HOW SHOULD NEW EMPLOYEES BE PREPARED FOR THE CHALLENGES OF VIRTUAL TEAM WORK?

Master Thesis

to obtain the academic degree of

Master of Science

in the master's program

General Management
Statutory declaration

I hereby declare that the thesis submitted is my own unaided work, that I have not used other than the sources indicated, and that all direct and indirect sources are acknowledged as references.

This printed thesis is identical with the electronic version submitted.

Linz, 2018.07.01

________________________________
Mariann Sajtos
Abstract

Virtual team work became a pivotal part of the knowledge workers and the companies’ life of today, reflecting the opportunities created by globalization, technological advancements and changes in the way we work. A myriad of benefits stand for virtual teaming, for example, flexibility, lower costs, easier access to remote talents, improved resource allocation and responsiveness (Ratcheva and Vyakarnam, 2001). Unfortunately, while virtual teaming is extremely useful, it also presents a number of highly specialized challenges, pushing employees into the importance of having unique skills and capabilities.

The master thesis is aimed at taking a deeper look at the challenges of virtual team work, and how can an organisation respond and meet the given hardships by putting an emphasis on the preparation and training of new employees.

Following a brief introduction on the history and development of virtual teamwork, the literature review highlights the challenges faced by employees working in virtual teams. These include, leadership, communication, culture, technology, trust and conflict management. The research question, “How should new employees be prepared for the challenges of virtual team work?” is then investigated in real-life context based on the findings of the literature. Ten employees from Intel, Linz were interviewed through one month period giving an actual snapshot of the issues and possible solutions. From the above listed challenges, employees found communication, culture and technology as important issues. They expressed that these are the challenges new employees should get training about in the form of instructor-led classroom training with supporting material in the form of online repository.

Further investigation is suggested, as the research sample is reflecting the view of one company in the semi-conductor industry, which is highly specialized in terms of employee blend (engineers). Additionally, through the interviews it became evident that the corporate culture has an effect on virtual teamwork which could be further explored and understood.
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Abbreviations

BRIC nations – Brazil, Russia, India, and China
CAQDAS - Computer aided qualitative data analysis software
CMAC - Computer-mediated asynchronous communication
CT – Communication technology
DMCE- Danube Mobile Communication Engineering GmbH & Co KG
FDI – Foreign direct investment
HR – Human resources
ICT – Information and communication technologies
IJV – International joint ventures
IMC – Intel Mobile Communication Austria GmbH
MNC – Multinational corporations
NWW - New ways of working
R&D – Research and development
VT – Virtual team
1. Introduction

As technological advances have become ingenious in our lives, physical distances can be bridged in a matter of couple of hours while information travels in less than seconds. Globalisation created global consumers, new international opportunities, matrix organisations and highly competitive environments, where goods, labour, services and knowledge can be managed remotely (Apfelthaler and Vaiman, 2013). If we look around in an office today, we can see that the way we work has undergone cardinal transformation. People work on projects with colleagues from different environments, across space and time, as well as employees are using sophisticated communication and production tools to conduct business with customers in remote locations (Joyner et al., 2012).

According to Harris (2011) there are number of important macro trends that affect the way we work and manage projects today. Some of the foremost important are; increased collaboration, globalization, diversity, telecommunication and virtual work. These elements have changed our way of work from uniform national, cultural, contextual, structural and disciplinary settings into a highly organic, fast paced, multicultural environment, introducing numerous new possibilities as well as many challenges (Lappalainen, 2009). From these trends, the interest of this master thesis lays in virtual teams, as work models are constantly evolving into a more remote, virtual types and their effectiveness represent our current and future challenges (Johns and Gratton 2013).

Employees of this modern, fast paced work environment are required to learn new skills and knowledge to complete their jobs. Training is a great mean for organisations to equip their employees with the necessary tools, skill and knowledge that help them overcome challenges, and is especially important in the case of virtual team work preparation (Tai, 2006). With training, employees have increased adaptability and flexibility which plays a critical role in cross-national team settings, as well as training can help organisations to maintain competence on the market (Tai, 2006).

According to Joinson (2002) virtual teams can be successful if they are formed, managed and trained successfully. Newcomers, who have never been employed in jobs that require virtual team work, may face hardships due to the nature of such work.
Individual or group preparations can reduce stress, make people aware of the challenges and thus reduce the ‘fear of unknown’ factor (Treven and Potocan, 2005).

Therefore, the objectives of the master thesis are twofold: (1) to identify the key content and (2) the right design for training new employees for the challenges of virtual team work.

The thesis begins with a brief overview of the characteristics of the global business environment and the new ways of work which led to virtual team work. Then through a literature review differences between face to face team work and virtual team work is identified that is followed by a characterisation of the challenges. This part will create a basis for the training material while the final section of the literature review is associated with training methods.

Following the literature review and a description of the methods used for data collection, analysis and discussion of the research will take place. Finally, based on the literature review and the research, the conclusion part summarises the proposed new employee training method and content that can be implemented.
1.1. Academic relevance of the topic

Virtual teamwork has been researched heavily in the past couple of decades and Powell, Piccoli and Ives (2004) identified four major focus points by analysing 43 articles regarding virtual teamwork. Figure 1 pictures the four focuses in virtual teamwork research.

1. Figure Diagram of the focus of virtual team research

![Diagram of the focus of virtual team research]

Source: Powell, Piccoli and Ives (2004, p.8)

The inputs refer to the design, cultural background, technology used and training which create the basis of both socio-emotional and task processes of virtual teamwork. The outputs include performance and satisfaction. (Powell, Piccoli and Ives, 2004) The research gap presented itself when looking deeper into the investigation made on training. Diverse skills can create conflict, and to bridge issues, consistent training is proposed by scholars. (Sarker and Sahay, 2002) According to Tan et al. (2000) training encourages teamwork, cohesiveness, individual satisfaction, trust and commitment to group goals. And although training was highlighted as an important aspect of virtual team development and improvement, a preliminary research in databases such as EBSCO, SpringerLink, Emerald, showed that no cohesive training was proposed to prepare employees for virtual teamwork. Added challenge lays in the preparation of new employees, those that have not yet been working in virtual teams.
Employees must rely on their own perceptions and learning to manage their integration and understanding of cross national group work. Special trainings and staff development including those activities that may improve and enhance the abilities, attitudes, skills and knowledge of the new employees towards virtual team work are highly important in many aspects of joining a new organization.

The initial research on this topic yielded that as of today, only consulting companies offer virtual team work training for groups and very few offer trainings for individuals (Global Integration, MVT Managing Virtual Teams, Communicaid, Virtual Team Builders, AIM Strategies – Human Capital Consulting, Roeder Consulting). These trainings do not provide holistic approach (do not include cohesively all challenges of virtual teamwork) and are neither focused on challenges specific to newcomers. On a corporate level, new employee orientation (NEO) trainings in general include company information, safety trainings, human resources related issues, code of conduct, regulatory compliance and standard procedure processes, but not precaution on actual work operation. Preparing employees for virtual team work is not regarded as part of the relevant NEO training, although considering the challenges presented by virtual team work, it is highly important.

The master thesis will offer training packages for new employees based on both literature and empirical research and will be developed with the help of actual members in virtual work context, thus adding practical knowledge to the information base regarding remote work. The findings have the promise of widening the knowledge pool by giving a snapshot of the virtual teamwork preparation needs of a global company that can be used as a basis and framework of corporate trainings.
1.2. Objectives of the research

The master thesis is a qualitative research that proposes possible training modules and training methods for new employees engaging in virtual team work. The research question can be stated in a main interest point and two sub points. Main research question:

How should new employees be prepared for the challenges of virtual team work?

This general question can be further narrowed down to the following points and sub-points:

- What are the challenges in managing culturally and geographically diversified virtual teams and which ones should be included in a new employee training and why?
- What training methods are the best for preparing new employees to virtual team work and its challenges?

The questions are answered by analysing and cross examining the qualitative data collected through the interviews in a cross-sectional case study.

In general, the objective is to understand what virtual teamwork challenges are causing the most difficulty for new employees and how can we prepare them to improve on both socio-emotional processes and task processes of virtual teaming.
2. History and development of virtual teams as result of globalization

In order to understand the development of virtual team work, we have to learn more about the changes in our environment and the way we work today. Globalization is one of the effects and causes of virtual team work as well as one of the motors of the development of our current multinational business environment.

Globalization is a term that has been a buzzword of the new millennium, but it is a concept that is hard to define within a specific frame, as it overarches social, cultural, economic and political disciplines. (Kaczowitz and Mitrani, 2016) Some researchers insist that it cannot be coherently defined without inhibiting the meaning, as it would involve limitations. Others, opposing this view have constructed a working definition (Al-Rodhan and Stoudmann, 2006). Given the complexity of the term, academics and researchers in general have defined globalization in a single aspect supporting their field of research, thus limiting the scope of interpretation. As globalization is an on-going process without a prospect of an end, influencing every one of us in a number of divergent forms, having its systematic definition is a huge importance of the twenty first century. A working definition supports academic discussions in the field and opens up specifications (Al-Rodhan and Stoudmann, 2006).

Al-Rodhan and Stoudmann (2006) in their paper ‘Definitions of globalization: a comprehensive overview and a proposed definition’ cross examined 115 different interpretations of globalization from distinct scientific disciplines and proposed a coherent denotation that incorporates the elaborateness of the term:

“Globalization is a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and non-human activities.” (Al-Rodhan and Stoudmann, 2006, p.5)

This definition emphasises that globalization is a continuing mechanism that is affecting economies, cultures and communities for hundreds of years, as well as, it is a result of transcultural and national assimilation. This integration has been accelerated by human and non-human activities. Human activities include social aspects such as economic, cultural, political actions, and non-human activities comprise natural disasters or spread of medical epidemics. (Al-Rodhan and Stoudmann, 2006)
Furthermore, globalization is characterised with greater denationalization and internationalization. The latter refers to the cooperation of nations across the border while the former, denationalization points out the on-going trend of reducing the relevance of national boundaries (Wild and Wild, 2015).

2.1. Effects of globalization

The effects of globalization are far-reaching and grasp different countries variably. Some nations have developed rapidly while in some others it has created even bigger social and economic gaps (Donaghy, 2012). Some areas of effect and concern are: environmental, geopolitical, cultural, business and trade related, social, and economical issues.

In the business context, researchers have been looking deeper in new developments that arise as result of global business making. These are: economic integration, convergence of markets, cross-cultural management, role of technology, and globalization’s effects on strategic choices (Bond and O’Byrne, 2014).

Scase (2007) further added that the multinational companies of our century are evolving into globally integrated enterprises. These corporations are having their headquarters in their origin country, but their knowledge processes are outsourced to other countries using modern communication and information technologies. This way companies producing goods and services both for their local and global market.

Global businesses environment has been hugely under the influence of globalization and today, we have new players in the field who are shifting economic power. Furthermore, in this new global market field managers have to face new challenges. In the following sub-chapters, therefore, the key players of the global business environment are presented as well as highlights of changes in business making and challenges from a global managerial perspective to give a coherent impression of the surroundings and enabling elements of virtual teamwork.

2.2. Global business environment

The post-modern business environment with its electronic media, cross-cultural work and technological advances is giving a picture of a volatile, fast paced setting for corporations (Dholakia and Firat, 2006).
Figure 2 gives a great overview of the complex, influential elements of global business which consists of four parts: the forces of globalization, the international business environment, national business environment and international firm management. (Wild and Wild, 2015)

![Figure 2 Global business environment](image)

Source: Wild and Wild (2015, p. 48)

*Globalization,* as have been discussed so far transformed our society, individual culture and the way we do business today. As an outer layer, globalization drives changes with falling trade barriers and giving way of the flow of foreign direct investments. Technological development, most prevalingly, information and communication technology advancements are creating new opportunities, while liberation of national trade blocks gives rise to new market opportunities. Companies entering a new market can enjoy first mover advantage and the new revenue streams make them more competitive in their home market, thus forcing other companies to enter foreign territories if they want to stay in the game. (Bond and O'Byrne, 2014)
*International business environment* depicts those elements that affect international trade. These are for example the international financial markets or regional economic integrations.

Changes in these elements can signal a company which markets becomes more attractive and can calculate it into their strategic planning. Furthermore, the international business environment is not just a battlefield for new markets but also a place for capital growth by letting firms searching for economically more beneficial production bases.

The *national business environment* is the economic surrounding of the new host country. This describes the market’s specific political, cultural, legal and economic representation that has to be taken into account when a company decides to pursue its internationalization strategy. As globalization effects nation’s culture and economy, homogenization can be seen, but still managers have to tailor their products and practices from country to country. National business environments are highly important in the role of virtual team work. Labour laws and cultural differences can affect working with teams from another country therefore monitoring and following local laws is highly important (Wild and Wild, 2015).

Finally, the *international firm environment* can be cardinally different from the home environment of the organisation, thus constant adjustments, monitoring and forecasting of future events are important internally. To manage international subsidiaries in the most efficient way, organisations interact closely with people in remote locations, to gain insights of the local environment and nation (Wild and Wild, 2015).

### 2.3. Challenges facing global management

With the new global business environment, diverse managerial challenges have become the centre of attention. Virtual teamwork is highly embedded in the challenges of the global projects, therefore as we look into the development of cross national team work from a macro view, it is important to mention the forces shaping global management.

There are a number of constantly changing factors that are posing as challenges when a company conducts business in an international environment, but some of the most relevant are; company structure, foreign laws and regulations, supply chain
management, communication and culture, political risk and world-wide environmental risks (11 Biggest Challenges of International Business in 2017, 2017). These challenges can be divided into two organisational dimensions; structural and contextual (Aarseth et al., 2013). Structural dimensions are those elements that build up an organization’s design effected by internationalization. According to Aarseth et al. (2013) these can be:

- **Centralization/decentralization** – how separate are the different functions within organization on a geographical level?

- **Formalization and routinization** – in international projects managers need to decide whether they are going to follow a standardize system throughout the organization or they will align with local unique ways

- **Training** – how do the organisational members prepare and learn continuously, how is knowledge diffused in the organisation?

Furthermore, contextual dimensions are:

- **Culture** – both internal (beliefs and values shared by organizational members) and external (the culture of the host country – how does it affect the organization?)

- **Environment** – the political, social and natural environment, how does it affect the business? Are human and natural resources available and is the political environment stable enough for making profit on the market?

- **Technology** – what kind of technological tools are available to make our international projects successful?

When a company is working on international projects, the above-mentioned challenges are the most prevailing. International businesses involve people working in different locations and time zones, thus giving way to virtual team work. Managers have to deal
with cultural, language issues, political and economic questions, labour laws as well as they have to deal with an institutionally demanding environment. (Binder, 2007)

Orr et al. (2011) described global projects as an activity where multiple different participant are working towards gaining higher efficiency by combining resources from different cultures, organisations, sites and geographies through a net-work based system. Cooperation between organisations and individuals coming from different cultural and national backgrounds, usually lead to misinterpretation and agitation between the team members. Thus coordination and intercommunication complications lead toward higher costs. (Aarseth et al., 2013) According to Hallgren and Soderholm, (2010) the above mentioned structural and contextual challenges together with the higher costs are unique to global projects. These projects require specialized attention from the side of management as they differ greatly from traditional, local projects as well as they require different kind of planning, preparation and knowledge.

As it has been described in Subchapter 2.1 and 2.2, with globalization new doors opened up for businesses. Companies are able to go international and can tap into markets that both help them grow and develop as well as find new human and natural resources for reaching higher efficiency and profit. With the international business environment, international projects started to spread, with their unique challenges. As virtual team work is embedded in the global business environment and global projects, the difficulties faced by these ventures are the core challenges of virtual team work itself. In the following, 3rd chapter of the master thesis a description of the changes in the ‘way we work’ today will bridge the information presented about globalization toward virtual team work.
3. New ways of work (NWW)

New ways of working (NWW) is a constantly evolving process because it encompasses the development of technology and the expectations of the newer employee generations toward employment. (Guillette van Diermen and Beltman, 2016) With the rise of global business environment people are working together remotely and while virtual team work became a norm of today’s project management, remote work became a new ideology even for the local work places. It is important to understand how our working style evolved to see the processes towards virtuality. In this chapter of the master thesis we are going to dig deeper in the processes that changed the modern working environment toward a remote virtual one, including its benefits and drawbacks.

3.1. New ways of work – definition

Beckers (2015) assessed new ways of work as conducting our responsibilities anytime and anywhere, implying that in this new era people are not bound neither to a certain location nor to a certain time. Time-zones have been mentioned in the challenges of global projects and it will come up again in the assessment of the difficulties of virtual team work. As people are working in different locations, some across the globe, companies are able to have employees working around the clock. When one site finishes with the work for the given day, another on the other side of the planet just starts.

NWW is a multidisciplinary phenomenon that evolved and currently evolves through time and development of technology. One on point definition is given by Bijl (2011) who defines new way of work as:

“A vision for making work more effective, efficient, pleasurable and valuable for both the organisation and the individual, giving people, within limits, the space and freedom to determine how they work, where they work, when they work, what they work with and with whom they work.” (Bijl, 2011, p.15)

New ways of work is a direct response to the change of western mentality towards worker's responsibility and expectations. Those traditional indicators of performance that have been viewed as the basis of career development and ultimately success, are not in focus anymore. Being present, looking busy and staying in as long as your supervisor
does not mean somebody is doing his or her best. (Grossman, 2013) Modern mentality gradually shifted towards focusing on deliverables and outcomes. Employees are permitted to set out personal work-life balance goals and as long as the business targets are achieved, the place, time and even the duration of work is not regulated or monitored. (Grossman, 2013) This kind of flexible work gives many people the opportunity to lead a better quality of life in terms of managing their family life, health, free-time and hobbies.

3.2. Fundamental principles of NWW

Following the definition, Baane et al. (2011) identified three fundamental principles of NWW:

1) In new ways of work employees are not assigned tasks and monitored throughout each step but they are more required to manage their own work

2) Employees are constantly connected to the network and have unlimited access to the internal information and knowledge pool

3) Employees are welcome to develop their own schedules and work relations – in a way that fits their private life and personal preferences, (some people are more efficient working in the evening, while other prefer mornings) while still respecting project deadlines.

Baane et al. (2011) in addition identified three elements that organizations need to contribute to, in order to achieve effective new ways of work environment. These are the three B’s; Bricks, Bytes and Behaviour. (Table 1)

<table>
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<tr>
<th>Bricks</th>
<th>Bytes</th>
<th>Behaviour</th>
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<tr>
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<td>Devices</td>
<td>Results-oriented management</td>
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<tr>
<td>Workplace design</td>
<td>Information availability</td>
<td>Results-oriented working</td>
</tr>
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<td>Sustainability &amp; mobility</td>
<td>Knowledge availability</td>
<td>Trust &amp; autonomy</td>
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<tr>
<td>Communication</td>
<td>Satisfaction &amp; work-life balance</td>
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<td>Collaboration</td>
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</table>

Source: Helms et al. (2014, p.6)
Bricks refer to real estate, meaning there should be a physical environment which supports the flexible work. The physical location where the employees conduct their work has little to no importance (Guillette van Diermen and Beltman, 2016). The keyword is to have an environment where the employee feels inspired, motivated and enjoys working (Bijl, 2011). People can have a quiet space for work at home just as much as they could have it at a coffee shop, park, co-working building. At the corporate environment, new workspace design is needed to help people collaborate and to make sure employees can meet, chat and can have the benefit of face to face communication to develop new ideas and innovative solutions.

Bytes refer to the communication and information technology that is required for distant work. In order to have the possibility of flexible work, companies need to invest both in hardware and software (Baane et al., 2011). Hardware include providing laptops for the employees that make commuting with the workstation easy, as well as, can help breaking apart rigid office structures by allowing employees to sit in different places in the headquarters as well (Guillette van Diermen and Beltman, 2016).

Furthermore, technological requirements include videoconferencing, smartphones, networks, web cameras and other tools that can help bridge distances (Grossman, 2013). On a software level there are huge number of programs that are offered for managing people in remote work.

According to "Trends in Workplace Flexibility" report released by World at Work (2015), a leading online career site, the majority the corporations that offer some sort of flexible work are using communication and collaboration software such as WebEx, time and attendance software, as for example Time Doctor or Timesheet as well as project management software such as Basecamp. (See Table 2)
Final element of organisation’s contribution to flexible work is Behaviour. This element encompasses the manager-employee relation, corporate culture and the way the employee experiences work. In their research, Baane et al. (2011) recognized ‘behaviour’ as a key success factor in the implementation and acceptance of New Ways of Work at an organisation.

Both managers and employees need to acquire relevant knowledge in virtual team work, as monitoring, motivating, giving feedback to employees is difficult in this new work environment. Furthermore, new way of work requires fluency in technological tools, leadership, and how to manage time and work individually (Meister, 2014). It is very important to create the work around the employee and not vice-versa. Corporations have to change spaces from a cubicle, to a workspace that suits the activity, as well as they have to change from a nine to five-time frame to work hours, that respect the employee’s personal life, and helps achieve highest productivity.

From a management point of view the most important responsibility is to change from task delegation and monitoring to a result oriented view, meaning the means and the way the results are achieved do not matter as long as the targets are met. Finally, this kind of mentality leads towards a flatter organisation tree, where people manage themselves (Grossmann, 2013).
3.3. Benefits of NWW

There are a number of benefits that have been highlighted by researcher when a company engages in new way of work as well as some drawbacks. With the pressure of retaining top talent within the organisation, companies started to turn their view towards work benefits that would help balancing life and work for the employees. This is what led the HR team of Unilever towards ‘Agile Work’ in 2008 (Grossmann, 2013). In their concept, they offered flexibility in terms of time and space for employees, converting work offices into inspiring co-working hubs. Upon pilot testing the concept at one of their smaller sites, Englewood Cliffs, New Jersey with 250 employees, the company realised this is the way towards a more flexible and satisfied employment scheme. Unilever reported improvements; including 80% of the employees noted increased personal productivity, 78% enhanced his/her ability to meet personal and professional demand. Employees reported increased satisfaction with employment and were more likely to stay at the company (Grossmann, 2013).

But the New Ways of Work creates benefits not just on a personal level. According to Thomson (2008) flexible work can reduce up to 25% accommodation costs. Most companies pay extremely high price for offices and offering their employees the possibility to stay at home or using co-working spaces huge amount of money can be saved. Furthermore, travel costs can be reduced, as using conferencing tools, e-mails and phone calls can speed up information exchange. In case of conference call, the possibility of losing information between the lines is small, as the person is present close to a physical form. Cooke (2012) reports that flexible work environment helps meeting customer needs. Nowadays, customers demand 24/7 coverage and by having people connected to the work network not just nine to five but also earlier and later, as well as having disperse offices globally allow full customer coverage both in time and geographically. Finally, Cooke (2012) mentions that by implementing New Ways of Work, employees are able to achieve higher work life balance and thus on a corporate level they are more engaged and more likely to stay in the organisation.

3.4. Pitfalls of NWW

But when there are benefits there are also pitfalls. According to Guillette van Diermen and Beltman (2016) New Ways of Work does not fit every employee at every function and project. Some of the work requires being present and furthermore, the personality of
the employee can influence his or her view and openness on NWW as well. As reported by Brummelhuis et al. (2012) those employees that are assertive, extravert, open to change and find social communication and collaboration important are more fit for new ways of work.

Second pitfall can be increased interruption. To manage work remotely, employees have an increase of e-mails, calls and meetings thus pushing towards higher energy consumption and reduced focus (Brummelhuis et al., 2012). This can lead towards the exhaustion of employees as well as flexible work time, constant availability questions work hours. While it is more effective to work when employees personally the most productive, they are also required to read their e-mails and check their phones even when they are not “checked in” officially. This makes it really hard to have clear boundaries between work and life (Guillette van Diermen and Beltman, 2016).

Furthermore, Guillette van Diermen and Beltman (2016) collected a number of pitfalls based on researches and post-occupancy evaluations from Hofman and Dommerholt, (2009), Gorgievski et al. (2010) and Brummelhuis et al. (2012). These include inadequate social contact between employees which is a very important indicator of job satisfaction. Without small-talk and ‘water-cooler’ conversations people do not get to know each other on a deeper level, resulting in a lack of trust not just on a social level but also on the basis of their capabilities. Employees working in diverse location lack adequate knowledge about each other’s background making cooperation and innovation hard.

In addition, there is a growing fear not just amongst managers but between colleagues as well, that employees are abusing their freedom. Without monitoring and physical presence people can actually do whatever they want, but as long as the performance indicators and the quotas are met, and tasks are accomplished this should not pose a major threat (Guillette van Diermen and Beltman, 2016).

Additionally, NWW puts middle-management in a difficult position, most of the time they are leading resistance against the new concept. Middle management is required to shift from micro-management, supervision, task delegation and distribution to managing outputs, while also understanding and working in a virtual environment (Guillette van Diermen and Beltman, 2016).
Finally, according to Guillette van Diermen and Beltman (2016) by opening up the workspaces and offices inside the company, people lose their privacy and personal space. This can lead for dissatisfaction and lack of sense of belonging. Having a private office before today’s modern industrial employment philosophies, meant success and was perceived as a status symbol. Employees and employers are currently at the point of changing this mentality. New ways of work and flexible, western labour market policies are cardinally changing the very culture of employment and the core meaning of creating a secure sense of ‘self’ on the basis of our career (Svensson, 2011).

3.5. Work-life blend and co-working spaces

Even though the above-mentioned points are reasons against implementing new ways of work in company, the benefits are still overwhelming. According to the current trends, greater flexibility in time and space of work as well as autonomy is part of our modern labour models, and part of employees’ expectations towards employers. (Grossmann, 2013) New way of work opened up flexibility and is a stepping stone for further innovation in the way we do work, while gradually erodes boundaries between time spent on work and private life. The mobile workforce was an estimated 1.3 billion employees in 2015 (Cousins and Robey, 2015) and is continuously growing. More and more people are working remotely, and by creating a work model that is independent from the corporation geographically, mobile workers can increase their productivity by using the time that was formerly spent traveling or being at home (Cousins and Robey, 2015). This kind of erosion first called for work-life balance, where strong boundaries characterize the difference between work and private life. Employees tried to segment their life and allocate time according to their needs (Hislop and Axtell, 2009). This system emphasises managing personal life around work and the idea of integrating the two together in a more ergonomic system was seen as impossible and counterproductive in the past (Cousins and Robey, 2015).

New Way of Work emphasises new ideas in managing our work and life. Instead of following a separation system and dedicating equal time for both private and corporate life, research suggests creating a blend. According to Riordan (2013) it is more important to strive for work-life effectiveness, meaning one should take a holistic perspective and integrating career as part of life not separate item that supports life. Greenhaus and Powell (2006) highlighted in their research regarding work and family
enrichment that carrying different roles simultaneously such as being a parent, employee, partner and friend can actually increase both psychological and physical heath.

This kind of mentality slowly pushed employees towards different work environment designs, such as co-working offices of urban hubs. Co-working spaces are very interesting intermediate environments between work and home (Schopfel et al., 2015). These places promote informal social encounters as well as open, flexible and accessible work places. Co-working spaces are the combination of open community and a semi-formal open corporate office where knowledge and idea sharing as well as networking are the heart of co-development and innovation (Schopfel et al., 2015).

With the rise of communication and information technology new way of work emerged and became a pivotal part of employee retention and satisfaction. With greater flexibility, virtual work, new co-working spaces and work-life balance, grew the number of people working virtually, and thus New Way of Work is a very important phenomenon behind virtual team work. While globalization created the right environment by reducing boundaries internationally, NWW created a shift in the cultural and mentality of the way we work toward a more mobile and remote one.
4. Virtual teams - what is virtual team work?

Previously, in Chapter 2 and 3 of the master thesis, globalization and the new ways of work were described, as with the development of communication and information technology, changes in socio-economic and political field, and with the transformations happening in our immediate work environment, virtual work and later on, virtual team working became pivotal for corporate development. In chapter 4 of the master thesis, an overall definition of virtual team work is outlined, highlighting its differences from traditional teams followed by a description of the most important challenges that virtual team workers face.

4.1. Importance of research on virtual team work

In 2007 Gattling-Watts et al. mentioned that the business use of virtual teamwork has been around for a decade, and as it was highly important and researched back then, it is still as prominent in scientific papers and research today (Chae, 2016). Its importance can be seen for example through an Ngram search on Google Scholar that gives us the possibility to view the frequency of use of the term ‘Virtual Teamwork’ in the bodies of English books through the time period of 1994 (first ascend in the graph) and 2007 (end of displayable data). As Figure 3 shows, virtual teamwork is a highly popular term and the use of virtual teams continues to rise (Gilson et al., 2014).

Figure 3 Google Books Ngram – Virtual team work - 1994-2007

![Ngram chart showing the frequency of use of the term 'Virtual Teamwork' from 1994 to 2007](image)

Source: Michel et al. (2010)

Gilson et al (2014) reviewed the past 10 years of virtual team work research literature, involving approximately over 1000 articles from 200 different journals, highlighting that
the research is still of high importance but while there are a few new themes that emerged and have been covered broadly (i.e., inputs) the emphasis is on narrow and focused research on already existing themes (i.e. trust and leadership).

According to Lojeski (2009) with the implementation of virtual work, performance declines. Her research on virtual workforce came to the following conclusions:

- Innovative behaviour declines by 93%
- Trust falls by 83%
- Job satisfaction decreases by 80%
- Role and goal clarity drops by 62%
- Project results (on-time and on-budget delivery and customer satisfaction) dive by 50%
- Organizational citizenship behaviour declines by 47%

These numbers highlight the importance of further research in the field of virtual team management, and as it was described in the new ways of work chapter we can be sure that virtual team work is a concept to stay. Experts foreseeing that in the upcoming years more than 1.3 billion people will work virtually (Johns and Gratton, 2013) making sure that the pertinence of virtual team work in our life is continuous with the upcoming decades as well.

4.2. Definition of virtual team work

The definition of virtual team work may vary from one researcher to another as virtual teams can be created from members of different department within a single organisation, or from members of different organisations, counties and cultures (Cagiltay et al, 2015). But as a general description, one of the most cited definition (Bal and Teo, 2000; Townsley, 2001; Ratcheva and Vyakarnam, 2001; Piccoli et al., 2002; Jarman, 2005; Horwitz et al., 2006; Gatlin-Watts et al., 2007; Abuelmaatti and Rezgui, 2008, Chyng-Yang, 2013) of virtual teams is the following:

“A group of people who interact through interdependent tasks guided by common purpose and work across space, time and organisational boundaries with links strengthened by webs of communication technologies” (Lipnack and Stamps, 1997, p. XVII).
Furthermore, George (1996) identified 3 different elements that distinguish face to face teams from virtual. These are:

(1) Different geography or locations,
(2) Different organisations or parts of the organisation, or
(3) Different duration or length of time they work together as a team.

It is important to highlight, as mentioned by Watkins (2013) and Lipnack and Stamps (1997), that the members of a virtual team need to work on interdependent tasks thus making sure that the team is not just a group of independent virtual workers. The emphasis here is on team, bringing with it all the challenges and hardships from traditional team work with an added layer of virtuality.

Another prominent definition given by Gattling-Watts et al., (2007) they characterize virtual team work as:

“Virtual Teaming is a new way of managing and organizing work that allows people to work together even though they are geographically separated. People working in virtual teams use technology to communicate with each other rather than working face to face or traveling to meetings. Virtual teaming, where people work together apart, has been found to be very different to traditional teaming, where people work together” (Gattling-Watts et al., 2007, p. 3).

In this definition the importance lays in the highlight of differences between traditional, face to face teaming and virtual team work. Putting team work in an environment where social connection is highly reduced, and people do not meet face to face can give rise to challenges and problems that are certainly unique and must be addressed to ensure team efficiency.

In Chapter 4.3, the most prominent differences between traditional teaming and virtual teams will be presented to build up a theoretical background for the following challenges chapter.
4.3. Differences between traditional teaming and virtual teams

The general assumption among researchers and employees practicing virtual team work is that its performance is inferior to face to face teams (Purvanova, 2013). This does not come as a surprise as the technology that the most resembles face to face communication, videoconferencing, is still not used widely by virtual teams and is highly expensive.

Furthermore, live audio is only used in small group settings as in a large team discussion the voices can be lost. Therefore, virtual teams are relying the most on technology that is less rich in terms of information transmitting, such as e-mails and instant messaging (Purvanova, 2013). This kind of communication eliminates close physical proximity and eradicates the use of non-verbal communication cues that add depth and a codeable non-contextual layer to the messages (Gera, 2013). Mihhailova (2007) characterized virtual team communication with stagnant feedback systems, absence of audio and visual connection and thus conclusively, with a reduced emotional reciprocity.

E-mailing furthermore is a highly asynchronous communication tool, therefore there is a high chance that the information reaches the addressee later than intended and the reply gets delayed (Gera, 2013). Purvanova (2013) further added that asynchronous communication lacks contemporality and simultaneity which are posing as threats for effective virtual work communication.

These challenges are not present in face to face communication therefore it is logical to expect virtual teams to perform worse than face to face teams. Furthermore, several influential communication theories have been pushing face to face team superiority into focus (Purvanova, 2013). These include for example; media richness theory by Daft and Lenger (1984), social presence theory by Short et al. (1976) or the lack of social context cues hypothesis by Sproull and Kiesler (1986). These pre-assumptions have been challenged by several researchers and most of them have been successfully disproven. In the followings, the differences between virtual teams and face to face teams will be presented in five categories; performance, satisfaction, trust, cohesion and conflict.
Performance

According to the literature review conducted by Purvanova (2013) virtual teams are much more successful at achieving their targets and objectives, are able to earn revenue and save costs (also from reduced travels) and time as well as they are much more successful at meeting the need of their customers and managers as well. Studies show that virtual teams can achieve higher performance largely because they have to think outside of the box, have to be innovative and must rethink already existing processes that have been done face to face previously. Furthermore, virtual team communication is highly task-focused making it more performance oriented and time efficient, enabling high amount of codified information and explicit knowledge to be processed and forwarded without deterioration (in writing) (Gera, 2013). In contrast, face to face communication is practically the only way to convey tacit knowledge, making it superior if the task requires the transfer of a skill for example.

Satisfaction

According to Gera (2013) while both virtual and face to face teams are satisfied with their output in general, face to face teams are more satisfied with the team work, as it is more personal and has the possibility to build meaningful relationships through the co-working process. In terms of communication media, virtual team members were strongly dissatisfied. Virtual communication, although effective, cannot emulate an environment for free – chatting, such as discussions at the water-cooler.

Trust

Trust is one of the aspects in which virtual team work fall short in comparison. Baskerville and Nandhakumar (2007) reported that even though in the beginning there might be an enthusiastic trust between team members, it expires relatively fast, as meaningful trust cannot develop between the members without face to face communication. Moreover, trust is earned, not given to people based on an online profile. While employees in general trust their virtual colleagues both with performing their assigned task and with personal qualities, it is not a deep-rooted trust, and at the example of any misconducts, the trust is broken completely (Gera, 2013).
Cohesion

Compared to face to face discussions, virtual team members are more prone to participate equally as they contribute to the team discussion without any lingering personal superiority stemming from position in the company, social status or personal character. Minorities in virtual team work can find their voice as the communication channel gives equal opportunities (Purvanova, 2013). Additionally, Shachaf (2008) among other researchers reported improved collaboration and decision-making processes, which is attributed to the ability to easily involve higher lever managers in the discussions as well as to having the opportunity to consider multiple different perspectives and opinions.

Furthermore, according to Purvanova, (2013) virtual team members are highly satisfied with cohesion, team and organizational engagement, team performance and effectiveness, and they are reported to have the intentions to work in virtual teams again.

Conflict

Virtual team members experience more conflicts than face to face team members. This is associated with the divergent member backgrounds as well as limited communication possibilities. Virtual team members rely on different conflict management tools as well. They are more likely to avoid each other, in sense of ignoring e-mails, calls and thus ostracize the member with whom the conflict emerged (Gera, 2013).

Furthermore, Mortensen and Hinds (2001) found that there is a higher reported task conflict if the team is relying on e-mails and instant messaging tools, without any face to face connection, and the conflicts tend to be more detrimental to the virtual team cohesion and trust than to co-located teams.

As a conclusion Figure 4 below highlights the advantages and disadvantage of face to face communication. In terms of performance virtual teams achieve better results. They are cost, time efficient and result oriented with a focus on new, innovative processes.
Virtual teams unfortunately not that satisfied with the team work, this is largely due to lack of face to face meeting and emotional connection development. Additionally, trust is very low amongst virtual team members which is essential for a satisfactory co-working.

In terms of cohesion, virtual teams perform really well. By using a communication platform that promotes equality, minorities can express themselves and employees find higher engagement in the projects.

Figure 4 Advantages and disadvantages of face to face teams

![Advantages and disadvantages of face to face teams](Source: Heller et al. (2010))

Finally, conflicts are more frequent and deeper rooted in virtual teams, which can be a substantial problem on the long term.

These have been the most prominent differences between virtual team members and face to face teams. And despite the challenges virtual teams are continuously on the rise, but as Gera (2013) mentioned: “Training can help overcome these challenges” (p.3).
Above the differences from face to face teams there are further challenges that have to be described in order to find adequate training methods and contends to overcome them. In the next chapter, a detailed description of the challenges will be presented.
5. Challenges of virtual team work

In this chapter of the master thesis the focus lays on first identifying virtual team work challenges, then one by one analysing them in terms of how can the team and the individual overcome them, thus finding through the literature the content of the training of the virtual team members.

Virtual team workers are facing several challenges that are unique to the virtuality. According to Vaidyanathan and Debrot (2010) 70% of their time managers are worried about control and communication in their virtual teams. This includes monitoring, mentoring and training employees. Furthermore, team building, technology, culture and process management are of high concern. Vaidyanathan and Debrot (2010) also found that virtual team members are the most concerned about communication and support. Technical support, exclusion from key meetings and decision, recognition of work and sense of isolation are the most frequently noted worries of virtual team workers.

Vaidyanathan (2005) developed a framework (Figure 5) to summarize the most prominent challenges of virtual team work. In his research Vaidyanathan (2005) identified four core dimensions of success factors of virtual teams.

Figure 5 Four dimensions of Virtual Team Management

Source: Vaidyanathan, G. (2005)
The structural dimension refers to the management of the teams, including factors such as; configuration, leadership, informality and stability.

The cognitive dimension deals with common understanding, both in goals and culture.

The relationship elements of the four dimensions of virtual team management involve relationships between the team members and trust. Trust is emphasized by many researchers as one of the key success factor of remote team work (Chinowsky and Rojas, 2003; Oertig and Buergi, 2006; Peters and Manz, 2007; Jang, 2013; Lu, 2015; Ford et al., 2017).

Finally, a huge aspect is the channel of communication itself, the IT knowledge and support of the employees. As the basis of work is the use of information and communication technologies, this element is also highly emphasized in literature. (Stough et al., 2000; Chinowsky and Rojas, 2003; Morris, 2008; Tartell, 2015; Ford et al., 2017)

Figure 6 Obstacles to virtual team effectiveness

![Figure 6 Obstacles to virtual team effectiveness](image)

Source: Horwitz, et al. (2006)

Furthermore, Horwitz et al. (2006) identified nine prevalent obstacles to virtual team effectiveness. The result of their research is presented in Figure 6 and as we can see communication and time zone differences have been mentioned by the respondents in equal weight.
Communication can be challenging, as it was discussed previously, virtual teams do not have the benefit of face to face communication. The spoken or written message conveyed through technological channels might not translate clearly to the recipient as well as language barriers can cause huge frustration to the native or more advance speakers.

Time zone differences/working around the clock can disrupt work life balance significantly of virtual team members. Team members work in geographically diverse places and as the Sun moves, so does the work shift, pressuring employees into constant availability. Scheduling meetings and phone calls becomes an issue and in most cases, employees are required to stay in the office way after hours to be able to be present at the conference call connecting employees around the globe. Members of virtual teams are required to be constantly “in touch” presenting their progress through online meeting, phone calls and emails. These alignments take valuable time away from actual contribution and work, forcing employees into multitasking. Furthermore, 6.5% of the respondents coded coordinating information, resources and meetings as an obstacle for successful virtual team work.

Communication and time zone problems directly related to the third great subgroup of challenges of virtual work, the cultural differences. More than 11% of the responses were related to problems based on cultural differences in the research of Horwitz et al. (2006). There is a huge basis of literature regarding the effect and management of cultural differences in multinational companies, and most of them agree that cultural diversity is causing friction, incompatibility and conflict (Stahl et al., 2017). In virtual team work, classical cultural distance indexes (such as Kogut-Singh’s 1988) or national culture scales (for example; Hofstede, 1980 or Schwartz, 1992, 1994, 2007) are great indicators for the importance of added training and understanding for the members of the geographically and culturally disperse virtual team members.

As the next prevalent issue, which was also heavily emphasized by Vaidyanathan (2005) are technical problems. Technology is fundamental for the success and existence of virtual team work, but it is not part of any curriculum of any disciplines of studies (Long and Meglich, 2013). Most of us in the 21st century are digital natives or digital immigrants, who have a good command of the everyday technology of the modern life (Autry and Berge, 2011). But this does not translate directly to the
understanding of ever changing advanced tools used in virtual team collaboration (Long and Meglich, 2013). Technical difficulties can hinder productivity on a large scale, causing delays and lack of share of sufficient information with each other.

Following technical problems, **leadership and information coordination** are taking the sixth place tied. Leadership in general in any organisation or team unit regardless of virtuality is a highly researched and important issue. But the work of a virtual team leader, given the unique nature of cross national teams is especially important (Derven, 2016). To be successful, a virtual team leader has to be able to manage both the relationships and the results, as well as have to have the skills to adequately translate organisational objectives into team goals based on individual team member capabilities and strengths (Derven, 2016). Furthermore, motivation, monitoring and conflict management from a distance is with an added challenge (Bell and Kozlowski, 2002).

Finally, Horwitz et al. (2006) mentions lack of response to communication, which relates to **conflict management**. Smaller or bigger disagreements happen in any team or group of people working together, regardless if they are communicating face to face or virtually (Cagiltay et al., 2015). But, in a multicultural environment where limited communication available it is very easy to get into conflicts and managing accordingly is highly important for the success of the team work.

The above described virtual team work challenges are the fundaments of the further literature review. In the next subchapters one by one all of the highlighted challenges will be discussed in detail together with solutions that are suggested by the researchers. To summarize the points, below in Table 3 the most important challenges are compiled.
Table 3 Challenges and prominent issues of virtual teamwork

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<tr>
<th>Challenges</th>
<th>Prominent issues</th>
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<tbody>
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<td>Leadership</td>
<td>• Team Building</td>
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<td>• Trust development</td>
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<td></td>
<td>• Clear goals, process management</td>
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<td>• Technology</td>
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<td>• Communication</td>
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<td>• Culture sensitivity</td>
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<td>• Conflict management</td>
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<td>Communication</td>
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<td>• Lack of “office atmosphere”</td>
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<td>• High turnover rate</td>
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<td>• Use of right communication style to convey the message</td>
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<td>Cultural differences</td>
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<td>• Cross-cultural team work</td>
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<td>Technology</td>
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<td>• Language barrier</td>
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<tr>
<td>Trust</td>
<td>• Lack of initial face to face meeting</td>
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<td>• Low trust, lack of personal communication</td>
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<td></td>
<td>• Low amount of shared activities, such as team building, occasional dinners or team outing</td>
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<tr>
<td>Conflict management</td>
<td>• Demography: different cultural backgrounds</td>
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<td></td>
<td>• Distance prevents the development of social relationships and shared context</td>
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<td></td>
<td>• Technology – increasing the possibility of misunderstanding</td>
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<td></td>
<td>• Time-zone differences, language barrier, communication delay, information transfer</td>
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5.1. Challenge 1 – Leadership

Even though leading virtual team is not a typical start for a new employee, it is important to add to the training packages as people are developing professionally and sooner or later new employees are assigned projects that they have to carry out with their team.

One might ask him/herself how can a leader work effectively in an environment where trust is very difficult to form between members and between their leader, as well as it is complicated to communicate, monitor and influence (Kaboli et al., 2006). These authors highlighted some of the most pervasive hardships in leading a virtual team, these are:

- One cannot manage what he/she cannot see
- Technology is hard to understand and use, thus difficulties arise in communication
- A virtual team leader seldom meets the people he or she manages
- A good virtual leader needs very complex cultural sensitivity traits, and specific skills which can be acquired by experience and traveling.

Most of the times these challenges can be overcome by the right use of tools, mix of leadership qualities (that can be learned) and by building trust. Trust in general very important in virtual team work, but it is especially vital factor for successful virtual team managements (Dennis et al., 2013).

In most cases, virtual team members are assigned by a manager or by a project leader without much previous knowledge about each other and about each other’s knowledge and skills (Heller et al., 2010). Therefore, the priority of a leader is to create cohesion, by communicating clear goals and common understanding of the mission in the team, so later on the group will be able to manage itself. According to Hunsaker and Hunsaker (2008) as soon as an environment of trust is developed the leader must continue with two functions; first, manage and monitor tasks and performance, second, further develop team cohesion.

According to another research by Zaccaro and Bader (2003), there are three leadership functions in virtual teamwork. First, the leader must take care of the team connections by constantly monitoring and interpreting the events and the environment. Secondly, the
leaders have to ensure all actions are working towards the long-term goal. Finally, a virtual team leader must be the coordinator of the operation. This indicates that the leader provides the right resources to solve problems and tasks, he or she motivates the team members and encourages co-working and dedication towards the goal. These tasks have to be done in an environment which has limited communication possibilities and a high probability of misunderstandings.

Skills and capabilities of an effective virtual leader

According to a Conference Board Study done by Linkow (2008) The most important virtual leader competency is cultivating relationship which indicates high frequency of communication and being inclusive, relationship oriented, supportive and being able to strengthen collaboration. According to Dennis et al. (2013) team building with a face to face meeting as a start can makes or breaks virtual team work. Unfortunately, meeting physically is not always possible. In this case, a welcoming, trusting atmosphere has to be created with a virtual ‘water cooler’ which allows chatting and freely getting to know each other.

Furthermore, according the Heller et al. (2010) not just communication with and cultivating communication between the team members is important. Leaders must be able to listen carefully, hear what the employees say and give feedback and turn the team into the right direction by setting clear goals and objectives. If everybody understands the direction the team is taking, higher autonomy can be expected.

To manage a virtual team effectively, an overall awareness of its dynamics, strengths, weaknesses and general goals is highly important for a leader. According to Hunsaker and Hunsaker (2008) there are four types of awareness that are essential for team unity;

- Activity awareness – knowing what the members are working on, which project stage is running currently
- Availability awareness – being aware of the timetable and schedules of the team member to make better plans
- Process awareness – have a high understanding of the project and how the individual contributions make one whole in the end
• **Social awareness** – insight about the team members’ social relationships and their own personality

Furthermore, according to Zigurs, (2003) in a virtual environment, employees and the leader are communicating through **technology**. It is highly important to understand the tools used and be able to choose the right communication platforms to enhance performance and relationship. Virtual team leader must be the frontier of technology, making sure everybody understands how to use the tools and if necessary ensure adequate trainings.

In terms of personal attributes, virtual team leaders have to be flexible, open-minded and **perceptive towards cultures**, resilient, honest and optimistic (Kramer, 2005). These characteristics are also helping in in creating an environment of trust. Cultural differences can be assets or liabilities, depending how a leader treats them. Diversity can help innovation and creative work, but if differences are disregarded they can cause misunderstandings and conflicts (Brake, 2006).

Having a cultural intelligence is also relevant for **conflict management**. Managing conflicts is expected from leaders, and it is highly important for virtual team work (Ayoko and Konrad, 2012). Brake (2006) further highlights that negative feelings, mistrust and even paranoia spread fast in silent, isolated places such as a virtual team environment. According to Ayoko and Konrad (2012) the actions of the leader’s in a dispute situation can affect performance, as misunderstandings can generate negative feelings and can disrupt team morale. Furthermore Giebels and Janssen (2005) suggests that if a leader is taking actions toward resolving conflict is likely to raise group morale as his/her actions meet expectation.

These leadership skills are not capabilities that certain employees possess or born with, as in case of charismatic leaders, who influence their followers through their own persuasive abilities. These skills can be applied first by bringing awareness to them from relevant trainings and secondly by simply applying them to the everyday processes. In the following the above collected skills requirements and challenges will be discussed in terms of solutions. This assessment will make the basis of the training material of developing virtual leadership skills and overcoming team management challenges.
Challenges and solutions

According to Brake (2006) there are two major challenges in leading a virtual team, one is isolation and the other one is confusion. All the other issues are growing out of these two. To manage isolation, leaders should ask themselves: are the actions involved building a sense of team identity? And to manage confusion, managers should ask: are these actions minimize the possibility of misunderstandings? – these two questions are a good basis for all the other training elements. In the following table, the above-mentioned challenges are summarized with solutions proposed by Bell and Kozlowski (2002), Brake (2006), Dennis et al. (2013), Polevoi (2013) Mandzuk (2014), Cahn (2015), Dietrich (2016) Eubanks et al. (2016).

Table 4 Summary of leadership challenges and suggested solutions

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Building</td>
<td>• Be proactive – initiate communication, discussions, new technologies – to reflect your competencies as a leader</td>
</tr>
<tr>
<td></td>
<td>• Try to have the first meeting face-to-face</td>
</tr>
<tr>
<td></td>
<td>• Take time to get to know each other</td>
</tr>
<tr>
<td></td>
<td>• Give personal attention to every team member equally</td>
</tr>
<tr>
<td></td>
<td>• Highlight the benefits of virtual team work</td>
</tr>
<tr>
<td>Trust development</td>
<td>• Strive for open and frequent communication</td>
</tr>
<tr>
<td></td>
<td>• Be available and attentive towards the team members</td>
</tr>
<tr>
<td></td>
<td>• Keep everybody informed and keep your actions transparent, consistent and predictable</td>
</tr>
<tr>
<td>Clear goals, process management</td>
<td>• Communicate clear objectives, goals, methods, tools and roles</td>
</tr>
<tr>
<td></td>
<td>• Document everything in a shared file/folder to have a reference point</td>
</tr>
<tr>
<td></td>
<td>• Clarify who does what – identify individual accountabilities</td>
</tr>
<tr>
<td>Technology</td>
<td>• Use the right technology for the right objective</td>
</tr>
<tr>
<td></td>
<td>• Be confident with the technology and make sure everybody is trained to use them</td>
</tr>
<tr>
<td></td>
<td>• Technology is a tool to facilitate communication. If the chosen technology does not help people collaborate try other means.</td>
</tr>
<tr>
<td></td>
<td>• Use workflow tools clarifying inputs, outputs, schedules and roles.</td>
</tr>
</tbody>
</table>
| Communication | ▪ Think about the contextual background of the messages, do all team members share the same context to have the same understanding from the message?
  ▪ Avoid abstract language, be specific helping shared understanding
  ▪ Take into consideration the language fluency of different team members
  ▪ Lead in your communication and give feedback to people on their conversations |
|----------------|--------------------------------------------------------------------------------|
| Culture sensitivity | ▪ Culture sensitivity training is important to be aware of the differences, potential liabilities and assets
  ▪ Leverage diversity into value creation
  ▪ Make it possible for team members to have discussions about the differences
  ▪ Help the team by establishing norms and general rules to follow
  ▪ Convey respect for all cultures to the team members, lead by example. |
| Conflict management | ▪ Stay pragmatic and calm in under any circumstances and ask others to do the same.
  ▪ In virtual team environment, it is hard to identify conflicts – listen carefully and note what is being said to whom and how.
  ▪ Engage the team members as well in finding a solution and if there are difficulties, keep all members informed. Do not leave people in the “dark”. |
5.2. Challenge 2 - Communication

According to Berry (2011) communication is a tool and mechanism to **convey information, meaning and agreement between two or more people.** Communication is elemental in any organisational work, as it is the fundament which helps people to make decisions, collaborate and achieve goals. Furthermore, according to Flanagan and Waldeck, (2004) communication makes it possible to incorporate central socialisation elements in the organisation that enable development and innovation. These include for example sense making and relationship improvement. Typically, virtual teams use computer-mediated asynchronous communication [CMAC] or synchronous communication tools. The former includes e-mails, forums, shared documents and the latter encompasses video call, conference calls, phone call, and live chat (Xiaojuan Ou et al., 2013).

Even though CMAC has a number of disadvantages (below) compared to face to face communication, it also has superiorities as well. As text-based communication has reduced social presence, interaction is more task focused. Furthermore, without colocation, team members are less inhibited socially therefor their ideas and feedbacks are more straightforward and blunt (Maynard, 2006). Moreover, virtual teams are cost and time effective, provide opportunities for better use of human resources, members can work in shifts around the clock if they are from across the globe. Performance is easier to review and document, as well as, virtual teams reach higher performance efficiency as members work parallel to each other instead of sequentially (Gibson and Cohen, 2003).

The challenge in virtual team communication lays in the usage of computer mediated transmission. These tools although represent our very best in technological advances as of today, they cannot convey those political, social or power contextual cues that are present in face to face communication (Berry, 2011). As mentioned before in the differences between traditional teaming and virtual teams part, live video conferencing, the tool that the most resembles face to face communication is used seldom, as it is highly expensive (Purvanova, 2013). Generally, computer mediated asynchronous communication is characterised with stagnant feedback systems, reduced contemporality, simultaneity and sequentiality while also reducing social connections.
and emotional reciprocity (Purvanova, 2013). Furthermore, CMAC tools are unable to transfer non-verbal cues and paralinguistic aspects, such as facial expression, intonation, gestures, distance, pause, body language or any verbal cue that can support the receiver in better understanding (or misunderstanding) the sender of the message (Berry, 2011).

Geographical distance can cause further major issues in virtual team communication. First, distance erodes informal or unintentional information share. This indicates that people do not meet accidentally or deliberately in cafeteria, parking lot, or hallway for a chat where high-contextual and social intelligence can be exchanged that offers better understanding and communication for computer mediated exchanges. The second major issue is time-zones. Horwitz et al. (2006) conducted a research on elements that hinder virtual team work effectiveness and 20% of the respondents found time zone difference a leading issue. It can cause delays, frustration and forces team members to adjust their time schedules to be available for conference calls outside business hours.

To improve communication, Higgin and Jessop (1965) already in the mid - 1960s found a solution that is frequently quoted and stood the test of time:

"An improvement in relationships between the parties is likely to improve communications more effectively than any changes in communication techniques."

(quoted in Van der Smagt, 2000, p 156).

This indicates that the biggest challenges are multiple understanding and equivocality, which means that messages have multiple, sometimes conflicting interpretations based on complex social and personal background of the receiver. This ambiguity can be reduced with improved relationships (Van der Smagt, 2000). Daft and Lenger (1984, 1986) who researched equivocality in depth, proposed that misinterpretation can be reduced with initial face to face group meetings, role distribution, social interaction, as well as, with clear rules and regulation. With reduced ambiguity, team members will have better understanding of the underlying meaning of the message and misinterpretation can be avoided on a higher level. Furthermore, Cagiltay et al. (2015) emphasized that strict reliance on computer mediated communication is not effective in negotiation. Adding face to face or at least video conference communication periodically
to the team work can enhance communication effectiveness and can create a more trusting and socially better understanding environment.

Without face to face contact, employees miss the “office atmosphere” which inhibit socialization and trust building which would enrich communication. Many researchers emphasized the importance of initial face to face meeting and team building (Van der Smagt, 2000; Oertig and Buergi, 2006; Berry, 2011; Purvanova, 2013; Cagiltay, 2015). By meeting each other, virtual team members could go through “forming, storming, norming, performing” (Oertig and Buergi, 2006, p. 25) and team development phases quickly. Employees can establish rules and roles for effective co-working. According to Oertig and Buergi (2006) when team members get to know each other, they work with higher efficiency. Unfortunately, it is also reported that virtual teams have higher turnover rate than conventional teams, and newcomers have a hard time get to know their team mates. Oertig and Buergi (2006) reflected on this issue in their research, highlighting the importance of continuous team building. People have to be brought to the same level and speed as the others by adding time for social discussions and creating a “virtual water cooler”, which can be a forum, chat or a couple of minutes in the beginning of every other meeting.

To manage the time-zone differences, Guay (2017) collected tools and techniques that could help teams overcome difficulties.

1. With great time-zone difference there is no constant collaboration, employees need to own their own project – meaning employees are expected to make decision on their own in certain situation and manage their own project
2. With different time-zones meetings could happen early in the morning or late in the night, flexibility is needed.
3. Project progress updates need to be communicated constantly for collaboration, and in general greater level of communication is essential for success
4. As described above, even if face to face meeting is not possible, it is important to socialise, try to create “virtual water coolers” by having a general chat where everyone can share their interests, hobbies, and has a chance to get to know each other.

These are only general tips and tricks, and it is in fact hard to prepare employees for the hardships of time-zone differences.
Finally, Van der Smagt (2000) highlighted the importance to improve the virtual team members understanding of the difference between two-way monologue and dialogue. In two-way monologue people are already aware of the information they wish to convey, it is an input of interaction and iterative change can only happen upon receiving negative feedback. While in dialogue, members are constancy reflect on their own understanding and meaning. Parties try to reach an objective, which they did not have yet reached by discussing the pool of multiple choices. In virtual team work it is important to know when to use two-way monologues and when dialogue. According to Van der Smagt (2000):

- Two-way monologue is effective when conveying already existing information awaiting feedback

- Dialogue is important in brainstorming, by not just reflecting on the meaning of the message from the other parties but by being aware of the meaning of our own expressions. Adequate dialogue techniques can further reduce ambiguity and equivocality.

In the followings, Table 5 summarizes the challenges and solutions that can be the basis of training material for new employees in virtual team communication

Table 5 Summary of communication challenges and suggested solutions

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of face to face connection and equivocality</td>
<td>• initial face to face group meetings,</td>
</tr>
<tr>
<td></td>
<td>• role distribution</td>
</tr>
<tr>
<td></td>
<td>• social interaction, clear rules and regulation</td>
</tr>
<tr>
<td>Lack of “office atmosphere”</td>
<td>• initial face to face meeting and team building</td>
</tr>
<tr>
<td></td>
<td>• “virtual water cooler”</td>
</tr>
<tr>
<td>High turnover rate</td>
<td>• continuous team building</td>
</tr>
<tr>
<td>Use of right communication style to convey the message</td>
<td>• Two-way monologue is effective when conveying already existing information awaiting feedback</td>
</tr>
<tr>
<td></td>
<td>• Dialogue is important in brainstorming, by not just reflecting on the meaning of the message from the other parties but by being aware of the meaning of our own expressions</td>
</tr>
</tbody>
</table>
5.3. Challenge 3 - Cultural differences

Culture and cultural background of an individual has highly influenced the effectiveness of virtual team work, as differences in norms, communication context and customs can hinder or if utilized well, support cross-cultural work (Cagiltay et al., 2015). Duran and Popescu (2014) in their cross-cultural research found that today (Figure 7), most employees still find it important to be aware of each other’s culture when working together, and 96% of the respondent welcome the benefits of multicultural work, which also highlights the importance to deal with the challenges raised by cultural differences.

Figure 7 Duran and Popescu (2014) cross-cultural research results

Multiple definitions of culture circulate the academic understanding, but the most prevailing one have been associated to Geert Hofstede (1991), who defined culture as:

"the collective programming of the mind which distinguishes the members of one group or category of people from another." (p.5).

Another influential definition that has more precise elements was pinned down by Clifford Geertz (1973), who interpreted culture as:
“a system of inherited conceptions expressed in symbolic forms by means of which [wo]men communicate, perpetuate and develop their knowledge about and attitudes toward life” (p. 89).

As the definitions highlight, culture influence the way people think, communicate and understand thus creating space for misunderstanding and tension between cross-cultural virtual teams. Hofstede (1980) in his early work of understanding culture identified four dimensions that can characterize difference in culture cohesively. (Power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity) Later in 1991 he added long-term orientation (Hofstede, 1991) and in 2010, indulgence-restrain was the final dimension completing the cultural characterization chart (Hofstede et al., 2010). These six dimensions are detailed in Figure 8.

Figure 8 Hofstede’s cultural dimensions

<table>
<thead>
<tr>
<th>Hofstede’s cultural dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Distance Index</strong></td>
</tr>
<tr>
<td>High: Acceptance of a hierarchical order in which everybody has a place and which needs no further justification</td>
</tr>
<tr>
<td><strong>Individualism versus Collectivism</strong></td>
</tr>
<tr>
<td>Individualism: As a preference for a loosely knit social framework</td>
</tr>
<tr>
<td><strong>Masculinity versus Femininity</strong></td>
</tr>
<tr>
<td>Masculinity: Preference in society for achievement, heroism, assertiveness and material rewards for success</td>
</tr>
<tr>
<td><strong>Uncertainty Avoidance Index</strong></td>
</tr>
<tr>
<td>High: Maintains rigid codes of belief and behaviour and are intolerant of unorthodox behaviour and ideas</td>
</tr>
<tr>
<td><strong>Long Term Orientation versus Short Term Normative Orientation</strong></td>
</tr>
<tr>
<td>High: Pragmatic approach, they encourage thrift and efforts in modern education as a way to prepare for the future.</td>
</tr>
<tr>
<td><strong>Indulgence versus Restraint</strong></td>
</tr>
<tr>
<td>Indulgence: Societies that allow relatively free gratification of basic and natural human drives related to enjoying life and having fun.</td>
</tr>
</tbody>
</table>


The relative location to one another between cultures in Hofstede’s cultural dimensions’ chart can be a good signal of the possible cross-cultural conflicts (Cagiltay et al., 2015).
For example Japanese culture scores high on power distance and collectivism, causing solid agreement in meetings, thus showing the high capabilities of the group, while decisions are usually only made by a senior manager. Collaborating and negotiating with „lower rank” representative therefore is close to impossible, while routine tasks and discussions have to be made frequently to assure co-operation (Oertig and Buergi, 2006)

Above cultural differences, language is a main cause of problems in cross-cultural team work. Not just the usage of (for example) English as a second language causes barriers and frustration with different levels of proficiency, but also, some social norms and codes are reflected in language that can be easily misinterpreted (Cagiltay et al., 2015). Language, time, body gestures and space just as much as writing styles are different across the cultures, and Paletz et al. (2014) highlighted that the utmost difficulties come from the hardships of conveying politeness, emphasis, reference, relevance and netiquette in writing.

Finally, it is important to mention that the perception of time can be highly different across cultures. People may perceive the past, present and the future differently, as well as, they may assign different weight of importance to it. (Cagiltay et al., 2015) This can cause scheduling issues, delays and frustration. More precisely, according to Hall (1959, 1983, 1990) people can be categorised into two different groups based on their time orientation, these are: monochronic and polychronic. Zhang et al. (2004) described people with monochronic tendencies (monochrons) as persons who are mostly focused on a single task, avoid interruptions and follow sequential task systems with clear priorities. Conversely, polychrons can focus simultaneously on multiple different task, and they navigate successfully in a huge array of information. In case there is a lack of information overflow, the polychronic person easily can get bored. A mathematical analogy highlighted by Cotte and Ratneshwar (1999) explains the difference between the two as monochrons are experiencing time in a linear matter, which can be detached into smaller units, while polychrons view time as an abundant constant, that stretches and thus allows facing many different tasks at once. Furthermore, research conducted by Kvassov and Tetard (2000) emphasises the importance that persons from different cultures manage their time and actions in different ways. Western cultures (Scandinavian, Central European and North American nations) tend to have monochronic understanding, while tendency to be more polychronic is observed in Latin-
American, African, Asian and Mediterranean nations. The difference between polychronic and monochronic understanding of an individual therefore can reflect their cultural background and can influence their contribution in multicultural virtual teamwork. Some follow a multitasking behaviour while others prefer sequential task systems. This divergence may hinder cooperation and could cause conflicts. (Zhang et al., 2004)

According to Cagiltay et at. (2015) to overcome cultural challenges, it is extremely important to use intercultural differences for synergy instead of a source of conflict. People from different background can add unique elements besides divergent views and perceptions. This can be achieved by accepting cultural differences. According to Lisak and Erez (2015) employees especially in virtual teams need to develop cultural intelligence and tolerance. Members need to be open and empathic towards different cultural values, but, as it is impossible and unethical to force one’s culture on others, the keywords are acceptance and tolerance. Lisak and Erez (2015) Further highlight that the best strategy is to provide culture orientation sessions in the beginning, emphasizing elements that can cause friction and again, initial face to face meeting can help absorb cultural differences.

Furthermore, Sarker and Sahay (2003) focus on the importance of having the right facilitator (leader) who triggers discussions and emphasises cultural differences in the right way, so they will not be ignored.

Finally, to avoid problems created by language barriers, Duran and Popescu (2014) collected tools to overcome communication difficulties. To ‘break the ice’ and to maintain a good social environment, humour is very important. 46% of the respondents in Duran and Popescu’s (2014) research reflected that having a little bit of playfulness can help forge better relationships. It is important to use slower, simpler language if the difference is big in proficiency. Moreover, to check understanding employees should confirm if the message is clear, ask questions to check back, and ask the recipient to repeat in his or her own words the points. Further tips and tricks of effective communication are developed, such as the “7Cs of effective communication” (Clear, Concise, Concrete, Correct, Coherent, Complete, Courteous) (mindtools.com, 2018). Or, Garfinkle’s (2018) seven steps to clear and effective communication. These include;

- Staying on message
- Making it a two-way conversation
• Making sense of what is said and what is being said
• Taking ownership of any failure of communication
• Hearing what others say and reflecting on them
• Repetition
• Respecting the audience and oneself

With the help of clear communication techniques, language and communication barrier can be reduced and people may connect more easily.

Culture, therefore plays a significant part in virtual team communications. The following table summarizes the issues and solutions that have been mentioned previously.

Table 6 Summary of cultural challenges and suggested solutions

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural difference</td>
<td>• Initial face to face meeting for better understanding of culture</td>
</tr>
<tr>
<td></td>
<td>• Improve cultural intelligence – trainings, culturally appropriate relationship-building activities</td>
</tr>
<tr>
<td></td>
<td>• Increase openness and cultural diversity</td>
</tr>
<tr>
<td></td>
<td>• Use richer communication channels – video, audio to avoid misinterpretation or friction cause by lack of politeness cues in texts.</td>
</tr>
<tr>
<td></td>
<td>• Understand the difference of monochronic and polychronic time perception</td>
</tr>
<tr>
<td>Cross-cultural team work</td>
<td>• Members should acknowledge cultural differences and similarities</td>
</tr>
<tr>
<td></td>
<td>• Respect, accept and tolerate difference while also try to use it as an advantage</td>
</tr>
<tr>
<td></td>
<td>• Apply netiquette: avoid using culture specific terms that can harm the relationship</td>
</tr>
<tr>
<td>Language barrier</td>
<td>• Slower, clear speech, simpler language</td>
</tr>
<tr>
<td></td>
<td>• Check back for understanding, repeat points, ask questions</td>
</tr>
</tbody>
</table>
5.4. Challenge 4 - Technological challenges

Working in a virtual team directly means that members use technology to communicate, cooperate and collaborate (Chinowsky and Rojas, 2003). There are a number of challenges that team members have to overcome when using communication technologies [CT]. These include, technical unawareness or technophobia, lack of instant feedback, usage of too many CTs, ineffective communication and selection of the right CT (Vijayvargiya, 2014). Scholars have found that companies most of the times invest in modern, state of the art information and communication technologies that due to lack of training and awareness stay unused and ignored (Castella et al., 2000).

First and foremost, virtual team members and leaders have to agree on the technology they are going to use, and for this, scholars have developed two specific theories; task-technology fit theory and media synchronicity theory.

1. Task-technology fit theory

According to Goodhue and Thompson (1995) the originators of the theory, it describes:

“the degree to which a technology assists an individual in performing his or her portfolio of tasks”. (p. 216)

This indicates that as much as every task is different in a team work, so does the appropriate technology. Task-Technology-Fit theory is a framework that supports better identification and selections of CT that can help meet objectives of the team through the progress of their work (Maruping and Agarwal, 2004). As it is described in Figure 9, the theory indicates that managers and employees need to have an understanding of the available technology and its characteristics, the attributes of the task as well as the personality and abilities of the user to determine the right technology for the respective task.
Furthermore, Task-Technology-Fit concept can be used as a predictor of the performance. In general, it states that if the technology fits to the task it supports then it will have a positive impact on the employee’s performance (Daneshgar et al., 2012).

2. Media synchronicity theory

This theory has been built up on the foundations of the media richness theory by Daft and Lengen (1986) which proclaims that the effectiveness of the message in terms of understanding depend on the communication technology used. Rich CTs are those that are able to elucidate ambiguity and deepen understanding. Technologies with lower richness in comparison take longer time to clarify an issue (Daft and Lengel, 1986). From this basis proposed Dennis and Valacich (1999) the media synchronicity theory which encompasses five functionalities of the communication technologies that give different capabilities. These are, immediacy of feedback, symbol variety, parallelism, rehearsability, and reprocessability (Maruping and Agarwal, 2004). The relative capabilities of the most widely used communication technologies are presented in Figure 10.
Furthermore, according to Chinowsky and Rojas (2003), technologies can be divided in three categories; **communication technologies** – these have the sole purpose of passing on information. (E-mail, phone, Skype, instant messaging) These can be asynchronous such as e-mail or letter, or synchronous as telephone or teleconference.

**Cooperation technologies** – these help team members to asynchronously collaborate, as in project websites, or share points (like Dropbox or Evernote), where members can share documents, insights, discussion boards without the possibility the manipulate data in real time. Furthermore, today we have vast options of collaboration tools, such as Asana, Trello, Atlassian HipChat, Podio, Slack, Igloo, LeanKit, Volerro, Workfron or Ryver (Duffy, 2017).

Finally, **collaboration technologies** are those that allow virtual team members to work synchronously on data. These can be Google Documents, Microsoft OneNote, TeamLab, Traction TeamPage.
There are a number of other variables that affect the choice of technology in virtual team work. According to Cagiltay et al. (2015) if team members do not have a close(r) relationship they will not use rich media channels such as phone or chat. Also, cultural and language diversity affect media choice, as people who are not confident in the common language will communicate more in less synchronous tools, such as e-mails.

Furthermore, there can be a huge gap between employee’s technological knowledge of the tool used, causing frustration to those who do not understand them and ultimately project setbacks, reduced efficiency and even failure. According to Tartell (2015) 87% of the virtual team leaders expressed that online collaborative and information technology tools are critical for project success, yet only 10% of them said that they are skilled and competent to use them. It is yet again the leaders’ responsibility to choose the right tool based on the task-tech-fit and media synchronicity theories as well as making sure that the members of the virtual team all understand and can use the technology. This can be achieved by asking for feedback and offering trainings (Tartell, 2015).

Cagily et al. (2015) further emphasised to use “the lowest common denominator” to identify the right technological tool for the team. Meaning that the CT should cater to the person with the least understanding of the technology.

In the followings, Table 7 gives an overview of the challenges and solutions in information communication technology.
Table 7 Summary of technological challenges and suggested solution

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of appropriate CT</td>
<td>• Consider task-tech-fit and media synchronicity</td>
</tr>
<tr>
<td></td>
<td>• Leaders should appoint tools for the task to avoid using too many platform</td>
</tr>
<tr>
<td>Technical unawareness</td>
<td>• Consider “lowest common denominator” when choosing technology</td>
</tr>
<tr>
<td></td>
<td>• Ensure proper training and get feedback of understanding</td>
</tr>
<tr>
<td>Language barrier</td>
<td>• Use technology with longer high reprocessability (e-mail)</td>
</tr>
<tr>
<td></td>
<td>• Check back for understanding, repeat points, ask questions</td>
</tr>
</tbody>
</table>
5.5. Challenge 5 - Building trust in virtual team environment

Trust has been highlighted as one of the most important factors of team work and is especially important in virtual team environments (Ford et al. 2017). Clark et al. (2010) have expressed that even though the primary focus of a group work is to finish a task individually and a project as a team, close social proximity ensures proactivity, higher quality outputs, frequent communication and thus better feedbacks and cooperative environment.

Trust according to Schoorman et al. (2007) can be defined as the readiness of one to be vulnerable to another based on the expectation that the person being trusted will perform a specific action important to the other, benevolently and in good faith, regardless if the trusted person is monitored or not. Another widely used definition of trust is pinned down by McAllister (1995):

“the extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another” (p. 25)

As we can see from the definitions, trust is very delicate and leaves one vulnerable. However, trust is highly valuable and is hard to earn back after it has been betrayed. (Chae, 2016) Furthermore, earlier studies (Sarker et al., 2011; Pinjani and Palvia, 2013; Chang et al., 2014; Ford et al., 2017) have determined that trust is crucial for successful and effective virtual team work. Team members must have trust in their leaders, in each other, and in the company they work for, as without trust, people could not rely on each other and have confidence that the tasks will be performed on time in expected quality (Ford et al. 2017). In virtual teams, distance, computer mediated communication, lack of face to face interaction and cultural differences could all hinder team work. Some geographically diversified cross-cultural team members even highlighted that the perceived ostracism further deepened mistrust, although the simple reason of not answering a phone call or replying to an e-mail instantaneously could be lack of time or that the person on the other side decided to focus on his/her task.

According to Chae (2016) generally speaking there is two type of trust that can be determined in social context. These are, cognition-based and affect-based trust. The earlier refers to trust coming from the perceived competence of the person, while the
later, affect-based trust comes from emotional connections. (Chae, 2016) Cognition-based trust can be developed quite easily through working together and through performing assigned tasks and responsibilities well. On the other hand, affect-based trust is more important for effective work, creativity, decision making and mediating cultural differences. (Chae, 2016) Developing and working toward effect-based trust require conscious effort.

According to Lu (2015) working in a virtual team environment where members have never met before, is like meeting strangers in other social situations. As depicted in the first filter in Figure 11, in favour of developing relationships, two different psychological mechanisms should work together. First, people tend to like those around them who have similar attitudes, opinions and perception of other people and objects. Secondly, rewarding experiences with another person strengthens the bond and ensures fruitful long-term cooperation. (Lu, 2015)

Figure 11 The generic model of the development of social relationships

![Figure 11 The generic model of the development of social relationships](image)

Source: Lu (2015) p. 57

Thus, shared activities are the basis of creating meaningful relationships with other people, which translates to contexts where people can share their opinions and perceptions. Furthermore, common activities are practically the only platform where people can have opportunities for rewarding experiences.
Following Lu’s (2015) argumentation, the second filter helps further developing relationships. As people communicate and share activities with each other they also share more and more about themselves and their personal life. People begun to trust each other and became interdependent. This is the stage where true cohesion can be seen among group members. At this point people work together not just because they have a task that they have to do together, but because their social bond is strong, and they want to keep each other’s company (Spector, 2006). The consequences of building social relations include; greater satisfaction, more cooperation and better performance among others (Lu, 2015).

To initiate social bonding in virtual teams, a number of techniques, tools and methods have been developed (Morita and Burns, 2014). Most of the early research on virtual team trust highlights the importance of initial face to face meeting (Rocco, 1998; Corbitt et al., 2004; Wilson et al., 2006). Meeting the first time have been emphasised as a solution to many of the virtual team work challenges, and in the case of trust development it could be crucial.

When the geographical distance does not allow to meet physically, Rusman et al. (2010) recommended the use of online personal profiles, that can help team members to get to know the others person better. Furthermore, Rusman et al (2010) proposed information and communication technological tools that could simulate face to face activities. These are, on-line chats, online video games, sharing personal- or common blogs.

Above online profiles Moon (2017) highlights the importance of virtual “water cooler”. Water cooler talks are those small, free, unscripted or unplanned discussions that happen during breaks in kitchens or other community areas. According to Ybarra et al. (2010) small talk is actually beneficial for work; it improves cognitive functions such as planning, focus, organisation, and prioritization. Moon (2017) suggests a couple of strategies to boost online small talk:

- Milestones such as work anniversaries, tape outs, project closing, goal reaching should be celebrated and publicly acknowledged. These public celebrations give space for discussions and small talk
• Inspire social discussions in chats by creating groups for different purposes. Trending topics at the moment, pictures of vacation, family and kids, funny memes, sport and restaurant/leisure activity recommendation.

• Finally leave time for socialization in distributed teams as well, by pairing people in short “get to know each other” calls.

Additionally, according to Chinowsky and Rojas (2003), open communication is the key towards developing trust. The role of the management is to distribute information openly about project status, roles, and responsibilities and make sure members are delivering the final product on time.

Finally, to initiate trust building by using Lu’s (2015) model, the team developer or leader has to make sure that the right personalities and backgrounds are present in team development. Similar background gives a good start for team cohesion development. Moreover, shared activities, such as team building, occasional dinners or team outing can help create the right space for sharing.

Table 8 summarizes the above described points in developing trust in virtual team settings that can be the basis of the proposed training package.

Table 8 Summary of trust building challenges and suggested solution

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust development</td>
<td>• initial face to face meeting</td>
</tr>
<tr>
<td></td>
<td>• online personal profiles/ “water cooler”</td>
</tr>
<tr>
<td></td>
<td>• on-line chats, online video games, sharing personal- or common blogs</td>
</tr>
<tr>
<td></td>
<td>• open communication</td>
</tr>
<tr>
<td></td>
<td>• shared activities, such as team building, occasional dinners or team outing</td>
</tr>
</tbody>
</table>
5.6. Challenge 6 - Managing conflict

People working together regardless if virtually or face to face are going to experience collisions of ideas, viewpoints and even clash of personalities at some point (Cagiltay et al., 2015). There is a chance of conflict in every life situation and people have to deal with them professionally and with respect. The added challenge in virtual teamwork is the issue of not seeing each other, as well as, lack of non-verbal cues which could sooth a situation or give contextual background to the message that is conveyed through information communication technology.

Furthermore, geographical distance and cultural diversity can give space to conflict as people have different values, norms and interpretation styles based on their upbringing and backgrounds (Cagiltay et al., 2015). Paletz et al. (2014) assessed that when people coming from different cultural environment work together, the likelihood of conflict and culture clash is higher due to the possibility of misunderstanding or misinterpretation of intent. Hofstede et al. (1997) characterized these issues as “unintended conflict” which are really hard to solve as people in most cases are not aware of their own or others’ cultural norms.

Hofstede et al. (1997) highlighted two different types of conflict; affective and cognitive. The former indicates issues with interpersonal feelings while the later reflects on the problem of agreement on decisions, processes or tasks. According to Tenzer et al. (2014) cognitive conflicts are easier to resolve and they become damaging only if they are pushed to a personal level, causing negative emotions and private friction between the employees. Affective conflicts in multicultural teamwork are featured through stereotypes. These institutional moulds are oversimplifying the nature of specific ethnic groups and in virtual teams they get exaggerated (Kilker, 1999).

Moreover, Staples and Zhao (2006) in their research on effect of cultural background on virtual team work found that individualism/collectivism has a notable effect and cause of conflict in virtual work, meaning that some members of the team are willing to make personal sacrifices for the benefit of the whole team and the project while there are some who are not willing to do the same. Culture in general can affect communication and interaction on a high level as members have different expectations towards each other.
Ayoko et al. (2012) collected the most prevalent variations in virtual team work conflict which are presented in Table 9. These include demography, distance and technology.

Table 9 Key variations in conflict, emotions and emotional regulation virtual teams

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Sources</th>
<th>Virtual Teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict</td>
<td>Demography</td>
<td>• Virtual teams are less homogenic and therefore different cultural backgrounds can affect interpretation and understanding, thus causing conflict.</td>
</tr>
</tbody>
</table>
|             | Distance | • Distance prevents the development of shared context, therefore it is harder for people to understand each other  
|             |         | • Lack of social interaction hinders the built up of familiarity and friendship |
|             | Technology | • Increased possibility of misunderstanding through technology  
|             |         | • Information communication technology may alter the length and depth of conflict. Sometimes conflicts are held back longer as people do not meet face to face  
|             |         | • Main conflicts due to time-zone difference, language barrier, communication delay, coordination and information transfer |

Source: Ayoko, et al. (2012) p.158

Preventing and countervailing mechanism against conflicts based on Demography

According to Lisak and Erez (2015) a great preventive measurement is talking about cultural differences and bringing awareness to special characteristics that are cardinally different in the team. These can help building tolerance and understanding as well as help create a contextual understanding of the messages.

Furthermore, countervailing mechanism is effective leadership, indicating that in case of a culture clash conflict the leader addresses the problem, gives clear instructions, focuses on the solution and avoids taking sides. As it has been mentioned before, on a personal level, it is really hard to manage cultural issues, as people are not aware of their norms and values just as they are not aware of others. Therefore, it is always beneficial to bring a cultural conflict to the facilitators attention, who will leverage the problem with adequate conflict management tools.
Preventing and countervailing mechanism against conflicts based on distance

Hinds and Bailey (2003) in their research proposed a dynamic model of preventive, countervailing and handling mechanisms for appropriate conduct of conflicts. In terms of distance, preventive measurements include more frequent face to face meetings even if they are only through video conferencing, deliberately conveying contextual information such as giving time to discuss personal events such as holidays or family. Finally, an important preventive measurement is creating shared context by standardizing tools, processes and systems on different sites to reduce potential cognitive conflict.

Furthermore, countervailing forces in terms of distance are shared team identity for example. Teams that have a strong bond are communicating more frequently and work towards a common goal more synchronously. Another strong countervailing mechanism is the timing of face to face meetings. According to Hinds and Bailey (2003) those teams that meet in the early development phase of the groupwork are performing better.

Preventing and countervailing mechanism against conflicts based on technology

With conflicts based on technology Hinds and Bailey (2003) suggest first of all comprehensive training of the technological tools used for team work. It is important to prevent conflicts that stem from incorrect use of technology. Furthermore, employees have to know when to use which tool. For example, occasional telephone calls can support relationship building by reducing misunderstanding, as through a call people get instant feedback and non-verbal cues in form of silence and tone of speech.

Conflict handling strategies

According to Thomas and Kilmann (1974) there are five different approaches are present in human behaviour when handling conflict. (Presented in Figure 12 below) When both parties are striving for collaboration and trying to find a solution which benefits both individuals (and conflicting groups) then there is a possibility to resolve the conflict successfully. But, if the collaborative intent is absent in both, or one of the conflicting parties, then the members either going to approach the conflict with
avoidance, or with accommodation, compromise or competition. These conflict handling strategies are not solving the problem successfully and usually leaves one of the member frustrated.

Figure 12 Two-dimensional classification of conflict handling modes

![Diagram](image)


In order to strive for collaborative approach Hinds and Bailey (2003) suggest **sharing information** and encouraging **discussions and brainstorming** on team level. Furthermore, **the team can suggest innovative ideas** to find a collaborative solution.

In the followings, Table 10 gives an overview of the challenges and solutions in information communication technology.

**Table 10 Summary of conflict management challenges and suggested solution**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solution</th>
</tr>
</thead>
</table>
| Demography  | • talking about cultural differences to raise awareness and build tolerance  
              • effective leadership - addressing the problem, |
- giving clear instructions, focusing on the solution and avoiding taking sides

**Distance**
- frequent face to face meetings even if they are only through video conferencing
- deliberately conveying contextual information
- shared team identity

**Technology**
- comprehensive training of the technological usage of the right tools in the right situation

**Conflict handling strategies**
- sharing information and encouraging discussions
- brainstorming on team level
- team can suggest innovative ideas to find a collaborative solution
6. Corporate training methods

So far through the literature review the differences between face to face teams and most important challenges have been presented. These summaries can serve as the basis of the training material if the interviewees find them as important as the literature indicates. As the master thesis not only tries to find the context of the training for new employees engaging in virtual team work, but the best method as well, the fifth and final chapter of the literature review lists and gives detailed description of corporate training methods.

Living a highly volatile, dynamic environment where technology, needs and processes change faster than ever before, organisations need to realize that some employee skills are becoming obsolete while at the same time there is a constantly developing need for new skills that require training (Read and Kleiner, 1996). The importance of training is undeniable, as companies spend enormous amount of money on employee education, which can ensure longer employment, thus employee retention, better results and higher efficiency (Gordon et al. 2012). Training is crucial and imperative in any organisation, but it is also costly. As in practically all aspects of a company, training should be designed effectively to ensure the maximization of the return on investment, which indicates that the employees are able to use the skills and perform the tasks they have been trained for and by doing so the company’s profit exceeds its costs of training (Read and Kleiner, 1996).

There are many training methods with different advantages and disadvantages, but before describing them, it is important to understand what makes a training effective and what criteria have to be met to make a training as effective as possible.

Effective training

Aguinis and Kraiger (2009) identified 4 indispensable requirements for creating and implementing an effective corporate training program. These are:

- Justification of training expenditure by assessing needs – how many people would like to take the training? Why is it beneficial?
• Offering multiple methods through the learning process for the employees based on their time availability, attitude, abilities and motivation, including different levels from beginners to advance – catering to the needs.

• Assessment of effect and impact of the training by using longitudinal surveys or research – for further development and adjustment.

• Adapting to the needs of the trainees, in addition to the context and design, (schedules, tutoring, extracurricular assignment based on interest) to further enhance engagement and interest.

Furthermore, according to Training Today (2017) in general the training designer has to consider what are the goals of the training, who are the trainees, what is the training budget, hat sources can be used and how much time can be allocated for the training.

Wilson (2000) collected 66 different training methods divided in the following categories; large group training, reference methods, example methods, small group training and hands on training. The ones that are the most frequently used in corporate settings and in new employee training will be described in the followings.

6.1. Large group training

For large groups in corporate training setting two different methods are the most widely used; these are lecture and interactive computer-based trainings. These are useful because large amount of people can be trained at the same time, thus cutting costs and time.

Lecture

Lecture have been defined by Osborne (1996) as:

“structure planned talk usually making use of visual aids, and/or without group participation other than through questions at the conclusion.” (p. 166)
Even though it is cost effective and can reach a huge amount of people, there is little guarantee that it will result in effective learning outcome. The lecturer relies on several assumptions, for example it is assumed that the participants are engaged and motivated as well as the participants can access further information and are able to disregard the social aspect of learning (Wilson, 2000). This is not always true, and lecturers usually only provide theoretical background with limited examples and very little possibility for questions.

Table 11 Advantages and disadvantages of lecture-based training

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time and cost effective</td>
<td>Learning outcome is questionable as the audience is passive, the lecturer sometimes is not engaging and lack of feedback</td>
</tr>
<tr>
<td></td>
<td>Content and schedules can be planned up front</td>
<td>Lectures may be inadequately planned and presented, reducing student motivation and curiosity</td>
</tr>
<tr>
<td></td>
<td>Suitable for large group of people</td>
<td>Low possibility for skill transfer</td>
</tr>
<tr>
<td></td>
<td>Content is presented in a logical order</td>
<td>Lack of social engagement.</td>
</tr>
<tr>
<td></td>
<td>Can be done online in a video conference as well</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can convey explicit and tacit knowledge as well</td>
<td></td>
</tr>
</tbody>
</table>


**Interactive computer-based training**

According to Wilson (2000) computer-based learning uses the instant feedback to keep the motivation and the attention of the student. Usually it presents information step-by-step and between each level a question or a quiz checks knowledge development. It is highly efficient for self-learning method with the possibility to diffuse knowledge between a lot of people.
Table 12 Interactive computer-based training advantages and disadvantages

<table>
<thead>
<tr>
<th>Interactive computer-based training</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Time efficient</td>
<td>• Expensive to prepare</td>
</tr>
<tr>
<td></td>
<td>• Easy to deliver and distribute</td>
<td>• Technical requirements</td>
</tr>
<tr>
<td></td>
<td>• Uniform learning experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Suitable for individual learning, by allowing individual pace and reflection.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If video demonstration is implemented, could convey tacit and explicit knowledge</td>
<td></td>
</tr>
</tbody>
</table>


6.2. Reference methods

Wilson (2000) described reference methods as printed or online media that aids learners with extra material for successful knowledge development. Particularly in a corporate environment workbooks and training manuals are used frequently.

Workbook and training manual (Off– and online)

Workbooks are usually printed material based on the teaching data and are aimed at supporting lecture type of learning (Wilson, 2000). In a corporate setting, training manuals and workbooks can be used as a reference guide, to refresh and store knowledge for future use. Reference material can be stored online as well, these could be web based collaborative software with knowledge and information repository or web content management systems as a corporate Wiki site (Wiki software, 2017). These tools are aimed at knowledge retention as well as instead of teaching people a certain skill or technique they rather help pointing out where to look for the information needed.
Table 13 Reference methods – workbook, training manual, online information repository advantages and disadvantages

| Reference methods – workbook, training manual, online information repository |
|---|---|
| **Advantages** | **Disadvantages** |
| Substitute note taking during presentations | Reference methods only work if previous teaching have been given on the material |
| Help providing a common set of data for lecture both for the lecturer and the trainee | It is hard to convey knowledge solely through written material especially tacit knowledge |
| Gives background information and points out sources for further data | Putting together a reference method material is time costly |
| Helps the development of self-learning and researching skills. | |
| Diffuses explicit data effectively | |


6.3. Example methods

Example methods show exactly the process of the activity or information being taught (Wilson, 2000). These techniques are highly beneficial when the skill or information is hard to explain only by speech or text, but a visual aid or process needed for full understanding.

In corporate setting two example methods are used the most, these are; demonstration and case example. In the case of the former, the demonstrator presents clearly, step by step a process and actions involved in performing a certain task, while in the case of the latter, the trainer describes an actual situation that happened and highlights how certain processes helped/could have helped in that particular case (Wilson, 2000).
Table 14 Example methods – demonstration, case example advantages and disadvantages

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Easily conveys skill based and tacit knowledge</td>
<td>• Hard to use in case of explicit knowledge</td>
</tr>
<tr>
<td>• Helps understanding through giving actual situational cases, or demonstration of procedures</td>
<td>• The presenter has to have outstanding demonstration and presentation skills for efficient use. In case of professionals this could be not present.</td>
</tr>
</tbody>
</table>


6.4. Small group training

Small group trainings rely on the participation of the members and a critical point in successful learning outcome is the grouping of people (Wilson, 2000). If the teams are created from a bigger group, people tend to join those with whom they are familiar. This can cause less effective learning. According to Eitington (1989) creating mixed teams with people who do not know each other can help learning new ideas, skills and helps social development.

There are two different small group training used frequently in corporate settings. These are; team building, and seminars.

**Team building**

Team building is usually used to generate trust and social context between the team members (Wilson, 2000). Team building does not necessarily helps learning a skill or conveying explicit data, but rather helps understand different functions within the community and personalities to encourage open and trusting communication. Sometimes not the actual knowledge is important but to know to whom one can turn for help in certain situations. Team building can help generate ideas and with the new connections even innovative solutions can come up for specific problems. As virtual team work makes it hard to create meaningful social connections, first hand face to face
meeting and team building can a great deal. Team building activities can include going to the restaurant together or playing games that help learning even after the team building day.

**Seminars**

According to Lynton and Pareek (1967) seminars are a learning environment where participants can share their experiences and teach one another new skills, methods and processes. Through the process of exchanging ideas and wisdom, members broaden their understanding and can generate new ideas (p.135). Usually groups of 8-12 people gather together and present either their solution to a certain problem or discuss an issue based on previous preparation. Furthermore, members could prepare beforehand and teach each other under supervision (Wilson, 2000). It is a great way of conveying knowledge that is embedded within the team members as well as it can help further developing team cohesion.

Table 15 Small group training – team building, seminars advantages and disadvantages

<table>
<thead>
<tr>
<th>Small group training – team building, seminars</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>Conveys skill based and tacit knowledge</td>
<td>Confident team members could take a ‘leader’ position not giving space to other members in discussion</td>
</tr>
<tr>
<td>All members of the group are involved</td>
<td>Skilled trainer is important to help the discussions flow and to moderate with questions</td>
</tr>
<tr>
<td>Different views are shared, idea generation and innovation can take place</td>
<td>Hard to adapt to specific training topics</td>
</tr>
<tr>
<td>Better member social connections, helps learning outside the scope of training</td>
<td></td>
</tr>
</tbody>
</table>


6.5. **Hands-on training**

*Coaching, mentoring and buddy programs*

Hands-on training is more advanced methods requiring only two people; one is the coach or mentor and the other one is the apprentice or learner. In these cases the
principal teaches the apprentice through a period of time his or her ‘craft’. This learning method is highly effective as the supervisor dedicate his/her time and help to the trainee who has the advantage of asking question, shadowing (= following around and observing what the supervisor does) and can practice under oversight (Wilson, 2000). Both coaching and mentoring requires high level of interpersonal skills but while a mentor is more of a friend, a coach is an authority figure, who demands high quality results under his/her supervision.

Buddy program on the other hand is less professional and is more aimed at to have a go to person with any issues when an employee starts at a new company. It is an on-boarding and knowledge sharing method where an existing employee introduces the new co-worker to the company and/or the project he/she is going to work on (Wilson, 2000). Benefits of a buddy program are that it is inexpensive and easy to implement, as well as the learning outcome is high in case the buddies are willing and competent. The drawback is that it puts even more responsibility on the employees and it is hard to track.

Table 16 Hands on training – coaching, mentoring advantages and disadvantages

<table>
<thead>
<tr>
<th>Hands on training – coaching, mentoring</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conveys skill based and tacit knowledge</td>
<td>• Good interpersonal skills needed, which is critical for the success of the training</td>
<td></td>
</tr>
<tr>
<td>• Individually tailored, highly effective learning program</td>
<td>• Time inefficient and can be expensive as the trainee does not “produce” anything until the learning is done.</td>
<td></td>
</tr>
<tr>
<td>• Helps learning about organisational culture and the social environment</td>
<td>• Learning outcome is high as the supervisor can monitor development on the individual level.</td>
<td></td>
</tr>
</tbody>
</table>


Summary

The above described five training methods (large group training, reference methods, example methods, small group training and hands on training) reflect the possibilities in conveying knowledge for new employees.
In the following chapters of the master thesis, the methodology and data will be presented together with an analysis based on the literature review and finally a conclusion will close the research.
7. Methodology

In this chapter the methodology that is followed in the master thesis is presented, including all elements of the “Research onion” system, proposed by Saunders et al. (2009). The research onion, as pictured in Figure 13, is a research design where the investigator narrows down layer by layer the research action to the exact strategy that is fitting to his or her research question. The layers include: research philosophy, approach, methodological choice, strategies, time-horizon, techniques and procedure.

Figure 13 The research ‘onion’

In the following chapters, the research design developed for the given thesis based on the research onion (Saunders et al., 2009) is presented layer by layer.
7.1. Philosophy

The first, most outer layer of the research onion is the philosophy. According to Saunders et al. (2009) the overarching term of research philosophy can be defined as:

“…the development of knowledge and the nature of that knowledge.” (p. 107)

Research philosophy is an understanding of the researcher’s way of seeing the world that gives a reflection on the research itself. Research paradigm can also help understand the research philosophy. As stated by Cohen, Manion and Morrison (2007):

“Research paradigm is a structure of beliefs, perception and understanding of different theories that are used to manage a research. (p.11)

The way researchers understand reality can be classified in 3 different ways as reported by Cooper and Schindler (2008). Analysts can follow positivism, realism or interpretivism based on the requirements of the research question.

**Positivism**
According to Remenyi et al. (1998) the researcher that adopts positivism as guiding research philosophy, most probably views reality through the stance of a natural scientist. In this understanding, social reality consists of observable elements and the final results of the research are law-like generalisations. According to this philosophy only those phenomena that can be observed will point towards credible data. Positivistic research usually done through a highly structures data collection method with large samples and exact measurement.

**Realism**
Saunders et al. (2009) states that the basis of realism is that what we see, hear, feel, smell and taste is the truth. Objects have an existence separate from the human mind and its understanding of the object. There are two different forms of realism, direct and critical. The former believes that our senses describe the word accurately. While the later expresses that what we sense is just an image of the object not the object itself.
This image can be deceiving and could be misinterpreted. Bhaskar (1989) argues that researchers will be able to understand the social world (as in business environment) if they comprehend the social structures that underline the phenomena that is being researched. The data collection methods are broad in this philosophy, the only criterion is that the method should support the subject of the research.

**Interpretivism**

The final philosophy listed by Cooper and Schindler (2006) is interpretivism. This research paradigm criticises the previous two and argues that the social world of business and management is

‘far too complex to lend itself to theorising by definite laws in the same way as the physical sciences.’ Saunders et al (2009 p.115)

Interpretivist researches give emphasis to the importance of understanding the observed phenomena is influenced or played out by social actors. According to Saunders et al. (2009) these social actors play out their roles in a social setting based on their understanding and interpretation of the given role. Furthermore, the social roles of other members of the given setting is interpreted based on the observers own understanding. The researcher has to enter the social world of the observed subject or situation and see from their point of view. This research philosophy is widely used in business and management research as the experiences happening in the business world are highly unique and complex.

The research design of this master thesis follows an interpretivist philosophy, as the identification of virtual teamwork teaching material and technique of new employees requires an understanding of the perspective and the reality of those that are observed (in this case interviewed). Virtual teamwork supposedly is a very similar experience to all actors, as the framework (use of digital technology, geographical distance) is close to identical. Yet, based on interpretivism, each employee working in virtual teams perceives it differently. To base our findings in this case only to the observable and measurable elements would be negligence as virtual teamwork is a highly social, complex situation where personal background, education and upbringing could influence the quality of work.
Furthermore, interpretivism most often uses small samples and in-depth, qualitative investigation as data collection techniques which (as described in the following) is also the intent of the author.

### 7.2. Research approach

According to Saunders et al. (2009) the degree to which the theory or expected outcomes are known in the beginning of the research, highly influence the design of the investigation. In case there are proposed hypothesis or hypotheses, one should follow a deductive approach. In this case, through research the theory is tested, and those hypotheses are left that are proven valid. If the outcome of the research is not known, then the approach is inductive. In this case researchers develop theories through data collection, without any presumptions. These two research approaches are depicted in Figure 14.

**Figure 14 Process of deductive and inductive research approach**

- **Deductive approach**
  - Theory
  - Hypothesis
  - Observation/Test
  - Confirmation/Rejection

- **Inductive approach**
  - Observation
  - Pattern
  - Tentative hypothesis
  - Theory


This master thesis follows an inductive approach, where the tentative hypotheses, in this case possible training packages, are developed by gaining information from interviews. Even though based on the already existing literature and the previously presented literature review a deductive approach could have been used as well, the author found that developing hypotheses (training packages) before the interviews would reduce the possibility of finding new training materials and issues that have not yet been discovered.
in virtual teamwork. General guiding points and basis for coding is developed though, these are the six main research points highlighted in the literature review:

- leadership,
- communication,
- cultural differences,
- technology,
- trust
- and conflict management

The author found it important to have main themes as the research of virtual team work is highly extensive. Finally, the inductive approach gives the possibility to develop training packages highly tailored to the company (Intel) where the research takes place, reflecting a contemporary view on the need of new employees entering virtual work force.

7.3. Research strategy

There are a number of research strategies that can be used in inductive approach but in this case, based on the research question and the data that is needed for viable conclusion, the choice fell on case study. According to Robson (2002) a case study is a

“… a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence” (p. 178.)

Yin (2003) further highlights that a case study research design is highly effective for understanding the context and the mechanism behind a certain event or phenomenon. With case study research design questions like ‘why?’, ‘what?’ and ‘how?’ can be the best answered. As the research question of the thesis is ‘How should new employees be prepared for the challenges of virtual team work?’ with sub questions ‘What are the challenges in managing culturally and geographically diversified virtual teams?’ and ‘What training methods are the best for preparing new employees to virtual team work and its challenges?’ – case study is one of the best option for answering these questions.
Furthermore, Yin (2003) distinguishes between four different case study strategies depending on the research, which are pictured in Figure 15. These are:

- single case or multiple case
- holistic case or embedded case

Figure 15 Four different case study design

Yin (2003) p. 39

Single case study refers to a single entity used to observe. The entity, in this case a company (Intel) is used because it provides an exemplary picture of the researched phenomena. Using a single case for case study research is not advised though, as it reduces the possibility of viable generalization. What might be a situation at one company could be an entirely different situation in another (Yin, 2003). Furthermore, cases can be holistic or embedded. Holistic refers to having a single unit of analysis while embedded means that within the context multiple units are analysed (Yin, 2003).

In summary, as the units of analysis are individual employees, the single case study (Intel) follows an holistic approach, where sub-units (individuals) are in focus, as visualized in Figure 16.
7.4. Time horizon

The second before last layer of the research onion refers to the time horizon of the research (Saunders et al., 2009). It can be a snapshot of the researched phenomena, implying that the investigation shows a moment in time and place. In this case we are talking about cross-sectional research which shows what happened right there and then when the research took place, with the given actors. Saunders et al. (2009) adds that another possibility would be a longitudinal study, where a given period is represented through a diary like data collection. Usually longitudinal studies require years of data collection including observation, surveys repeated to analyse change or analysing data collected through long time. Although cross-sectional studies are reflecting a very short period, by analysing already collected data one could add longitudinal material into the research (Saunders et al., 2009). The master thesis employs cross-sectional study horizon, both due to time restraints and due to the nature of the research. To understand what are those elements that are required for training new employees for virtual team work, long term research is not necessary. Using interviews conducted through short period of time allows getting an understanding of the needs right now with reflection to the future.

7.5. Method of data collection - Interviews

The most inner layer of the research onion is data collection and data analysis. According to Saunders et al. (2009) data can be collected either in quantitative or
qualitative way. The former refers to any methods that generates results based on numeric data. The later, qualitative data collection methods that predominantly use non-numeric data, such as video clips, texts or pictures (Saunders et al., 2009, p. 151). Furthermore, Saunders et al. (2009) highlights that data can be collected in mono, or in multiple methods. These reflect on the amount of methods used to collect data. The thesis follows a mono method discipline, using only semi structured interviews to collect data. Multiple methods are in general more preferred as it helps gather different type of data and can give a more detailed understanding of the phenomena. In this thesis, due to the constrains of the research both in time horizon and in scope, only interviews are used.

According to Rowley (2012) interviews can be defined as:

*Face-to-face verbal exchanges in which one person, the interviewer, attempts to acquire information from and gain an understanding of another person, the interviewee. The interviewee may be invited to talk about their own attitudes, beliefs, behaviours or experiences, as a citizen, user, consumer or employee. In research in organizational studies, management and business, the interviewee may be selected either as an individual or as a representative of their team, organization, or industry.* (Rowley, 2012, p. 260)

Interviews can be further divided into three groups based on the level of formality and structure. These are structured interviews, semi-structured interviews and unstructured or in-depth interviews (Saunders et al., 2009). Structured interviews use predetermined set of questions, similarly to a questionnaire, while in-depth interviews are on the other end of the spectrum using no question and letting the communication flow between the interviewee and researcher (Saunders et al., 2009). The thesis uses the third option, semi-structured interviews, where the interview is conducted by giving themes and questions that allow better exploration of the given topic.

In Appendix 1 the interview guide is attached to the thesis, which is the actual guide used for the interviews. The first part is used by the interviewer, and the second part which has only the themes is given to the interviewee. The interview guide follows a self-check including tasks to be accomplished before the interview and after the interview as proposed by Rowley (2017). Interviewees have been contacted personally in the Intel Mobile Communication’s office in Linz. The background of the thesis has been described
together with the planned structure and possible date/time options were proposed. At the beginning of the interviews, a verbal agreement has been made which allowed the recording of the interviews together with the use of the collected data in the frames of the given master thesis. The interviews were recorded in a three-week period, giving the possibility to evaluate and reflect in-between interviews in order to have an organic development in questions and research. When something interesting, unusual or unexpected was brought up by one of the interviewees, it was possible to reflect on it in the next interview, thus ensuring a development in the conversation and reaching deeper levels of understanding throughout the research.

As a closing point of the data collection, the recorded interviews have been transcribed word-by-word, thus converting them into a data that is analysed and coded more easily.

7.6. Data analysis

Template approach to text analysis

Qualitative data analysis consists of looking for deeper meaning, patterns and themes within the text (Saunders et al., 2009). As mentioned above, the audio recorded raw qualitative material have been transcribed for better understanding and easier analysis. For data analysis Nvivo – computer aided qualitative data analysis software [CAQDAS] is used and the material is analysed with template analysis approach for creating better understanding of the data. According to King (1998) the essence of the approach is:

“The researcher produces a list of codes (a ‘template’) representing themes identifies in their textual data.” (p.118)

Based on the codes and template the researcher can create clusters of information, creating thus a pattern and deeper understanding of the information. The codes mostly reflect the interpretation of the researcher and are ranked hierarchically. Broad, higher codes can reflect general terms while smaller codes may nest underneath the broad themes (King, 1998). To develop codebooks for analysis Crabtree and Miller (1992) distinguished between two approaches which reflect the pragmatic assumption of the analyser. Based on theoretical consideration or the research question, researchers may develop main themes (codes) forehand and apply them to the text as recommended by Miles and Huberman (1984), or upon looking through the text researches could develop
codes based on the data. (Proposed and described by Willms et al. (1990)) The master thesis uses the former approach, as through the literature review six main have been identified, these are:

- leadership,
- communication,
- cultural differences,
- technology,
- trust,
- conflict management.

The **right training method** is also researched, as the research question is not just with what kind of material to prepare new employees for virtual team work, but also how. Following the identification of codes, Crabtree and Miller (1992) suggest using the codes as data management mechanism, where texts with similar meaning and background are segmented together for further data analysis. Furthermore, Crabtree and Miller (1992) highlights that the purpose of coding is threefold. First it helps to identify segments of text for further analysis, then it identifies key areas and finally it generates initial hypotheses.

Table 17 on the next page presents the codebook developed based on the literature review. It includes the six plus one main themes and all the hierarchically lower sub-elements.

Based on these general themes and the subthemes propositions are made for preparing new employees for virtual team work. Transcription fragments are categorized, and then similar information are cross examined, and possible patterns are developed. Template analysis allows adding extra codes and themes if the text requires, therefore it is important to state that through data analysis divergent patterns and coding system might emerge. As a final part of the data analysis, the patterns and emerging themes are put in discussion with the results found in literature review, arguing similarities and differences, thus creating final propositions as conclusion.
<table>
<thead>
<tr>
<th>Pr. main-codes</th>
<th>Leadership</th>
<th>Communication</th>
<th>Cultural differences</th>
<th>Technology</th>
<th>Trust</th>
<th>Conflict management</th>
<th>Training methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Virtual leadership challenges</td>
<td>Communication challenges in virtual team work</td>
<td>Challenges in cross-cultural team work</td>
<td>Technological challenges in virtual team work</td>
<td>Importance of trust in virtual teamwork</td>
<td>Conflict in virtual teamwork? - importance to add to training</td>
<td>Large group training lecture, computer based training</td>
</tr>
<tr>
<td>Preliminary sub-codes</td>
<td>Virtual team-leader behaviour, capabilities, skills</td>
<td>Importance of communication training</td>
<td>Importance of preparing and being aware of cultural differences</td>
<td>Selection of appropriate CT</td>
<td>Importance of initial face to face meeting</td>
<td>Conflict handling strategies</td>
<td>Reference methods workbook, training manual, online information repository</td>
</tr>
<tr>
<td></td>
<td>Importance of leadership in virtual teamwork</td>
<td>Use of right communication style to convey message</td>
<td>Language barrier</td>
<td>Technical unawareness</td>
<td>online water-coolers/ office atmosphere creation</td>
<td>conflict due to demographical, cultural differences</td>
<td>Example methods demonstration, case example</td>
</tr>
<tr>
<td></td>
<td>Importance of leadership training</td>
<td>Cultural differences - what to include in training?</td>
<td>trust development activities - how to build trust?</td>
<td>Conflict due to distance</td>
<td>Conflict due to technology</td>
<td>Conflict due to technology</td>
<td>Small group training team building, seminars</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hands on training coaching, mentoring</td>
<td></td>
</tr>
</tbody>
</table>
7.7. Credibility of the research

According to Saunders et al. (2009) when researchers want to validate the credibility of their work, they cannot really do it. It is impossible to know whether the research gives the right answers, if the question was stated right, if the right people and circumstances have been explored. Saunders et al. (2009) highlights that the only thing that can be done is to reduce the possibility of getting the wrong answers. This can be done by applying Guba’s (1981) qualitative research trustworthiness criteria, which are:

- Credibility
- Transferability
- Dependability
- Confirmability

Shenton (2004) expanded these four into a framework of provisions for researchers to address Guba’s qualitative research project trustworthiness criteria. Starting with **credibility**, the research should measure what it intended to measure. This can be ensured by following a well-recognised research method, (Shenton, 2004) this is given as a case study with template method analysis is recognised by many and have been used in detailed well established academic research. Furthermore, to ensure credibility researchers should sample individuals randomly for the information gathering, (Shenton, 2004) which is followed, as the interviewees selected for the research have been sampled from different disciplines with only having experience in virtual team work being a resemblance. Furthermore, using multiple different methods and type of information to form a conclusion ensures credibility (Shenton, 2004). The analysis reflects and draws from the literature review as well as the interviews coming up with viable training packages in this way.

Following Guba’s (1981) trustworthiness criteria, **transferability** implies that the findings of the research can be applied into another study situation and would have the same results. This point might not be completely covered, as the research have taken place at Intel Corporation in Linz mostly interviewing software engineers, administrators, and managers who are software engineers. This is a limited scope with highly technological background. The language of technology and expressions are universal across cultures and nations, thus as a limitation this has to be highlighted. The research is most
probably only reflecting the current state at Intel and in a broader sense at a technological, software development company in the IT sector.

The third trustworthiness criterion is **dependability.** According to Lincoln and Guba (1985) there is a close connection between dependability and credibility expressing that if the work credible then there is a high chance that it is dependable. Dependability highlights that if the same research would be done with exactly same participants, methods and context, the results would be the same (Shenton, 2004). The master thesis follows a case study design with semi-structured interviews that can be recreated and as the interviewees have been working at the company longer than one year it can be expected that the answers would stay the same (assuming that one year is enough to experience all “the good, the bad and the ugly” in a company)

Final qualitative research trustworthiness criterion according to Guba (1981) is **confirmability.** According to Shenton (2004) confirmability reflects the researcher’s objectivity throughout the study. Patton (1990) correlates confirmability and objectivity with the use of methods, strategies and analysis tools that do not depend on human perception and skills. On the other hand, Patton (1990) also recognises that human, subjective influence on the research is inevitable. Miles and Huberman (1994) express that the key principle for confirmability is the degree to which the investigator admits to his/her own predispositions. Through a reflective summary the researcher has to express what are the theories that have been turned down to what reason and what subjective through-processing took place through the analysis. This trustworthiness criterion is ensured in the master thesis through objectivity and by featuring those theories that have not been considered.

In conclusion, the methodology of the thesis follows the “Research Onion” described by Saunders et al. (2009). Starting from the outer layers, the research philosophy is interpretivism, the approach is inductive, and the strategy is single case study design with embedded units of analysis. The study shows a snapshot in time, therefore, it is a cross-sectional research, done with semi-structured interviews as data collection method. The data is analysed with template analysis method, using a computer aided qualitative data analysis software, nVivo. Finally, by utilising qualitative research trustworthiness criteria in the research, it is credible, transferable (to some extent), confirmable and dependable.
8. Company and interviewee background, selection procedure

This chapter starts with a general introduction of the researched company followed by a detailed description and of the interviewed employees.

8.1. Company - Intel

8.1.1. History

This thesis could not have been made without the dedicated help of the employees of Intel Corporation in Linz. The author has been working at the company for three years during the time of the interviews as a part time administration assistant, and was allowed by the higher management to include the name of the company together with a short presentation for better understanding of the background and scenario of the interviews.

The name Intel rings familiar in the ears of most of us, as this company is the second-largest and second highest valued one based on revenue in the semi-conductor industry (Vanian, 2017). It is an American computer circuit developer and manufacturer company based in Santa Clara, California (Hall, 2017). Intel is leading a number of business and technological lists, including rank #15 Interbrand – Best Global Brands 2017, it is #14 on Forbes Fortune 500 list and is #44 on 100 most valuable brands list (Intel.com/about, 2017).

Intel was founded in 1968 by Robert Noyce and Gordon Moore who became the pioneers of the semiconductor industry. At the beginning, the company’s main focus was developing SRAM and DRAM memory chips, but later, with the 90’s boom in personal computers, Intel became the number one supplier of microprocessors for computer manufacturing companies. (Hall, 2017) The company prides itself in being an innovator and many of their products changed our everyday life and enabled development in areas of personal computing, robotics and even space exploration. (intel.com/history, 2017) The company has six operating segments, these are: Client Computing Group (CCG), Data Center Group (DCG) Internet of Things Group (IOTG) Non-Volatile Memory Solutions Group (NSG) Intel Security Group (ISecG) and Programmable Solutions Group (PSG). Majority of is revenue comes from CCG, constituting 55% of the total sales in 2016. (Intel Corporation 2016 Annual Report, 2017) Intel produces
microprocessors fit for personal computers, tablets, mobile phones and micro servers, currently nine different range of platforms, as presented in Figure 17 below. (Intel Corporation 2016 Annual Report, 2017)

Figure 17 Range of microprocessors developed and sold by Intel


Today, Intel’s chips with the exception of some high-performance servers and mainframes can be found virtually in every personal computer, allowing technological development of the future. (Hall, 2017)

8.1.2. Organisation - Linz

While the company’s headquarter is located in California, it has operations around the world. As of 2016 Intel employs more than 106.000 people in 63 countries including major sites in China, Costa Rica, Malaysia, Israel, Ireland, Russia, Argentina and Vietnam. (Intel Corporation 2016 Annual Report, 2017) Majority of the European sites are research and development facilities, one of them including the Linz site which was acquired in 2012. A map of the major sites and Intel presence in countries is presented in Figure 18.
Intel Linz started as a research spin off at Johannes Kepler University. Prof. Hagelauer founded in 1993 the Institute of Microelectronics which developed into the Foundation of Research Institute for Integrated Circuits (RIIC). In 1991 DICE - Danube Integrated Circuit Engineering GmbH & Co KG was founded and actual company focusing on wireless design. (dmce.at/about/history, 2017.12.20) In 2011 DMCE- Danube Mobile Communication Engineering GmbH & Co KG branched out from DICE and majority of the company was bought by Intel Mobile Communications Austria GmbH. [In the followings, referred to as IMC] Intel took over completely the wireless chip business of the company with specialized focus on RF transceivers for mobile phones. By being part of Intel’s global RF transceiver division, the research site in Linz works closely with teams from Germany, USA, Israel, India and the UK. (dmce.at/about, 2017.12.20)

IMC works closely with universities and research centres to ensure constant innovation and development. (dmce.at/about/r-d-network, 2017.12.20) While the global division consists of more than 3500 talents, IMC employs roughly 240 employees from which 15% are student interns from local and international universities. (DMCE - Company presentation, 2017) (Johannes Kepler University, Linz; University of Applied Sciences
Hagenberg, Tampere University of Technology, Friedrich-Alexander University Erlangen-Nürnberg, Alpen-Adria University Klagenfurt) Students can work full- or part-time at the company while developing with cooperation their bachelor, master’s or PhD dissertation. (dmce.at/about, 2017)

The reason behind IMC’s heavy investment into students is their intent to acquire new talent and employees through their internship programs. Students that have shown outstanding performance, drive and passion are offered full time position at the company where they are able to start their career in an international environment. (dmce.at/career, 2017) This was the starting point of this research as most of the students have never worked in virtual teams, or in international environment. Managerial students are prepared for international work throughout the curriculum, but mechatronic and engineering students get little to no insight on how cross-country communication and work goes. Therefore, IMC found it important to incorporate into the New Employee Orientation a training or program that further helps students and new employees enter into IMC workforce being more comfortable, and better equipped to virtual team work. Upon developing the framework of this research, the author was allowed to conduct interviews within the company and bring together the studies and actual company needs in the frames of the thesis.

In the following chapter the interviewees and their selection criteria are presented.

**8.2. Sample selection and presentation of interviewees**

According to Rowley (2012) the findings of any research depend on the selection of the interviewees. It is important to present those qualifications of the interviewees that give them the ‘authority’ to give insights and better understanding of the researched topic (Rowley, 2012). Silverman (2010) states that the first step in selecting potential interviewees is to ask – Who is in the right position to give valuable insights to answer the research question? – Furthermore, Rowley (2012) highlights that there are two additional selection criteria: willingness and availability. As the master thesis is aimed at understanding how can companies prepare new employees to virtual teamwork, it was important to sample people, who are or have been working in virtual teams and furthermore, who have been working at Intel for longer period of time. Samples should include both gender and both from engineering and administration background (the two
possibilities at the company as it is a research and development site [R&D], it has no HR, sales, marketing, logistics, etc.) Furthermore, it was important to have employees both in leadership position and in subordinate as well. To have a more generalised background, international people have been selected as well not just Austrians even though there is a heavy majority of them in the company. 13 people have been approached for the interviews and 10 of them agreed to talk about their experiences and challenges in virtual team work. Summary of the interviewees based on selection criteria is presented in Table 18.

Table 18 Summary of the interviewees

<table>
<thead>
<tr>
<th>Cover names</th>
<th>Nationality</th>
<th>Gender</th>
<th>Position</th>
<th>Engineer /Administrator</th>
<th>Leadership</th>
<th>Years of experience in virtual team work at Intel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewee 1</td>
<td>Austrian</td>
<td>Male</td>
<td>Technical Line Manager</td>
<td>Engineer</td>
<td>Leader</td>
<td>4</td>
</tr>
<tr>
<td>Interviewee 2</td>
<td>Indian</td>
<td>Female</td>
<td>IT Consultant</td>
<td>Engineer</td>
<td>Subordinate</td>
<td>3</td>
</tr>
<tr>
<td>Interviewee 3</td>
<td>Polish</td>
<td>Male</td>
<td>Firmware and Software Developer</td>
<td>Engineer</td>
<td>Subordinate</td>
<td>2</td>
</tr>
<tr>
<td>Interviewee 4</td>
<td>Hungarian</td>
<td>Male</td>
<td>Product Development Engineer</td>
<td>Engineer</td>
<td>Subordinate</td>
<td>2</td>
</tr>
<tr>
<td>Interviewee 5</td>
<td>Austrian</td>
<td>Male</td>
<td>Lab Manager</td>
<td>Engineer</td>
<td>Leader</td>
<td>4</td>
</tr>
<tr>
<td>Interviewee 6</td>
<td>Austrian</td>
<td>Female</td>
<td>Team Assistant</td>
<td>Administrator</td>
<td>Subordinate</td>
<td>3</td>
</tr>
<tr>
<td>Interviewee 7</td>
<td>Austrian</td>
<td>Female</td>
<td>Project Assistant</td>
<td>Administrator</td>
<td>Leader</td>
<td>10</td>
</tr>
<tr>
<td>Interviewee 8</td>
<td>Egyptian</td>
<td>Male</td>
<td>RF System Engineer</td>
<td>Engineer</td>
<td>Subordinate</td>
<td>5</td>
</tr>
<tr>
<td>Interviewee 9</td>
<td>Hungarian</td>
<td>Male</td>
<td>Mixed Signal Verification Engineer</td>
<td>Engineer</td>
<td>Subordinate</td>
<td>5</td>
</tr>
<tr>
<td>Interviewee 10</td>
<td>Macedonian</td>
<td>Male</td>
<td>Technical Project Manager</td>
<td>Engineer</td>
<td>Leader</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Developed by the author (2018)
**Nationality**

Even though Intel – Linz is located in Austria and majority of the employees are Austrian it was important to include employees with diverse background to be able to generalise to some degree the findings. As shown in Figure 19, 40% of the respondents were Austrian, 20% Hungarian and the remaining 40% consisted of a Macedonian, Egyptian, Polish and Indian. Unfortunately, it was not possible to interview employees from each continent due to limited resources, but the representation of 3 continents that (Europe, Asia and Africa) helps generalisation and understanding different cultural background.

![Figure 19 Nationalities of the interviewees (Total 10)](image)

Source: Developed by the author (2018)

**Gender**

Even though through the literature review there was no mention about gender specific perception of the challenges of virtual team work, and at Intel females are in minority (6 out of 41 managers are women at Intel according to Dickey (2013)) due to the technological background of the company (as according to Staiger, (2018) there are multiple reasons for having the IT sector male dominated), it was important for the sake of possible generalisation to have equally as many women interviewed as men. As depicted in Figure 20, unfortunately this could have not been achieved because of very little representation of women at Intel Linz. In a rate of 30-70%, men are more represented in the research than women.
Figure 20 Gender distribution of the interviewees

Source: Developed by the author (2018)

Position and leadership

As Intel-Linz is a R&D site majority of the employees are engineers and a small team of administrators supporting them in daily operation. Important divisions supporting daily operation have been outsourced (such as law, accounting, payroll, HR or controlling). Therefore, it was important to have samples from both disciplines as one of them is using more soft skills and the other, engineers are working with technological facts and numbers more. This difference could have had contrasts in the way people work in virtual teams. As shown in Figure 21, among the interviewees were two administrators and eight engineers. Moreover, as leadership was a very important subject throughout the literature review adding team and project leaders who manage people virtually was very important. As depicted in Figure 22, four leaders were interviewed and to put their thoughts into perspective 6 subordinate employees have been in the group who have their team leader in another site.
Finally, as it has been mentioned before, the years of experience in virtual team work at Intel was relevant for the selection criteria. As shown in Figure 23, on average the ten interviewees had 4.5 years of experience in virtual team work at the company. The highest number was 10 years and minimum of years was 2 years. This way people who are fairly new to virtual team work could give recent examples from their start, and those who have been working like this with teams from across the globe can give expertise on challenges and could highlight areas where there is space for development.

Source: Developed by the author (2018)
9. Findings

9.1. Already existing training and challenges in general

In this chapter the collected data is analysed to develop viable training packages for new employees starting to work in virtual team environment. Following the introduction, based on the identified six major challenges plus one (leadership, communication, cultural difference technology, trust, conflict management and training methods as plus one) patterns and possible training materials are developed by cross examining (discussing) the information gained from the interviews and the literature review. Detailed coding and in-depth analysis including quotations is presented in this chapter as well, followed by a final summarizing part

Upon understanding the background of the interviewed employees, it was necessary to know if they already had any-kind of training in virtual team work to know if there is material available to build on. Following this, the interviewees were asked to brainstorm in general about virtual team work, identifying what they find challenging. The brainstorming session as part of the individual interviews gave a really good impression about what the employees find important to talk about without influencing their perception with the guide.

Starting with the virtual teamwork training, employees were asked if they had any-kind of coaching or guidance when they started to work in virtual teams. Nine respondents out of ten said that they did not receive any kind of training to prepare for virtual team work. They expressed that they were simply thrown in it and they had to do it. Interviewee 3 said the followings when asked if he had a training before starting virtual team work:

“Yeah, I mean this is quite common in this company that the assumption is that, okay, you have either done that or you will know how to do that and nobody is asking you whether you need those kinds of trainings. So yeah, the basic answer is no.”

Another interviewee said that it was “learning by doing” no preparation or training. Furthermore, most of them relied on training, knowledge or experience gained from
previous workplaces. Interviewee 1 mentioned that he had culture training at his previous employment and he found it really useful:

“One company did training on different cultures... I did find that good. There are some topics that are really good, like the difference in the behaviour of people in different cultures so like one is more aggressive than the other, so that's good to know.”

Also, Interviewee 3 added that he only uses his experience:

“Okay no, no real training per say, about working in virtual set up... So, it's only about my experience from the past which I have gained. That's more or less it.”

Interviewee 6 was the only one who mentioned any kind of preparation but it was not virtual team work focused:

“Yeah there was a NEO training [New Employee Orientation] at the beginning and I think one part was about cultural differences and also behaviour but it was not something huge, it was a small part.”

In conclusion, none of the interviewed employees had any kind of preparation for virtual team work at Intel. One of them had a small culture and behaviour presentation incorporated in the New Employee Orientation slide, as picture in Figure 24. Most of them are relying on experience from previous work place or simply learn by doing. The fact that it is expected to learn by doing and there is an assumption that employees either know how to work in virtual teams or they will know it eventually highlights that skills and capabilities required for virtual team work became normal and “expected” from employees. This cannot be generalised as the interviews were only done at Intel, but taping into the employee’s background, even in other companies, cultural sensitivity training was the most investment in cross cultural work preparation.
The ten interviewees are working in virtual teams relatively successfully without any training (as expressed by them), which brings the question whether it is something that needs preparation. Do we need to invest in trainings for new employees to prepare them for virtual team work? Seeing that employees even though they struggled at the beginning learned to cooperate, gained skills to communicate better in virtual environment, and with time all their technological shortcomings were managed via “learning by doing”. When employees were asked about their challenges in virtual teamwork and whether they find it important to train new employees, Interviewee 4 expressed:

“I mean it might be good, yeah, I think so. Because there is a cultural difference we come with a different set of expectation and how to behave and the person sitting on the other end of globe they have a different perception. And you know they have different routine, even how you greet, how you start a presentation or how you start a meeting also. So, if both [employees] are in very different location, they have different expectation, so it would be good to have a little guide line, you know, not very big training, but you know just that the person is sitting on the other end, he cannot see your so he might say something that you get offended or not. He might start something in a way that you expect to start it in a different way… it
could speed up the integration of the newbies and maybe we could help them be more comfortable [in virtual teamwork].”

Interviewee 1 added:

“Yes [it is important to train new employees for virtual teamwork], and maybe also teach the line managers to force this, or give them the information to get them to the employees. I think the line managers, especially first level managers a really good intro point for those trainings.”

Every respondent agreed on the importance of training for different reasons. Reasons reflected their own challenges and most of the time the pace of integration. New employees would get faster up to the speed of the team and the company if they are informed and trained. Without training, people have to find out about important information on their own which takes away from actual work. Interviewee 7 reflected that it is not necessarily a training that is needed but rather an information repository, where to find what, and if they require more training they can get more information through the repository:

“yeah for some tools we had training, but in the very beginning, so people came in later to Intel, I don't know if they got a training, but it would definitely be helpful. Or just like the library, just know where to look for information. (...) Or make training online, and people can attend if they want to but not on a specific date just like a video to watch. “

In general, all agreed that a training would be beneficial, and through brainstorming they brought up specific aspects of virtual teamwork that they find personally challenging. The main themes were:

- Communication
- Culture
- Geographical distance
- Technology
- Human aspect
Table 19 shows how many times the different points were mentioned within the main theme. This table gives the basis of the bubble chart which visualise the weight and importance given to the different challenges based on the brainstorming session.

Table 19 Challenges mentioned during the brainstorming session

<table>
<thead>
<tr>
<th>Cultural difference</th>
<th>Communication</th>
<th>Geographical distance</th>
<th>Technology</th>
<th>Human aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>different work and team collaboration</td>
<td>language barrier</td>
<td>Time zone differences</td>
<td>using the right communication technology</td>
<td>human aspect</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Delay in response</td>
<td>Technological unawareness</td>
<td>face to face connection</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Time zone differences</td>
<td>face to face connection</td>
<td>face to face connection</td>
</tr>
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<td>Misunderstanding</td>
<td>Time zone differences</td>
<td>Face expressions missing</td>
<td>face to face connection</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>language barrier</td>
<td>Delay in response</td>
<td>Gestures missing</td>
<td>face to face connection</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Time zone differences</td>
<td>face to face connection</td>
<td>Background noise</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Politeness</td>
<td>Time zone differences</td>
<td>face to face connection</td>
<td>Background noise</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Scheduling</td>
<td>face to face connection</td>
<td>Background noise</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Time zone differences</td>
<td>face to face connection</td>
<td>Background noise</td>
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<tr>
<td>Cultural difference</td>
<td>Communication style</td>
<td>Scheduling</td>
<td>face to face connection</td>
<td>Background noise</td>
</tr>
<tr>
<td>Cultural difference</td>
<td>Interpretation</td>
<td>Work life balance</td>
<td>face to face connection</td>
<td>Background noise</td>
</tr>
</tbody>
</table>

Source: Developed by the author through NVivo (2018)

Communication challenges were the number one issues the interviewees mentioned followed by the human aspects with missing face to face connections. Geographical distance with the issues of time zone differences and cultural differences followed them closely. Culture was mentioned by 7 of the respondents making it a very common issue. Technological problems were mentioned as well but it was not prevalent. Interestingly leadership was not mentioned by any of the employees neither trust and conflicts.
Again, it is important to mention that these challenges were collected by the interviewees without any previous discussion on the topic. It was their genuine reaction to the question “is there anything that you find challenging in virtual teamwork?” This gives a very good basis to the training material and moreover it is good that the answers align with the literature review. This gives credit to the research that has already been done in the field, as similar aspects found challenging as collected previously. However, it is important to emphasise that yet again it gets clear that the research is specific to the company. Time zone differences and cultural differences would not be prevailing in a company that works is present in Europe or North America only. The research reflects the challenges of a truly global enterprise, but as described in the Chapter 2: History and development of virtual teams as result of globalisation, tendency shows that getting more and more global and international involving people in the daily processes from across the globe is typical.

Following the brainstorming section, the interviewees were asked to share their opinions about those challenges that were collected through the literature review. In the followings one-by-one each major theme is presented together with a cross analysis with the literature.
9.2. Leadership challenges

During the brainstorming session it was startling that none of the interviewees listed leadership or leading a virtual team as a challenge. Through further inquiries it became clear that this is due to the organisational system and leadership at Intel. The company does not follow in R&D sites where software developing engineers work together a classical subordinate/team – leader relationship. There are of course decision makers and managers who share the progress of the developments with the higher management but the nature of work is extremely task focused throughout the company. Interviewee 7 reflected on the leadership as follows:

“Everything at Intel is managed virtually or most of the things. My manager is not managing my time, I am doing it myself and I’m not managing other people’s time…You are very free in your time organization and so on. So, you have to be proactive, and self-sufficient.”

Furthermore, not just individuals, but teams are very autonomous. Interviewee 4 revealed the following when asked about leadership in the team:

“No [we do not have a leader in our team]. [It is a] headless chaos. I feel like Intel is extremely bad or maybe just the team I am working in is extremely bad at leading. We are extremely self-organised, we try to reach out to the right person on our own because we can’t wait for the management all the time. So, everything that really makes virtual teamwork happen relies on employees, on the workers of the team… It’s very much peer to peer here, there is no single entity controller so it’s basically you got the Skype address to send people and just ad hoc write each other. We have very rarely organised meetings saying “this is the team this is Fred this is Joe... etc, and these are the expectations” so nothing organised. So, it’s extremely task focused. Extremely.”

Most interestingly, employees do not even need, require or miss strong leadership. Interviewee 3 said that a strong leader would not really make a difference:

“Yes, I would say that here we are working as peers, we are getting tasks and this is coordinated now somehow a bit more by a colleague from US but there is no like
a strong leader here in this team. We are just agreeing or we are just managing ourselves. I wasn't really thinking about this but now when I'm thinking I don't see so much of a gain here of having a strong leader because... I am not sure, I don't think that it will improve the situation at least from my current understanding. (…) Well I am, we have shared leadership practically with our peers... That's... I'm thinking in terms of problems which I see here in this work in this environment and I'm just thinking if having such a strong leader in our team would solve something and I cannot see any improvement in that but well maybe that's only my opinion.”

Interviewee 5 expressed similarly, that people at the company are task focused engineers that do not necessarily need a strong leader character:

“How can I say... you know most of the guys are programmers and they don't need really a team leader you can program at home, all day programming...”

While the literature reflects that leadership is key in virtual teamwork, at Intel employees find it not important. The company is very much task focused where people have a close-knitted network of professionals that though shared leadership manage their own time and tasks. This lead to the following question, are people perceiving the lack of leadership sufficient at Intel exactly because they lack strong leadership models and leaders in their vicinity? Further questions have been asked to find out whether the lack of leadership is due to lack of training. As mentioned previously at Intel there is a tendency to appoint leaders not through their ability of being good leader but through their skills as good technician. The importance of leadership training in general reflects in the words of Interviewee 7:

“I don't know if managers get a training when they become managers. I think that's a huge problem because most people don't know how to manage. I wouldn't know, so, yeah, and I think it would be good if managers would have training from time to time, so like workshops, like how to react in different situations… Especially here, most managers are technicians, almost all of them are technicians. So, there are no people having leadership skills. Trained leadership skills from university.”

Interviewee 6 further added:
“I don't know if they have a training... So far as I heard nothing, and oh my god, that's a catastrophe... I think it's very important that the... It is the most important thing and not to do it online, like an Intel training, to do it really in a room with all the leaders or the ongoing leaders and to train them and to get to know something because how should they know? “

The general consensus on the question whether it is important to have leadership training was yes. Nearly all of the respondents highlighted that there is room for improvement and it could be beneficial. Interviewee 10 who is a leader himself highlighted that he already requested such training but he never got it:

“No, I wish! I actually requested this! So, one of the challenges is that we don't get training from Intel as leaders... And we need actually training at Intel as leaders. I have requested in the last two years, I have requested a few times that we want one, I tailored it for myself, learning things which I preferred because you learn things and you start following the book. Sometimes you need your own way... You need to create your own way of something.”

Only one interviewee did not consider leadership as something that can be trained. Interviewee 9 believes in the leadership theory that highlights that people are born leaders. That there are certain skills that cannot be trained and therefor the whole idea of having a training is obsolete. His words are:

“I think leadership it's a personal skill, honestly, so I don't think it's something you can necessarily.... for sure you can improve, but I think there are just naturally born leaders or not. So, I really would rather instead of too many training I would take care of choosing the right person for the job. That's my point and for sure if you choose somebody there is always room for improvement so, you could improve that person but there are just people who are not born for these things. They are scared of picking up the phones, you know, so that is my point. But training, yeah, I mean we do so many training I think 70-50 percent of it is a waste of money but there are some which are good so you really have to look into who you train and what you are training him for.”
There is a need and agreement of importance amongst the respondents for leadership training, but it is necessary to find out if they think it is beneficial for new employees to get leadership training or is it more important for recently appointed or already existing leaders. **100% of the respondents found it unnecessary to prepare new employees for leadership.** They reasoned that it is already overwhelming to have so many trainings and on top of that not everybody has it in themselves to be leaders. Some highlighted that only those employees should be trained in leadership who are potential leaders. The company should recognise and nurture these people to achieve their potential. Interviewee 10 expressed the followings:

“I would target people, even more people, because in our company we more or less identify the people that have potentials and we have a feeling like, okay, this guy, look at his character, he could lead people... All these guys they are growing technically, so he's good technically so let's keep him there. It does happen often that a lot of technical guys go to leadership. The technical "gurus". But we lose them then technically and they go to leadership, right? Because in leadership, to be honest, you really waste a lot of time on secretary work for example. This is some basics because there are no secretaries for example and you need to schedule yourself and you need to organize yourself and stuff. So therefore, I would more target people personally because if you train all of the people then that could easily happen that for example engineers start judging their leads how they are leading them, right?”

9.2.1. Discussion – Leadership challenges

From the conversations it became clear that employees at the end of the day do recognise the need for leadership and see the potential benefits when they are explained to them. The respondents found leadership training to be necessary only for potential leaders and already existing leaders. It is definitely not something that needed to be included in the preparation of new employees for virtual team work. As the objective of master thesis is to collect those points that could be the basis of a training package for new employees for virtual team work, leadership will not be discussed in further detail. The respondents highlighted some aspects that they would like to get from their leaders, both in skills, behaviour and in processes that could be cross examined
with the findings of the literature, but to establish a leadership training is not in scope. Therefore, as a conclusion for the first challenge, leadership should not be added in the training package created for new employees. The respondents were very clear about this and their concerns regarding the state of leadership at Intel in general is unfortunately disregarded in this research.

9.3. Communication challenges

Communication is definitely a challenge in virtual teamwork. The weight of communication amongst the challenges is significant as it was highlighted during the brainstorming session as well. Furthermore, similar points have been collected during the literature review. Specifically, prevailing issues were: equivocality (misunderstandings and different interpretations), usage of right communication style and time-zones together with delay in response. (Figure 26)

Following the established analysis system, first the interviewees collected challenges, then it was discussed whether new employees should be trained to manage better these challenges.

Going through the interviews 19 different points emerged that have been mentioned by the interviews. They were put in a table (Table 20) for further analysis.

Source: Developed by the author through NVivo (2018)
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Mentions</th>
<th>Interviewee 1</th>
<th>Interviewee 2</th>
<th>Interviewee 3</th>
<th>Interviewee 4</th>
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</tbody>
</table>
Form the interviews the 19 sub-challenges were put in order according to the number of interviewees mentioning them. For example, the ‘lack of face to face connection’ as a prevailing issue was mentioned by 9 of the 10 interviewees while ‘misunderstandings’ were mentioned by 3 of them. This systematic approach to coding made it easier to navigate in the qualitative data and recognise those issues that would possibly need training.

For further simplification the issues were grouped in 4 challenge that had a logical connection based on the literature review. Figure 27 shows the grouping:

Figure 27 Regrouped communication challenges with suggestions from the interviewees

<table>
<thead>
<tr>
<th>Lack of face to face connection</th>
<th>Politeness</th>
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<tbody>
<tr>
<td></td>
<td>Politeness/harsh emails</td>
</tr>
<tr>
<td></td>
<td>No time to be polite</td>
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<td></td>
<td>Communication reflects culture</td>
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<tr>
<th>Misunderstanding</th>
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<td>Importance of rich communication - convey emotions</td>
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<tr>
<th>Communication technology</th>
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<tr>
<td>task-technology fit e-mail vs phone using the right technology to overcome language barrier</td>
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<tr>
<th>Importance of presentation skills</th>
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<tr>
<td>Think and prepare before emails/presentations to have clearer comm.</td>
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<th>Respect</th>
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Source: Developed by the author (2018)

These groups but one, are discussed in subchapters below to elaborate on the viewpoint of the respondents. The issues with communication technology is discussed in details in Chapter 8.5 dedicated to technological challenges of virtual teamwork.
9.3.1. Lack of face to face connection

The literature was very specific about this issue and its importance is reflected in the interviews as well. As Berry (2011) mentioned, virtual team members are using computer mediated asynchronous communication most of the time, and these CMAC tools are unable to transfer non-verbal cues and paralinguistic aspects, such as facial expression, intonation, gestures, distance, pause, body language or any verbal cue that can support the receiver in better understanding. As Interviewee 1 mentioned:

“Yeah specially the face expressions and gestures are missing and this is a problem. Typically, people also tend to write more emails or go to text without calling actually and this is very painful you don’t get... you have a lot of time to interpret things into conversations without getting feedback very true or false... and this is a problem.”

Interviewee 2 shared the concerns and added:

“Yes of course I mean you do not see the body language, the facial expressions and a lot of things are totally different and you are more comfortable face to face I would say, you know? When you writing something, you have to be... you have to think how to write.”

Furthermore, without face to face connection, some e-mails or phone calls could be views harsh, even if the sender did not intend to be rude. This is something that came up a lot during the interviews together with ‘netiquette’ and the different communication styles as Interviewee 4 put it:

“Sometimes people use very, very rude sentences but I don’t think because they are rude, they just simply do not command English that well.”

As well as Interviewee 7:
“Some people write very harsh e-mails, they don't have enough time to write like "Hi how are you" yeah, and friendly things, but they are polite if you meet them in person and they are nice then. But if you just write with them yeah you could get the wrong impression.”

Moreover, here issues were a bit interwoven with other virtual team work challenges. The style of communication and “rudeness” is highly embedded in culture. High context cultures communicate with deep interest in the person, as relationships play major role in their lives. While Western societies tend to come off “rude” because of high pressure and “lack of time to be nice”. Interviewees expressed this as followings:

“Some people are just by culture polite, they say yes-yes-yes and even though it could be that they didn't understand or they misunderstood you... this happened before.” (Interviewee 4)

“I mean at Intel it's good because everyone knows, yeah, everyone is experienced so.... If somebody is rude to you then it's okay maybe that's just came the wrong way. Nobody is taking things too personally, I think, or too seriously. It is all about the issues and the topics and the tasks and not going around it, so politeness and so on...we don't have time for that anyways...

Do you think politeness training is important?

No, no time for that! [laughs] Sorry, no time for that! [laughs] I would write politely if I would have time… Yeah, but it's often like this, people call you and you haven't heard from them a long time and you would want to ask them how they feel how was their last vacation... but... nobody has time for that. Really.” (Interviewee 7)

“Yeah, maybe the manager is rude with me, maybe he doesn't like me...I got that [from my supervisor] actually that he is so rude with me and then [another colleague] told me that he just doesn't have time to be polite… He's just like that.” (Interviewee 10)

On the other hand, the lack of face to face connection is a pure source of misunderstandings. Previously described misunderstandings were emotional, viewing some messages or people rude, but in real life they are the opposite in most cases. Misunderstanding can be loss of information, different interpretation, or as Van der
Smagt (2000) put it could be due to equivocality (messages having multiple meaning due to the different background of the receiver) respondents definitely found it hard to improve their communication and reduce equivocality. Interviewee 8 articulated very clearly this issue:

“Essentially I think one of the most important things is to pay attention that a lot of information gets lost even if you mention everything. So, your time to talk to someone and they don’t see you fully they cannot convey whether you look tired or upset, happy, so, you have to convey that somehow. You have to be more explicit about that. So, you have to convey richer information to convey these things that are lost because of the lack of face to face communication. You have to think a lot more before you say something otherwise you have to say three- four times. So, trying to find a way that conveys not only what you want to say but what you want to say plus your emotions plus your body language -somehow- is important. If you take an example, like we have a technical problem... so, first of all you have to remove a lot of personal emotions. It's mostly about technical issues. And I guess what I meant previously with emotions would probably be more of a gut feeling you have to convey your gut feeling about a technical problem more explicitly more pronounced. So there is a disagreement and we are trying to find solutions there’s a problem and you need to find a solution and so on so, usually people can look at you and say "okay you’re not too happy about something" or you make faces and okay they can see that you are not... But over a telco or over an email, this is lost. This is completely lost and this is an important piece of information. So, you would say, you would have to explicitly say "Okay, I am a bit conflicted about this." or something like that.”

Finally, employees were asked about the importance of meeting face to face, if they found it as important as the literature, and there was mixed feedback on importance. Some hoped that more funds will be allocated to make communication better by getting to know their virtual team members face to face, while some saw no benefit in meeting face to face with virtual team members. Interviewee 3 mentioned this as following:

“I haven’t said this so far but for me initial face to face meeting is… you need to just go there, see the people, shake hands and then, I mean it's not only a name in the skype or in email but it's a real person with whom you can, you know, discuss and
maybe you can ask about, you know, how was the vacation how was their weekend and there is a stronger relation and you can also understand those people.... you can understand people better when you have this relationship because of course here in this company we got people from different nations, different cultures from different backgrounds. And people among each other are also different. If we are meeting face-to-face then we somehow unconsciously recognize that okay this is the normal behaviour of this person this is like a baseline. And without this knowledge we somehow cannot tell or it's more difficult to tell what's the abnormal situation for this person. So therefore, I am really strong in favour of having this initial face-to-face meeting and after that of course we can discuss. Without initial meeting I think it doesn't really make sense because it might be difficult... at least for me, that's my opinion. “

Interviewee 6 shared the view of Interviewee 3:

“When I was in Munich I really… I went with the people also for lunch and then you get to know the person not only from work also from private and that helps you. You know how to speak to the person you see the behaviour and everything and that’s very helpful in business.”

On the other side, contradicting the literature some interviewees said that they see no benefit or need for initial face to face meeting:

“I mean with the people in the US it was really nice to work with. I mean, as managers and stuff I really preferred them over Austrians, like there the guys were really nice and positive but you never met them. So, you know this face to face meeting, you should meet at least once, but this is missing... There are some people who I, okay I wouldn't consider friends but we're really getting on well when it comes to work stuff and even though we never met each other we... they know that I have kids and they wonder how I do all these crazy stuff working at nights, so it was and is with some people that we have other connections than just work. In the beginning you know these small talks, all I try to do is that I prefer to work in a way that I know a little bit about the other person and not just like "oh hey hello this is not working can you fix it?" you know? work is not just about that.
Do you think it's beneficial when you meet face to face?

*When it's about the work not really... So, it doesn't add or deduct from the work... It doesn't change my view of the work so it doesn't change my perspective in any way. It does for other people I think or at least they say it does, but for me, no...”*(Interviewee 9)

Meeting face to face in a workplace where people are highly task focused is not essential according to half of the respondents. The other half, as pictured in Figure 28 says it is crucial and lays the basis of the co-operation and work relationship. Interestingly this finding goes cardinally against the suggestions of the literature. It is probably important to mention that all three female respondents were for meeting face to face which could be accredited to their gender, furthermore the two administrators were for meeting face to face which could speak for their non-technical work background. Therefore, to be fully transparent it is essential to mention only 3 of the engineers viewed meeting face to face essential, one of them is female and one in a leadership position.

Figure 28 Importance of meeting face to face according to the respondents

To summarize the issues with lack of face to face communication, misunderstanding and loss of information together with rude communication were the most mentioned. The respondents agree that this is something that was hard to understand and deal with when they started to work in virtual teams. When it comes to being rude, it was expressed that this is simply because people have no time to write nicely, but
Furthermore, there are cultures that can get offended by this more easily, thus reflecting on high/low context culture differences. Interviewee 6 said:

“We [Austrians] write less, and more to the points that are important. They [Malaysians] write ‘Have a good day’ and ‘How was your day’ and so many other stuff because for them relationships are very important. And for the Austrian people it’s only about the important points and to have everything on time”.

When asked if maybe netiquette, writing style or communication style training would be beneficial, they said it is something that would not be beneficial. More important to have culture training to know how to communicate with employees from very distant sites. Furthermore, instead of netiquette, employees found presentation skills to be more important. To know how to convey and articulate an idea. This will be discussed in the next points within communication. Finally misunderstanding, it is necessary to tell new employees the importance to communicate clearly, avoiding having sentences with multiple meanings and vocalizing feelings and thoughts. Employees agreed that there should be a training about the right communication in virtual teamwork. Regarding initial face to face meeting as a possible solution to these issues respondents were not on an agreement. Through cross analysis with the literature it will be cleared whether it is something to consider to help new employees in virtual teamwork.

9.3.2. Importance of presentation skills

Interviewees mentioned that in general there is a huge issue with the employees’ presentation skills and this can be mostly tracked back to the fact that majority of Intel employees at Linz are engineers. In the universities in general presentation skills are not taught. (Based on personal experience and interviews) Management students are forced to develop and refine their presentations through occasional feed-backs but engineers have little to know possibilities to present or convey an idea. Presentation skills were not mentioned in the literature as a prevailing virtual team work issue and this is definitely something that have been raised by the interviewees with great passion and emphasis. As interviewee 4 put it:
“A way to present a work, a way to communicate an idea, present an idea or... Because it's more important if... so rule number one when you present ideas is that you have to know your audience and some people completely ignore their audience and they just go straight into some petty details that nobody really understands or maybe 1 out of 100. To me it happened many times I just basically left a call because I got no information and that's exactly waste of time of the presenter, waste of time for the audience. That's a waste of the company's resources.”

Other interviewees shared the idea, emphasising the importance to be able to articulate ideas in the right way:

“Presentation skills, knowing your audience, like really... How to get your knowledge across... not like stage people but like clearly communicating an idea... Even on a whiteboard or a PowerPoint or... It doesn't matter just basically say where we are, what is the issue what are the approaches and so on.” (Interviewee 3)

“Some people actually have no idea how to present... That's a point! Presentation skills and meetings, yeah, we need that!” (Interviewee 7)

Putting together a presentation, clearly expressing new ideas or showing the stage of progress while involving other employees where feedback is required are very important points. In virtual teamwork these are exponentially more difficult than in face to face communication. A section dedicated to presentation skills, conducting online meeting, tools and techniques delivering on point messages is definitely something that should be added to a training material for new employees.

9.3.3. Respect

Four interviewees mentioned respect and ‘not to take things seriously’ as important elements in communication. This again reflected views regarding getting harsh e-mails, or through cultural differences people might express sounding less polite than it is expected in one’s culture. Interviewee 10 said:
“We have people that have no clue how to communicate really. So, the first thing that I would put on top, at least for me, it is respect. We need to put respect as the first thing towards people... regardless whether they started now at the company or whether they are Americans, Asians, Europeans, German whatever.... So, respect is the first thing that you come to in the communication”

Even though, one might say that being respectful should be viewed as the norm, unfortunately to this day and age there are people who tend to get disrespectful for one reason or the other. Keeping in mind that virtual teamwork is done by crossing cultures, geographical distance and nations, it is truly the tool for fighting prejudices. Employees in virtual teamwork (and in offline work) need to put aside their misunderstandings and work together for a common goal. As described in the literature review humour is a universal language and should be used in virtual teamwork. Things should not be taken too seriously as described by Interviewee 7:

“If somebody is rude to you then it's okay maybe that's just, came the wrong way. Nobody is taking things too personally, I think, or too seriously.”

Respect does not seem like a pivotal point to add in a communication training for new employees, but we do need to emphasise its importance and tell people early on that working with international people in virtual teams demands respect, attention, and care.

9.3.4. Time-zone differences

In the literature review Horwitz et al (2006) highlighted that time zone difference can cause delays, frustration and forces team members to adjust their time schedules to be available for conference calls outside business hours. This is exactly what was reflected in the interviews and all of those respondents that work with employees located in the United States complained about the hardships. First of all, the US R&D site is located in Chandler, Arizona which means there is an 8-hour time difference between the two teams. Members starting 08:00 in the morning in US have colleagues in Linz who are about to leave as it is 16:00 in Austria. Time-zone difference therefore require precise
scheduling, time management, flexibility and great communication from both sides. Some of the points raised by the interviewees:

What I find the worst is basically Arizona guys and Singapore guys if you call them, then that's 16 hours away. Time-zones, that's in my case I guess, if I would just work with people closer that would be something different... but currently the time-zone difference is the worst.

And how do you deal with the time-zone differences?

For instance, I work at night and I work early in the morning... The Arizonian teams and the Asian teams also adjust, they wake up earlier. So, I mean, okay, I work at night, because I couldn't meet the Arizona guys at 5 or 6 o'clock. 7. That would be okay for them because I think that's their time is something like 7-8 o'clock. So, they have an early start, and I have a late work day. Because of my family, that's the worst time that's when my wife gets home or expects me to get home. The kid is already angry, they get angry with each other so you know, I prefer to leave home at the same time as usual and sit back at 10 or 11 and also the problem is if you want to meet these guys at 5-6-7 everybody wants to meet them at 5-6-7 so they are just having one meeting after the other and they don't find the time. So, if I sit back at 10 o'clock then all these meeting mornings for them are gone. So it's easier to actually meet them. Yeah. With the Singapore people it is actually the other way around. They are in my position so they stay up late and I talk to them 9ish 10ish, but there were times that we had meetings at 8:00 in the morning which is early for me. (Interviewee 9)

“Every week we have this conference also regarding lab infrastructure and always at 6-7 PM at us and they wake up you know and for them its morning and they say 'Good morning'. For me it's no problem but I see that this is a problem for guys who have a family. I can imagine, yeah, it is really hard... scheduling, time management in different time zones is something that... You need really-really good time management skills not just at work but at home too.” (Interviewee 5)

I'm right now, I'm working with the same team with colleagues from US and here we also had the additional obstacle - time shift - so in winter in 7 hours, now 8 hours, so basically when I'm almost finished then they are just starting and it
somewhere... it is also difficult to overlap those times but it's okay we can... we are overlapping maybe one or two hours from time to time, but...

So, both sides are adjusting to the time difference?

Yes, I mean sometimes I try to stay later and I see that my colleagues usually they are available quite soon. I think they really start to work or start to be online when they are still at home, when they wake up, so, I think that they are there also somehow adjusting to... they also somehow try to adjust to this way of working and this situation. That's also very nice from their side because otherwise we have only emails and that's difficult to do everything by email. (Interviewee 3)

Respondents all agreed that time-zones differences are a huge challenge that hinders communication. The only question is whether new employees can be prepared for this. The respondents agreed that it would be very hard to prepare people for the actual experience of working with people in different time-zones. It is personal flexibility and adjustments and not really a skill or knowledge that can be gained through training. Furthermore, scheduling most of the time is independent from the employee, it is simply require finding an open slot which suits all or reschedule hours. On the other hand, time-management and prioritizing is something that viewed important by the respondents to be included in the training. Therefore, within communication challenges the difficulties of working with employees in different time-zones will be added to the training for new employees, in the form of time-management and priority matrix construction.

9.3.5. Discussion – Communication challenges

In the discussion subchapter of communication, the findings are cross examined against the literature review to develop viable training material for the new employees in virtual team work.

All the respondents agreed to train new employees for the challenges of virtual teamwork communication is important. A myriad of ideas and different aspects of communication were discussed, and to reduce its immensity to a number that could be tackled easier, two different coding systems were used. First, 19 different points emerged from the interviews and have been ranked according to how many employees
mentioned them out of the ten totals. Then, the points have been merged into themes to allow easier analysis. Five different themes emerged and these are:

- Lack of face to face connection
- Communication technology
- Importance of presentation skills
- Respect
- Time-zone differences

Even though the respondents highlighted communication issues in relation with technology, these issues are not discussed in this section, rather in chapter 8.5 where general and specific technological issues are reviewed.

Through the literature review, four different challenges emerged, face to face connection and equivocality, lack of office atmosphere, high turnover rate, using the right communication style to convey the message. In general, the points are quite similar, therefore it is interesting to see that the interviews proved the literature right. On the other hand, the minor differences reflect either gaps in literature or that the literature review was not throughout enough. The differences further echo the very specificity of the company the empirical research took place. The interviews were conducted at Intel Linz which is the global semi-conductor producer company’s R&D site. The site employs practically only engineers to develop parts for customers together with talents employed in other Intel sites in other countries. For full transparency it is therefore important to mention again, that the research is not representative, and is require further research and more subjects to reflect the best possible virtual teamwork training for new employees in general. Based on these disclaimers the cross-examination starts with the issues of lack of face to face connection.

Berry (2011) define communication as a tool and mechanism to convey information, meaning and agreement between two or more people. It helps making decision, collaborate and achieve goals. Virtual teamwork is usually done by using computer-mediated asynchronous communication technology which does not allow the proper transmission of social contextual cues. Respondents all agreed that communicating without seeing the person face to face is harder, causing misunderstandings and even
conflict when the message was perceived rude. According to Higgin and Jessop (1965) these issues can be easily overcome if the employees meet face to face at least once. Van der Smagt (2000) and Daft and Lenger (1986) amongst others (Oertig and Buergi, 2006; Berry, 2011; Purvanova, 2013; Cagiltay, 2015) share this solution and emphasise the importance of initial face to face meeting to reduce equivocality and misinterpretations. Furthermore, it is the right way to create an office atmosphere and help problems due to high turnover rate. Employees while meeting face to face have a chance to discuss clear role distribution, rules and regulations.

The interviewees found meeting face to face not necessarily important which again as in the case of leadership, poses the questions whether they find it unnecessary because they did not get a chance to actually meet or because it in fact does not add to the quality of their work. Based on the interviews and literature review, the scale tips towards having a face to face meeting as important. New employees need to be aware of the benefits of meeting face to face, and the importance of relationship building. If they have the chance they should go on a business trip to visit their colleagues in the other sites. Therefore, Training Module 1: Importance of meeting face to face.

Furthermore, employees expressed the importance of having training regarding clear communication. In the literature review using the right communication style to convey message was expressed in the communication section and solutions for language barrier were highlighted in the culture part. Duran and Popescu (2014) offered tools and techniques to overcome difficulties. Humour and different ‘ice braking’ techniques help communication, to ease people and not to take everything too seriously. Moreover, numerous tools help making communication clearer, such as the 7Cs of effective communication (mindtools.com, 2018) or Garfinkle’s (2018) Seven steps to clear and effective communication.

These are and others (without attempting to be comprehensive) are highlighted as very important by the interviewees, and it was overlooked in the literature review.
It might be because probably in a more social company it is trivial, but as at this specific company mostly engineers are working, giving examples and training regarding clear communication is essential. Furthermore, with clear communication respect can be emphasised as highlighted by Garfinkle (2018) Consequently, Module 2 of the training is effective and clear communication.

Employees found communication technology and culture specifically hindering virtual teamwork. These issues will not be addressed as of now, because there are separate chapters focusing on those issues in general. Thereupon, the next issue that was raised by the employees is presentation skills. This point was actually not mentioned by the literature and was not highlighted in the brainstorming session. Interestingly this was mentioned early on by one of the interviewees and was asked from the respondents following the initial person. While this is something that does not jumps in to the mind early on, it is important. Eight of the respondents found presentation skills, conveying ideas and tasks effectively as important skills, that can be trained. New employees starting not just virtual but offline work as well, need to be prepared to take ownership and express their progress or project in a way that captures the attention of the audience and convey the message effectively. As Harper (2004) said:

“*It is never what you do that matters. It is always what you do and how you do it. That, in a nutshell, is the importance of presentation.*” (p. 4)

Together with clear and effective communication, presentation skills can be summarised in a training. Therefore the 3rd Communication Training Module is: Presentation skills.
Finally, time-zone differences were mentioned by the literature and by the employees equally. It hinders virtual-teamwork to a great extent and it is hard to schedule and manage time. In addition, it can greatly disrupt work-life balance. Both the employees and the literature agreed that preparing new employees for the difficulties of time-zone differences is hard. It is a unique experience, and there are just tips and tricks that could be used such as the ones collected by Guay (2017) with time-zone differences come the importance of time management. While this was not specifically mentioned in the literature, as probably this is a universal issue, and not a virtual teamwork specific. The respondent yet found it important to update new employees how to effectively manage their time, that they have to know how to prioritize and get things done by the deadline without supervision. According to the respondents, general time management training would be sufficient, such as techniques collected by Rao (2014) in his paper “Timeless tools to manage your time” or Fourie and Herman’s (2013) “Getting it done on time” propositions. Therefore, the 4th and final training module in communication is: managing time and time-zones.

Communication is probably the greatest challenge in virtual teamwork and it includes many different other hardships such as culture and technology.

To conclude the findings, according to employees of Intel Linz and based on the literature review, in terms of communication challenges four modules should be added to the training packages aimed at new employees starting virtual team-work. These are:

1. Importance of meeting face to face
2. Clear and effective communication
3. Presentation skills
4. Managing time and time-zones
In the following chapter the culture challenges will be presented together with a discussion.

9.4. Culture Challenges

The importance and support towards having a culture sensitivity training was overwhelming during the interviews. Throughout the discussions, culture came up as part of other challenges as well (as it was described in communication) and employees expressed that being in a cross-cultural team is not an easy task. In the communication section it became clear that instead of “netiquette” coaching employees found culture training more important to add to the package. When the interviewees were asked if they think cultural training is important for new employees who join virtual teamwork, they all agreed on the same: it is essential. As getting deeper into the question two different views emerged. On one side the interviewees wanted general or/and country specific cultural sensitivity training where relevant, while the other side was leaning towards putting greater emphasis on the corporate culture of Intel, which homogenises differences. Furthermore, they argued that engineers in general tend to behave similarly due to their educational background and task focused behaviour. Interviewee 10 who was for a culture specific training put it this way:

“To be honest I believe that I don't need such training because I travel a lot. But we have people who don't travel and they are not seeing other cultures and they're always surprised, like, they're always make fun of other colleagues, "he did this he did that." So, yes, definitely, I mean cultures are different. They could be different and could be shocking every day. And at the end it is important to bring this forward. We need to be, you know, as humans more accepting that... this is a typical human way of... I don't want to say no race or racism, nationalism and all of this stuff, but those factors are in every human more or less. So, when you have never seen a person and someone writes to you with a name that is strange to you immediately take it with a different... you know you are looking at it from a different angle by default. So, all of us if we could continue opening up towards all of those, people are actually there to help us all to deliver the product. We are all together in the same boat.”
Interviewee 10 tapped into very important issues about having a certain degree of withhold, distance and prejudice when it comes to working with very different cultures. This thought has been also highlighted by Interviewee 1:

“Yes, so there is no training and nobody really raised attention to that like for example with Indians try to get more emails to find out if their answer is really a yes... And don't be so politically nice in these training because these are really about prejudice and the differences between people which are existing and especially in these training they should really be direct. I think for leaders or line managers it would be really good if you get some detailed information about the cultures.

So even the customs maybe? How you behave in the right...

Yes-yes. I find that in this technical environment guys are pretty similar. That's good thing and they tend to oversee these cultural topics on purpose because they're ‘okay, they are different guys and maybe he didn't mean it like I perceived it’ but this is still damaging communication.”

Even those who though having a culture specific training would be good agreed that at Intel the engineers have a similar background no matter from where they come from. This really raises the question whether a classical culture sensitivity training is necessary, or rather an emphasis of Intel’s culture. Interviewee 7 expressed that a general training would be good and if someone needs more information they could look up an information repository.

“Maybe we could get an overview of the countries and cultures, but I think it would be good if we would have one Intel culture or one code of behaviour. We have code of conduct of course, but maybe for communications we could do the same. I don't know if every culture could adapt. But at least they could try. Okay. So, it's more starting from general and then more specific... Yeah, with examples, because learning about every country is too much I think. Just get an overview or to have a library where to look at ... Something like further information… (Interviewee 7)

Interviewee 4 on the other hand was sceptical about having a culture training, as he believes Intel has a culture to which people try to adapt:
“For Intel it's a bit of a different story because here we are working quite many different cultures inside and I think what we are doing is that we homogenize, adapt. I mean and out of this we have some kind of a common standard which is a bit different between the sites, but more let it similar and maybe it somehow similar to the to the American standard which we have because of course Intel is a US company. The thing is that, if you are coming from a different culture and then you also you would like to adjust to this standard you are observing people how they are behaving and you are adjusting here. So, there is no... it's not exactly as with my previous examples where you are a guy from for some other part of the World and then going to the region which is somehow different from your normal environment. So here we have the standard and you are trying to adjust yourself.”

To conclude the interviewee’s stance on the importance of the culture sensitivity training for new employees starting to work in virtual teamwork, all employees agreed on the importance of having some-sort of preparation, but the ideas were divergent in terms of what to emphasise through the training. Figure 29 offers statistical insights of the different ideas:

Figure 29 Different views on culture training

<table>
<thead>
<tr>
<th>Culture Training</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel culture training - similar to code of conduct, what is the norm at the company is more important than culture training</td>
<td>3</td>
</tr>
<tr>
<td>General training about different cultures with possibility to get further specialized information if needed</td>
<td>3</td>
</tr>
<tr>
<td>Very specific training about those cultures with which the employee is going to work</td>
<td>2</td>
</tr>
<tr>
<td>General training about different cultures is enough</td>
<td>2</td>
</tr>
<tr>
<td>Respondents thinking culture training would be important</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Developed by the author (2018)
More specifically, as presented in Figure 30 three respondents found Intel culture presentation more important as for example Interviewee 10 put it:

“I think here comes also our culture and the company that we don’t use "Good Afternoon" or we don’t say "Herr [his surname]" or “Herr Sajtos” sorry, “Frau Sajtos” [laughs] We don’t say such things. We are more practical.”

Figure 30 Number of respondents for homogenization vs. culture sensitivity training

At this corporate culture the employees shed their personal cultural background and mould into the general norm of the community. This again reflects Intel Linz’s specific employee composition. Engineers with technological background tend to have similarities. Most of them enjoy video-games or online multiplayer games with complex team chat and ingenious tactical manoeuvres. These experiences more or less prepared the employees for virtual teamwork and they are equipped with a knowledge of shared common virtual culture. But on the other hand, seven employees still found it important to have culture sensitivity training. Not everyone is prepared for cross-cultural teamwork and not everyone had the opportunity to meet and get to know people from other cultures. In the discussion section of this chapter, the findings are cross-examined with the literature to develop a culture training module.
9.4.1. Discussion – Culture training

According to Cagiltay et al. (2015) culture and cultural background of an individual can highly influence the effectiveness of virtual team work, as differences in norms, communication context and customs can hinder or if utilized well, support cross-cultural work. Both the literature and the respondents agree that culture training is necessary, and previous research in similar context (Duran and Popescu, 2014) also emphasise that employees find it relevant to be aware of their colleagues’ cultural background. Cagiltay et al. (2015) further underlined that by being aware of each other’s culture people can use it to create synergies and benefit from them. Lisak and Erez (2015) emphasised that the most important point is to develop cultural intelligence and tolerance by providing culture orientation sessions. While some of the employees believed that culture should be homogenized and employees to some extent should assimilate to the corporate culture that is given and practiced at a global company such as Intel, the literature and majority of the respondents still maintained that having culture orientation is important. As described in the literature review it can increase openness towards cultural diversity, could reduce sources of conflicts and also misunderstandings.

The question is, should new employees receive a general culture orientation (eg. Hofstede’s cultural dimensions) or a more specific culture training including habits and customs. To go back to the findings, three employees said a general training with possibility of further reading would be sufficient. Two employees mentioned that only a general training is needed. Other two employees were on the opinion of having specific about those cultures with which the employee is working. Statistically speaking a general training with optional extra information is chosen by the most, and also the literature was mentioning Hofstede’s cultural dimensions as a good start of culture training.

To conclude, in regards of cultural challenges, it is very important to prepare new employees starting in virtual teamwork for the differences of cultures. For this a single module would be adequate: General culture sensitivity training with optional additional information.
9.5. Technological challenges

Technological challenges have been already mentioned by the respondent in the communication challenges section, where they expressed that it is really important to use the right technology for the right message, thus reflecting on task-technology-fit and also, they highlighted that some members need a deeper understanding of the tools that are used for virtual teamwork. Yet again, as in all of the previously mentioned challenges, some employees brought up the composition of the company. The common thread that connects every aspect of work at Intel is their engineering background. Being acquainted with information technology allows easier and faster learning of IT tools and systems. The majority of the respondents still said that a training early on could reduce the time invested in learning and could bring people up to the speed of the other colleagues. Interviewee 10 said the followings when asked whether it is important to train new employees starting virtual teamwork about technology:

“Definitely yes. There are things in SharePoint that I don't know either. So, if you would get a training about the technology early on about the basic tools that would be great. So, you know, usually students have supervisors and they often and easily can access their supervisor to ask “how do we do this” and “how to do that.” Nonetheless… Maybe it would take you know, a load off from the supervisor, like, he can just check it out in the PowerPoint and get acquainted with the tool.”

Interviewee 9 shared the opinion:

“Yes. On that I can clearly tell you also why I think yes. Why I thinks so, although I have never had something like this. Why shouldn't you get familiar with the basics? So, the tools you use, I mean, here, we are also special, because we are engineers so, if you don't teach us we will probably find it out sooner or later so it will be easier for us to picking it up than let's say for somebody from an assistant work field or let's say a lawyer. So, for us it is easier, but I still think it makes sense. So, it's not just about the training. It's also about choosing your tools right. That's generally also an engineer view.”
Interviewee 8 further added:

“Yes. I constantly forget how to connect to the bridges. Like constantly. So, do you think it will be important to have a training about the technology that’s used here at Intel?
Yes. And how to use it properly. I think this would be useful. “

In total eight respondents were for having training in technology and two respondents were against as shown in Figure 31

Figure 31 Importance of technological training according to the respondents

Source: Developed by the author (2018)

Those who did not find technological training relevant argued that Intel is a technological company and most of the employees are engineers. Interviewee 4 expressed:

“I don’t really see that. I don’t see people struggling with PowerPoint or a conference call. I think it is a unique case because Intel is a technological company so... I never really witnessed that somebody really had difficulties presenting technology wise. I would say more the personal part is a more difficult problem because we are just engineers...”
Interviewee 3 felt similarly about the issue:

“I mean we had sometimes... I encounter problems during video conferencing but the thing is that usually it’s not related to the lack of knowledge. I mean there are some technical problems but usually the IT needs to be involved here. So, it’s something more complicated than just pressing the wrong button. And we are mostly engineers so we are quite accustomed with technology so using Skype usually is not a problem...

Would you say there is no need to get training about the technological tools? At Intel at least… At Intel…of course it’s hard to say for all of the departments but here I don't see such reason I would say it is very intuitive to use Skype and we know how to use an email for my team unless there is something some potential features of audio conferencing or video conferencing which we are somehow not using because we don't know then I would say that we are fine and so far I’m quite ok with that aspect.”

It is without question that there is a need for technological training and the respondent found issues that they specifically would raise attention to. Some of them have already been highlighted in the communication section. As majority of the communication happens through computer mediated asynchronous or synchronous technology it can interfere with communication. Figure 32 depicts those issues that have been mentioned the most in relations with technology.

Figure 32 Specific challenges in technology

| Communication technology | • task-technology fit  
|                          | • e-mail vs. phone  
|                          | • using the right technology to overcome language barrier |

Right technology for better communication

Source: Developed by the author (2018)

In the next subchapter through the discussion the literature will be cross examined with the specific findings of the interviews.
9.5.1. Discussion – Technological challenges

Vijayvargiya (2014) collected several communication technological issues that could hinder virtual team work. These include technical unawareness or technophobia, lack of instant feedback, usage of too many CTs, ineffective communication and selection of the right CT. Proving the literature right all of these emerged during the interviews and employees were passionate about having a training early on for new employees.

Employees expressed concerns for task-technology fit together with a phenomenon the author decided to call the “e-mail vs. phone” issue, as many respondents specifically highlighted it. Interviewee 7 mentions:

“Talking is always better maybe but if it comes to things that you want written proof than I always prefer e-mail. Because if somebody comes from a technical university this might not be evident. Yeah, not everyone likes to use the phone, I got it as a feedback, just call people. And I hate it, so... I didn't know in the beginning I should, so yeah it would be nice if somebody told you in the beginning.”

Interviewee 9 further added that asynchronous communication is exhausting:

“And then you know there are some people who are difficult to deal with over the phone but this is down to individuals, so, not like a general thing but you always find somebody who is a bit more difficult than others. So that's it. I mean as I said, sometimes, with some people the email is easier than the phone. But for sure phone call is the quickest and you often write an e-mail and they don't understand your question and you will get an answer which is useless. If we talk now about Arizona, I write my e-mail at 3 o'clock in the afternoon and they respond for me 8 o'clock then you come in in the morning and the answer is not what you expected or can't use it and you write again an email and you wasted easily a day.”

It is important to know which situation require which technology. Goodhue and Thompson (1995) proposed the task-technology fit theory, that helps employees find the
right technology for the task, based on task characteristic, technology characteristics and individual characteristics. Furthermore, employees need to know the difference, benefits and disadvantages of synchronous (phone, video call) and asynchronous (e-mail) communication technology to make the right choice. Daft and Lenger (1986) proposed the media synchronicity theory that differentiate communication technology based on its richness. Finally, as Van der Smagt’s (2000) in the literature emphasised, employees need the right technology for the different type of information transmission. Two-way monologue (e-mail) effective when conveying already existing information awaiting feedback and dialogue (chat, phone call, video conferencing) is important in brainstorming, by not just reflecting on the meaning of the message from the other parties but by being aware of the meaning of our own expressions.

Employees clearly expressed both at this point and when asking about technological challenges that this is definitely something that needs training and new employees would benefit immensely from information about virtual team communication technology. Based on the literature and the respondent’s opinion on the subject a technology module would be definitely included in the training for new employees starting virtual teamwork. Above introducing them to the technology used it is important to give them a training about the right choice and usage for different kind of messages.

9.6. Trust building challenges

Trust building was deemed essential in virtual teamwork according to the literature, and the majority of the interviewees were viewing it as important. But, as the subjects described the lack of leadership at Intel, and how they find it adequate to work autonomously with shared leadership, it was already a clue towards their view on trust. Fortunately, only just a handful of respondents found trust and trust building in virtual teamwork irrelevant. According to these respondents, being task-focused and having
confidence in each other to perform the assigned tasks on time in good quality is all that takes to work effectively and efficiently at Intel. Interviewee 1, a line manager expressed:

“I think this is not related to friendship. I can judge people whether they can do the job or they don’t or if I have to force them to do things but this is done on a different kind of trust I guess. I don't even like some people but I know they will do that and that's fine. So, you really don't see the importance of having a trusting climate in the virtual teamwork?

It really depends on how close you co-operative with these guys. Okay, if I would be a line manager of a virtual team yeah but if I only have a loose relationship to a team that is supporting my team for example, I don't see it is really necessary. (…) Of course, I'm trying to build up some friendship over calls and stuff but… or at least some trust in getting to know the guys and how they will be reacting and stuff, but typically it is not really necessary to build close relationships. So, it's more really just focusing on the tasks "let's do the task, you do this..." and talking about that but not really how is your family...

No? Never?

No, but maybe I am not a good example for it.”

Later on, when this statement was mentioned to another line manager, in another interview, it was interesting to see, how divergent people’s view towards the right leadership is, and what really are the responsibilities of a line manager. Interviewee 10, another manager, expressed:

“I was having an interview with one of the line managers here and he said this is not important. His people can work without knowing each other because everybody's just having one task and they do not need trust.

I totally don’t agree. People work better if they know each other… Definitely. So, this approach actually …. so, such a line manager then would be more of the "I don't care" attitude or the one that doesn't care about getting their team together or such things. Because it is their responsibility if someone doesn't want to take such a responsibility they say, "it's not important" or "I don't see it important" so not to take care of the people they do nothing about it. I try to do, me personally. So, I’ve also got it as a feedback in my focal that one of the positive things is, that I was
always, you know, in my meetings with my guys I was always encouraging them to collaborate. Collaborate with others. Because I was always saying this will come back to you. Today you collaborate with this guy but from his team they will, you know, this is all about that whole flow, the river, right? If we are all collaborating, so, our people will be collaborating with RF and so on and so...I always say, collaborate, respect others, communicate with them, pick up the phone, call them, if you have any issues with any guy or you want to connect with someone, tell me and I will find a way to get connected, if you are not able to.”

Interviewee 10, was very passionate about building meaningful relationships at work, but he didn’t think it would be beneficial to give a training only to new employees. He said:

“New employee comes here and try to be open, try to be polite, try to listen. Listening is very important. Yes, but it will make sense if we going to train our people inside. Because what would happen then, new people will come in, they will take training, which is all positive, all get good and we are going to be like that. But those who do the training are 1 percent of the company otherwise the rest of the 99 percent will have a different attitude. Different way of approaching… and the one percent will adapt to the 99 percent. So, we need this training also for the other 99 percent.”

Interviewee 10 expressed that the whole general mentality of the company needs to be changed from task focus, individualistic to a more collaborative effort. This cannot be done by providing a single training, the shift has to be driven from the managers down to the employees. Trust and trust building is a corporate issue, not an individual one. Throughout the interviews the same kind of withhold was expressed, people do find trust important in virtual teamwork, but it is not something that new employees can learn through a single training, it is more of a time investment. Interviewee 4 said:

“I mean friendship means time investment. And we are very low, very short on time, so we don't have time to chat with all the peers to talk about their family and so on... But would you find that important? Would it enhance your own work? And the team work, if you would actually know your peers? Knowing is important but... Let's say there is a task and I need to load some part of it on a peer, it's easier to convince somebody to do it for you if you have a better
relationship obviously. So, yeah, in this sense, to share a task, it helps a lot. I think trust needs time, I think a simple talk is a good start but it's not enough. It basically means... I mean for us we work... everybody works very autonomously very individually.”

On the other end of the spectrum, some interviewees said trust and teambuilding is very important and should be added to the training. Interviewee 8 said:

“I think everybody should be just task focused, but there's nothing wrong with building friendships at work. But friendship at work does not require an initial face to face meeting. But it is important that these teams from time to time meet up, like let's say once every half a year, or so. Make a workshop somewhere, like work together but meet somewhere for two or three days and, get some work done during that time so it's not inefficient, but at the same time they get to meet each other and probably they all are able to allocate these three days to have, you know, dinner in the evening and go out, whatever and then they can like spend some time together. And I think that's important to be done every once in a while. Definitely. So, do you think these team building activities should be added to a training like how to build trust and how to communicate well to create the trust? Yes. To raise awareness to that you should use humour and friendship to build... I think it's important. Definitely. And I think it should be done.”

Five different viewpoints emerged through the interviews. One negative viewpoint: ‘trust is not important as people are autonomous and task focused’ some neutral viewpoints as ‘trust is important and corporate culture should reflect trust building’ and ‘trust is important but should be a management priority’ or ‘trust is an important aspect but it requires time rather than training’. There were positive responses too: ‘trust is important in VT and should be added to the training’. To summarize the divergent views on this subject Figure 33 below shows the responses received.
Out of the ten respondents eight thought trust is important in virtual team work. Two of the interviewees though trust is not necessary and being task focused is enough for effective virtual teamwork. In the discussion part these findings will be cross-analysed with the literature and suggestions will be made if new employees should be trained in trust building in virtual teamwork.

9.6.1. Discussion – Trust building challenges

Clark et al. (2010) expressed that even though the primary focus of a group work is to finish a task individually and a project as a team, close social proximity ensures proactivity, higher quality outputs, frequent communication and thus better feedbacks and cooperative environment. According to the interviews, employees do see the benefits, but they avert the responsibility of trust building to people or systems other than themselves. Some say this is a management responsibility, the say that the leaders, even though leadership is scarce, should take the responsibility to consciously put effort into the team’s social development. Some highlight trust building and close social proximity is missing because of the corporate culture.
Two employees were hesitant, because they think trust building cannot be trained. It requires time, social situations and open, friendly personalities. Many research highlighted the importance of trust at work (Sarker et al, 2011; Pinjani and Palvia, 2013; Chang et al, 2014; Ford et al, 2017), therefore the negative and stagnant approach towards this challenge came by surprise through the research.

Chae (2016) expressed that, there are two types of trust, cognition-based and affection-based. At Intel people do not see the need of affection-based trust, which comes from emotions, as Interviewee 1 put it:

“I think this is not related to friendship. I can judge people whether they can do the job or they don’t or if I have to force them to do things but this is done on a different kind of trust I guess. I don’t even like some people but I know they will do that and that’s fine.”

They find cognition-based trust more important, and that is present within the teams. They do trust each other, without knowing each other on a personal base, that the person on the other side of the globe will do his or her task as required, because the employees have the same stake and same technological background with task-focused attitude.

According to Chae, (2016) cognition-based trust can be developed quite easily through working together and through performing assigned tasks and responsibilities well. On the other hand, affect-based trust is more important for effective work, creativity, decision making and mediating cultural differences. Developing and working toward effect-based trust require conscious effort. (Chae, 2016) Exactly this conscious effort is being averted from employees to the management and from the management to the corporate culture. People even question its necessity.

According to the literature, trust can be built in virtual teamwork by having initial face-to-face meeting (Rocco, 1998; Corbitt et al., 2004; Wilson et al., 2006). Interviewees in majority did not find it important to build trust. Moon (2017) highlighted the importance of “virtual water cooler” which is a space where unplanned discussions can happen that help form an idea about the other person outside of the corporate environment. Employees found this an interesting but they think the time investment would be greater than the benefits. In general, even those people who find team building important do not find it necessary to be part of the training for new employees. Reasons behind it:
If we train new employees how to build affect-based trust, but not the other already existing employees, the information will get lost. The whole company needs a training.

Employees by themselves cannot request team-building, initial meetings and systems that create a virtual water cooler. Management should address these issues.

Cognition-based trust is developed well and for a task-focused environment this is enough to work effectively.

Therefore, as a conclusion, contrary to the importance highlighted in the literature, new employees should not get a training in virtual team trust developing techniques. Trust challenges and solutions should not be added to a training designed to prepare new employees for the challenges of virtual teamwork.

9.7. Managing conflict

Conflicts happen every day, from small frictions to heated arguments. People work in social settings and divergent ideas or views have to be communicated with respect and with open mind towards each other. According to the literature conflicts can be harder to manage in virtual teamwork, as social ques such as mimics, body language, personal space, tone of the voice cannot be detected in computer mediated asynchronous communication, which is the basis of virtual teamwork. Through the interviews similar views emerged and cohesively they expressed that it is not necessary to train new employees for virtual conflict management techniques. Only three employees found it important, one of them, Interviewee 8 expressed the followings:

“Yeah, I had technical conflict. I dealt with that by simply getting angry and then backing up towards the person but just being really angry about it. But then ultimately, saying what I'm saying again. So, like answering an e-mail with the same thing but rephrased. So, rephrasing a few times the same thing, just trying to find a way that will kind of trigger the understanding from that person.

So again, this boils down to communication?

Of course. Yeah, I mean… It's virtual team, it is about communication. Yeah, I try to rephrase myself a few times to emphasize and not to feel that I'm saying the
same thing too much… Because at some point it clicks somehow and then people okay "So that's what he meant"

Do you think it would be useful to include some conflict resolution techniques? What you said it's actually very classic conflict resolution technique, but to raise awareness for the new employees if something happens this is how you deal with it…

Yep!

If something severe happens you go see a manager.

Of course!

So, these things to be included?

Yeah, especially when things become personal it becomes more important to have these channels…how to deal with that correctly. But also, it's important to give training about how to solve conflict. So, like you said conflict resolution techniques. The only one I know is you said is a classic one is to just rephrase myself a few times until…somehow it clicks. But if there are other methods I would like to know about them and I guess for the personal conflicts the channels are already there it's just about awareness that these are available and where to find them and how to use them and so forth. But more importantly what I did not see so far is for technical problems for things where we have nothing against each other personally, we are just disagreeing over something, so training people about… how to disagree nicely, how to express yourself better of course virtually so that would also help bring your idea across. So that they understand you better and they bring their idea across, you understand them better and then improved communication is the result.”

Interviewee 6 was similarly for the training, she said the followings:
“Do you think there is a higher possibility of conflict because of the virtual relationship? So, if you would be face-to-face with the other team members there would be less misunderstanding?

Yeah, I think so.

Do you think conflict management tools would be helpful? If you would know how to deal with this? How to manage this?

Yeah, because of the cultural differences there is a corporate responsibility to do a training and then to know better “

Those, who were for the training, thought that it can help, reduce conflicts and can teach new employees how to deal with small strife in the virtual team environment. The rest of the respondents found no need for raising awareness for new employees about conflict management techniques. Interviewee 10 explained the followings:

“You have conflicts every day?

Definitely. So usually the leads are the ones who do conflict management. Also, some people do. Also, what you mentioned here, this is I think a cultural problem here. In our company we don’t care about these things.

Yeah, we do have a lot of conflicts in the company and have to deal with them, do you think it would make sense to train people about conflict management techniques early on?

No, because you cannot predict the complexity and the conflicts that will come. You can tell them that conflicts will come up and that they have to accept it. Yes. Because a lot of people don’t accept it. They hate that there are conflicts. Of course, conflicts will come and we always solve them, right? Sometimes the conflicts are actually much bigger than they are... The whole workflow is not aligned, so it’s our responsibility to bring it to alignment. This takes usually time, I don’t know, six months-one-year, that we bring a workflow to work like this instead
of working like that. I’m not sure. Maybe we need to mention it that this would come in, and all of this would create conflict. So, this is more important. Because conflicts will always come. Nonetheless I wonder what a good training for conflict management would be.

There is actually a conflict management training here at Intel. I think it’s just very expensive. And it is a 3-day training workshop in another city. Do you think a new employee need that?

New? I would say no. Experienced ones, yes. But the new ones are… they usually don’t have conflicts. They don’t have problems.

Interviewee 10 highlights that new employees rarely have conflict and conflict management training would be more beneficial for experienced employees who actually have issues managing conflict in every day operation.

Interviewee 9 said similar points:

“So, a new person coming to Intel and never had this [virtual teamwork] and we work with… I would check how he deals with the situation and if there are lots of complaints I would teach him... because I think this is also, some people just naturally can deal with the situation and some people just not. They want change because that’s their personality, my personality is like "smack", although I know it’s not good. So, I could have that training probably but, if someone is so good at it, why? I mean if there are problems tell him to go there [and get the training]. But if there are just people who you know, you probably also know people who are so good, you would just bore the hell out of him, because he does these things already without noticing it. That’s just how it comes out. And although there are people who should be better, they will never notice it until it’s too late. It’s hard to work with people. I mean we are engineers and we work on stuff but you work in a team, so it is a balance of a team and sometimes there are just people who are not fitting in there…. you can do whatever training, he will be not the right person for a task or a team. For sure you can hear a lot about these things like conflicts and leadership... But I think this is why you have to choose the person to the task then teach the person for something what he might not be. That’s my opinion. And I
think it's also... somebody will be happy if they are doing something that they are good at. And this conflict leadership, you know... maybe this virtual team is not for everybody.”

Interviewee 1 reflected on the nature of work at Intel when it comes to conflict management:

“I do have this but more in the co-located environment. In the virtual environment is really more task and process driven issues like not being assigned for a specific topic and still have to do it and being angry about that, but I think everybody acts… adult... and they accept it. I think that's a good word accepting. I think in a virtual environment people tend to accept more problems without taking them too seriously. They are not getting too emotional about this topic like, yeah this is like "ok, I'm used to do this this way but you do it that way and yeah okay let's do it". Agreeing on a more disconnected way.”

When talking about conflicts, everybody was mentioning process conflict being a norm. There are little to no personal conflicts, and when they happen, higher management is involved and issues get solved on a professional level. Some people employ conflict management techniques naturally. People manage misunderstandings on a daily basis and they understand that small frictions should not be taken seriously and if there are bigger issues they know how to deal with them too. In general, therefore, 4 different views emerged:

- New employees should be thought how to manage conflicts in virtual teamwork environment (3 interviewee mentioning)
- Already experienced people should be though conflict management – who really do have issues (1 interviewee mentioning)
- Those people who need it should have the opportunity to get a conflict management training (4 interviewees mentioning)
- Employees in virtual team environment are more accepting and task focused, thus they have less friction than co-located employees. (1 interviewee mentioning)
The responses fell in these 4 categories with majority saying those people should get a training in conflict management who need it. One interviewees did not give a clear answer, he mostly expressed his concerns about conflicts. In the discussion part the findings are going to be cross examined with the literature review to draw a conclusion.

9.7.1. Discussion – Managing conflict

According to Cagiltay et al. (2015) the added challenge in virtual teamwork is the cultural diversity, and geographical distance that can cause conflicts. Paletz et al. (2014) assessed that when people coming from different cultural environment work together, the likelihood of conflict and culture clash is higher due to the possibility of misunderstanding or misinterpretation of intent. Hofstede et al. (1997) characterized these issues as “unintended conflict” which are really hard to solve as people in most cases are not aware of their own or others’ cultural norms. Interviewees were conflicted about this thought. Some expressed that there is a higher chance of conflict in virtual team environment, while some said that it actually desensitizes emotions and personal friction, making it easier to focus on work. Culture nonetheless can be a source of conflict and as described in chapter 8.4 there is an importance of having a training about it for new employees. Culture sensitivity training could help reduce the issue of “unintended conflict” and misunderstanding by bringing awareness to those differences that can cause a conflicting situation and could help solve culture specific issues.

Furthermore, Hofstede et al. (1997) mentioned that there are process and personal conflicts, both requiring different approach to solve. Employees mentioned that the majority of issues are process related; things never really get out of control or personal. This reflects that at Intel employees in most cases handle conflicts maturely. Still process conflict can manifest in different forms, as collected by Ayoko, et al. (2012). These include conflicts due to distance, demography or based on communication technological as sources of conflict. Demography and distance, covering culture, together with communication and technology have been addressed previously in chapter 8.3, 8.4 and 8.5. The improvement of communication and better understanding of each other’s culture and technology used can help avoid misunderstanding and small frictions.
Moreover, Hinds and Bailey (2003) and Lisak and Erez (2015) collected a number of preventing and countervailing mechanisms against conflicts based on demography, distance and technology. When some of these were mentioned to the interviewees they found them interesting but only those who were for the training expressed that these would be important to get more information about. Others said these are nice to know, but it is more important to identify anxiety and conflicts in and between employees and address them accordingly. **The general consensus amongst the interviewees was that there is no need for conflict management training for new employees starting to work in virtual team environment.** Conflicts come and go, most of the time they are process specific and not personal. People working in a professional environment learn to deal with daily friction and are able to express their opinion or different view without causing a negative atmosphere. It is also said that managing conflicts is more of a management challenge. Employees should be encouraged to turn to their managers in case of serious misconduct in everyday conflict situations and managers have to be able to use those conflict handling tools and techniques that have been described in Chapter 5.6.

#### 9.8. Conclusion – training material suggested by the interviewees to prepare new employees for virtual teamwork

With the discussion of conflict management in virtual teamwork, all of the challenges previously identified in the literature review have been analysed. The following, closing chapter of the data analysis part is a review of the interviewees opinion about the ideal training technique that could be used for preparing new employees for the challenges of virtual team work.

Through the literature six challenge have been identified that new employees could get a training about. From these six interviewees were supporting three and found the other three unimportant to get training about.

The initial brainstorming session identified that the interviewees think communication, culture, geographical distance, technology and a so called human aspect are the biggest challenges in virtual team work. These challenges reflect an honest genuine reflection of what employees find challenging and the fact that it aligns with the literature review was giving a validation on the research done until the interviews. Breaking down the six challenges and the feedback received:
1. Leadership
At the researched company, Intel, employees work highly autonomously and they are task focused. Interviewees reflected that they do not see the benefit of having a strong leader in virtual team work, but this can be a reflection of the industry and the technological nature of the work. (Further research on the topic is suggested) Furthermore the question arise, whether they do not see the need for a leader because indeed they do not have one and they did not experience the benefits of a strong manager. Management training is described to be necessary only for those who are aspiring to be leaders and not for everyone in the first days starting in a company. While the general consensus was that leadership training is beneficial, 100% of the respondents said it is not for new employees, therefore this training module is not going to be included in the teaching.

2. Communication
Communication is a very complex phenomenon and includes a lot of aspects. For easier analysis, communication challenges have been broken down to subcategories based on the interviews. Subcategories include; lack of face to face connection, communication technology, presentation skills, respect and time-zone differences. Interviewees agreed that it is important to have communication training for new employees starting in virtual teamwork, and thus four modules emerged:

<table>
<thead>
<tr>
<th>Virtual Teamwork training</th>
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<tbody>
<tr>
<td>Communication – Module 1</td>
<td>Communication – Module 3</td>
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<tr>
<td>Importance of meeting face to face</td>
<td>Presentation skills</td>
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<td>Virtual Teamwork training</td>
<td>Virtual Teamwork training</td>
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<tr>
<td>Communication – Module 4</td>
<td>Communication – Module 2</td>
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<tr>
<td>Managing time and time-zones</td>
<td>Clear and effective communication</td>
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3. Culture challenges
The importance and support towards having a culture sensitivity training was overwhelming during the interviews. Four divergent views emerged; a general
training about different cultures is needed, very specific training about those cultures with which the employee is going to work is needed, general training about different cultures with a possibility to get further information is needed and some mentioned that a general Intel corporate culture should be thought that unifies cultural differences. From these points the strongest argument was for having a general culture sensitivity training with optional additional information (online repository for example)

4. Technological challenges
Eight out of ten interviewees found technological training very important. New employees should definitely get acquainted with the technology they use, even though at a company like Intel it is expected from the employees to be technologically savvy and have a basic understanding of the tool even if not explained. Specific points have been raised by the interviewees, such as task-technology fit and using the right technology to overcome language barrier. Technology is the final module of the training.

5. Trust building and conflict management
Both trust building and conflict management was dismissed by the interviewees as not important to include in the training. The former, trust building reflects the corporate culture of task focused and technology oriented employee community. Majority of the respondents viewed trust building in virtual groups as a management challenge, rather than individual priority. In the case of conflict
management, employees said that most of the time process conflict is present which is solved in a mature way. Conflict stemming from culture can be bridged by having culture sensitivity training and in deep personal issues the management should be involved. Therefore, neither trust nor conflict management is going to be added to the training.

As a conclusion, based on the interviews three challenges should be addressed when preparing new employees for virtual team work and these are: communication, culture and technology.
9.9. Corporate training methods

At the beginning of Chapter 8 it was already mentioned that nine out of the ten respondents said that they did not receive any kind of training neither at Intel nor at their previous work places regarding virtual teamwork. Corporations rely on the "learning by doing" method, where employees are simply put in a challenging situation and they are expected to develop skills, capabilities and understanding through experiencing. Interviewees were asked about the methods of the trainings they get in general at the company if there is one or more that they think would be the best to use to train new employees for the challenges of virtual teamwork. Through the interview guide interviewees were acquainted with the methods that were collected in the literature and were asked to give an opinion about them as well. This way the findings are not reduced to those trainings only that they already had during their professional career, but a wider range is considered.

The training methods that were mentioned as good possibility by the interviewees included:

- Interactive computer-based training
- Mentoring
- Buddy program
- Seminar
- Classroom instructor led training – offline and/or online
- Explaining the internal culture instead of training
- Having an online depository

In Table 21 the responses of the interviewees are summarized, showing clearly that the majority with seven suggestions would favour instructor led offline classroom training. Computer based training was favoured by two employees and the rest, mentoring, buddy program, seminar and classroom led online training was suggested by one interviewee each. Two answers were not actual training methods but training related ideas. Three employees highlighted that instead of training a general online depository of information would be useful. One employee emphasized the importance of explaining the corporate culture of Intel. In the followings the suggested corporate training are discussed and based on the literature review and employee propositions one (or more)
recommendations are made for the best training method for virtual teamwork preparation.

Table 21 Possible training methods suggested by interviewees

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<td>Classroom instructor led - online</td>
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<td>Having an online depository</td>
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Source: Developed by the author (2018)

9.9.1. Interactive computer-based training

Starting with interactive computer-based training, it had an overwhelming negative position. Employees expressed that most of the trainings they get at Intel are computer-based training, where a module is described either in a click through presentation style or in video. At the end of the presentation their knowledge is tested through a questionnaire. If they pass a certain percentage they will pass the course or module and they can move on. The subjects used negative terms describing this kind of training, such as “boring”, “waste of time”, “not interesting” or “nothing was learned”. This kind of training method is favoured by organisations as it can be developed relatively cheap and can educate practically everybody. (Burstein, 2013) Interviewee 6 was passionately against computer-based trainings. She said:

“I think local training is the best one. And I don’t know why Intel is not doing that. Maybe they are doing it in the USA… and they don’t tell us… or I don’t know, but I think that’s the best because then you can also ask questions and… It’s totally different than on the computer you have another atmosphere… You are more engaged…

Do you learn more like this? You feel like you taking more with yourself?”
Definitely. You can write something down. Okay, you can do this also in a virtual training but you are not so focused maybe, there are other things around you and here in front (reception) it’s very hard. Especially hard, yeah. It’s very hard for me to concentrate only on the training. And I don’t know why everything is an online training. I don’t see benefits in that. And everybody can click-click-click and then you’re at the end and the training is done and what did you learn? Nothing.”

Interviewee 6 expressed low engagement, and little to no learning outcome. This view was shared by many, for example Interviewee 9 who expressed the followings:

“I am not into like, "wordy" sort of training where you have to go in...

Virtual training?

Yes, if you're really interested in the topic, you will listen. But if you tell me I have to do a cultural training on my first day... that's a lot. I wouldn't like to have all this online, you just sit in front of it all day and it will be just the same as this ethics training. So, I would feel it as a pain in the [back]. I don't want to do like tests that would be also like… no we are not at the university.”

On the other hand, two employees found web-based trainings convenient and useful. Interviewee 1 said:

“So, for the first introduction I think this web based training will be ok with some example videos or similar things, some bullet points, I'm not too sure if classroom training would be so much better because typically you are in a room with a lot of similar guys like in Linz, you would do a Linz training for cultural things without having the other cultures so the foreign cultures available so there is no really benefit in doing a classroom training I guess...”

Even though it would be convenient, cheap and relatively easy to create a web-based training that new employees could click through, the interviewed employees in majority were against this method.
9.9.2. Mentoring and buddy program

Mentoring and buddy program were mentioned by one employee each. And they are presented together because of their similarities. Interviewee 8 had a great experience in mentoring and he wished that this kind of system would be implemented at the company on a general basis. He said:

“I think mentoring was the best and it wasn't face to face it was virtual. Ultimately, we met up. And then I could... it became more interactive because we were much more efficient with our time. But I think this was the best training experience, which I had at Intel.

And who mentored you? It was your line manager? Or a peer?

No, it was an Intel fellow in Munich. He had an idea for a project and I had finished what I was working on here. And so, my manager put me in contact with him. We went for one year explaining the problem coming up with prototyping solutions, this is now the project I work on full time. That's really cool. Yeah, it was the best experience I had here, and he's one of the nicest people.

So maybe you suggest a sort of buddy program? Where a new employee can ask questions like "hey listen this is the e-mail I got" because you can't really run to your manager with these kind of stuff as they are extremely busy especially... They are busy and sometimes there is sensitive stuff that maybe it's not a good idea to discuss with your manager and most of the mentoring that I had was technical but also there was a lot of carrier related and personal things...

So, you could really trust this person.

Yes, I could trust Vernon very well. And I think doing the same for this kind of virtual training, having a mentor that you can talk to... like you said "hey I received an email, and it looks like an attack or it feel really conflicting" or something like
that and “What do I do about that?” and this person can share their experience. I think this is the best.”

Although mentoring is a very effective to reach high learning outcomes but it requires a lot of interpersonal skills from the mentor’s side, as explained by Wilson (2000). On the other hand, Intel has limited sources for assigning a possible mentor for each and every new employee. A buddy program was suggested instead of mentoring as it could be organised more easily and 1 buddy could have several protégés. Interviewee 8 was for mentoring more, but Interviewee 2 suggested a buddy program would be advantageous for new employees staring virtual teamwork. She expressed:

“I think a buddy should be there... if he has any problem he can go to... you know a colleague, next to him with whom he can talk, this should be there. And the training then we have but other than that... yeah somebody approachable like he can go and ask... should be able to ask even silly questions... as a newcomer a new person we shouldn’t judge.”

According to the literature a buddy program could be implemented easily and relatively cheap but still this idea was not met with positive feedback as resources are limited.

9.9.3. Seminar and instructor led online training

One employee expressed that seminar would be the best option to train new employees for the challenges of virtual teamwork and also one employee mentioned instructor led online training (conference call with a lecturer). According to Interviewee 5 who was for seminars, it was more personal. Employees have the chance to get to know each other, sit in a circle and openly talk about issues and through their own experiences create a common learning. He said:

“For me the best training at Intel was the conflict management training because it was... so not because it was at another site, you know, the other trainings were virtual and this conflict management one was face to face and it was different... The guys were seeing guys who they have never seen before and it’s of course… It’s different. It was the longest one, it was for two or three days. And it was
comfortable and everything, it was really we were sitting in circles and talking about... There was PowerPoint also with games and it was really cool.”

According to Lynton and Pareek (1967) seminars are grate learning technique to generate new ideas as the participating members broaden their understanding through exchanging experiences and wisdom. This kind of training might be very much beneficial for new employees starting to work in virtual team environment, as senior employees could share their experiences giving a first-hand idea of what is going to happen and to what they need to pay extra attention. Even though benefits are high, such as all members of the group are involved, and better member social connections are built above being able to convey tacit and skill-based knowledge, seminars are cost-intensive, require a skilled trainer and again, senior manager availability is limited. Seminars, due to low mentions are not considered therefore as possible training method.

Interviewee 3 mentioned that live web-based training could be the right method for preparing new employees for virtual teamwork. He expressed the followings:

“Frankly speaking it's good to have a training in which you can ask a question afterwards and this would involve some real person who can answer that. So maybe a bit more traditional tutor, I am not saying a, you know... Class based, but webinars, in which you have one person who is presenting and who is able to actually answer your questions almost instantly when you have them. Because after that, after the training when I'm usually a bit lazy to, you know, write down all of the questions which I had and then send an email to a person which is ... and even if I do then it takes some time and then I forget it. Because usually it's not so important there are more important stuff, but when you have a person who is really presenting and he or she is a live person and can answer your questions almost at the time when you are asking them, then it's a help I think. So, this I would say as an advantage in comparison to the tutorials that we need to do here.”

He further emphasised that this way new employees would already get an impression of virtual presentation and conference calls. While webinars were viewed negatively, instructor led online presentation was favoured. This is an on-going trend among the interviewees; they are willing to recommend any kind of training as long as there is an
actual person presenting/teaching. Through the discussions it became evident, employees long for human contact which is slowly diminishes in virtual teamwork. Although interactive computer-based training with live lecturer has many advantages such as time and cost effectiveness, easy content and schedule planning and the fact that it is already giving a first-hand experience in virtual teamwork, only one employee ranked it before offline classroom-based training.

9.9.4. Reference method (online repository) and corporate culture

After classroom-based offline training, online repository got the most praise. Employees did like the idea of having a common entry point which they can consult in case they have any questions. Entries could include those training objectives that have been collected in the beginning of Chapter 8, such as culture, communication, leadership, conflict management, technology or trust building. Employee 7 said the followings regarding online repository:

“It's not always easy to get the information you want to. It isn't always possible to find out who's responsible for what. That's very hard...There's no training for newcomers but I mean that's the topic, so yeah. About general information, about the company, about the people... Maybe, about the culture if it's a foreigner. A collection of where to get information...”

Similarly, employee 9 expressed a need for an online repository, to have all the information in one place instead of bookmarking pieces of information that gets lost later on. He said:

“I am for one common entry point. Like, I saw at other companies were like, one document management system which... but here we have SharePoint, project drives, Wikis, Inside Blue, it's just too much.... You can search it... But it is still extremely overwhelming. Honestly. Because it is just about the link, if you give me a link I put it in a bookmark and then hopefully I remember two months later that this was something that I had to search here. But, since there are so many you might just get lost. So, instead of a training I would spend more time on getting one framework or a more unified platform.”
As Wilson (2000) highlighted in the literature that reference methods, such as training manuals, workbook or online information repository are highly effective helping employees develop self-learning and research skills. Furthermore, common information repository can help finding additional data in case of specific issues that were not mentioned during the training. Finally, knowledge can be looked up after the training, which is extremely helpful if people are not tend to take notes. As 3 employees were strongly for online information repository as well as reference methods can complement other methods well, this training method is suggested for preparing new employees for the challenges of virtual teamwork.

Interviewee 10 mentioned corporate culture which should be described to the new employees so they know how the company operates and what it expects from its employees. He said:

“Maybe the company needs to do something, like, to show what’s the spirit of the company. Spirit from a leadership perspective, from engineering and so on. What do we stand for, how do we want to stand for it, where do we want to go forward... A lot of people adapt that even the leaders, they adapt. And it’s only the spirit that they can tailor inside, right? The spirit of the people.. So it’s like the internal culture of the company..”

Although internal culture was not part of the literature review, and in a strict perspective it wasn’t part of the research either, it is a constructive and valuable feedback. As Interviewee 10 said, the company culture, the spirit of the corporation is something each and every new employee adapts to. Sometimes a new employee only needs to understand the corporate mission, vision and behavioural norms to grasp the “way of work” of the company. The fact an employee mentioned that this would be important to add to the training reflects that Intel should put greater effort into corporate culture and communication.

Although it is an important point, due to lack of further research of the importance of corporate culture for new employees, it is not going to be added as a reference method to the trainings.
9.9.5. Instructor-led offline classroom-based training

The final training that employees mentioned and liked the most is instructor-led offline classroom-based training. It has already become apparent that employees enjoy those trainings where another person, a trainer or instructor is present and explains the material. According to the interviewees or a new employee to come to a new environment and corporate culture, having a go to person who can answer their questions and help them orientate in not just the challenges of the virtual team environment but also in general ad-hoc issues is highly beneficial. The opportunity to have a person from whom employees can ask questions really pushed interviewees suggesting class-room based trainings. Interviewee 3 said:

“But, frankly speaking it's good to have a training in which you can ask a question afterwards and this would involve some real person who can answer that. So maybe a bit more traditional tutor, you know, class-room based.”

Interviewee 6 assessed the followings about instructor-led classroom-based trainings:

“I think local training is the best one. And I don't know why Intel is not doing that. Maybe they are doing it in the USA… and they don't tell us... or I don't know, but I think that's the best because then you can also ask questions and it’s totally different than on the computer. You have another atmosphere. You are more engaged...

Do you learn more like this? You feel like you taking more with yourself?

Definitely. You can write something down. Okay, you can do this also in a virtual training but you are not so focused maybe, there are other things around you and here in front [reception] it’s very hard. Especially hard, yeah. It's very hard for me to concentrate only on the training. And I don't know why everything is an online training. I don't see benefits in that. And everybody can click-click-click and then you're at the end and the training is done and what did you learn? Nothing.”

Interviewee 6 expressed that she likes the atmosphere of a local training, that the time is specifically dedicated for learning and she does not need to multitask between her
responsibilities at the front desk and paying attention to an online training where she does not learn that much. This reflects that employees should be targeted with training specifically to their needs, as they are already overwhelmed with online click through trainings. And those trainings that are actually important should be done in a more specific way, such as in a class-room based environment. Furthermore, the person who holds the training a very important role and needs to be enthusiastic, dedicated, open and very social as described by Interviewee 10:

“This interactive [instructor-led, class room based] one, reminds me of team building, reminds me of school, although I think school is not the best method... Because children don't experience anything they just go in, get out either stick anything to them or not. So if there is someone who tells people stories, people will take it easy. Then yes. This person has to be open and a good presenter. But if they start with some kind of Excel files, PowerPoint presentation, this could be boring. If that person knows how to bring the ideas forward and people find it exciting, there are such ways, yes."

Interviewee 5 also stressed the importance of having a skilled instructor:

“I'm more for this... let's do this old school, "by doing", having an instructor, but the instructors should be good”

It is rather hard to find the right person to be an instructor, but with a dedicated HR position (which is considered at Intel) with responsibilities including managing the trainings that new and existing employees receive, this training method definitely is a possibility. Some employees expressed concerns about the amount of new employees participating and the rate of hiring. They said there are months passing when only one employee is hired and he/she should get the training early on as well. This requires adaptation on the instructor behalf; the same message should be possible to be conveyed to a single employee and as well to a small group.

As a conclusion, based on the feedback received from the interviewees, classroom-based instructor-led training is considered the most likely best training method for new employees to convey knowledge about the challenges of virtual team work.
9.9.6. Corporate training - conclusion

Through the interviews several training methods have been considered as well as the research was open for any new suggestions. The general clusters of trainings; large group training, small group training, reference methods, example methods and hands on training were discussed and the doughnut chart below in Figure 34 shows which ones were favored by the interviewees.

Figure 34 Recommended training methods based on interviewee feedback

[Diagram showing recommended training methods]

Reference methods and small group trainings got the highest support as described previously, with low support for hands on training and large group training. Example methods were not considered effective in this case by any of the respondents. From the discussions the followings can be concluded:

- Employees enjoy those trainings which are held by an instructor (either off- or online)
- Employees find it important to have a common entry point, to follow up on the information they heard during the training.
- Respondents support group trainings over self-development
- Employees in general should be targeted better with trainings (more specialization instead of general trainings)
• The respondents valued those trainings where examples, personal stories are shared and the instructor involves the trainees as well for instance by idea sharing.

According to Aguinis and Kraiger (2009), the most important thing is when developing training is to adapt to the needs of the trainees in context and design to enhance engagement. Based on the interviews, instructor-led classroom training with supporting material in the form of online repository is suggested to train new employees for virtual team work. Specific effort and focus put on flexibility and skill development on the side of the instructor. With the growth of global companies, employees are expected to get on the speed of the corporation very fast. For this, ineffective and disliked trainings are offered, such as interactive computer-based training (webinars) which create little to no engagement and employees forget what they have learned fairly quickly. While cost effective and can be distributed to the whole company quickly, neither tacit nor explicit knowledge can be conveyed successfully. The former is practically impossible to transfer through webinars. Having an instructor in a social setting where employees can ask questions, and quickly get to know a person to whom they can turn to helps a lot in those first couple of days. The interviewees agreed that a go to person is definitely a huge plus in preparation for work. Moreover, instructor led classroom training helps conveying information more effectively by having a guide gives detailed explanations and gives a more humane, personal learning experience. While in social setting, learners can exchange ideas and get more engaged. As a drawback, the preparedness, and interpersonal skills of the instructor is a critical success factor. For supporting the training an online repository is suggested which could serve as a common entry port for (new) information and can offer further leaning. This repository has to be updated constantly and it is time and cost intensive to create one. These points are visually summarized in Figure 35 below.
Figure 35 Advantages and disadvantages of instructor-led classroom-based training with supporting online repository

Source: Developed by the author (2018)
10. Conclusion

With the development of technology and the changes of the way we work today, employees on the job market are required to have skills and capabilities that allow them to keep up with the pace of rapidly changing world. Globalization with its effects overarches economies, cultures, geopolitics, business and trade, just to mention a few, and with the development of truly global companies, virtual teamwork became first a reality, and now, today a norm. With the new global business environment new managerial challenges have raised, including training, asking the question;

‘How do the organizational members prepare and learn continuously, how is knowledge diffused in the organization?’

The geographical separation, technology as basis of communication and lack of face to face meeting is mentioned both by the literature and by the interviewees as some of the greatest challenges. Furthermore, through the review of the work of scholars, the myriad of different aspects of challenges in virtual teaming have been reduced to six, as a limitation of the research. These six issues are:

1. Leadership,
2. Communication,
3. Cultural differences,
4. Technology,
5. Trust,
6. Conflict management.

Each challenge has been elaborated in details to identify key issues together with solutions. The possible training methods have been collected based on the schemes proposed and analysed by Wilson (2000). These include:

- Large group training,
- Reference methods,
- Example methods,
- Small group training,
And hands-on training.

The identified challenges and training methods have been cross examined with the findings of a qualitative cross-sectional case study following an inductive approach. The case study has been conducted at a single case (Intel) with holistic unit of analyses (employees). Ten employees of Intel Corporation, Linz were willing, able and in the right position to give valuable insight to answer the research questions. The sample interviewees were chosen with a blend of position, gender, nationality and years of experience in virtual teamwork to get diversified reflection on their experiences. In conclusion three challenges have been highlighted as important training material, these are:

1. Communication training

As communication was a complex phenomenon it was suggested to be broken down to 4 modules: Importance of meeting face to face, presentation skills, managing time and time-zones, clear and effective communication.

2. Culture training

Cultural background of an individual can highly influence the effectiveness of virtual team work, as differences in norms, communication context and customs can hinder or, if utilized well, support cross-cultural work. Both the literature and the respondents agree that culture training is necessary in the form of general culture sensitivity training with having access to additional data in an online repository.

3. Technology

Based on the literature and the responses received from the interviewees, getting training about the technology used in virtual team work is huge help for new employees starting to work in virtual team environment. Specifically task-technology fit and media synchronicity theory was at focus, making sure employees know which technology to use for which type of communication and task. Furthermore, a description of the general tools and programs used can be of great help for new employees.
Other challenges such as **leadership**, **trust building** and **conflict management** were dismissed by the interviewees, expressing that they do not see the benefit or the need for a new employee to get overwhelmed with these kinds of trainings early on.

For the training method, interviewees found instructor-led classroom-based training with supporting online repository the best method for preparing new employees for the challenges of virtual team work. They argued that a social connection, an instructor who personally introduces new employees to the challenges in a semi-formal environment is a great help early on. New employees can ask questions, can go to the person during the induction with any questions and better engagement can be achieved.

The conclusion is affected by couple of limitations. First of all, the results are reflecting a specific industry with specific employee blend. Engineers in the information technology tend to have similar interest and as the interviews also reflected a more closed personality. There was a clear difference between engineers and administrators throughout the discussions. While admins wanted to build relationships, enhance skills and capabilities training and better leadership, engineers were content with shared leadership and little to no connections. The interviewed employees due to their profession are highly task focused and do not find important those soft skills in operation that can enhance effectiveness and productivity on the long term.

Another limitation of this thesis is the time period. As it is a cross sectional study, with only ten employees it does not reflect a general conclusion. Some of the interviewed employees have been working in virtual teams for several years and have faded memories of their challenges in the beginning. Those that have started to work in virtual teams recently are not fully aware of the issues as they did not surface yet.

Through the analysis there was one very important topic that was not considered in this master thesis but would be interesting to look deeper in future research. Interviewees mentioned the effect of the corporate culture many times, how new employees should get introduced to it instead of getting trainings. The internal culture moulds employees from across the globe and gives a guideline of standards in behaviour. Finally another very interesting remark is the question of leadership. While the literature emphasised heavily its importance in virtual teamwork, the interviewees found it unnecessary. Their shared leadership concept works effectively according to their opinion, but it raised the
question whether they are content with the lack of leadership because they really do not need it or because they do not know the positive effect of a strong leadership.

Virtual teamwork is a continuously growing and developing new way of work, which as of today does not offer the efficiency and productivity of face to face teams. It is essential to continue researching the subject as the current macro and micro trends affecting our workplaces push employees to work virtually more. This thesis reflects the needs of employees and serves as a guideline to prepare new workforce for the challenges of working in virtual teams.
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Appendix

Appendix A– Interview guide

**Interview preparations**

**Before the interview:**
- Contacting interviewees, describing the situation and thesis ✔
- Aligning schedules ✔
- Booking meeting rooms ✔

**Beginning of the interview**
- Verbally agreeing on the recording
- Providing refreshments; beverages and cookies
- Creating a trusting environment, by ensuring that the information given in the interview is managed confidentially.
- Providing interviewees with an interview guide which has the main topics

**Interview Guide**

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**Warm-up questions**

1. How long have you been working at Intel? *(reflecting on years of experience)*
2. What is your position now at the company? What were your positions here before? *(leader, general employee, intern) ➞ multiple roles different experiences*
3. How long have you been working in a virtual team? *(reflecting on years of experience)*
4. In general, how satisfied are you with your preparation for working in a virtual team? Did you have any training? Mentoring? *(yes/no – finding out if the company puts any effort in it. (Maybe there is something on technical level I do not know about) ➞As far as I know there is no preparation for virtual team work, and team leaders are assigned on basis of knowledge, disregarding leadership skills)*

---

**What are the challenges in managing culturally and geographically diversified virtual teams?**
1. **Do you see any difference between working in face-to-face teams and virtual team?** (trying to make the interviewee to find the challenges on his/her own)
2. **Could you mention some challenges that in your opinion hinder virtual team work?** (if does not come to mind, I would tell him/her my findings – leadership, communication, cultural differences, technology, trust, conflict management, team management)
3. **Is there any challenge in particular that was hard for you in the beginning, and you think you could have been prepared for? Maybe through training or if somebody would have told you what is the way of doing it?** (reflecting on personal experience – reducing challenges to those that are necessary and can be trained)

In the followings, I would like to ask the interviewees to reflect on the challenges one by one to reduce challenges for the training to the relevant ones, and to see how much they know about them → what to include in the training

---

**Challenge 1 – Leadership**

1. **Do you think it is harder or easier to lead a virtual team?** (warming up, trying to make the interviewee to brainstorm on his/her own)
2. **What can be particularly hard?** (collecting leadership challenges → team building, trust development, clear goals, process management, technology, communication, culture sensitivity, conflict management) (Presenting summary of challenges and solutions table (p.38))
3. **What do you see, how prepared the team leaders are to deal with these issues?** (to see the level of need for training)
4. **Would you say that by raising awareness to these practices in early stages, virtual team work could be more efficient?** (finding out if he/she thinks training could help or not- maybe there is a different problem set actually)
5. **Which challenges would you include in a virtual team leadership training?** (exact question – hope to get a clear answer for the training package)

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**Challenge 2 – Communication**
1. Do you think it is harder or easier to communicate virtually? (warming up, trying to make the interviewee to brainstorm on his/her own)

2. What can be particularly hard? Is there something you wish you knew about communication before started to work in virtual teams? (collecting communication challenges → equivocality, lack of office atmosphere, high turnover rate, use of right comm. style) (presenting summary of challenges and solutions table)

3. How would you prepare somebody for the communication challenges and collaboration in virtual teamwork? What would you mention to a new employee and what would you say to your fellow colleagues to make it better? (hoping for exact answers, as ‘call instead of sending emails about the smallest things’.)

Challenge 3 – Cultural differences

1. Have you ever had any problems working with people from different cultural backgrounds? (warming up, trying to make the interviewee to brainstorm on his/her own)

2. Does the company provide cultural intelligence training? (finding out if there are already any trainings available, and if they are suggested by colleagues or leader)

3. Do you think employees should be aware of cultural differences? (should it be part of the training?)

4. By raising awareness of cultural differences, do you think it would benefit multicultural virtual team work? (should it be part of the training? – virtual team work perspective)

5. Do you think is it beneficial for new employees to get a culture training? (new employee perspective) And if yes would you incorporate a general training or country specific? (general training could be awareness of Hofstede and some specific typical developed country customs - Japan, USA, Scandinavia – country specific training could be those countries only where they have team work (USA, Denmark)

Challenge 4 – Technology
1. What ICT tools do you use to facilitate communication and collaboration? 
   (finding out what tools should be incorporated in training)
2. Have you ever had any problems with ICT while working in virtual teams? 
   (warming up, trying to make the interviewee to brainstorm on his/her own)
3. Do you think everybody has the same knowledge about the technology used? 
   (fining out if training is necessary – or as Intel is a tech company everybody is okay)
4. Do you think it is important to train employees about the proper usage of ICT tools? Including how to conduct an online meeting and netiquette?  
   (more precise question about the importance of training and its content)

Challenge 5 – Trust building

1. Do you think trust is important in virtual team work? (should be added to the training? Finding out if it is necessary to include)
2. Could you describe the trust climate in your team? Do you trust your virtual team members? (understanding how important trust is for their work or if they put any effort into this)
3. What activities do you do to develop trust in the team? (finding out what tools, activities Intel provides as of now for trust development)
4. Are you aware of personal trust development techniques such as openness, transparency, feedbacks? (this part asks about the content of the training)

Challenge 6 – Conflict management

1. Have you ever had a conflict situation while working in a virtual team? 
   (brainstorming)
3. What did you do to resolve this issue? (finding out the level of awareness in conflict resolution techniques)
4. What is your opinion about conflict resolution training? Do you think it would be useful? Especially in virtual teams? (Should it be part of the training package?)
Training methods

1. What corporate training methods do you know? (warming up, trying to make the interviewee to brainstorm on his/her own) (classroom or instructor-led trainings, interactive methods, hands-on trainings, computer-based training (CBT), online or e-learning trainings and blended techniques)

2. Which one(s) did you like and why? (Was it informative? Easy to understand? Interactive? Less time consuming?)

3. What method(s) would be the best to prepare new employees for virtual team work? (why?) (Asking exactly what I am looking for. mentoring? PPT?)

Closing of the interview

- Is there anything else you would like to add?
- Ensuring once again that the information given here is used confidentially
- Asking if I could contact them if questions arise during the analysis of the responses.
Appendix B - Interview Guide – given to the Interviewees at the beginning of the interview

Interview Guide

Warm-up questions

What are the challenges in managing culturally and geographically diversified virtual teams?

Challenge 1 – Leadership

Challenge 2 – Communication

Challenge 3 – Cultural differences

Challenge 4 – Technology

Challenge 5 – Trust building

Challenge 6 – Conflict management

Training methods

Thank you for the interview!