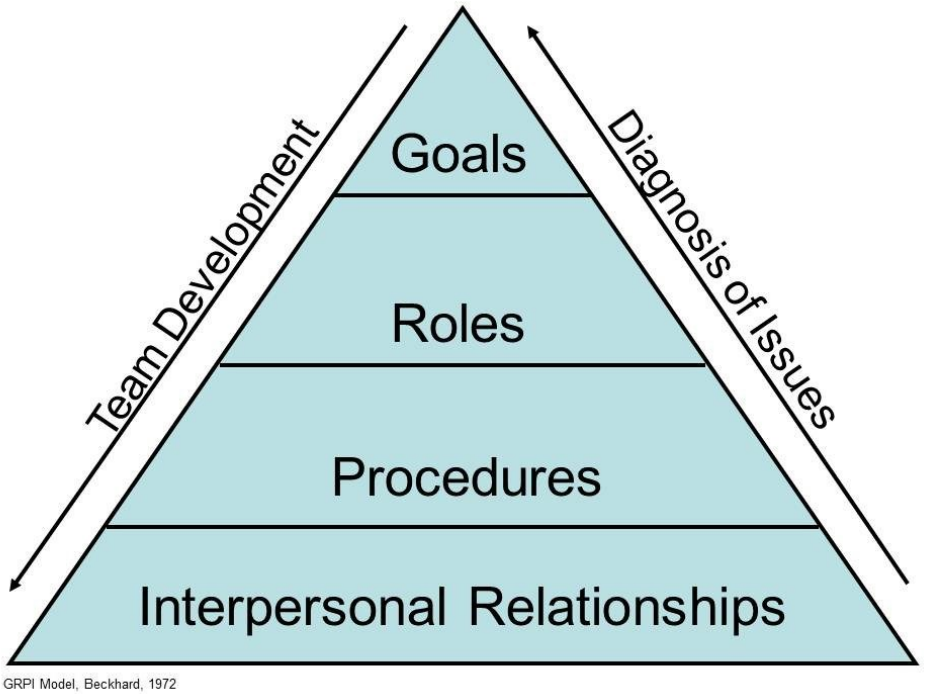

Figure 9: The GRPI model for effective team development
Source:('The GRPI Model' n. y.)

Goals

Goals provide the concrete foundation of good teamwork. Leaders can achieve the goals by crafting the core mission of the team and framing its purpose. Joint goals set by effective leaders give direction to the team allowing them to understand where they are now, to define where they want to go, and to unite each effort in getting there. Goals create leader identity thus its need to be communicated, shared, and agreed with the team. On the other side, the team members have to understand, accept, share, and commit to a common objective. That's why it needs clear communication between a collaborative leader and team members to create and agree on a common goal. This commitment can be achieved by aligning on the team and individual goals. Goals can be further broken down into SMART goals (Specific, Measurable, Achievable, Relevant, and Time-bound. These SMART goals can be further agreed and measured using digital tools along with the timelines. These goals can be set by using digital project management tools and communicate via communication tools. (Doran 1981; Drucker 1956; Raue et al. 2013)

Roles

Roles for leaders can be described by their authority, responsibilities, and tasks and it should be aligned with their defined goals. To enable the team to function effectively, each team member should have a clear picture of who is doing what, who is responsible for what, and should know the extent of their authority. That why clear communication is needed from a collaborative leader in both individuals and group team members to have a common understanding collectively. It is also important for the team members to understand it and cooperate to achieve the final goal effectively. This is the foundation of a clear process in communicating, clarifying, and resolving issues. During the time of corona, it becomes more difficult when the team is not physically present and have challenges to know what to do individually or collectively. The digital tools offer the possibility to divide and see the tasks and in parallel see the progress individually and transparent to the whole team. Example of such tools is Trello and planner, where multiple team members can see the tasks and progress and communicate. These tools can be synced for better communication. (Biddle 1986; Raue et al. 2013).

Processes

Processes act like a governance tool to overcome inefficiencies in the areas of decision-making, control, coordination, and communication. Defining and communicating the process clearly and determining the interactions supports the collaborative leaders in achieving their goals. Setting intelligent standardized processes for actions, creativity, innovation, decision making, conflict management, and communication, etc. will effectively support the team goals. The process also links to collaboration as leaders brainstorm with different team members to innovate and bring new ideas. Communication comes itself into the process, for example, how do we communicate, with whom should we communicate, and when do we communicate, etc. Thus communication is important in the process. There

are multiple tools for managing a team process and communication together where information can be synced or separated. (Raue et al. 2013; wong 2009)

Interpersonal relationship

The interpersonal relationship for a leader is about establishing trust, open communication, and feedback to support the collaborative working environment. Most of the traits of leaders were already covered in the first part of the literature review. But there are some challenges with digital communication as compared to physical communication, a lot of non-verbal communication cues are missing. This is considered one of the biggest challenges in managing interpersonal communication. (Jawadi et al. 2013; Cortellazzo; Bruni; Zampieri 2019)

To build an interpersonal relationship in digital communication. The leaders need to adopt some behavior and practices, which includes introducing the new communication norms in the teams. There needs to be a clear definition of in what way these tools can be used within the team, such as correct information exchange, monitoring individual and team contribution, faster detection of the problem, and mistakes. Leaders are responsible for maintaining the communication between his team and within team members. Thus leaders can play an important role in the construction of this common language. (Jawadi et al. 2013; Plowman et al. 2007; Bjørn; Ngwenyama 2009; Rafaeli; Ravid; Cheshin 2009; Cortellazzo; Bruni; Zampieri 2019)

Role of communication and interpersonal relationship

As covered in the last section, communication is embedded in all the tasks of leaders both in the physical and digital format. In support of that argument, there is an adapted form of a model proposed by Ross Tartell(figure 10). Which says that the interpersonal relationship is integrated vertically and horizontally, and will affect all the rest of the dimension. The interpersonal relationship acts like a lubricant that helps the other components function well. But it is also one of the four possible causes of team troubles. The model is depicted as a pyramid below. This method was further used to frame the qualitative interview in methodology to find the technology acceptance in terms of advantages and disadvantages leaders face with digital technology and team communication. (Tartell 2016)

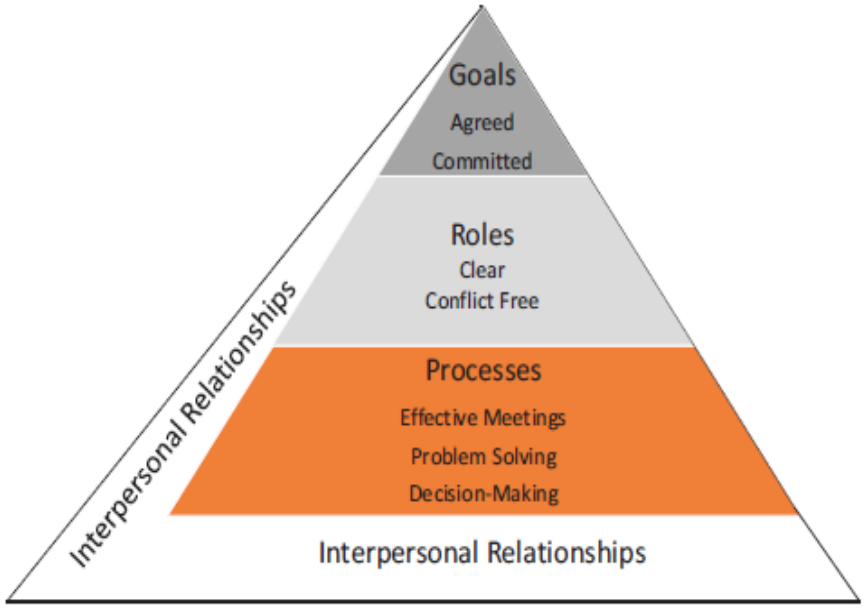

Figure 10: The GRPI model modified by Ross Tartell
Source:('The GRPI Model' n. y.)

2.3.2 Importance of GRPI model

Importance of GRPI model in leadership

GRPI model is important in leadership effectiveness as it set up a clear expectation of leader and team communication. For example, in the case of team conflicts, the GRPI framework follows the 80-20 percent rule. Figure 11 shows the 80-20 percent conflicts occurring at each level.

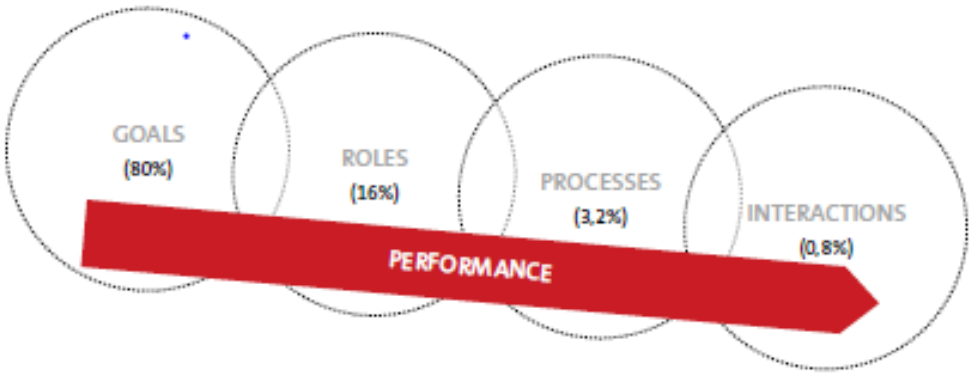

Figure 11: The GRPI model with team conflict potential ratios
Source:(Raue et al. 2013)

In the team, 80% of conflict arises due to unclear goals. And from the remaining 20% again 80% arises due to unclear roles. This pattern is further followed in the process and

interactions part. This is a cumulative cycle, if goals are not clear, uncertainties at individual roles will arise. If roles are not clear that will result in conflicting processes if the process is unclear, the conflict will happen at the people level. Therefore, it is important to establish clarity at each level. That's why clear communication is important at each level. Thus we can conclude, whether its physical or digital format leaders need communication of goals, roles, process, and interpersonal communication is important. Also, the leaders have first aligned and communicate goals first, followed by other parts. Thus technology acceptance also depends on leadership tasks and convenience. (Raue et al. 2013; Tichy; Cohen 1998)

3. Methodology

3.1 Methodological approach

The research objective of the research question was described as below.

Research question: What is the influence of culture in the acceptance of digital tools in leadership communication?

Research Objective: Influence of Culture in the acceptance of digital tools in leadership communication.

To find out the influence of acceptance of digital tools in leadership communication exploratory research, in which both deductive and inductive approach was used. With research design as qualitative research, and the research strategy as a single case study was conducted with 1-1 interviews. The reason for the qualitative research interview was to find out the reasons behind the factors affecting technology acceptance in the leaders and see if there is an influence of culture. Also to find out real-world knowledge in terms of individual leader's beliefs, values, and underlying assumptions and making interpretations. Further information is covered in the reliability and validity part later in the section.

Structured and semi-structured interviews were conducted between Austrian native leaders and Multinational leaders living in Austria, based on the literature review and gap. Multinationals leaders were selected to bring a different perspective as they are not originally from Austria and being an external observer to the culture they can reflect more cultural differences.

3.1.1 Literature review and gap:

Coming from the literature review, there was a gap found in the technology acceptance model (UTAUT model) as the culture part was missing in the model. (Venkatesh et al. 2003)

Then in the culture part, it was found three main cultures acting on leaders in an organizational context. These cultures are organizational, national, and individual cultures. It was further found that individual cultural values can determine the openness towards the new technology or change. Based on that Schwartz value survey using the PVQ method was designed and conducted to find out leader's openness towards technology acceptance. (Schwartz 2003)

To find out the further reasons and factors affecting technology acceptance, the GRPI method of leadership team communication was chosen to find out the advantages and disadvantages leaders face with digital technology and team communication. And what were the challenges leaders face with technology and culture (Tartell 2016; Raue et al. 2013)

3.1.2 Qualitative interviews

Based on the literature analysis and gaps. There was no secondary data available so the primary data was needed. The interviews were designed and conducted to find out the leader's usage, acceptance, and openness towards digital tools, also the factors which influence technology acceptance. Based on that the research question was broken down into two sections quantitative and qualitative sections and three parts.

Section 1: Quantitative section

The Ordinal scale data (on the Likert scale) was collected from the Austrian natives and multinational leaders in Austria. The data was collected during the interviews and further questions were asked along with it. And based on the answers of both part correlations can be made.

Part 1: Measuring technological acceptance and usage

Part 2: Measuring 'openness to change' based on the Schwartz value survey.

Section 2: Qualitative section:

The in-depth interviews were conducted between Austrian natives and multinational leaders of a company based in the Vorarlberg region. To find out the factors influencing the technological acceptance of digital communication tools and see the impact of culture.

Part 3: Factors influencing technological acceptance

Now in the next steps, the sections are further described in detail.

3.1.3 Section 1: Quantitative section(ordinal data)

Questions relative to corona and technology usage

Due to the coronavirus outbreak, many of the organizations went completely digital. The leaders already started using digital tools, so the research design was adapted based on the corona situation. It was designed to measure the usage before, during, and after the corona outbreak so that the values can reflect the technology usage. The second part measures technology acceptance in terms of very difficult to very easy level. Below are the key questions

Part 1: Measuring technological acceptance and usage

What are the differences between Austrian and multinational leaders in the usage of digital tools leaders used before corona, during corona, and how much they will use after corona?

What are the differences between Austrian and multinational leaders in terms of technological challenges?

Qualitative interviews were designed in a way that questions were further asked based on their choices concerning part 1. For example why participants have chosen less technology usage after the corona crisis.

Part 2: Measuring 'openness to change' based on the Schwartz value survey.

How Austrian and Multinational leaders are rated on 'openness to change'?

Based on the above question leaders openness towards technology acceptance and change can be predicted. To answer this question the PVQ (portrait value questionnaire) method from the Schwartz value survey was chosen and value parameters self-direction and stimulation were measured.

Self-direction

> *"Thinking up new ideas and being creative is important to him/her. He/she likes to do things in his/her own original way"(Schwartz 2003)*
>
> *"It is important to him/her to make his/her own decisions about what he/she does. He/she likes to be free to plan and to choose his/her activities for himself/herself" (Schwartz 2003)*

Stimulation

> *"He/she likes surprises and is always looking for new things to do. He/she thinks it is important to do lots of different things in life" (Schwartz 2003)*
>
> *"He/she looks for adventures and likes to take risks. He/she wants to have an exciting life" (Schwartz 2003)*

For each portrait, the participant had answered the prime question "How much like you is this person?" The 6-point Likert scale was chosen and participants had to choose from the choices not like me at all to very much like me. These values are then reported using google forms.

3.1.4 Section 2: Qualitative section

Part 3: Factors influencing technology acceptance

What are the key factors which influence technology acceptance in leadership communication, between Austrian natives and multinational leaders in Austria?

To answer part 3, as described in the literature review. The effective leadership team communication GRPI (goals, roles, process, and Interactions) model was selected. Based on the model the qualitative research interview was designed to ask the advantages and disadvantages of technology tools for their regular team communication.

Along with other open-ended questions related to challenges in terms of culture and technology and individual changes were being asked. For example, what are the challenges they face with culture and technology, what leaders would like to change at an individual level to be prepared for the new age of digitalization?

Based on those answers the key factors which influence the technology acceptance in leaders were find out. The answers of Austrian and multinational leaders were compared and contrasted and based on that further discussion and conclusions were made in terms of cultural influence.

3.1.5 Interviews from Silicon Valley (USA)

As covered in the literature review. All societies evolve rules of etiquette which are being taught to us when young from our family, friends, and our growing environment. The basic assumptions about why do we do certain things remain below consciousness and the process by which you learned them is forgotten. Due to this in the initial round of interviews, Austrian natives' leaders cannot reflect many cultural changes as compared to multinationals. Due to this fact, Austrian leaders who moved to Silicon Valley had been interviewed. This was not planned initially but the results were quite interesting. As they became more observant and can reflect the cultural differences in an effective way. Also in context to differences outside to their home country. (Schein; Schein 2016)

3.2 Methods of data collection

To gain better insights and the reasons for technology acceptance, structured and semi-structured interviews were conducted. For comparison, (part 1 and part 2) a total of 10 interviews were conducted. Which consisted of 5 Austrian native leaders and 5 Multinational leaders living in Austria. The position of leaders was mid to high level in the organization. Their teams were present locally as well as in international locations.

From the literature review, the three key cultural elements were considered organizational, national, and individual. To more accurately measure the individual culture values organization and national culture impact is minimized. Additionally, participants were chosen from the same organization to ensure the minimum impact of organizational culture and technological differences. The organization is an international company based in Vorarlberg, Austria, and has a presence globally. The organization is a manufacturing business and operates in the semi-tech industry. The name of the organization was not disclosed to keep anonymity. The average interview lasted for 40 mins to 1 hour.

Additional interviews

After those 10 interviews, 2 additional interviews were conducted on Austrian native leaders living in Silicon Valley. As mentioned, it was not planned and it was developed during the process of interviewing participants.

Digital interviews using Microsoft team's software

Interviews were done digitally using the 'Microsoft teams' software. It was chosen to give relevance to digital communication and also to quickly give the context of the topic of digital communication tools. Also considering the restriction with social distancing due to the corona crisis. The interview guideline was prepared and explained to the participants at the start of the interview. The interviews were recorded by asking for permission from the participants.

Quantitative part

During the interview, ordinal data was collected from the participant. The ordinal data was measured on a 6-point Likert scale for the different questions.

Google forms were used to design the survey and data was further collected and evaluated in the excel spreadsheet.

Additionally, questions were asked based on their choices. To understand why a particular choice is made for example why participant has chosen less technology usage after corona crisis.

Scale

A 6-point Likert scale was chosen to collect the choices. For both part 1 and part 2 section of the quantitative questionnaire. On the scale of 1-6, participants have to select the choice where 1 was minimum and 6 was maximum.

The participant had answered the prime question "How much like you is this person?" and participants had to choose from the choices not like me at all to very much like me. Which was already covered in the literature review part.

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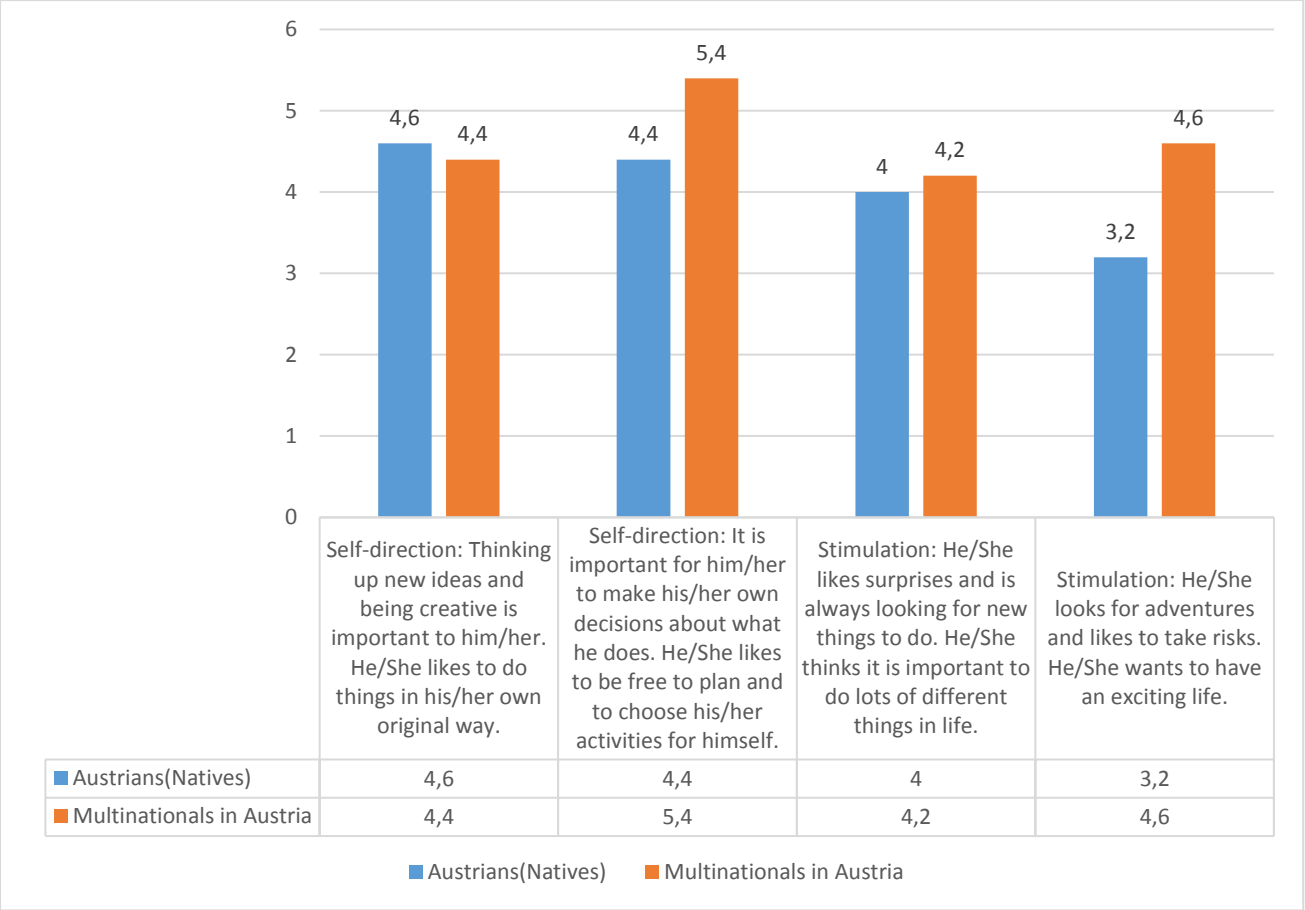
3.3 Methods of data analysis

3.3.1 Quantitative section data

The quantitative data or ordinal data was first extracted from the google form. And then analyzed using Microsoft excel. The data was evaluated using the pivot table analysis. The mean values were recorded and bifurcated based on the Austrians and multinationals.

After initial data was analyzed it was further combined to make it simple for the presentation. For example, the 2 questions each were asked to measure self-direction and stimulation. This was the step in between before coming to the final results. The detailed analysis was covered in appendix 13.



	Self-direction: Thinking up new ideas and being creative is important to him/her. He/She likes to do things in his/her own original way.	Self-direction: It is important for him/her to make his/her own decisions about what he does. He/She likes to be free to plan and to choose his/her activities for himself.	Stimulation: He/She likes surprises and is always looking for new things to do. He/She thinks it is important to do lots of different things in life.	Stimulation: He/She looks for adventures and likes to take risks. He/She wants to have an exciting life.
Austrians(Natives)	4,6	4,4	4	3,2
Multinationals in Austria	4,4	5,4	4,2	4,6

Table 5: Quantitative data analysis (intermediate part)
Source: self-creation (from findings)

The above data was further combined to come up with a mean value for self-direction and stimulation. Only the mean values were presented to simplify the results. Secondly, the sample size was not that big to analyze using the SPSS software. Also, that would not be the aim because this data cannot be generalized due to the small sample size.

3.3.2 Qualitative section analysis

The interviews were recorded, transcribed and thematic analysis was conducted. Thematic analysis is a method to identify, analyze, and report the collected data from the qualitative interview. To analyze the data adapted form of Braun and Clarke 6 step method was used as indicated below. For detailed analysis please refer to appendix 14. (Braun; Clarke 2006)

Step 1: Familiarization

Data were recorded in the form of a video. From the video, the data was transcribed. (Braun; Clarke 2006)

Step 2: Coding

Based on the transcription and video every individual candidate was coded based on the deductive approach. Based on that initial codes were formed and every individual profile was created in the form of a spreadsheet. (Braun; Clarke 2006)

Step 3: Generating initial themes

These individual candidate codes are then combined and separated in the form of groups and themes. For example, the initial groups were made between Austrian, multinational, and Silicon Valley participants. The next step was to find a common code in every group and keep the uncommon code separately to see if they can be combined later. Based on that initial themes were formed. (Braun; Clarke 2006) (Appendix 14)

Step 4: Reviewing and reworking

Themes are considered and combined to answer the research questions and to analyze the reasons behind. Also to analyze and group uncommon codes in a structure. This process was repeated back and forth because it took a lot of iterations to come to common and final theme structure. The themes and codes were rechecked with the transcript and interview. (Braun; Clarke 2006) (Appendix 14)

Step 5: Naming

Combined themes were given a common name or heading. This was also an evolving process because when reworking on themes you see the patterns forming together. Then it was named according to that category. For example, the final theme was based on the current situation(corona crisis). age, country, regional, organizational, and individual level. And within every theme viewpoints of Austrian, multinational, and Silicon Valley participants are both combined and contrasted. (Braun; Clarke 2006) (Appendix 14)

Step 6: Writing theme.

Based on the overarching theme and sub-theme. The selective quotes are then documented in the final findings. They were also structured based on different levels starting from macro to individual level. The codes are also summarised and rewritten in the form of factors for a better understanding of users (section 4.2). (Braun; Clarke 2006)

The overall process involved physical and digital combined analysis. The use of word documents, spreadsheets, and the paper sheet was mixed to brainstorm and come out with the whole process results. (Appendix 14)

Based on the above analysis total 7 key themes were formed. These were the key factors influencing the technological acceptance for Austrian natives and multinationals living in Austria. The factors were group based on the current situation of the corona, age, geography, organization, and individual parameters. Findings were structured in the form of macro to micro-level factors influencing technology acceptance (section 4.2)

Reliability and validity of research methodology

Reliability

To avoid participant bias in the quantitative question related to openness to change, the respondents were asked to compare the portrait to themselves rather than themselves to the portrait based on the Schwartz PVQ questionnaire structure. (Schwartz 2003)

Below is an example to understand this.

1. “How much like you is this person? “: This question was focusing on the other person so no direct judgment can be made.

2. “How much you like this person?” Here the center is the candidate and it might lead to the self-judgment of themselves.

Hence, option 1 was chosen to minimize participant bias as participants should not feel the self-judgment and can freely respond to the questionnaire. Similarly, questions for technology acceptance were asked base on the level of easiness or difficulty and usage to know both the perspective and options. Additionally, all of the interviews were done in either the home environment or in-office conference rooms via video call. To avoid any biases occur due to open-office environments as people might not be open to sharing the thoughts in an open office environment.

Interviews were conducted on separate intervals and with a proper gap of timings and days to avoid the researcher's errors. However, since all the analyses were conducted based on the assumed theory there could be possibilities of researcher bias, but to avoid that first deductive part was analyzed and then an inductive part was derived.

Validity

Research nature: The topic of digital communication tools is relatively new, also in terms of leadership technology acceptance. Hence, exploratory research is chosen as there was no prior research done with this theme.

Research approach: The research gap was analyzed from the initial literature review, where it was found that the cultural element was missing in technology acceptance. Based on that gap the theory was assumed that three cultures could impact leadership technology acceptance and testing the individual culture in detail using SVS survey on Austrian and multinational leaders in Austria. This was a deductive approach. But to find out the key factors affecting technology acceptance and are there any similarities or differences. Thus

the inductive approach was chosen and also to test and formulate a new theory. So the research approach was both deductive and inductive mix.

Research design: Thus based on the above approach the qualitative research design was selected. As the purpose was to find the key affecting technology acceptance and see the influence of culture. Hence the quantitative method was chosen. Also to find out the detailed reasons behind, that is why a 1-1 interview was conducted. Additionally, the quantitative part or ordinal part was chosen to test the existing assumption from the literature review.

Research strategy: Based on the above research design the single case study was chosen to find out the reasons behind the acceptance of Austrians and multinational leaders. Thee participants were chosen from the same company to ensure there are no organizational culture differences and technology differences. As every company use different technology platform and hence to keep the other factors minimum, a single case study was selected. Multinationals were chosen to find out the differences in terms of Austria as a national culture because multinationals can reflect it much better coming from different countries and backgrounds.

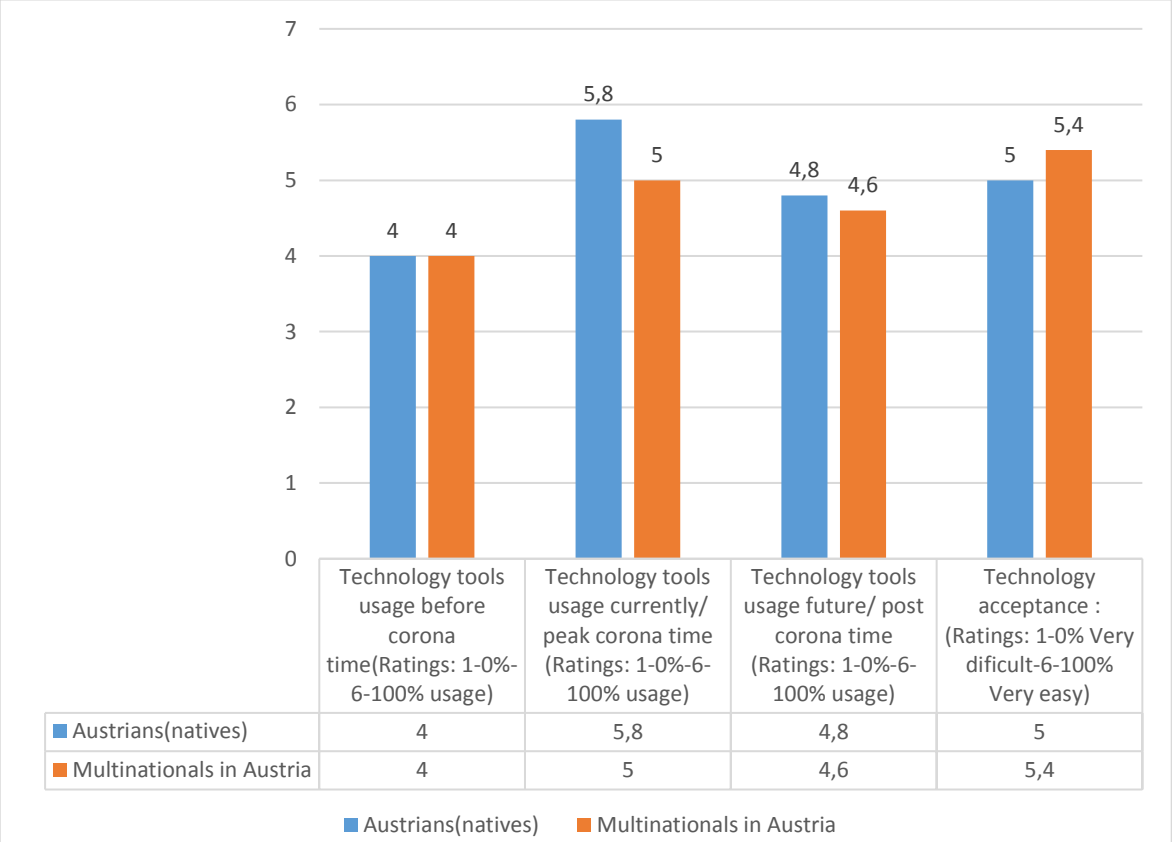
4. Findings

4.1 Quantitative or ordinal results

4.1.1 Part 1: Measuring technological acceptance and usage

What are the differences between Austrian and multinational leaders in the usage of digital tools leaders used before corona, during corona, and how much they will use after corona?

What are the differences between Austrian and multinational leaders in terms of technological challenges?



	Technology tools usage before corona time(Ratings: 1-0%-6-100% usage)	Technology tools usage currently/ peak corona time (Ratings: 1-0%-6-100% usage)	Technology tools usage future/ post corona time (Ratings: 1-0%-6-100% usage)	Technology acceptance : (Ratings: 1-0% Very dificult-6-100% Very easy)
Austrians(natives)	4	5,8	4,8	5
Multinationals in Austria	4	5	4,6	5,4

Table 6: Findings of Technology acceptance
Source: self-creation (from findings)

Both of the questions can be answered by the findings indicated in table 6. This shows that before corona time the usage of technology tools was the same between the Austrian and multinationals leaders. While during corona time the usage was high with Austrian leaders (5.8 vs 5) and even afterward the values are slightly high (4.8 vs 4.6). While technology acceptance in terms of difficulty was rated easier for multinationals compared to Austrian natives. But these values cannot be generalized as the sample size is very less.

4.1.2 Part 2: Measuring 'openness to change' based on the SVS survey.

How Austrian and Multinational leaders are rated on 'openness to change'?

As covered in literature review and methodology. The values self-direction and stimulation were measured and found out that multinationals are rated higher (4, 9 vs 4, 5 and 4, 4 vs 3, 6) on both of the parameters, compared to Austrian native leaders.

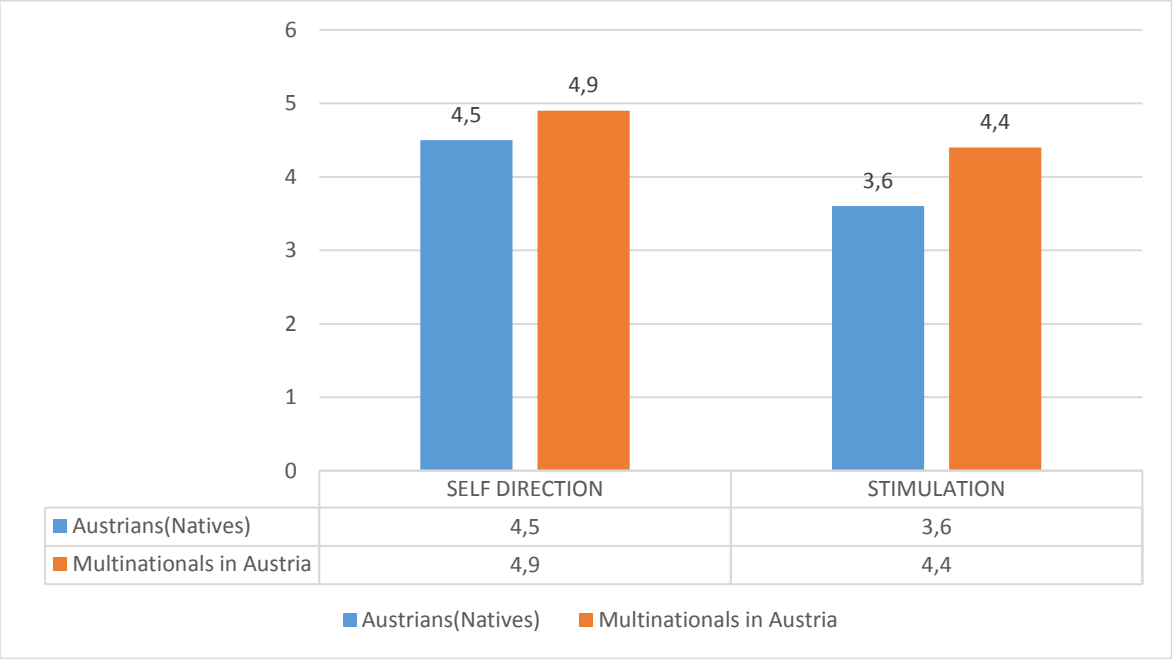


Table 7: Findings Schwartz values self-direction and stimulation
Source: self-creation (from findings)

Further, when these values (self-direction and stimulation) are combined the overall 'openness to change' ratings are indicated which is slightly higher (4, 65 vs 4, 05) for multinationals compared to Austrian natives leaders.

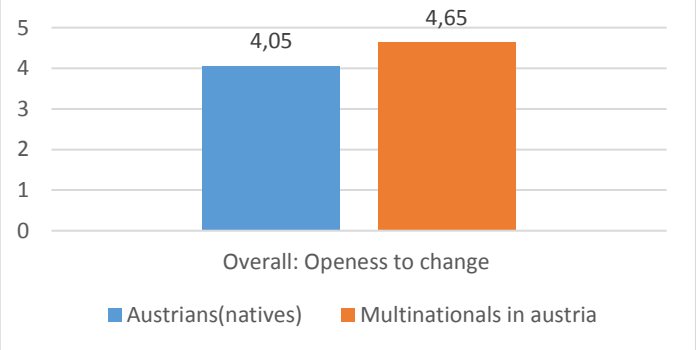


Table 8: Findings overall openness to change
Source: self-creation (from findings)

This overall ‘openness to change’ value represent the openness towards new technology tools and change. The above value shows better ratings in results. However, these values cannot be generalized again as the sample size is very less.

4.1.3 Overall quantitative findings

Overall the value of technology acceptance and usage was found higher in both groups of Austrian and multinationals. However, Austrian leaders indicated more technology usage during and after corona. While multinationals find the technology acceptance easier. Also, it shows the higher rating of multinationals compared to Austrian leaders on both of the parameters ‘openness to change’ and ‘technology acceptance’.

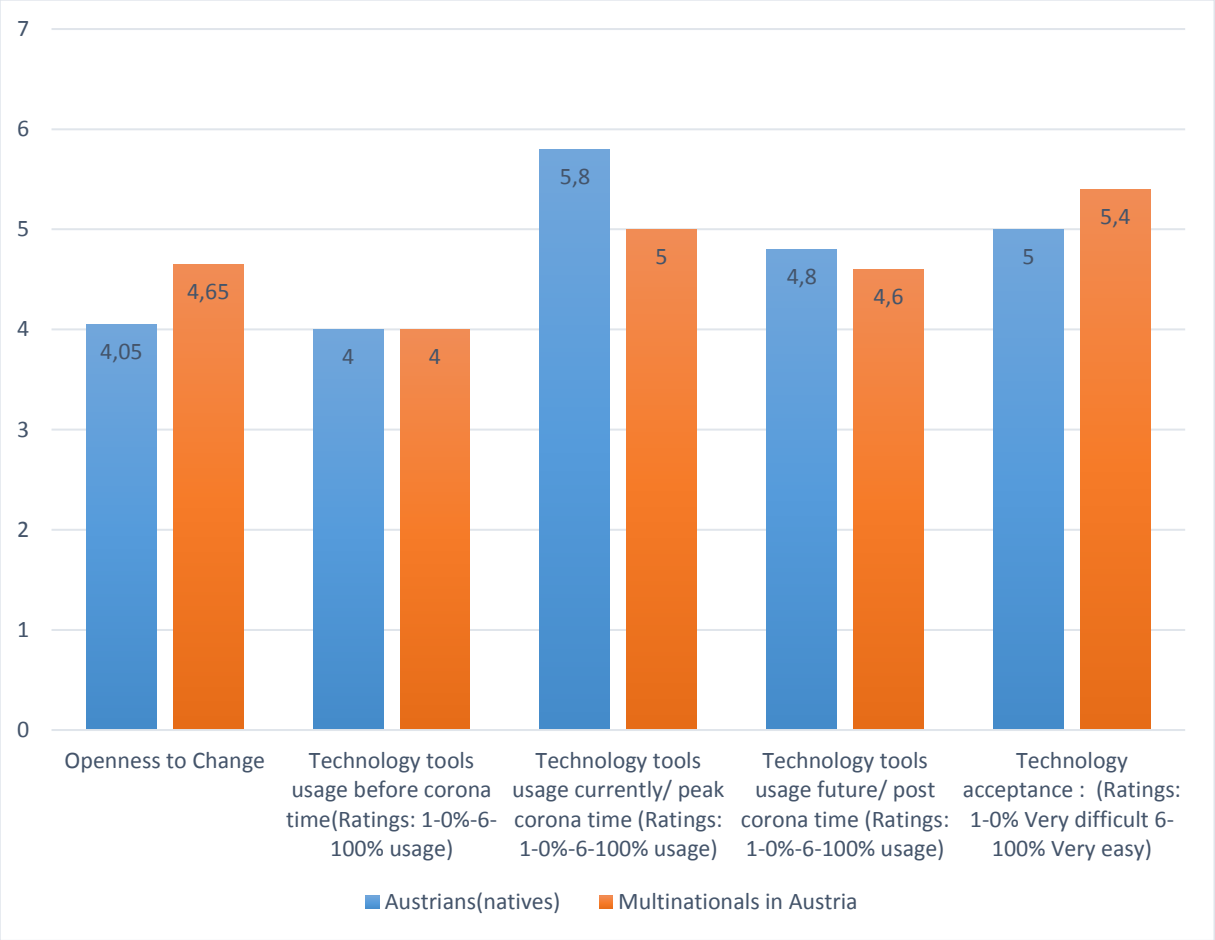


Table 9: Overall quantitative findings between Austrian natives and multinationals
Source: self-creation (from findings)

4.1.4 Key quantitative findings

When compared the 'openness to change' ratings with 'technology acceptance'. It shows similar behavior and association in terms of openness to change vs technology acceptance(very difficult to very easy).

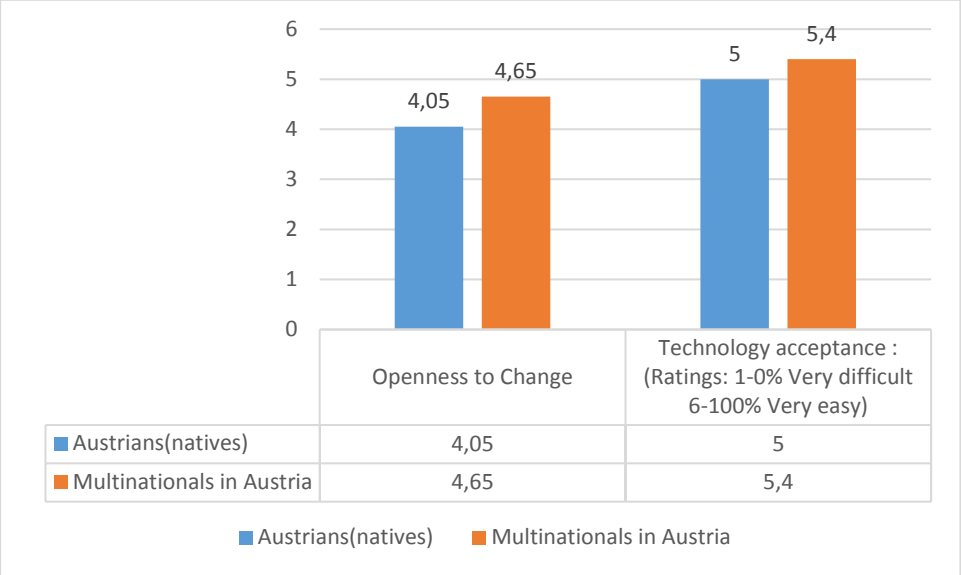


Table 10: Key quantitative findings
Source: self-creation (from findings)

4.2 Qualitative findings: Factor influencing technology acceptance

What are the key factors which influence technology acceptance in leadership communication, between Austrian natives and multinational leaders in Austria?

The key factors affecting technology acceptance between Austrian natives and multinational leaders are listed below with reasons. In some of the cases, the direct comparison is made in terms of different views, while in most of the other factors the views are combined. The participants' 'quotes' were combined and complied in appendix 14 for a better overview. The raw files are also attached and referred to in the appendix(1-12). The grammar of original quotes was not modified to keep the 'quotes' close to natural.

4.2.1 Corona impact: Rapid adoption and usage of digital communication tools

4.2.1.1 Digital evolution

Due to coronavirus pandemic, the leaders have to work from home and communicate with their teams remotely. Well, one of the participants predicted my thesis results already during the interview, as stated below.

> *"I'm sure you'll come to this conclusion in your thesis. But I think Corona has massively helped digital evolution and is for is forced our hands to use the tools that are available to us. That historically people may have been scared of or not understood..." (Appendix 2,14)*

This has massively impacted communication and boosted digital evolution. Also forced the leaders to use digital communication tools. It was also evolution not only in terms of behavior but also in terms of tool selections and usage.

4.2.1.2 From phone calls to Microsoft 'teams'

Most of the participants were using text/chat messaging, phone calls, skype, and then they shifted mainly from skype to teams and also some other collaborative tools.

> *"So the beginning when this is coronavirus started. So we talked a lot on the phone and then we gradually switch to this kind of communication face to face communication"(Appendix 6,14)*

Face to face video call was perceived better in comparison to other forms of communication like phone, message, and text. Some of the quotes below

> *"yes it was a better experience because, you know, we could not see each other on the phone"(Appendix 6,14)*

> *"It's been phenomenal because the input going from Skype to teams is a good example. I think 'teams' is a great platform" (Appendix 2,14)*

It was also more realistic and emotional as some candidates preferred to see the team members during the communication to visuals the eyes, facial expression, and other non-verbal gestures.

4.2.1.3 Challenges in technology and still need of physical presence

On the other hand, there were challenges in terms of good quality equipment, difficulties with eye contact using a digital camera, fast internet connections, and finding the right tools for the organization of workshops for leaders. Some of these issues can be further sorted out with the evolution of technology in the workplace. But yes technology cannot replace the complete human and physical aspects.

Almost all the participants mentioned the importance of physical presence as some of the participants mentioned the word “social animals”. But how much physical and how much digital is not covered and is out of the scope of the research.

4.2.1.4 The rapid change in adoption

Due to the corona impact, most of the participants' leaders and teams switched immediately to the tools and the process of going physical to digital. The below quote from the Austrian participant summaries it as below.

> *“because it was the first time in my life that I had some such a situation. Furthermore, it was, and You have no real guideline on how to react or tracked appropriately. I do mean it was very much based on gut feeling based on common sense. And based on an immediate change, I would say from physical to virtual with all necessary tools, but also the process is I would say in our case this happened in within two days I would say that we changed completely” (Appendix 8,14)*

For most of the Austrian natives' leaders, it came out to be a surprise. While some of the multinationals had no surprised are they were using these tools before the corona time as well. Below quote from one of the multinational participants

> *“Yeah, we are quite used to work with tools like teams and putting everything online already, so that's what we also did in the past, so that was not something completely new for us.“ (Appendix 5,14)*

This describes it was not new for the multinational leader who was already using these digital communication tools. And they were experiencing digital tools even before corona time.

Whether adaption for all leaders is rapid or not but the overall usage of tools has increased just because of corona for both Austrian natives and multinational leaders.

4.2.2 Age differences: Higher acceptance in digital natives

4.2.2.1 Age and technological challenges

Many participants described the higher acceptance and usage among the Millennials and younger teams. For example, one of the participants mentioned thinking and building young team members for the path of digitalization. Below quote from one of the Austrian leaders.

> *“you already had some kind of thoughts in your mind that it can be more digital, or it can be more younger or something.” (Appendix 3,14)*

Participant further added

> *“It's a generation issue. Destiny, the Millennials digital natives. Uh, they have less issues if they have to start Skype meeting.” (Appendix 3,14)*

In continuation of the topic generation gap, one of the Austrian native participants mentioned about training. Refer to the below quote from the participant

> *"The people of each respective biggest concerns or problems with it, let's say, is the generation which is 45 plus, which was not using it before. If you come from an external company and you are not used to, let's say International Exchange and I'm working on an international basis and then, of course, you need to invest in training those people also intercultural training" (Appendix 9,14)*

This participant also suggested intercultural training, it reflects that both technology and cultural training are important. On the other side, some multinational participants have a slightly different opinion

4.2.2.2 Training not needed: just basic technology and mindset

Multinational participants mentioned that age is not a big factor. One of the participants mentioned in context to training and acceptance of tools. Refer to the below quote from the participant

> *"basic level general knowledge in Technology, but I will say below 50 years old is something quite granted and also hope so. Don't see specific training needed" (Appendix 7,14)*

In context to age, another participant said that it not about the older generation and technology but more about the different mindset which is needed.

4.2.3 Differences the Europe vs the USA: Loss of efficiency and risk

4.2.3.1 Austrian leaders based in Silicon valley

When asked to Austrian national participant based in silicon valley in regards to Austrian culture, as the participant has seen both sides working in the USA as well in Europe. Refer to the below quote from the participant.

> *"I think it does. I'm not probably as an open to change my way of communication so I rather in uh. Just keep it consistent," (Appendix 12,14)*

This participant further added that on a macro level of Europe vs the USA in general.

> *"I think the European background in general, Europeans are more probably less. It again comparing them to the US workforce. They probably less flexible when it comes to a change in communication or change in work practices"(Appendix 12,14)*

The above statements show the European background can have in terms of flexibility and acceptance with the changes in comparison to US background. Which can be also valid in terms of communication tools.

4.2.3.2 Change in efficiency or loss in efficiency

On further probing and asking the reasons it was found that changes in somehow linked to efficiency loss in work. As mentioned by the participant statement below

> *"Initially person very open to that change, but yes, deep down I guess with my European background that always have this like slight hesitation of Changing it and simply because I think every time you change something, efficiency loss at the beginning and which is always my concern, right, you're forgoing certain efficiency by changing"(Appendix 12,14)*

The above reason from the participant's point of view is one of the reasons which prevents European people to change. As the new process can lead to efficiency loss and if it doesn't work out can be a risk to failure which brings us to the next topic.

4.2.3.3 Risk and conservation(hidden reason)

The participant further elaborated that risk was associated with the conservation. Refer to the below quote from the participant

> *"It may or may not play out because you always have this element of risk. You have this element of loss in efficiency, which I guess I'm always more like on the more conservative side" (Appendix 12,14)*

The participant highlight here the hidden reason behind the change i.e. conservation, which is opposite to openness to change.

4.2.3.4 Importance of cultural Subsets

While on the other side other silicon valley participants mentioned the importance of culture subset which is not only valid on a national scale. Refer to the below quote from the participant.

> *"So I think these things can be measured on a national scale, but I think it's more important to focus on these sub subsets of subcultures. "(Appendix 11,14)*

A participant mentioned about the other factors which are subset like environment, type of business(family-owned vs startup), and also the region. This brings us to the next result.

4.2.4 Region Vorarlberg: not use to changes

4.2.4.1 Vorarlberg people prefer face to face communication and not digital

One of the participants shared the information in the context of digital communication to national culture. When probed further, the answer was that its different in Vorarlberg

compared to Austria. Refer to the below quote from the participant who is an Austrian and from the region of Vorarlberg.

> *"I think it's even not Austria, Vorarlberg so that the typical Vorarlberg guys to say this for them. First thing is that they get used to, yeah we do this Face to face and not digital and things like this" (Appendix 10,14)*

It was found that people would prefer to have people physically present in an office space and not remote. Also link to access, so that they can reach them physically at any time. For example, the below quote represents the reason

> *"Yeah that they get used to having the people not next to them, this is a big challenge for the Austrian Vorarlberg guys. I would say it's really it's because we are in such a small area". (Appendix 10,14)*

So as per this candidate information, it's a big challenge for people of Vorarlberg as people are used to living and knowing everyone in a small area. And they would like to have everyone in their vicinity or physically present nearby.

4.2.4.2 If it's not physical communication it's not effective

Again stressing on the physical communication, one of the participants mentioned that communication effectiveness is more when done face to face in context to Vorarlberg culture. The below quote from participant describes it

> *"Someone is sitting next to me and tell me, I promise I will do this until then. Then he has personally say this to me, so he has more pressure to really fulfill this. But if you do everything on email the Internet, even if it's written. Uh, then I think this pressure because I told them in person that that is missing a bit. So this is what I feel is out there." (Appendix 10,14)*

The above statement shows that physical presence has much more effective in comparison to any form of virtual communication. It's an interesting aspect in terms of any form of the virtual communication process.

4.2.4.3 Multicultural remote teams vs local teams

One of the candidates mention in terms of remote coordination with global present multicultural and multiregional teams. Most of the remote teams are already are familiar with using these digital tools and have no problems in collaborating with other teams remotely. For example below quote from a participant

> *"You can really just call them. You can talk to them and they used to take teams and give them more teams call so this is so normal and so standard." (Appendix 10,14)*

The participant mentioned that they can easily access the international remote teams using the Microsoft teams software and it's so normal and standard for them to use it. Compared to the local team based in Vorarlberg.

4.2.4.4 The English vs the German language as an example for change

German is still the corporate language

Referring to another big international company in Vorarlberg one of the participants said

> *"XXX is a world-wide acting company and his company languages still German" (Appendix 10,14)*

According to the participant if the company cannot change the corporate language to English, how can they rapidly change the culture of physical to digital.

Challenges in switching from German to English at an individual level

The challenges are not only to companies, but it is also further linked to the people change as it is further elaborated by the participant below.

> *"if you walk through some trouble and you talk to those real typical guys here and you asked me like why should we talk in English? Everything is German here so we have to talk to you like so. I think this this this is really difficult to change their mind" (Appendix 10,14)*

The above quote reflects that participants don't need to speak English as everything is German in the region. But also reflects their inability to change as they are quite used to it. Even if the corporate language is English. The participant mentioned for those people who are strict and can't change themselves from speaking German to English. This will be a big shift for them during the corona time and also in the future going digital.

Multinational leaders challenges with non-German language and background

One of the participants is from the UK and the participant mentioned his language and background as English. It is further elaborated by the participant below.

> *"Take me as an English guy coming over to Austria, telling Austrians how to do something. They don't like me because I'm speaking English to they don't let me. After all, I'm telling them that what they're doing is outdated and for me to change. It took a long time and I'm still struggling now." (Appendix 2,14)*

The above quote reflects the outsider viewpoint towards the Austrian system. As a multinational coming from another country and telling them to change the processes and to go digital is very much challenging and takes a long time to convince. Additionally, since the participant speaks English, it is not appreciated locally and by the way which is still the corporate language of the company. Another participant mentioned in context to future effects. that the team will become more international so people have to learn and speak English, more than before.

4.2.4.5 Vorarlberg: difficult to completely shift to digital communication

When asked will they completely shift to digital communication, one of the participant responses was it could be possible at any other location but it's difficult in Vorarlberg. The below quote from the participant describes it well.

> *"So if we would be located in another area of the word, I would say of course you can shift completely to digitalization, but as I have a lot of people here who are located here who are from here. It is very difficult, to be honest." (Appendix 10,14)*

The above quote describes weak regional acceptance towards digitalization in the region Vorarlberg because of the culture and behavior of people. When further asked the participant confirmed it's about the behavior of the people. The candidate further mentioned that there are fewer foreigners here in this region.

Multinationals believe in digitalization

One of the multinational participants was on the other side big believer of digitalization and the see the future in that direction. The below quote from the participant gives a good summary.

> *"because I'm a big believer in digital. For me, digital is if you're not digital, you're going to become prehistoric and you're going to die out. If businesses don't adapt to the new era. That they're gonna be in a mess and sadly is on top along quite there." (Appendix 2,14)*

Here the participant mentions his optimism and believes in going digital. So the one side we have challenges from regional acceptance towards digitalization and on the other hand, we have multinationals participant who is a big believer in digitalization in the future. Participant also mentions about the serious impact of not going digital on businesses if they will not change and adapt to this new era. This brings us to our next topic change.

4.2.5 The need for change in Traditional organizational practices

4.2.5.1 Used to the way of working – no change – leaders/people

People are working in the same way in organizations for a longer time and they are getting used to work in the same way and become inflexible to change. One of the participants mentions as quoted below

> *"I think it's, uh, just leadership styles or the people styles, and the fact that they have. Been working in a particular way for 25 years and they're probably not going to change that way" (Appendix 1,14)*

This shows people are quite long in an organization and get accustomed to the traditional way of working which is difficult to change especially when the technological changes are happening rapidly fast in the current era.

4.2.5.2 Innovation: Ad hoc communication vs digital communication

Ad hoc communication leads to innovation

Talking in terms of organization and innovation. One of the Austrian native participants mentions the advantages of people coming together and having a sudden coincidence which can lead to innovation. Participant further describes that it's difficult to do digital setup while it's better to bring people physically. The below quote from the participant.

> *"Everything digital is the right kind of plan because you have to plan it. You have to set it up. You have to invite people and you can just invite, you know in the digital way. There is no coincidence in the respective suddenly to other people are in the call or this in this communication. But here in the cafeteria or in a meeting room where somebody's kind of taking another guy to say OK come on in. Please also bring in your view. This is the reason why it cannot be the case." (Appendix 8,14)*

The above quote suggests that participant has to plan, organize and invite people digitally and which is much better in a physical way as you can just ask a person to step into the room and conversation and this brings different viewpoint and can lead to more innovation. While on the other side the multinational participant sees a similar situation differently.

Digital convenience and reach leads to innovation

The multinational participant mentions the convince to reach anyone via a digital platform using a click of the button that can bring more ideas. The below quote from the participant.

> *"So digital is good in many ways, but historically you wouldn't have had the access to all your team members at the click of a button or is now you do so for me as a leader you have to be selective with when and how you communicate but in terms of pulling ideas from people and getting in touch with people at any time of the day in any place in the world." (Appendix 2,14)*

The participant covers the advantage of going digital in terms of idea generation and reaching out to anyone not with the same office but also across the world. Which was not possible earlier and this is the evolution in communication. Again the tools are the same but it's just a different perspective to see and take it as an advantage or disadvantage. Also, no one is right or wrong just depends on the leaders' perspective on how to use the tools in efficient ways. This brings us to the next finding regarding open-mindedness.

4.2.6 Need for an open mindset at the individual level

4.2.6.1 Mindset change

Many candidates described that it's difficult to change the mindset of people

For example the below two quotes from different participants

> *"I think this this this is really difficult to change their mind," (Appendix 10,14)*

"The hardest thing with anything included with digital is changing people's mindsets because they know what they know" (Appendix 2,14)

The above two statements show the difficulties in changing people's mindsets as it is difficult to change something which is embedded in the mind for a long time especially when switching from physical to digital tools. This is also linked to the behavior of persons

4.2.6.2 Individual people egoistic behavior

One of the mindset behavior described by the participant as going and approaching physically to a person. The participant describes it below.

"Because if you want something from me you have to come to me. You have to do it in person, so it's more about really the behavior of the people …." (Appendix 10,14)

There can be multiple interpretations of this sentence as it also reflects the egocentric behavior of a person or a leader. This can be linked to the mindset or background of a person or a leader, again this can vary from one individual to another. This brings us to the next result.

4.2.6.3 Level of openness varies from one individual to another due to different environment

One of the participants mentioned the level of openness linked to family background. And during another interview, the silicon valley participant further elaborated in terms of the person's environment or subnetworks. The participant describes it below.

"The subculture or kind of like the social context you're embedded in, more like who are your friends. Who your colleagues, how innovative or how conservative are they….." (Appendix 11,14)

Participant further added

"It's like organization, let's say company or job. Then it's friends. It's a family. Maybe if you have hobbies you know you have different roles in your life and depending on how the people in these different subnetworks influence you, that also gonna influence your propensity to use different technologies" (Appendix 11,14)

The participant refers here to people's effects in terms of environmental or network effects such as organizational or personal interest which can influence the tendency to use different technologies. The level of openness or conservation is dependent on the environment in which the leader is present. This also concludes to the individual level environment impact in terms of technology acceptance in a person or a leader.

4.2.6.4 Breaking Mindset: Both leader and team should be open for new things

Another multicultural participant mentions that it is possible to break the mindset and barriers when people communicate and start using the tools and bring them into their daily activities. But participant also mentions the difficulty to change the mindset in any kind of

business process. One of the Austrian native participants mentioned that when you open to trying new things then you can bring the same quality of effectiveness as physical communication. The participant describes it below.

> *"I would say it's different but if you do it open-minded and if you also have people which are open-minded towards trying new things. Then I think you can reach the same level of quality." (Appendix 9,14)*

The above statement concludes the openness is needed on both sides of leader and team members. When both are willing to try new things then digital communication effectiveness can be achievable. Also, it is possible to change the mindset at the individual leader level just like the above participant from Austria has described and using as a practice.

4.2.7 Mutual Leaders and team openness

4.2.7.1 Adaptive, trusted and self-directive leadership

Most of the participants mentioned that at individual level leaders have to be adaptive to new changes. They need to be flexible for all the technology changes and digitalization. This is an important skill to have and to develop additional to that is the trust, it was reflected many times by the participants during the interviews. Which is described in the next part.

4.2.7.2 Openness trust and empowering team- self-directive

One of the participants mention about change and said that leaders have to start changing themselves first. They should trust and empower the employees. The below quote from a multinational participant describes it well.

> *"be open for you. A belief in what the others tell you. So you have to trust them. Also, don't be like checking everything someone does so, but give them more own responsibility. and I think this is the biggest part of changing yourself, trust the others and let them do their work and trust that the result will be OK" (Appendix 2,14)*

The leaders have to open for change first and start believing in the team members. They should bring trust and empower the team to be more self-responsible and directive.

4.2.7.3 Practicing Servant leadership

A multinational participant further talks about servant leadership described below.

> *"So servant leadership to me is I want to empower my team to do their job. My job is a leader is to make decisions when people can't make decisions I should be empowering my team to make the right decision. So I want to ensure that they've been listening, heard to come up with the proposed solution or process, and then communicate" (Appendix 2,14)*

So as the participant describes servant leaders and how can leaders empower the team to make decisions. Also when they need help the leader is there to support the team. Servant leadership is very much similar to the collaborative leaders where the leaders empower the team, listens, and support them when needed. While, on the other hand, the team has to trust the leader.

4.2.7.4 Team trust and hygiene practices

Some of the participants mentioned the hygiene practices of digital communication to ensure trust and openness. For example, one participant while having a video call and described below.

"a lot of my team we never turn on the video camera" - (Appendix 1,14)

As mentioned above not turning the camera might have multiple reasons or interpretations. But in this case, leaders have to advise them and turn their cameras on as well. But these practices can be discussed or formed by having an open trust, cooperation, and communication within the team.

4.3 Discussion, interpretations, and recommendations

Summary of key findings

Research Objective: Influence of Culture in the acceptance of digital tools in leadership communication.

What is the influence of culture in the acceptance of digital tools in leadership communication?

4.3.1 General overview

The results from the quantitative interview show overall higher ratings of technological acceptance and usage, that indicates the technology is not a barrier in acceptance. That is further confirmed in the interviews where the factors are more related to culture and other factors. The key quantitative findings (Section 4.1.4) show the direct association between technology acceptance and openness to change. This can be further confirmed with qualitative interview analysis where the majority of the factors are not linked to technological challenges but more related to macro influences and cultural factors. These cultural factors include organizational, national, regional, and individual cultures. This answers the main research question, that there is an important influence of culture in terms of acceptance of digital tools in leadership communication. Additionally, findings indicate the individual culture plays an important role, as it not about technology challenges but its more about

leaders and team open mindset and willingness to change. The analysis and discussion are further covered in detail in the next section.

4.3.2 Interpretation: Importance of culture in technology acceptance

Openness to change and technology acceptance (Schwartz value theory)

The results from the quantitative graph 4.1.4 indicate the direct correlation of technology acceptance with openness to change. This is in line with the theoretical assumption of Schwartz values survey where individual 'openness to change' value group, have a direct influence on the technology acceptance and change.

Additionally in the qualitative interviews the key themes 'Need of change in Traditional organizational practices' (refer section 4.2.5) and 'Need of an open mind-set at individual level' (refer section 4.2.6). This again shows the importance of open mind-set and change is a need for technology acceptance. This factors further confirms the Schwartz values of openness to change ratings and score. Secondly, it indicated the Individual culture role in technology acceptance. Thus it can be summarised in the statement below.

4.3.2.1 Statement 1: The individual culture plays an important role in technology acceptance.

Culture in technology acceptance (Schein model)

The key factors affecting technology acceptance are adapted to the Schein model and represented via the iceberg model. Here the results are being linked to the literature review and Schein model. Based on the Schein model, the three layers sums up the qualitative findings in the form of the iceberg model. (Schein; Schein 2016)

1. **Artifacts**: These are the visible structures and process are present on the surface of the iceberg. These are the digital communication tools and technology acceptance of leaders. Additionally, due to the corona pandemic, there is the rapid adoption of digital tools as there were no alternatives for leaders. (Schein; Schein 2016)
2. **Espoused beliefs and values**: These are all the beliefs which leaders think could be the reason, or generally came as a first thought during interviews. These include age, continent EU vs the USA, Austria national, regional culture (Vorarlberg), old organizational practices, language, leadership and team trust, and efficiency loss. (Schein; Schein 2016)

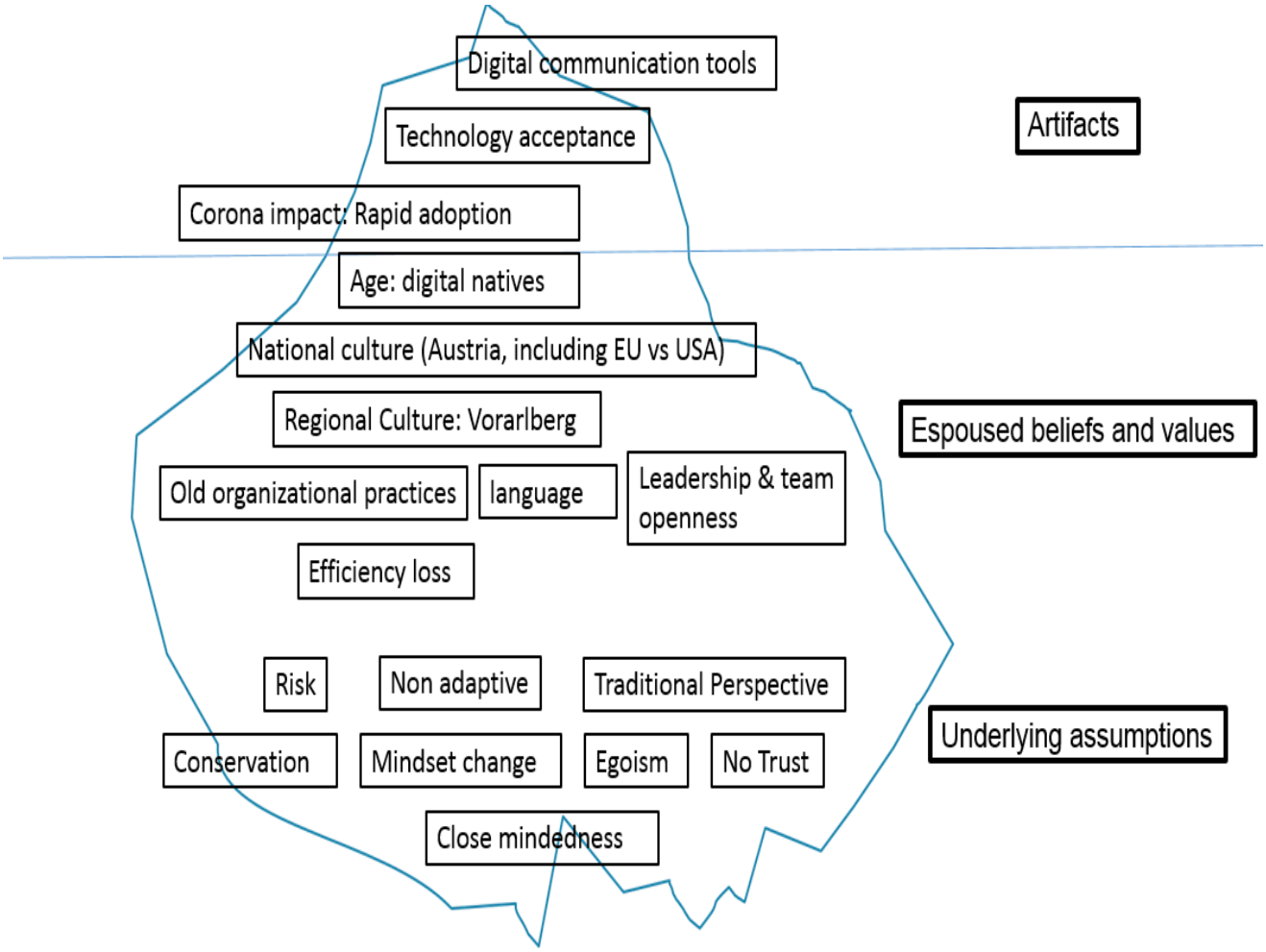


Figure 12: The Schein culture iceberg model
Source: Self-creation, derived using Schein model (Schein; Schein 2016)

3. **Basic underlying assumptions**: These are all the beliefs that are taken for granted and unconscious. For example close-mindedness, conservation, no trust, traditional practices, egoism. These practices are deep-rooted at the individual level and hamper technology acceptance. (Schein; Schein 2016)

In the above three points, most of the factors included except the Corona impact and age all other factors linked to culture. These cultural values are organizational, national, regional, and individual. This again indicates the importance of culture in technology acceptance.

Quantitative findings

Higher ratings of technological acceptance and usage in section 4.1.3 (Table 9), indicate that technology is not a barrier in the acceptance. This correlates to the above findings as the majority of the factors are not related to any technical challenges.

Age factor

Age factor is already covered in the technology acceptance model and can have an impact, on the other hand, one of the participants mentioned that it not age but more about the mindset of people. which correlates again to the culture at the individual level. Thus overall it can be summarised as below.

4.3.2.2 Statement 2: Technology is not a barrier but culture plays an important role in technology acceptance. Where the culture comprises of organizational, national, regional, and individual culture.

Association between organizational, national, regional and individual culture

In the literature review organizational, national, and individual culture was considered. This can be further confirmed But the regional culture was not considered this was completely new findings after the qualitative interviews.

From the iceberg model as indicated above, most of the espoused beliefs are linked to organizational, national culture, and individual culture. For example, old organization practices can be contrasted to the region and national culture where the evidence was compared to silicon valley(USA). This also links to the belief of efficiency loss and the risk of acceptance of new technology changes. This leads to the underlying assumption of close-mindedness, conservation, and not acceptable to changes.

4.3.2.3 Statement 3: In certain cases, cross-connections are found between the organization, national, regional, and individual cultures.

Role of Individual culture

Most of the underlying assumptions at the bottom can be linked to individual-level such as mindset change, closed-mindedness, traditional practice, and conservation. These are the factors that show the importance of individual culture in technology acceptance. Additionally, based on the Schwartz theory where individual values are described as the central component of our self and personality, distinct from attitudes, beliefs, norms, and traits. Values are critical motivators of behaviors and attitudes. Any attitude, a behavior typically has implications for multiple values as it drives the individual and from that can drive the whole society, organization, or nations. The results from the Schwartz value survey shows similar results which show a direct correlation of individual ‘openness to change’ values in line with technology acceptance. (Schwartz 2012, 2003)

But the results of multinational leaders are rated higher compared to Austrian leaders, this shows that there is an influence of their background on the openness to change and technology acceptance. Which was also reflected in their answers as they are more open to the usage of tools and change. The above-indicated Insights from participants show the importance of environment which individual has which includes the family, friends, organizational, regional, and national. This can be correlated back to the behavior of an

individual. Thus Impact of other cultures cannot be avoided. Which makes it complex but also unique as every individual might have a different level of learning and experiences in their life. Below statement summaries and confirms the statement 1 but with further elaboration, (Schwartz 2012, 2003)

4.3.2.4 Statement 4: Individual culture plays an important role but other cultural factors cannot be avoided as it is indirectly dependent on the other cultural factors.

4.3.2.5 Statement 5: Overall Summary based on statements 1,2,3,4 summaries and answer the research question.

Culture plays an important role in technology acceptance of digital tools in leadership communication. Where the culture comprises of organizational, national, regional, and individual culture. In certain cases, cross-connections are found between the organization, national, regional, and individual cultures. Additionally, Individual culture plays an important role but other cultural factors cannot be avoided as it is indirectly dependent on the other cultural factors.

4.3.3 Additional interpretations and implications

Importance of regional culture

The regional culture was not included in the theory as only organizational, national, and individual culture was considered. It was one of the new and surprising findings one of the participants indicated the difference between Austria and Vorarlberg, indicating that many things are very specific to the region.

Vorarlberg region is not open to digitalization and change

People in the Vorarlberg(Austria) region are used to digital form of communication, as they still consider physical presence is needed all the time and it is an only effective form of communication. The reason is linked to the traditional practice as people are used to knowing everyone in a small area and they would like to have everyone in their vicinity or physically present nearby. This is also reflected in the work environment that could be one of the reasons for not using a digital form of communication.

Language as an example of the change process

Vorarlberg region is not used to changes one of a good example was the acceptance of language change in the regional culture. Some international companies still have German as a corporate language. Even the companies who have English as corporate language

their employees are not used to change the language in daily practice the reasons are linked to change and mentioned already in results. A participant mentioned this specific to the region.

Language and national barriers bring challenges for multinationals

Multinationals with non-German language or different national backgrounds face some additional challenges. Especially in terms of introducing new changes such as technological change. Because of language and national background, their arguments are not considered strong enough. Additionally, many multinational participants already mentioned the need for an open mindset in the region. This is linked to the quantitative results where Austrian native leaders are rated less compared to multinationals on the rating of 'openness to change' value quadrant from the Schwartz value survey. The above factors and qualitative findings (section 4.2) indicates the high 'conservation' mindset from the Schwartz value quadrant in the region. (Schwartz 2012)

Based on the factors listed in qualitative findings (Section 4.2) and Vorarlberg region is not open to digitalization and change(section 4.3.3). The Organizations, leaders, and people in Vorarlberg need to be more open-minded and open for change for accepting multinationals, language, technology, and new changes. Because it's about people first and then process. This could be solved by being open to multinationals first and then their opinions and then process. The leaders can play an important role in bringing the change in the mindset of individuals and then a community as a whole.

4.3.4 Recommendations for Leaders

Based on the above findings here are some recommendations. To adapt to digitalization the leaders need to open for technology acceptance and change. Change means also in terms of changing traditional organizational practices. One of the beliefs was technology shift might lead to loss of efficiency and risk of failure of current work Due to those reasons they don't try new things, in our case technology tools. This trait is confirmed to the theory of Schwartz where values like tradition, conformity, and security combined to reflect the conservation behavior. Which is opposite to openness to change as indicated in the Schwartz value quadrant. (Schwartz 2012)

To bring the change, leaders have to change themselves first and then they can bring the change in the organization. Details points were earlier covered in section 4.2.5 and 4.2.6. Examples of different perspectives were seen with efficiency and innovation, where Austrian leaders saw it less efficient and innovative as compared to multinational opinion. Leaders have to change their perspective on technology. Thus not seeing it as loss of efficiency, but instead how they can use it to be more efficient and innovative in the daily practices. They can always ask their colleagues and have open to learning mind-set.

On the individual level, leaders need to be more adaptive and Altrocentric. As covered in the literature review, the leadership approach needs to be more pragmatic and holistic. They have to follow Altrocentric leaders' practices such as understanding it and that they cannot be successful alone and must trust employees and believe in collaboration and

teamwork. Being the leader they empower, enable, and coach the teams and communities. Create meaning in the organizations by acting with high maturity, integrity, empathy, and serving their team/employees. Thus But not only leaders the team members need to be open as trust the leadership. Further details were mentioned in 4.2.7. Leaders set the example of change which followed by the team can break the traditional mindset and help leaders, teams, and organization to succeed. (Vielmetter; Sell 2014)

COVID-19 Impact

Overall, the Corona pandemic outbreak has massively impacted the technology acceptance of digital tools as everyone has to work remotely. It was a macro-level impact and thus has led to faster adoption of technology across the world, details were earlier covered in section 4.2.1.

4.4 Limitations and further research recommendations

The interviews were conducted in the Vorarlberg region of Austria, findings can vary in different geographies based on cultural differences. The national cultural background of multinationals leaders was not considered as the focus was more on Austria and also to reduce complexity. Thus opinions and perspectives of participants can vary, also in the reliability of certain answers. As there could chance of participant biases (due to personal or professional reasons).

Due to the limited sample of participants, the organization. These analyses cannot be generalized. Quantitative findings need a bigger sample size to test on a large group of people. Many new findings came during the interview process, which also gives the chance for further research. For example, the role of individual culture is found important but other cultural factors such as organizational, national, and regional culture factors certainly had an influence, how much influence does each culture has could be analyzed further.

This study uses the approach of analyzing technology acceptance by assuming the cultural aspects and then field testing and verifying the assumptions. Another method is testing the technology acceptance model(UTAUT) on the culture. That approach is another way to look into the subject and can be tried and tested. Due to the limited time and scope of this thesis, the current methodology was selected. However, from the findings of this research, the importance of culture can be seen in technology acceptance. This brings the scope of analyzing and testing the UTAUT model on culture in the future. But of course, that needs a bigger test process and sample size.

5. Conclusion and further outlook

Research aim and conclusion

This research aim was to identify the influence of culture in the acceptance of digital tools in leadership communication. In the literature review, the research gap was analyzed as the cultural element was missing in the technology acceptance model. Built on the finding of quantitative and qualitative analysis of Austrian natives and multinational leaders in Austria. Followed by the discussion and linking back to the theory of Schein and Schwartz. It can be concluded from the Statement 5 from the discussion and answers the research question.

Culture plays an important role in technology acceptance of digital tools in leadership communication. Where the culture comprises of organizational, national, regional, and individual culture. In certain cases, cross-connections are found between the organization, national, regional, and individual cultures. Additionally, Individual culture plays an important role but other cultural factors cannot be avoided as it is indirectly dependent on the other cultural factors.

Summary and reflection on the research process

In the literature review, it was assumed that three key cultures can play a role in technology acceptance of leaders which are organizational, national, and individual. After that different cultural value survey was compared and finally the Schwartz value survey model was considered. As it determines openness to change and was found perfect to test technology acceptance of leaders at an individual level. Additionally, the qualitative questionnaires were conducted to find out the key factors influencing technology acceptance, where the GRPI model was used from the literature review.

Austrian natives and multicultural leaders in Austria were tested using the qualitative method by conducting 1-1 interviews. While keeping the other culture impact and technology impact minimum by choosing the same location and organization. During the initial round of interviews, the Austrian leaders were not able to reflect many cultural changes as compared to multinationals. But then the methodology was adapted and two interviews were conducted with Austrian leaders who were relocated to silicon valley. This adaption in the methodology has given great insights into Austrian/European culture from a different perspective and was covered in the qualitative results (Section 4.2). For me, It was one of the surprising aspects of the thesis.

Then the quantitative and qualitative results were analyzed using different methods(Section 3.3) The results of qualitative interviews consisting of Austrian natives, multinationals in Austria, and Austrians who moved to silicon valley are combined, compared, and contrasted.

The findings from the quantitative and qualitative interviews were further compared with the assumed Schwartz value survey and Schein model. The Schein iceberg model has given the overall overview of the reasons including the culture factors based on the qualitative findings. It was found in correlation with the higher value of technology acceptance and

usage from the quantitative interviews, indicating that it's not the technology barriers but other factors like culture, corona, and age have an impact. While Schwartz's value also confirms the importance of individual culture along with the qualitative answers.

Additional findings and recommendation for leaders

In the literature review as only organizational, national, and individual culture was considered but after the interviews and analysis. It was surprising to found that regional culture also influences technology acceptance, along with detailed reasons.

Vorarlberg(Austria) region needs to be more open towards digitalization and technology changes. The list of factors affecting technology acceptance and the reasons behind are covered in detail in section 4.2 and 4.3.3. This information can be useful for organizations and leaders in the Vorarlberg region and Austria to consider when going for technology acceptance of digital tools and change.

Overall Austrian natives and multinational leaders were rated high on technology acceptance and usage of digital tools. But multinationals leaders in Austria were found to some extent more open towards technology acceptance, which was reflected in their quantitative and qualitative answers. As both Austrian and multinational leaders have a different perspective on using technology tools for example in context to efficiency and innovation. But due to the limited sample size, these results cannot be generalized.

Since this topic was focused on leadership, in the literature review the evolution of leadership in the digital era and collaboration was covered(section 2.1), along with the leadership and effective team communication(section 2.3). In the qualitative findings, the factors linked to leadership and individual change were highlighted(section 4.2). In the end, the recommendation for leaders was summarized (section 4.3.4).

Further outlook and research recommendations

As mentioned in the limitations, the UTAUT model for testing the technology acceptance can be further looked into in the future. Where the culture parameter can be tested on the model.

In this research, In certain cases, cross-connections are found between the organization, national, regional, and individual cultures. One further aspect could be to measure in detail the correlation between different cultures and dependency of one on another.

The Schwartz value group ‘openness to change’ was evaluated and analyzed for an individual Austrian and multinationals leaders. This method and values can be used further to analyze the ‘openness to change’ of individuals in evaluating openness and acceptance for any other changes. Since this study was conducted on a small sample size it cannot be generalized but it gives the method which can be applied on a bigger scale to test.

Final words

The research was done to find the influence of culture in the acceptance of digital tools in leadership communication. It was found out that culture plays an important role. Where the culture comprises of organizational, national, regional, and individual culture. The findings indicate the individual culture plays an important role, as it is directly or indirectly dependent on the other cultural factors like organizational, national, regional, and individual itself.

In certain cases, cross-connections are found between the organization, national, regional, and individual cultures. Measuring the exact correlation between these cultures and the dependency of one on another could be the topic for further research.

The factors influencing technology acceptance in the organization based in Vorarlberg(Austria) are listed. Organizations could use this information to understand more about all the factors affecting technology acceptance. Additionally, recommendations are made for leaders to develop and change.

Thus it's not about technology challenges but its more about leaders, teams, and organization's openness and willingness to change. Leaders can adapt and change themselves first and be the driver of change in an organization for a winning future.

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Appendix

The appendix table below indicates the participants' raw interview transcript (appendix 1 to 12) along with their background information(Austrian native/ Multinational/ Austrian leaders in silicon valley). Appendix 13 and 14 covers quantitative and qualitative analysis and could be referred to find the methodology and further details of the analysis. Additionally, Appendix 13 and 14 are further enclosed in the next pages. The participants' selective quotes are further mentioned in appendix 14(page 88).

S.no.	Information 1	Information 2	Raw Transcript/ Analysis document
Appendix 1	Participant 1	Multinational	 1.docx
Appendix 2	Participant 2	Multinational	 2.docx
Appendix 3	Participant 3	Austrian Native	 3.docx
Appendix 4	Participant 4	Austrian Native	 4.docx
Appendix 5	Participant 5	Multinational	 5.docx
Appendix 6	Participant 6	Multinational	 6.docx
Appendix 7	Participant 7	Multinational	 7.docx
Appendix 8	Participant 8	Austrian Native	 8.docx
Appendix 9	Participant 9	Austrian Native	 9.docx
Appendix 10	Participant 10	Austrian Native	 10.docx

S.no.	Information 1	Information 2	Raw Transcript/ Analysis document
Appendix 11	Participant 11	Austrian Leader (Silicon Valley)	 11.docx
Appendix 12	Participant 12	Austrian Leader (Silicon Valley)	 12.docx
Appendix 13	Quantitative Analysis	Raw and processed data	 13. Quantitative analysis format.docx
Appendix 14	Qualitative Analysis	Raw and processed data	 14. Qualitative analysis format.docx

Appendix 13: Quantitative analysis

Data collection

The data of Austrian natives and multinational leaders are collected in ordinal form using google forms. Below are the data screenshots from excel

what is your home country?	If outside Austria please name your country	1. Thinking up new ideas and being creative is important to him/her. He/She likes to do things in his/her own original way.	2. It is important for him/her to make his/her own decisions about what he does. He/She likes to be free to plan and to choose his/her activities for himself.	3. He/She likes surprises and is always looking for new things to do. He/She thinks it is important to do lots of different things in life.	4. He/She looks for adventures and likes to take risks. He/She wants have an exciting life.
Outside Austria	Australia	4	5	2	
Austria		4	3	3	
Outside Austria	Germany	5	5	4	
Outside Austria	Italy	4	6	6	
Austria		5	5	4	
Outside Austria	UK	4	5	3	
Outside Austria	Romania	5	6	6	
Austria		5	5	4	
Austria		5	4	4	
Austria		4	5	5	

Table 1: Data collection for SVS openness to change.

Source: Based on data collection.

G	H	I	J
On the rating of 1-6 how much % digital communication tools, you used before corona time?	How much % digital communication tools you use currently?	How much % digital communication tools will you use in the future/ after corona?	How would you rate the technological challenge / Technology acceptance?
5	5	4	5
4	6	5	5
5	5	5	6
4	5	4	6
4	6	4	6
4	5	5	5
2	5	5	5
2	5	4	5
6	6	6	4
4	6	5	5

Table 2: Data collection in SVS vales.

Source: Based on data collection

Data analysis

The collected data is then analyzed using Microsoft excel. The values are analyzed in two sections 1 contain Tables 3,4,5 and 6, this represents the Schwartz value analysis. The figure represents the mean of Self-direction and stimulation, and 'openness to change' values. While section 2 indicates table 11 to indicate the similar approach done in section 1.

Section 1: 'openness to change' analysis from the Schwartz Value Survey(SVS)

Values	Column Labels Austria	Outside Austria
Average of 1. Thinking up new ideas and being creative is important to him/her. He/She likes to do things in his/her own original way.	4,6	4,4
Average of 2. It is important for him/her to make his/her own decisions about what he does. He/She likes to be free to plan and to choose his/her activities for himself.	4,4	5,4
Average of 3. He/She likes surprises and is always looking for new things to do. He/She thinks it is important to do lots of different things in life.	4	4,2
Average of 4. He/She looks for adventures and likes to take risks. He/She wants to have an exciting life.	3,2	4,6

Table 3: Data analysis using Microsoft excel.

Source: Based on data collection

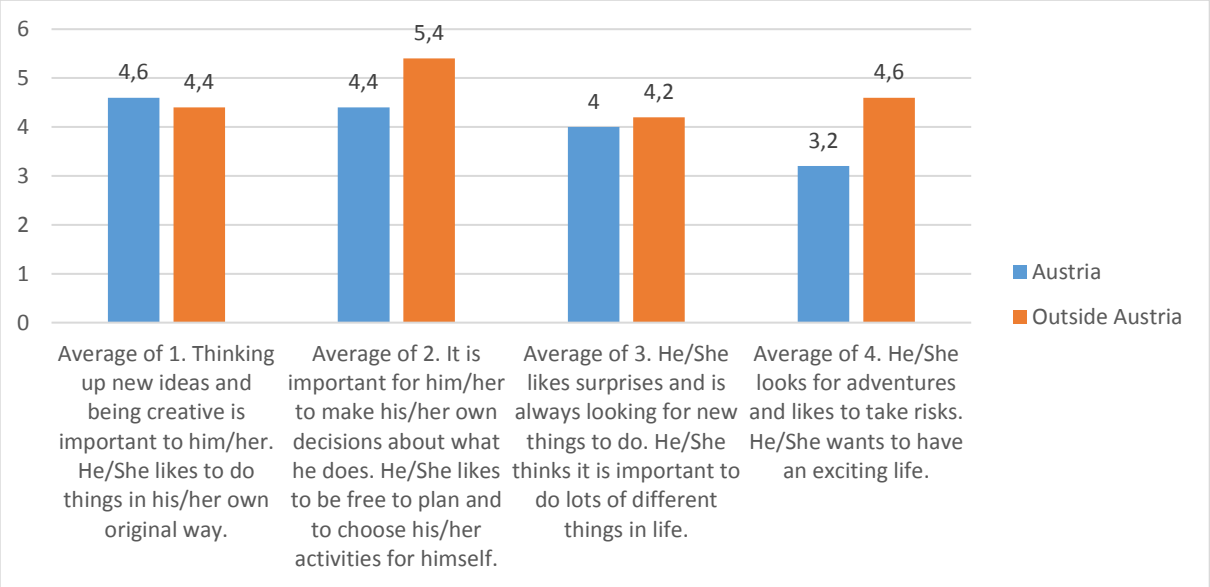


Table 4: Data analysis and representation of Self-direction and stimulation values

Source: Based on data collection.

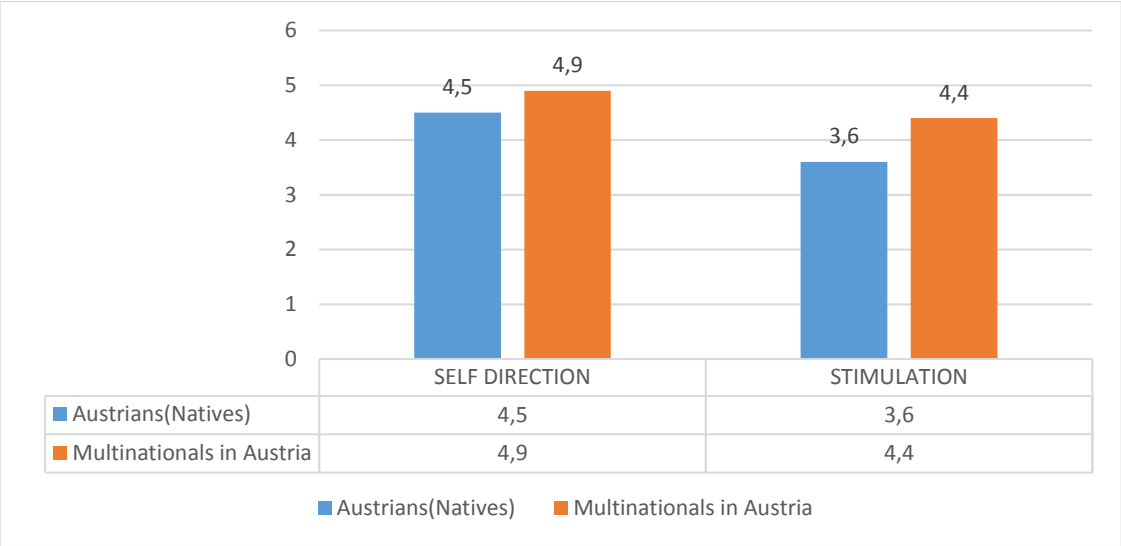


Table 5: Findings Schwartz values self-direction and stimulation

Source: Based on data collection

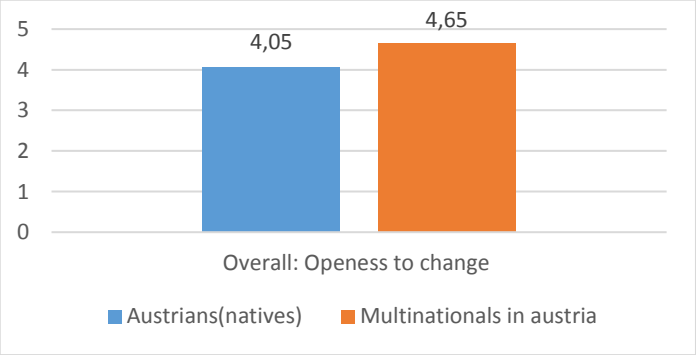


Table 6: Findings overall openness to change

Source: Based on data collection

Section 2: Technology acceptance

Similar to section 1, but instead of 'openness to change', here 'technology acceptance' value was indicated and further analyzed and presented overall in the next section.

Values	Column Labels Austria	Outside Austria
Average of On the rating of 1-6 how much % digital communication tools, you used before corona time?	4	4
Average of How much % digital communication tools you use currently?	5,8	5
Average of How much % digital communication tools will you use in the future/ after corona?	4,8	4,6
Average of How would you rate the Technology acceptance?	5	5,4

Table 7: Data analysis of Technology acceptance and usage

Source: Based on data collection

Overall data presentation

Below table 8 represents the overall summary and presentation of the data analysis. While table 9 indicates the key finding which can be used further in research.

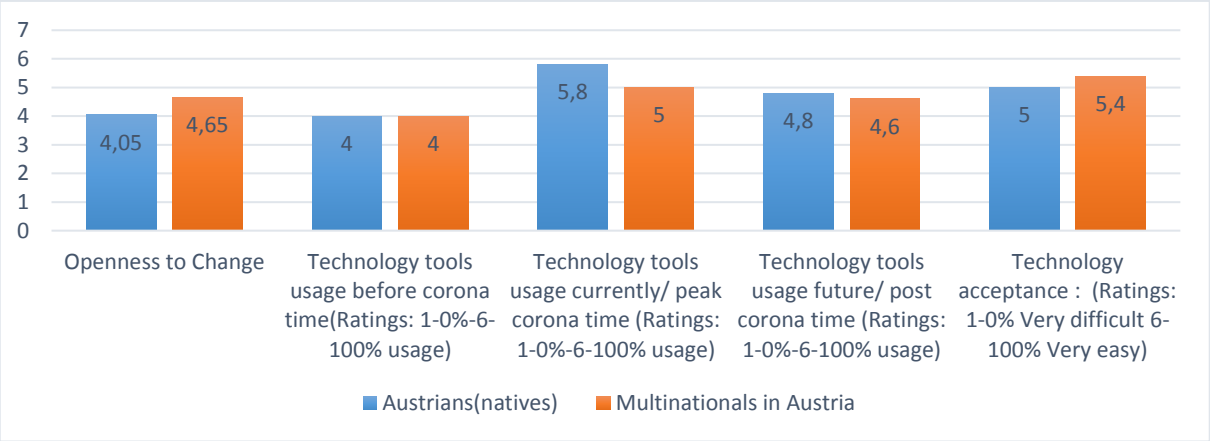


Table 8: Overall data presentation of Technology acceptance and usage

Source: Based on data collection

Key findings

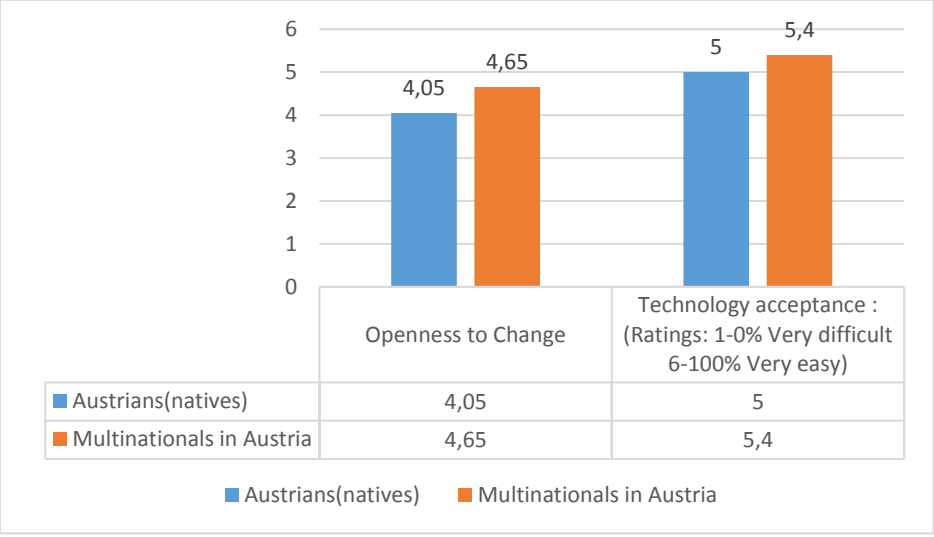


Table 9: Data analysis of Technology acceptance and usage

Source: Based on data collection

Data check, with Mean and SD values of key findings

Although the sample size is not big, still the standard deviation of the findings was analyzed to see the data distribution. Lower values od Standard deviation indicate that the data is very much cantered and close to the mean values. Which shows the reliability of data. Below table 10 and 11 indicates the mean and standard deviation values.

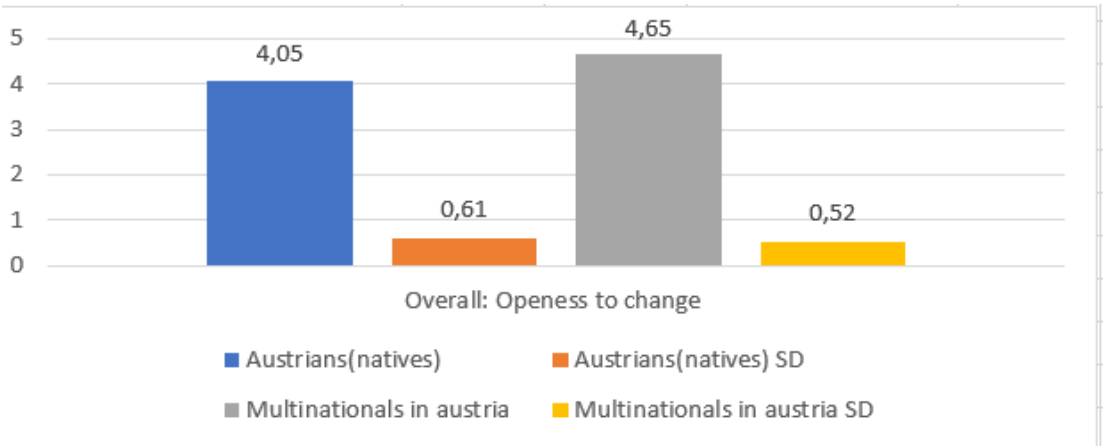


Table 10: Data analysis of Technology acceptance and usage

Source: Based on data collection

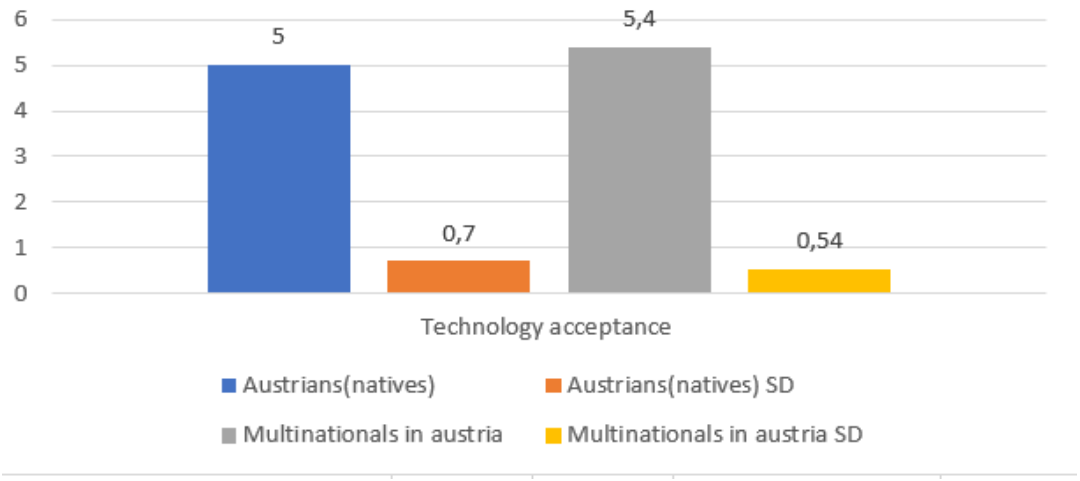


Table 11: Data analysis of Technology acceptance and usage

Source: Based on data collection.

Appendix 14: Qualitative analysis

The interviews were recorded, transcribed and thematic analysis was conducted. Thematic analysis is a method to identify, analyze, and report the collected data from the qualitative interview. To analyze the data adapted form of Braun and Clarke 6 step method was used as indicated below. (Braun; Clarke 2006)

Step 1: Familiarization

Data were recorded in the form of a video. From the video, the data was transcribed. (Braun; Clarke 2006)

Step 2: Coding

Based on the transcription and video every individual candidate was coded based on the deductive approach. Based on that initial codes were formed and every individual profile was created in the form of a spreadsheet and word document. (Braun; Clarke 2006)

The individual participant was coded first using the deductive approach, below an example of coding(Figure 1)

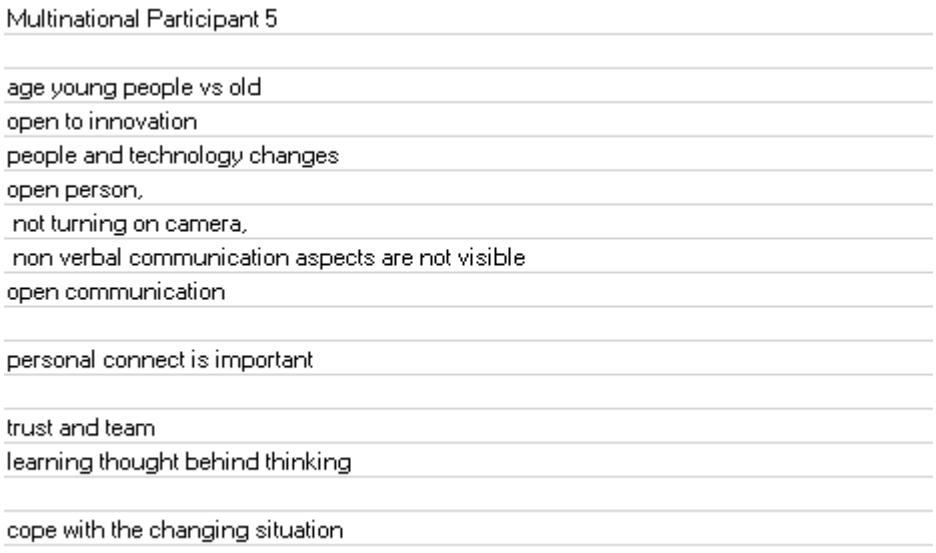


Figure 1: Coding using the deductive approach

Source: Based on data collection.

Step 3: Generating initial themes

These individual candidate codes are then combined and separated in the form of groups and themes. For example, the initial groups were made between Austrian, multinational, and Silicon Valley participants. The next step was to find a common code in every group and keep the uncommon code separately to see if they can be combined later. These groups are indicated in figure2, 3, and 4 as an example. Based on that initial themes were formed. (Braun; Clarke 2006)

Example of Combined group excel coding snapshots sheets(figure 2,3,4)

	Need charge			if you are open minded try new things critical teams		typical vorarlberg is difficult
						why we talk in german
technology and culture	challenges - people and technology	poor technology	good system			porto vs dornbirn
	not skype to team		younger teams	age- young have no problem		
		team - millenial and digital natives		45+ biggest concers		other part digitalisation not here
	sensitivity					
	20% more diffucult to understand					close to culture
						voralberg people are far away from digitalisation
will you switch to digital teams	social animals			completele digital, yes all around		if you want something you have to come to me
	planned vs spontanous					
	coincidences					
Individual skills	Adaptive leadership	train to be more digital		got used to it 10-15 years		be open
					trust	believe in the other tells you
					trust other	results will be ok

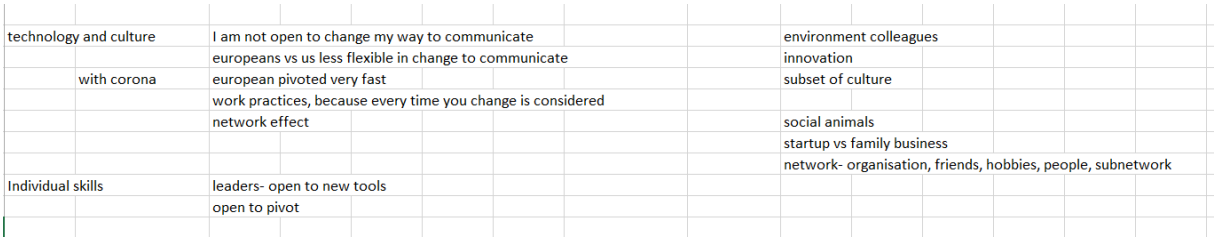
Figure 2: Example Group 1 (Austrian Natives)

Source: Based on data collection.

	big beliver of digitalization					
			age young people vs old	people styles		
technology and culture		people turn off came	open to innovation	being working in perticular way		
challenges			zt people	25 years austrian	reduced distances, distance barrier reduced	
			open person, not turning on camera, non verbal communication aspects are not visible			
				never turn on camera		
	open transparency		open communication			
will you switch to digital teams			personal connect is important			
Individual skills	servant mindset	to develop language and cultural skills		adaptable	higher level independency	
	open mindset	encourgage to be mo	trust		everyone should learn english more	
	fail and learn more		learing thought behind thinking		trust	
technology and culture			cope with the changing situation			
	you need to understand your vision. Blue print or roadmap					
	empathy					

Figure 3: Example Group 2 (Multinationals)

Source: Based on data collection.



technology and culture	I am not open to change my way to communicate	environment colleagues
	europeans vs us less flexible in change to communicate	innovation
with corona	european pivoted very fast	subset of culture
	work practices, because every time you change is considered	
	network effect	social animals
		startup vs family business
		network- organisation, friends, hobbies, people, subnetwork
Individual skills	leaders- open to new tools	
	open to pivot	

Figure 4: Example Group 3 (Austrian leaders in silicon valley)

Source: Based on data collection.

Step 4: Reviewing and reworking

Themes are considered and combined to answer the research questions and to analyze the reasons behind. Also to analyze and group uncommon codes in a structure. This process was repeated back and forth because it took a lot of iterations to come to common and final theme structure. The themes and codes were rechecked with the transcript and interview. Figure 5,6 represents examples of initial themes. (Braun; Clarke 2006)

Step 5: Naming

Combined themes were given a common name or heading. This was also an evolving process because when reworking on themes you see the patterns forming together. Then it was named according to that category. For example, the final theme was based on the current situation(corona crisis). age, country, regional, organizational, and individual level. And within every theme viewpoints of Austrian, multinational, and Silicon Valley participants are both combined and contrasted. Below are the examples of raw sheets there different steps are combined and represented together. Figure 7 represents examples of initial naming after that overview(figure 8,10,12) and raw and detail (figure 9,11, 13) are indicated. (Braun; Clarke 2006)

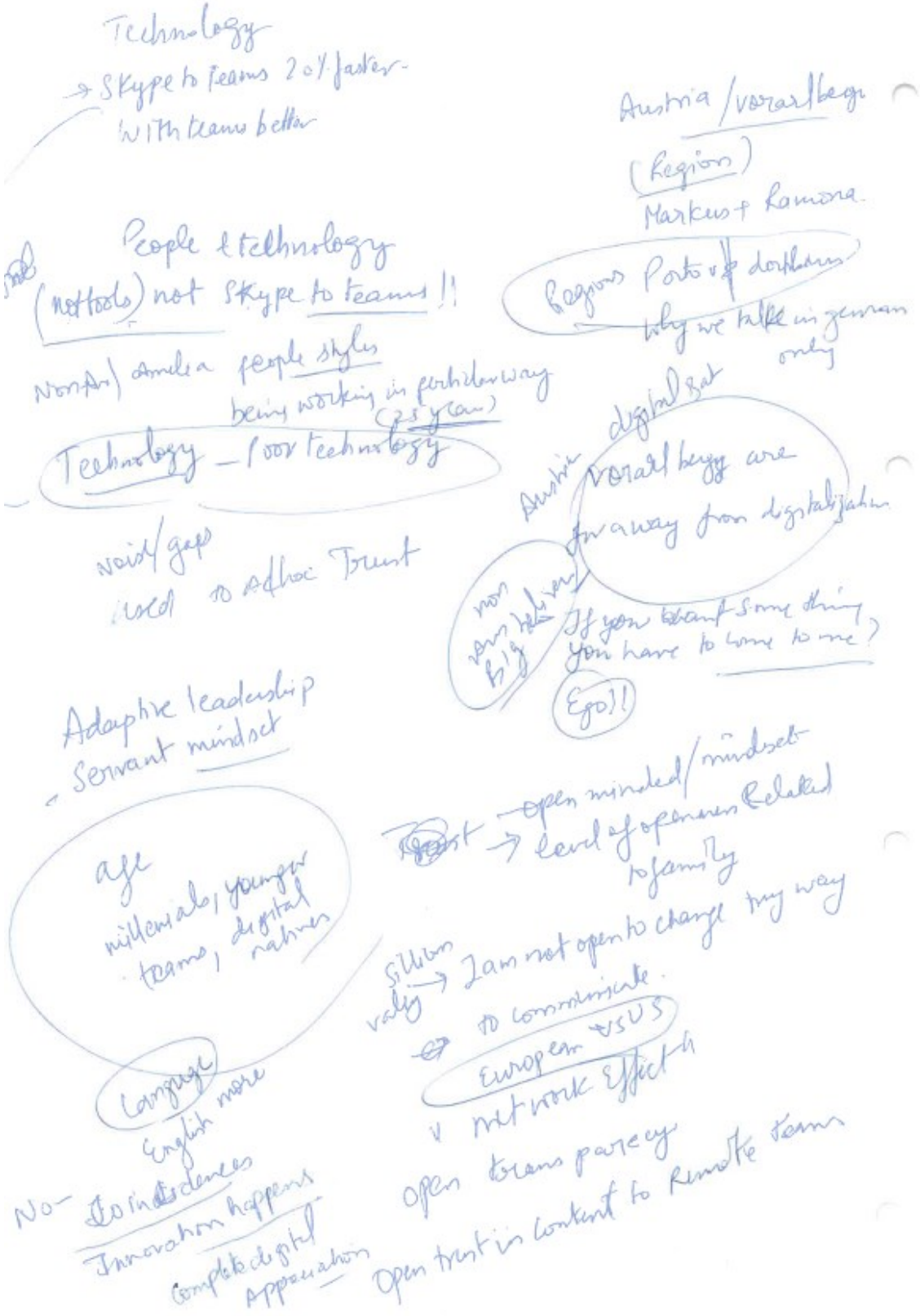


Figure 5: Example step reviewing and reworking

Source: Based on data collection.

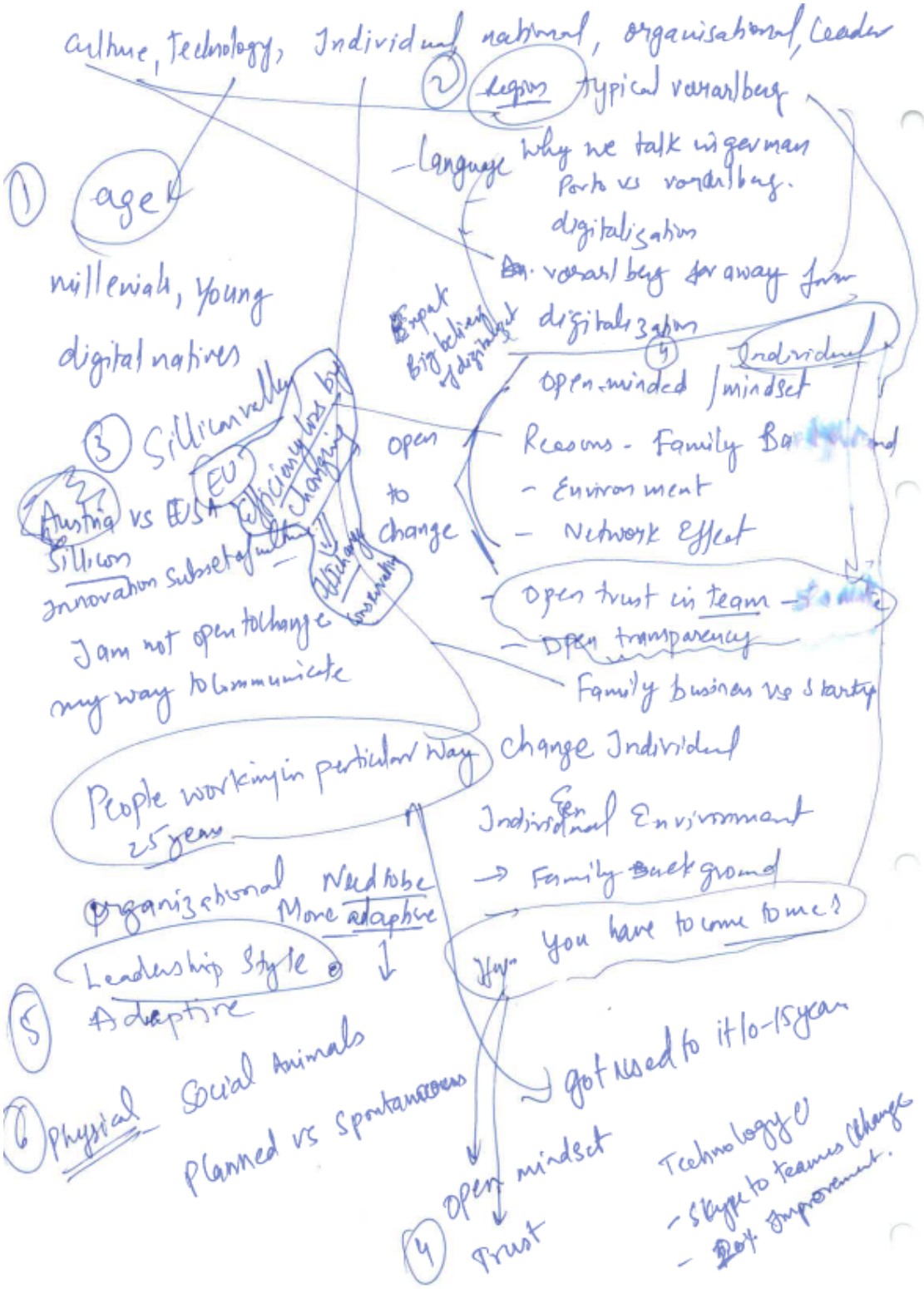


Figure 6: Initial steps reviewing and reworking

Source: Based on data collection.

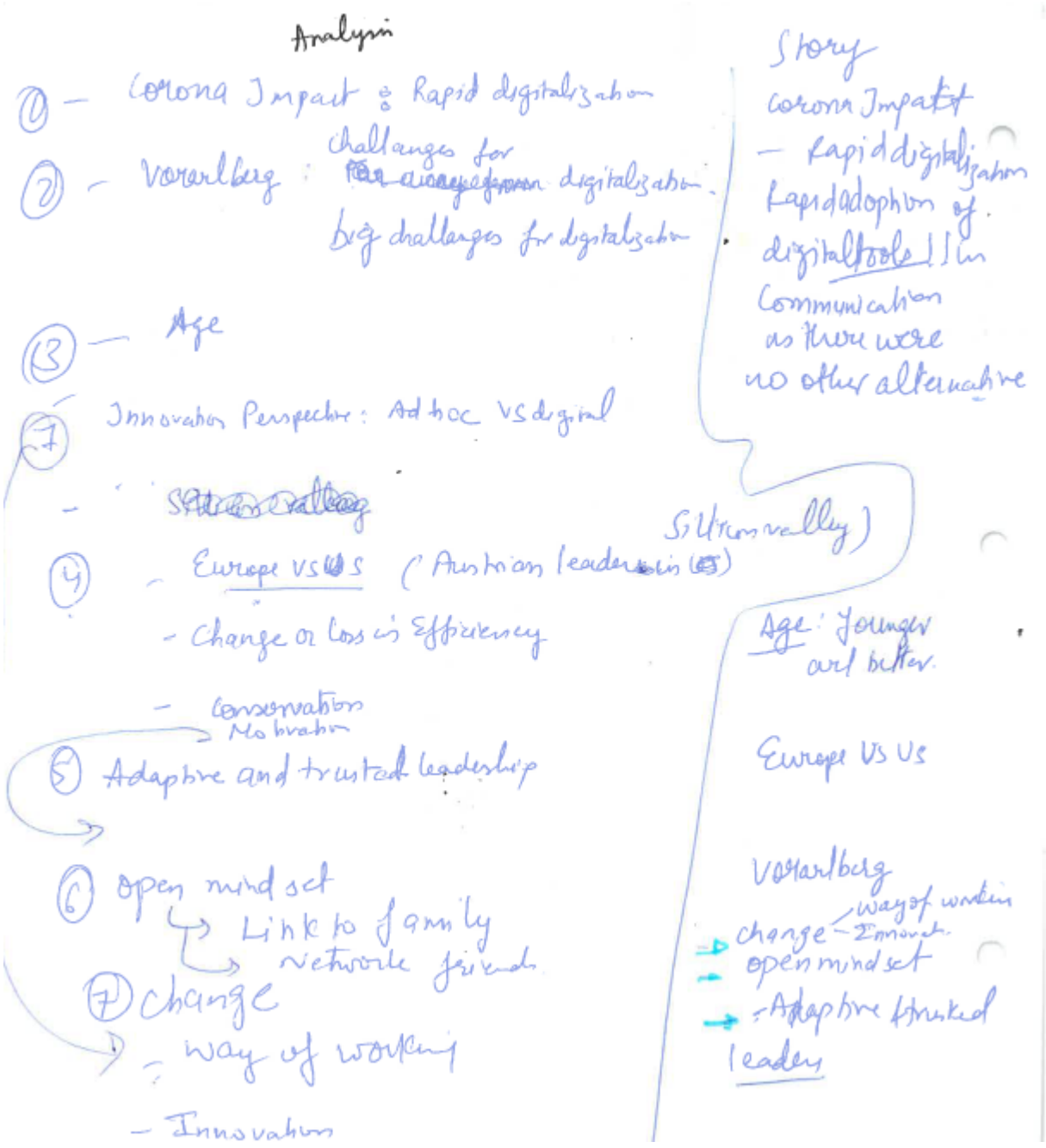


Figure 7: Initial steps forming overall themes

Source: Based on data collection.

Figure 8: Detailed overview of theme 1,2,3

Source: Based on data collection.

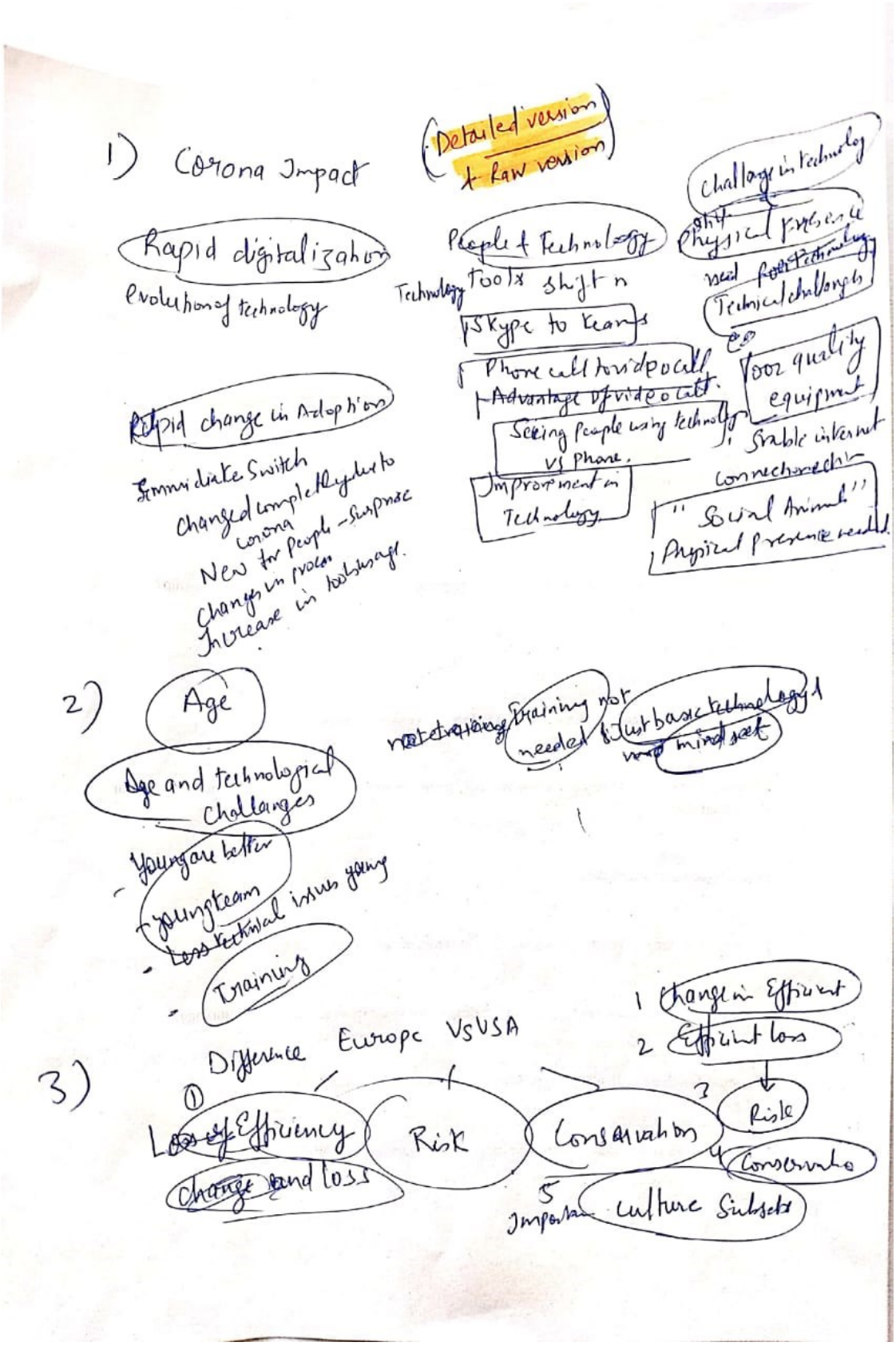


Figure 9: Raw and detail version of theme 1,2,3

Source: Based on data collection.

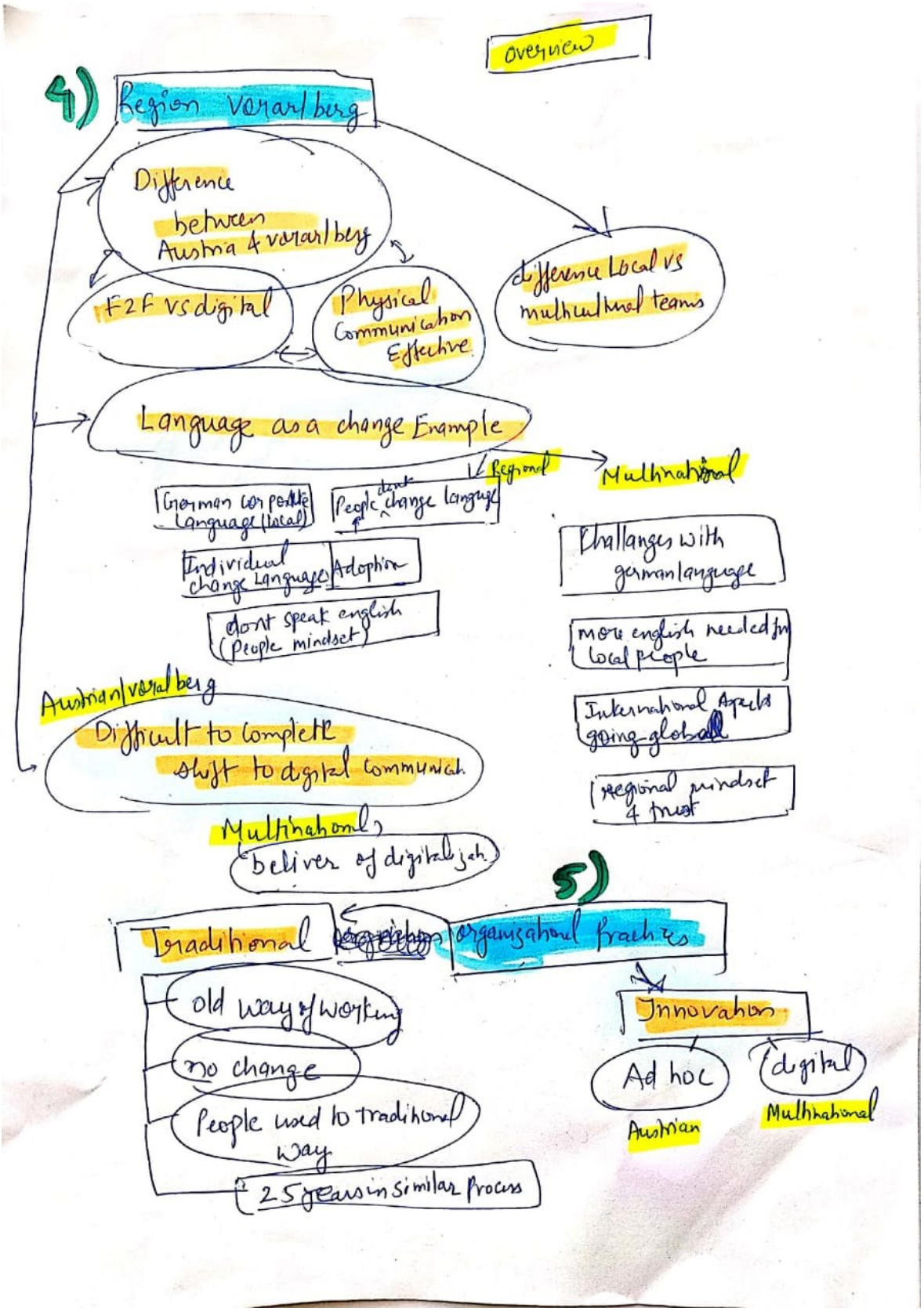


Figure 10: Detailed overview of theme 4,5

Source: Based on data collection.

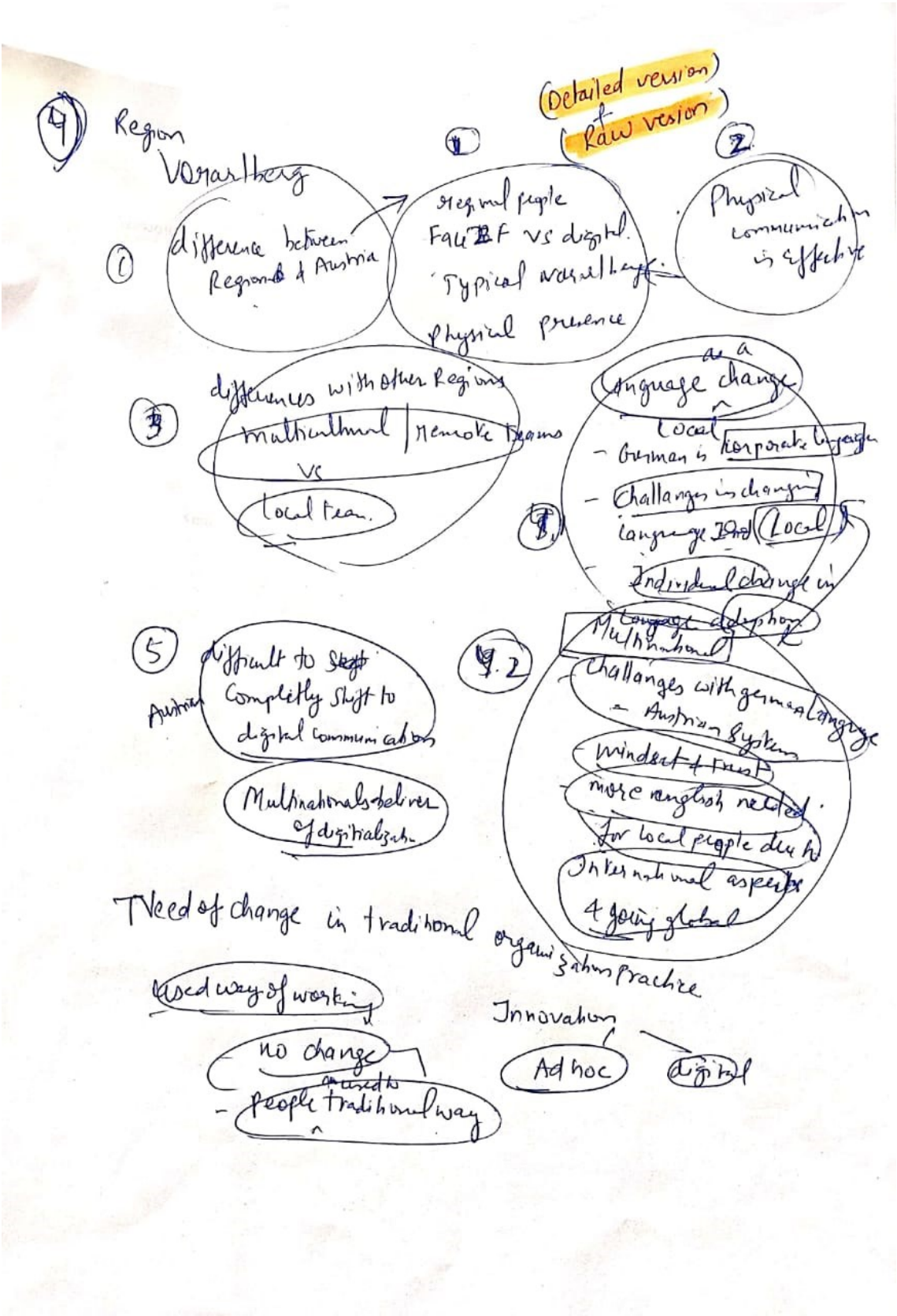


Figure 11: Raw and detail version of theme 4,5

Source: Based on data collection.

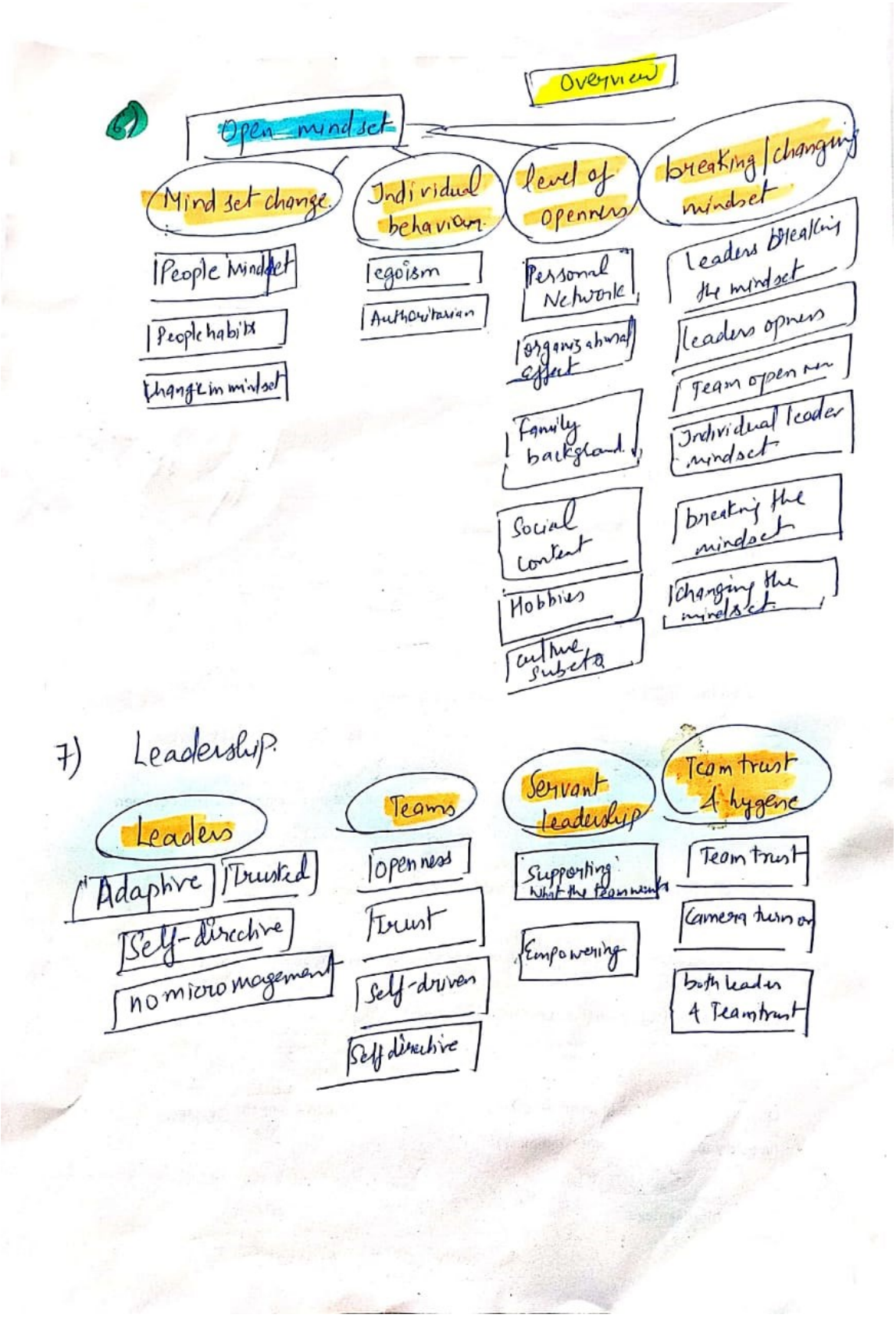


Figure 12: Detailed overview of theme 6,7

Source: Based on data collection.

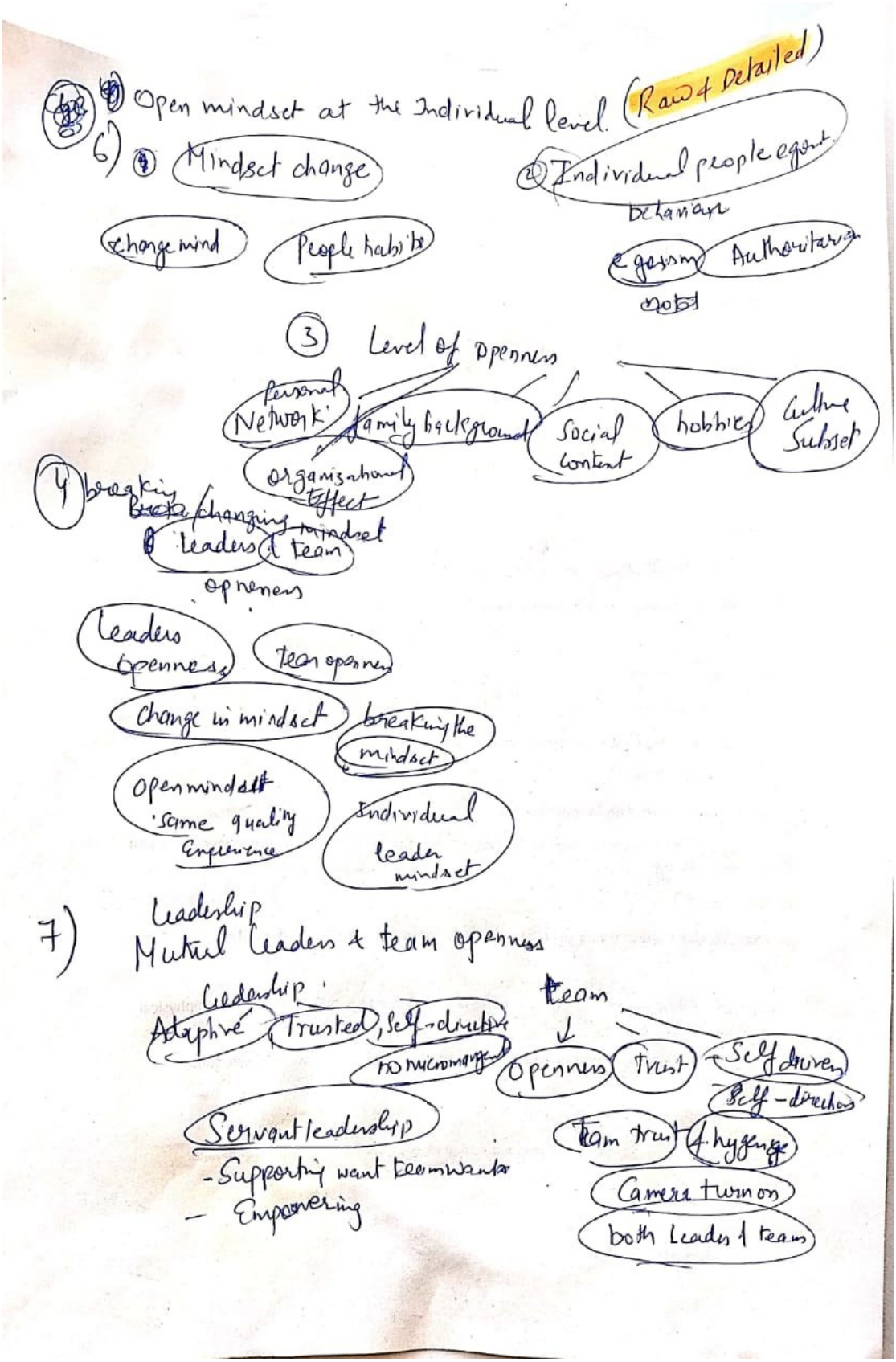


Figure 13: Raw and detail version of theme 6,7

Source: Based on data collection.

Step 6: Writing themes

Based on the overarching theme and sub-theme. The selective quotes are then documented in the final findings. They were also structured based on different levels starting from macro to individual level. The codes are also summarized and rewritten in the form of factors for a better understanding of users. (Braun; Clarke 2006)

The overall process involved physical and digital combined analysis. The use of word documents, spreadsheets, and the paper sheet was mixed to brainstorm and come out with the whole process results. The selective and filtered quotes were combined together in next section.

Based on the above analysis total 7 key themes were formed(figure 8 to 13). These were the key factors influencing the technological acceptance for Austrian natives and multinationals living in Austria. The factors were group based on the current situation of the corona, age, geography, organization, and individual parameters. Findings were structured in the form of macro to micro-level factors influencing technology acceptance. Which was finally reflected in section 4.2.

Final 'selected quotes' from the participants

Below indicated the final direct citations which are taken and worked out from the raw transcripts. Some grammar error was found but they were not modified much to keep the answers genuine (so please ignore the basic grammatical error). The citations are arranged in a similar order arranged in the section 4.2 section(qualitative findings).

"I'm sure you'll come to this conclusion in your thesis. But I think Corona has massively helped digital evolution and is for is forced our hands to use the tools that are available to us. That historically people may have been scared of or not understood..." (Appendix 2)

"So the beginning when this is coronavirus started. So we talked a lot on the phone and then we gradually switch to this kind of communication face to face communication"(Appendix 6)

"yes it was a better experience because, you know, we could not see each other on the phone"(Appendix 6)

"It's been phenomenal because the input going from Skype to teams is a good example. I think 'teams' is a great platform" (Appendix 2)

"because it was the first time in my life that I had some such a situation. Furthermore, it was, and You have no real guideline on how to react or tracked appropriately. I do mean it was very much based on gut feeling based on common sense. And based on an immediate change, I would say from physical to virtual with all necessary tools, but also the process is I would say in our case this happened in within two days I would say that we changed completely" (Appendix 8)

"Yeah, we are quite used to work with tools like teams and putting everything online already, so that's what we also did in the past, so that was not something completely new for us." (Appendix 5)

“you already had some kind of thoughts in your mind that it can be more digital, or it can be more younger or something.” (Appendix 3)

“It's a generation issue. Destiny, the Millennials digital natives. Uh, they have less issues if they have to start Skype meeting.” (Appendix 3)

“The people of each respective biggest concerns or problems with it, let's say, is the generation which is 45 plus, which was not using it before. If you come from an external company and you are not used to, let's say International Exchange and I'm working on an international basis and then, of course, you need to invest in training those people also intercultural training” (Appendix 9)

“basic level general knowledge in Technology, but I will say below 50 years old is something quite granted and also hope so. Don't see specific training needed” (Appendix 7)

“I think it does. I'm not probably as an open to change my way of communication so I rather in uh. Just keep it consistent,“ (Appendix 12)

“I think the European background in general, Europeans are more probably less. It again comparing them to the US workforce. They probably less flexible when it comes to a change in communication or change in work practices“(Appendix 12)

“Initially person very open to that change, but yes, deep down I guess with my European background that always have this like slight hesitation of Changing it and simply because I think every time you change something, efficiency loss at the beginning and which is always my concern, right, you're forgoing certain efficiency by changing“(Appendix 12)

“It may or may not play out because you always have this element of risk. You have this element of loss in efficiency, which I guess I'm always more like on the more conservative side” (Appendix 12)

“So I think these things can be measured on a national scale, but I think it's more important to focus on these sub subsets of subcultures. “(Appendix 11)

“I think it's even not Austria, Vorarlberg so that the typical Vorarlberg guys to say this for them. First thing is that they get used to, yeah we do this Face to face and not digital and things like this” (Appendix 10)

“Yeah that they get used to having the people not next to them, this is a big challenge for the Austrian Vorarlberg guys. I would say it's really it's because we are in such a small area”. (Appendix 10)

“Someone is sitting next to me and tell me, I promise I will do this until then. Then he has personally say this to me, so he has more pressure to really fulfill this. But if you do everything on email the Internet, even if it's written. Uh, then I think this pressure because I told them in person that that is missing a bit. So this is what I feel is out there.” (Appendix 10)

“You can really just call them. You can talk to them and they used to take teams and give them more teams call so this is so normal and so standard.” (Appendix 10)

“XXX is a world-wide acting company and his company languages still German” (Appendix 10)

“if you walk through some trouble and you talk to those real typical guys here and you asked me like why should we talk in English? Everything is German here so we have to talk to you like so. I think this this this is really difficult to change their mind” (Appendix 10)

“Take me as an English guy coming over to Austria, telling Austrians how to do something. They don't like me because I'm speaking English to they don't let me. After all, I'm telling them that what they're doing is outdated and for me to change. It took a long time and I'm still struggling now.” (Appendix 2)

“So if we would be located in another area of the word, I would say of course you can shift completely to digitalization, but as I have a lot of people here who are located here who are from here. It is very difficult, to be honest.” (Appendix 10)

“because I'm a big believer in digital. For me, digital is if you're not digital, you're going to become prehistoric and you're going to die out. If businesses don't adapt to the new era. That they're gonna be in a mess and sadly is on top along quite there.” (Appendix 2)

“I think it's, uh, just leadership styles or the people styles, and the fact that they have. Been working in a particular way for 25 years and they're probably not going to change that way” (Appendix 1)

“Everything digital is the right kind of plan because you have to plan it. You have to set it up. You have to invite people and you can just invite, you know in the digital way. There is no coincidence in the respective suddenly to other people are in the call or this in this communication. But here in the cafeteria or in a meeting room where somebody's kind of taking another guy to say OK come on in. Please also bring in your view. This is the reason why it cannot be the case.” (Appendix 8)

“So digital is good in many ways, but historically you wouldn't have had the access to all your team members at the click of a button or is now you do so for me as a leader you have to be selective with when and how you communicate but in terms of pulling ideas from people and getting in touch with people at any time of the day in any place in the world.” (Appendix 2)

“I think this this this is really difficult to change their mind,” (Appendix 10)

“The hardest thing with anything included with digital is changing people's mindsets because they know what they know” (Appendix 2)

“Because if you want something from me you have to come to me. You have to do it in person, so it's more about really the behavior of the people ….” (Appendix 10)

“The subculture or kind of like the social context you're embedded in, more like who are your friends. Who your colleagues, how innovative or how conservative are they…..” (Appendix 11)

“It's like organization, let's say company or job. Then it's friends. It's a family. Maybe if you have hobbies you know you have different roles in your life and depending on how the people in these different subnetworks influence you, that also gonna influence your propensity to use different technologies” (Appendix 11)

“I would say it's different but if you do it open-minded and if you also have people which are open-minded towards trying new things. Then I think you can reach the same level of quality.” (Appendix 9)

“be open for you. A belief in what the others tell you. So you have to trust them. Also, don't be like checking everything someone does so, but give them more own responsibility. and I think this is the biggest part of changing yourself, trust the others and let them do their work and trust that the result will be OK” (Appendix 2)

“So servant leadership to me is I want to empower my team to do their job. My job is a leader is to make decisions when people can't make decisions I should be empowering my team to make the right decision. So I want to ensure that they've been listening, heard to come up with the proposed solution or process, and then communicate” (Appendix 2)

“a lot of my team we never turn on the video camera” - (Appendix 1)

Discussion section: Schein model (raw construct)

The raw format of the Schein iceberg model was constructed based on the findings from the research and represented back in the discussion section.

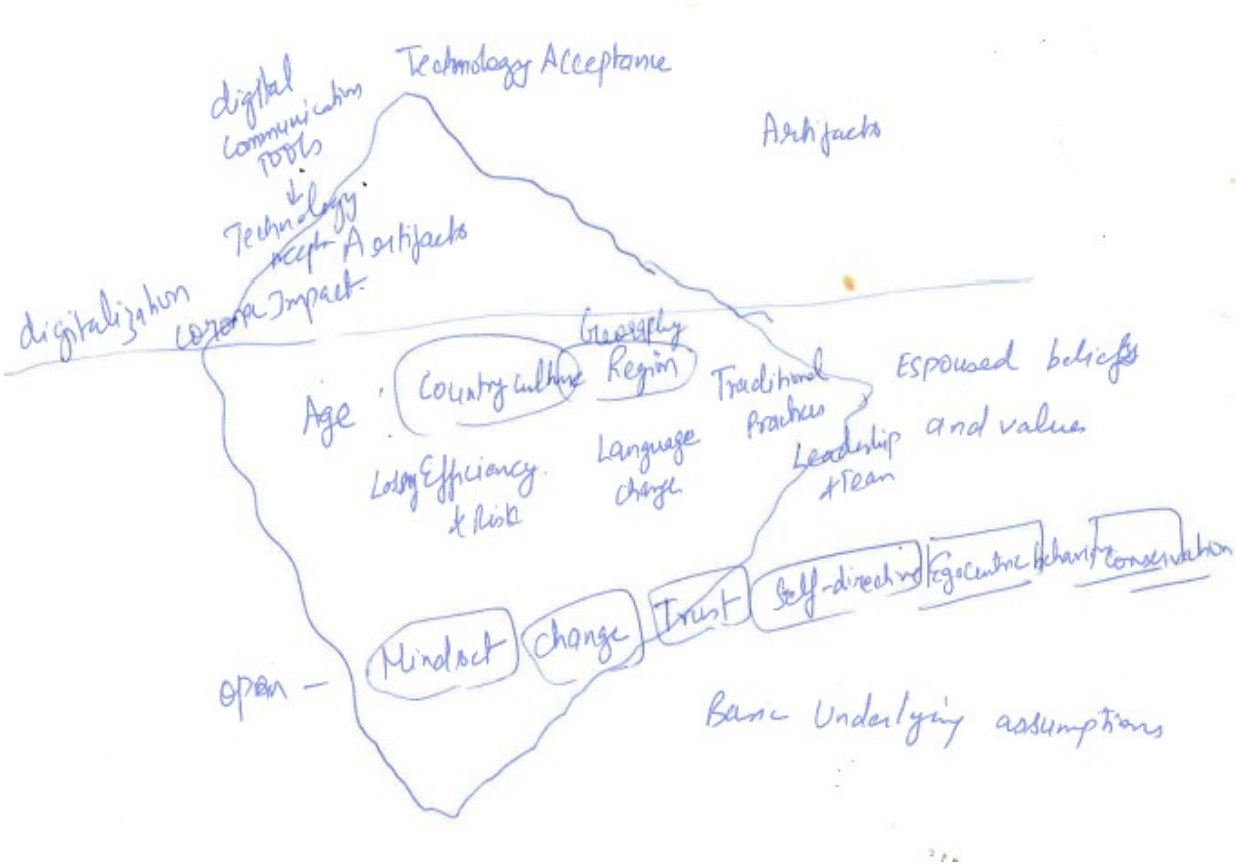


Figure 14: Schein model construction(based on the findings)

Source: Modified based on findings and Schein model (Schein; Schein 2016)

References for appendix

Braun, Virginia; Clarke, Victoria (2006): ‘Using thematic analysis in psychology.’ In: Qualitative Research in Psychology, 3 (2006), 2, p. 77–101. Available at: DOI: 10.1191/1478088706qp063oa

Schein, Edgar H.; Schein, Peter A. (2016): Organizational Culture and Leadership. New York, UNITED STATES: John Wiley & Sons, Incorporated. Available at: URL: http://ebookcentral.proquest.com/lib/vorarlberg/detail.action?docID=4766585 (Accessed on: 20 June 2020).