BUILDING EFFECTIVE GLOBAL VIRTUAL TEAMS

An evaluation of the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams.

Research dissertation presented in partial fulfilment of the requirements for the degree of
MBA in International Business

Griffith College Dublin

Dissertation Supervisor: **Mark Campbell**

Student Name: Ricardo de Assuncao Goncalves

11/09/2020

Candidate Declaration

Candidate Name: Ricardo de Assuncao Goncalves

I certify that the dissertation entitled:

submitted for the degree of: **MBA in International Business** is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

Candidate signature:

Date: 11/09/2020

Supervisor Name: Mark Campbell

Supervisor signature:

Date:

Dedication

This research is wholehearted dedicated to the memory of my mother, Maria Adelia, who had to go a few months before the first day of this MBA program.

This work is also dedicated to my father, Jose Dias Goncalves, and to my sister, Flavia Goncalves, who always keep me strong and whose good examples have taught me to keep moving forward towards my goals and dreams.

To my wife, Jessica Goncalves, for her sincere love and support of my personal endeavours by encouraging me during the challenges of work and life. I am truly thankful for having you in my life.

Acknowledgements

First of all, it is a genuine pleasure to express my thanks and gratitude to my supervisor **Mark Campbell**. His timely advice, and dedication reviewing several versions of this research, have helped me to a great extent to accomplish this study.

My appreciation also extends to all software engineering professionals who voluntarily participate in the research interviews and were instrumental for the completion of my MBA research. Your experience contributes significantly to the practical outcomes presented in this research.

The acknowledgements would not be completed without mentioning my line managers and my direct reports who have worked with me in different phases of my life. I have truly learned from you all, and I appreciate your feedback and opportunities to shape me to be a better leader.

"Setting an example is not the main means of influencing others, it is the only means."

- Albert Einstein

List of Figures

Figure 1 - Conceptual Framework version 1 28

Figure 2 – Conceptual Framework version 2 (Final) 29

Figure 3 – Steps for the Data Analysis 48

Figure 4 – MaxQDA interface load with the data from this study 51

Figure 5 – Main sections of MaxQDA Software explained 52

Figure 6 – Shared code between two themes 54

Figure 7 – Cross Matrix Browser with all themes about culture 58

Figure 8 – A code from one of the themes from the research questions about culture 58

Figure 9 - Cross Matrix Browser grouped vertically by Interviewees 65

Figure 10 - Cross Matrix Browser for Communication grouped horizontally by themes 65

Figure 11 – Number of references across all different themes related to trust 71

Figure 12 - Cross Matrix Browser for Leadership grouped horizontally by themes 76

Figure 13 - All codes related to a theme from Leadership category 77

Figure 14 – Relationship between Trust & Cultural Diversity in the saturation chart 88

List of Tables

Table 1 – All interviewees and their respective professional details 36

Table 2 – The details of the interviewees' organisations 36

Table 3 – Duration of each interview 40

Table 4 – Categories of each Research Questions 50

Table 5 – Number of codes grouped by shared or not shared 55

Table 6 - Number of codes related to a single research question 55

Table 7 - Number of codes referenced to multiple research questions 56

Table 8 - Total number and percentage of codes related to Culture Diversity 57

Table 9 – Total number and percentage of codes related to Communication 63

Table 10 - Total number and percentage of codes related to Trust 70

Table 11 - Total number and percentage of codes related to Leadership 75

Abstract

The overall purpose of this research is to evaluate the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams.

Initially, it started by identifying and studying the literature about Global Virtual Teams (GVTs). Thus, some gaps among the studies were identified, and visual representation was developed using the conceptual framework. Moreover, the author interviewed eight participants – e-leaders and software engineers from two multinational companies - to collect primary data. Thus, identifying typical pattern across interviews helped to answer the research questions. Lastly, by using Interpretivism philosophy, the author has immersed in the reality of each participant to understand the context of their background to be able to get relevant insights. Thus, applying grounded theory methodology on collected data, helped to identify codes and themes to answer the research questions.

This research has uncovered a strong relationship between communication and trust, which can go both ways. Thus, trust can intensify collaboration and team performance, but communication can also influence trust development mainly when people collaborate over the camera and in regular meetings. Additionally, it has shown that Emergent Leaders are able to decrease the sense of team virtually across team members by working closely to the formal leader, thus, decentralising the decision-making process and scaling out the communication management. Furthermore, it has shown that initial trust can be fostered by introducing virtual team members to each other or by visiting other virtual teams in their countries early-on. However, delivering results and gaining credibility would help to consolidate this trust. Lastly, having an interpersonal relationship would make it more resilient and durable.

Although working with GVTs can be challenging, there are some key aspects which can be taught to all team members early-on, thereby mitigating common issues. However, all members need to be willing to develop these new soft skills such as virtual sub-teaming leadership, rapport building, trust development, expectation management, and communication management, thus benefiting the team bonding and well-being of these ones directly and indirectly involved.

Table of Contents

CANDIDATE DECLARATION 2

DEDICATION 3

ACKNOWLEDGEMENTS 4

LIST OF FIGURES 6

LIST OF TABLES 7

ABSTRACT 8

1 INTRODUCTION 11

1.1 OVERVIEW 11

1.1 RESEARCH PURPOSE 12

1.2 SIGNIFICANCE OF THE STUDY 13

1.3 RESEARCH OBJECTIVE 14

1.4 STRUCTURE OF THE STUDY 17

1.5 CONCLUSION 18

2 LITERATURE REVIEW 19

2.1 OVERVIEW 19

2.2 GLOBAL VIRTUAL TEAMS 20

2.3 CULTURAL DIVERSITY IN VIRTUAL TEAMS 21

2.4 COMMUNICATION WITHIN VIRTUAL TEAMS 22

2.5 BUILDING TRUST IN A VIRTUAL ENVIRONMENT 24

2.6 ROLE OF LEADERSHIP IN VIRTUAL TEAMS 24

2.7 CHALLENGES FOR VIRTUAL TEAMS 26

2.8 CONCEPTUAL FRAMEWORK 28

2.8.1 Inputs 30

2.8.2 Communication processes 30

2.8.3 Emergent states 31

2.8.4 Moderators 31

2.8.5 Outputs 32

2.9 CONCLUSION 32

3 METHODOLOGY AND RESEARCH DESIGN 33

3.1 OVERVIEW 33

3.2 RESEARCH PHILOSOPHY AND APPROACH 34

3.3 RESEARCH STRATEGY 36

3.4 COLLECTION PRIMARY DATA 38

3.4.1 Methods for collecting and sources of data 38

3.4.2 Nature of Data 42

3.4.3 Access and Ethical Issues 45

3.5 APPROACH TO DATA ANALYSIS 47

3.6 CONCLUSION 49

4 PRESENTATION AND DISCUSSION OF THE FINDINGS 50

4.1 OVERVIEW 50

4.2 CULTURE: HOW DOES CULTURAL DIVERSITY IMPACT GVTS? 57

4.3 COMMUNICATION: HOW DOES COMMUNICATION AFFECT GVTS? 63

4.4 TRUST: HOW CAN TRUST BE DEVELOPED IN GVTS? 70

4.5 LEADERSHIP: HOW DO LEADERS IMPROVE PERFORMANCE OF GVTS? 75

4.6 CONCLUSION 79

5 CONCLUDING THOUGHTS ON THE CONTRIBUTION OF THIS RESEARCH, ITS LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 81

5.1 IMPLICATIONS OF FINDINGS FOR THE RESEARCH QUESTIONS 81

5.2 CONTRIBUTIONS AND LIMITATIONS OF THE RESEARCH 83

5.3 RECOMMENDATIONS FOR PRACTICE 85

5.4 RECOMMENDATIONS FOR FUTURE RESEARCH 87

5.5 FINAL CONCLUSION AND REFLECTIONS 88

REFERENCES 90

APPENDICES ..... A

Appendix A – Informed Consent Form and Plain Language Statement ..... A

Appendix B – Research Time Schedule and Plan ..... E

Appendix C – Full Interview with Interview E ..... G

1 Introduction

1.1 Overview

Over the past few years, the enhanced infrastructure and technological advancements across the globe have helped many companies to connect with their colleagues easily and adopt the development of geographically dispersed teams. Companies are making a significant investment in internal communication platforms and networks to decrease the dependency on time and space, improving the effectiveness of teams in order to achieve more substantial result working with multiple teams across time zones. Thus, with the use of synchronous online communication platform and the ability to employee talent anywhere, virtual teams have become an increasingly common way of developing workforce around projects. It can be defined as "teams whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish interdependent tasks" (Martins, Gilson and Maynard, 2004).

As stated by to Bell and Kozlowski (2002), the virtuality of these teams have a variation depending on how the virtual teams (a) break down the responsibilities in functional, organisational, and cultural boundaries; (b) have a real-time communication, rather than temporally distributed; (c) have a limited lifespan; and (d) require members to play multiple roles, both within and across teams

With this high level of flexibility, organisations want to capitalise on knowledge from around the world in their projects, and virtual teams is a medium for achieving this goal (Hoegl, Muethel and Gemuenden, 2012). Therefore, it is no longer about the right candidate in your city or country; it is about enabling the hiring managers to find the right fit anywhere in the world to build to develop a strong virtual team.

Those teams work independently without any time or space boundary and also even without meeting face-to-face with other teams (Jimenez et al., 2017). However, it increases the level of asynchronous communication where the team members do not need to communicate in real-time, in which can be quite frustrating due to the delay in communication, however, it enhances

focus and deep work when working on complex tasks. Therefore, global virtual teams not only allow an organisation to operate from different locations and utilise global talent but it is also are cost-effective as it helps to cut down expenses for office space, travel expenses, and expatriations. Thus, global virtual teams prove to be a lot advantageous for companies to make projects more scalable and sustainable.

According to Hoch and Dulebohn (2017), communication and leadership become essential factors in the operation of a virtual team as trough effective communication, coordination and collaboration the goals of these teams can be achieved. However, virtual teams encounter several challenges that can put a question mark on the efficiency of the team. The lack of contextual information (e.g., lack of cues) can cause inaccurate interpretation which can lead to more difficulties in communication management. Since the teams are not from the same location, it might become difficult to align expectations, resolve conflicts or come at agreements. Working in virtual teams can also make it challenging to bring collaboration and build a relationship if there is a lack of interest. However, efficient management, proper communication and leadership can be useful in making the virtual teams more productive. Additionally, it has been found that early uniform training and face-to-face meetings during the team's launch can help to improve trust, commitment, respect to other members, relationship building and effectiveness (Powell, Piccoli and Ives, 2004).

1.1 Research Purpose

The overall purpose of this research is to evaluate the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams. Having a deep understanding of the influence of all these components will help to develop best practices on building and working with global virtual teams more effectively.

1.2 Significance of the Study

More companies are spreading the work across time zones to speed up the development of new projects having teams working around the globe. On top of that, it increases the resilience of digital companies as they are able to respond quickly to any issue by redirecting the work to teams available at that moment.

Nowadays, this structure of forming a geographically dispersed team is becoming are hot topics of discussion worldwide mainly after the COVID-19 pandemic. Companies are rearranging teams not just to work remotely, but to be able to have virtual teams broken down time zones, culture, location, responsibilities, and other aspects. Thus, allowing the formation of virtual teams on a global scale.

As part of this study, the author will focus on some strong variables influencing the dynamic of this global work environment, such as cultural diversity, communication, trust, and leadership. Moreover, the findings of this research will drill down in each of these areas, which can help companies to develop new best practices for building effective Global Virtual Teams.

1.3 Research Objective

The chosen title for this study is "Building effective global virtual teams", and the key questions below are supposed to act as a guide to support the progress for the research.

- How does cultural diversity impact Global Virtual Team?
- How does communication affect Global Virtual Teams?
- How does trust get developed in Global Virtual Teams?
- How do leaders improve the performance of Global Virtual teams?

Thus, the objective of this research is to answer those questions following the action below:

- Analyse the existing literature about Global Virtual Teams and identify how these components (i.e., cultural diversity, communication, trust, and leadership) influence each other.
- Analyse the negative and positive impact of cultural diversity in Global Virtual Teams
- Investigate the challenges in communication and how it impacts communication quality, frequency, timeliness, and content.
- Analyse the challenges around building trust in a virtual environment, and how leadership, communication, and cultural diversity can influence that.
- Investigate the influence the formal leaders and emergent leaders can have on the development and performance of these teams.
- Identify cross-reference between all those different points listed above, and how they impact positively and negatively those areas.

In his current position as Software Development Manager, the author has been coordinating projects and forming virtual teams with members spread across time zones. Thus, the author understands the advantages and obstacles faced by these geographically dispersed teams, which has inspired the author to

deep dive into this subject. Additionally, the cultural composition or diversity referred to in this study can be related to having one member from different nationality co-located in other countries, or it could be several offices with similar cultural subgroup in various locations across time zones.

For helping to understand the process of building virtual teams and the relationship amongst different factors, the author will gather relevant information through interviews and analysis of the transcripts to find common patterns.

Over the past few years, the author has witnessed a high level of misinterpretation and delays across several virtual projects due to the lack of clear communication or process to formalise outcomes of discussions. At an instance, the author observed that the lack of clarity and communication lead to a chain of problems in virtual teams which were working collaboratively in the same virtual project. One of the members misunderstood an instruction and forwarded it to other members, therefore resulting in a setback for the work and the members blaming other virtual teams for the mistake. Such instances made the author realise that efficient virtual teams need efforts from the part of all the members and coordinators to achieve success.

The significant issues that drew the attention of the author towards these topics are related to poor communication (i.e., quality, timeliness, and frequency). Misunderstandings in virtual teams working across cultures can cause re-work and frustration among team members who are trying to clarify doubts or getting the response across time zones with little or no overlaps.

Moreover, the virtual environment adds another layer of complexity for the virtual leaders to provide clear directions and be able to offer a reliable and consistent people management support to each member working across time zones and cultures. Thus, the centralise leadership and the lack of shared leadership cause a lack of accountability within virtual teams where no emergent leaders are formed to help to coordinate the work and the flow of information.

Furthermore, the communication within virtual teams are can become heavily task-oriented, which causes a considerable barrier to develop cohesion and

trust between members, thereby, harming trust and the well-being of these team members.

As a result, the identification of these problems leads the author to think about steps to take in ensuring that virtual teams operate smoothly. Additionally, the author selected those topics because the wide range of experience from global virtuals teams can benefit innovation outcomes (Batarseh, Usher and Daspit, 2017). Therefore, understanding the issues and knowledge drawn from academic areas will help the author in addressing those factors that can be helpful in the building of effective global virtual teams.

1.4 Structure of the Study

In **Introduction**, this research starts with an overview of global virtual teams and some challenges faced by the virtual team members and organisations and also, some possible opportunities. This introduction chapter also explains the purpose of this research around evaluating the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams. Moreover, it outlines the research questions and the SMART objective(s) that guides the study.

Literature Review starts by identifying and analysing the literature related to GVTs to find gaps across the studies and, then move through the development of a visual representation using the conceptual framework.

The methodology and research design are presented in **Methodology and** Research Design**,** and it starts with a broad philosophical understanding of Interpretivism philosophy. And then explains the research strategy, which details the rationale for selecting the participants involved in this research. Moreover, it explains in detail the data collection. Lastly, it details the access and ethical issues, and also the approach to data analysis explaining the use of grounded theory in this research as a research tool to identify common social patterns and experiences across all participants.

In **Presentation and** Discussion of the Findings**,** the author has blended the findings and the discussion of each research questions. Therefore, making it more practical in qualitative research to have both explained together, hence more comfortable for the reader to understand the rationale behind the analysis.

In **Concluding Thoughts** on the Contribution of this Research, its Limitations and Suggestions for Further Research, the author consolidates the answers for each research questions in **Implications of** Findings for the Research Questions. However, **Contributions and** Limitations of the Research explains the limitation of this research and how the findings contribute to the existing field of study. Then move through by highlighting some relevant recommendations to the Human Resource department and Hiring Managers in **Recommendations for** Practice.

Lastly, it provides recommendations for future research, conclusion and reflections.

1.5 Conclusion

This introduction chapter outlined a brief overall description of the study's context, the purpose of the study, research questions, and objectives to guide this study. In the following chapter, the author will start highlighting some relevant literature used in this study, then moves through the Conceptual Framework where it provides a visual representation of the components covered in this research and how they connect to each other.

2 Literature Review

2.1 Overview

Nowadays, many businesses rely on technology, and it has become significant for these companies to choose the option of forming virtual teams. In running a business, worldwide, global virtual teams play an essential role in managing the work successfully. Though it has been identified that many people are now indulged in virtual working, yet in the next few decades it will rapidly increase its number. There are many talented employees globally who have specialised skills and are ideal for working in virtual teams. However, as in on-site organisations, virtual teams need some ways to coordinate and develop.

The author has reviewed the literature about global virtual teams to get an overview of the challenges faced by these ones and to understand the existing researches and conceptual frameworks developed by other authors. Thus, it has served as the start point for the author to focus on gaps across these studies.

One of the gaps found by the author across the studies was around the correlation among Cultural Diversity, Communication, Trust, and Leadership in the virtual working environment across time zones. Those four areas are constantly being mentioned as the challenges faced by virtual teams. However, none of the studies has cross-referenced those components to provide an overview of how one element can directly affect the other one as explained in more detail in **Conceptual Framework** about Conceptual Framework.

2.2 Global Virtual Teams

Most people have worked in traditional teams, also known as co-located teams, which is composed of individuals working in the same location collaborating face-to-face regularly to achieve their goals. However, as technology evolves, companies are forced to adopt new models of work to increase their resilience and become more competitive in the global market. Thus, many organisations and people are shifting to a virtual working environment, thereby working in international projects with team members from all over the world and communicating regularly with them.

By definition, Global Virtual Teams are teams which perform their work remotely without having face-to-face interaction and relying on technology to be able to communicate and perform their tasks. Additionally, these teams can be composed for only two people or many different teams spread around time zones and cultures united by shared goals. (Brewer, 2015)

According to Brewer (2015), companies has 27% of their employees working virtually. Additionally, it also indicates that 33% of the European IT employees spend 80% of their time working virtually. However, it is not just restricted to IT or Engineering jobs in general. Other professionals are also able to work from anywhere in the world, only with a laptop and a good internet connection. With the advancement in cloud platforms and video conferencing technologies, other industries such as accounting & finance, customer service, healthcare, marketing, education, and sales, are also helping to grow the trend around remote work and virtual teams.

These virtual teams have a fundamental advantage over co-located teams as the virtual leaders are able to spread the development of a project across time zones and make use of 24/7 workday, so the projects are always making progress. However, the absence of face-to-face interactions and socialisation negatively impact the development of trust. Additionally, the difference in time zone limits the time for real-time discussion slowing down problem-solving, which can cause teams to be out of sync more often, and taking longer to pull back together. (Settle-Murphy, 2012)

Furthermore, the virtual teams have a concept of virtuality, which makes one team more virtual than others. Thus, a team with a higher degree of geographical dispersion than others or never meet face-to-face are more virtual than teams located in the same city. For the scope of this research, the author has targeted the real virtual teams with a high degree of virtuality working with teams from different time zones with little or no overlaps which are from different cultures.

2.3 Cultural Diversity in virtual teams

The advancement in technology and the global economy has opened up a new world for companies willing to spread their presence around the globe. Thus, having their team members geographically distributed across different teams has increased the cultural diversity in the virtual environment. However, collaborating across cultures through technologies sounds simple, but according to Grosse (2002) building trust and strong relationship via technology are challenging. However, it suggests that the key to success is to understand how cultural diversity can make the team stronger and also demonstrating respect for different languages and beliefs.

According to Han and Beyerlein (2016), individuals from different cultures filter information through their cultural lenses which can lead to misinterpretation. However, it shows that the same diversity can reduce groupthink and enhance creativity and team effectiveness.

The different ingredients of cultural diversity such as background, beliefs, languages, and others, can decrease the level of common understating (Homan et al., 2007) and consequently, reduce performance. It could come from the fact that non-native English speakers, for example, tend to speak less and thereby jeopardising the communication quality and frequency as they don't engage deeply in discussions to get more clarification on their tasks. However, cultural diversity can bring unique and valuable insights in case communication quality is improved, which can have a positive knock-on effect in performance.

Furthermore, Mockaitis, Rose and Zettinig (2012) mentioned in their study that multiculturally dispersed teams bring an alternative and innovative ways to solve problems. However, they raised the point about cultural diversity brings different levels of individualism and collectivism into the team. Thus, those two groups can have different perception about interdependencies or collective behaviour to achieve a goal. Additionally, individualist culture tends to focus and appreciate the accomplishment of tasks, while the collectivists tend to value the establishment of relationships and team success.

2.4 Communication within virtual teams

The ability to communicate clearly and coordinate the flow of information are two soft-skills which can take years for people to master. When working with teams in a physical location, managers spend a considerable amount of time making sure the requirements don't fall through the cracks, and the teams are collaborating and transferring knowledge between them. Thus, building effective teams relies heavily on communication, however, when the teams go virtual and working across time zones, communication skills become vital for any team and project to succeed or survive in the long-run.

As collaborative technologies are advancing, it is tempting to understand that more different tools will make virtual communication more effective (Soto, 2019). Global virtual teams (GVTs) is a team in which members, regardless of their location, are involved in working together on the same project. Thus, communication is very much important in this place.

According to Gonzalez et al. (2017), the most common challenges for GVTs are communication, language and trust. In regards to communication, some issues can arise because people have different style expressing themselves in terms of formal vs informal language, collectivist vs individualistic approach during the search for agreement, or writing style using short messages vs detailed and precise messages.

Though communication technologies are well-advanced in a virtual work environment, there are few pitfalls which can be rectified to improve communication within virtual teams are as follows:

- Matching the technology to the task
- Making clear intentions
- Staying in sync regularly
- Being responsive and supportive
- Being open and inclusive

According to Grosse (2002), the usage of email helps multicultural teams from different languages to decrease the level of misinterpretation compared to a real-time discussion as they have the time to read and process the information of an email. Thus, this async nature of emails provides extra time for the team members to consider the meaning of the messages and carefully think of a response before sending it.

In a study from Dulebohn and Hoch (2017) about Virtual Team in Organisation, they presented the influence of Task Interdependence and Task Complexity as moderator of the IPO (input-process-output mode) alongside with team virtuality. Thus, those three elements can influence how communication (frequency, quality, and content) will impact the output, such as viability, performance, and satisfaction. The idea discussed in this research has been adapted by the author of this current study and influenced the design of the Conceptual Framework.

Effective communication is the base of developing a successful virtual team. Thus, setting up a consistent communication is necessary. According to Brewer (2015), successful virtual teams create an online workspace which the teams can regularly interact with a low level of misinterpretation. Additionally, they have a purpose at the centre of their communication in order to achieve common goals successfully, but for that, they need to communicate regularly, clearly, and precisely.

According to Marlow, Lacerenza and Salas (2017), it was identified five elements of communication that are particularly relevant, which are communication frequency, quality, timeliness, content, and closed-loop. In the

same study, they analyse that trust plays a crucial role in the communication process as virtuality increases. However, it was not conclusive whether the impact of the degree of virtuality on the effectiveness of virtual teams.

2.5 Building Trust in a virtual environment

The lack of physical interaction and face-to-face communication slow down the process of building trust, thereby affecting performance. Thus, the usage of online communication can help to optimise the flow of information but at the same time, demands a higher level of trust to be effective. Moreover, members do not have much knowledge of other team member's background or professional history, and they will probably never have the chance to see each other face-to-face. (Hung, Dennis and Robert, 2004).

According to Brewer (2015), the key difference in the process of building trust in-person compared to the online interaction have to do with the rate of social information exchange rather the information itself.

Additionally, Marlow, Lacerenza and Salas (2017) explain that communication of a more interpersonal nature helps on the development of cohesion and trust thereby it is essential for teams to not focus only in task-oriented communication. Trust is the glue of global workplaces, and this is also applicable for virtual teams.

2.6 Role of leadership in virtual teams

According to Liao (2017), in virtual teams, leadership roles and functions are necessary to improve the team's performance and success. Generally, leaders are the ones most familiar with the goals, resources, and processes, therefore directly influencing the directions and effectiveness of virtual teams. They also need to be responsible for the social and material resources required for their team members to perform their tasks and achieve their goals successfully.

Due to the barriers influencing and motivating people in a virtual environment, e-leaders may encourage the development of self-managing teams. Therefore, complementing the formal leadership through shared leadership where

members can mutually guide each other and make decisions as a group. (Liao, 2017)

According to Gibbs, Sivunen and Boyraz (2017), virtual teams might benefit more from practising shared leadership approach due to the lack of a centralise formal leader. Teams from different location interacting across time zones don't have a leader in between teams to make this communication process more formal. Therefore, having the ability to self-manage these interactions and taking accountability for the outcomes of the multiple communication streams and virtual meetings is crucial for the success of these teams. Additionally, shared leadership shapen up the collaborative decision-making skill, which has a positive knock-on effect on trust, performance, knowledge sharing, and organisational outcomes.

Moreover, managing conflict is a crucial task for any leader and performing this virtual exercise demand different approaches to identify whether it is related to tasks, process, or relationship. It can be challenging to identify the incompatibilities amongst team members' perception in a disconnected environment; thereby, effective communication needs to be in place to mitigate relationship conflicts. Additionally, e-leaders needs to behave as a middleman between collocated members and the ones who are geographically dispersed, thus promoting team effectiveness (Liao, 2017).

In terms of the GVT leader's influence on collaboration, they play a fundamental role in forming the team's virtual environment for collaboration; thus, task- and relationship-oriented behaviours are essential for achieving this goal. Fostering strong relationship and ensuring that all members leverage diversity, makes team members willing to collaborate more virtually. Moreover, leadership behaviours, such as training, guidance, and coaching, can improve team collaboration (Liao, 2017).

Meetings with virtual teams are much more important than conducting a meeting in an on-site organisation. According to (Soto, 2019), collaboration is critical to connecting team members, and the leader needs to establish a process to keep the employees informed in the team level and individual level. Thus, scheduling regular meetings through video conferencing helps to minimise the distance between team members and improve the quality and

content delivered. Additionally, video calls allow team members to observe body language and tones, which can help to deliver the messages during the meetings accurately. Using meetings serves as a channel for members to provide their input to ideas, solutions, and resolve issues. At the same time, the leaders can use this time to coordinate the tasks and give directions to unblock team members.

Furthermore, the team leader needs to be accountable to run daily meetings, task delegation, defining roles and responsibilities, workload management, and empowering team's collaboration is essential to guarantee virtual teams seamlessly collaborate to achieve common goals. Thus, the work of virtual teams becomes highly effective when the tasks and processes are explained loud and clear to the team. At the beginning of team formation and project kick-off meetings, aligning the whole team together with desired goals and outcome is essential (Ren, 2020).

2.7 Challenges for virtual teams

The journey for virtual teams is not always comfortable, and there are several challenges to come across similar to the traditional teams but in a higher magnitude and also coupled with issues related to disconnected environment and high dependency on technology for communication.

One of these challenges is the mutual trust which is fundamental for virtual teams that face uncertainty or are not familiar with the other members. As there is a high expectation on team members to deliver their interconnected tasks, the trust will be formed by continuously delivering results and completing tasks according to the deadline. Additionally, developing trust takes time, and it goes through phases in which team members define effective procedures to interact with each other to achieve common goals (Lilian, 2014).

Furthermore, the physical distance, language, and the lack of ability to communicate face-to-face using nonverbal communication cues create an environment propitious to misinterpretation and delays in discussing the context of issues and tasks. Thus, defining a process and also training the team members to use communication tools properly can improve employee

engagement and cooperation. Consequently, these tools can also help the leader to enhance the potential of their leadership approach, enabling them to communicate development plans, project requirements, deadlines, and rewarding their teams. (Newman, Ford and Marshall, 2019).

According to Krumm et al. (2016), Virtual Teams needs higher coordination working across time zones, and the team members become highly dependent on virtual tools and synchronous communication to perform well. In this study, the author didn't discuss the figure of the Emergent Leaders or Shared Leadership model, which could be a possible solution to improve coordination process within and across teams.

The research from Pearlson, Saunders and Galletta (2019) highlight three main challenges in Virtual Teams such as Communication, Technology, and Team Diversity. In regards to Team Diversity, it brings a new component to this study as it is related to building trust and establishing team identity. They discussed that interpersonal trust could help to overcome several challenges faced by Virtual Teams.

Other challenges which virtual teams often encounter are the uneven participation and lack of accountability. Additionally, team members have limited performance monitoring, difficult to mentor inexperienced team members and barrier for soft skills development. (Zuofa and Ochieng, 2017).

2.8 Conceptual Framework

The IMOI model was extended from the input-process-output (IPO) model (Hackman, 1987; McGrath, 1984; Steiner, 1972) which analyse the interaction between inputs and process and other elements such as relationships and outputs. Initially, The IPO was applied to research in co-located teams, and recently, it has been used to virtual teams' researches (Hoch and Kozlowski, 2014; Webster and Staples, 2006).

The Conceptual Framework represented in **Figure 1** - Conceptual FrameworkError! Reference source not found. is following the input-mediator-output-input framework (IMOI) described by Ilgen et al. (2005). For this research, it has been adapted for the context of Global Virtual Teams, and it contains moderators such as Team Virtually, Task Characteristics, Informal Leadership, and Team Coordination Process, in which influence the relationship between inputs and process. Moreover, this new extended framework assumes that emergent states and processes impact team outputs, and also that the outputs impact the inputs in a continuous cycle through an iterative feedback loop.

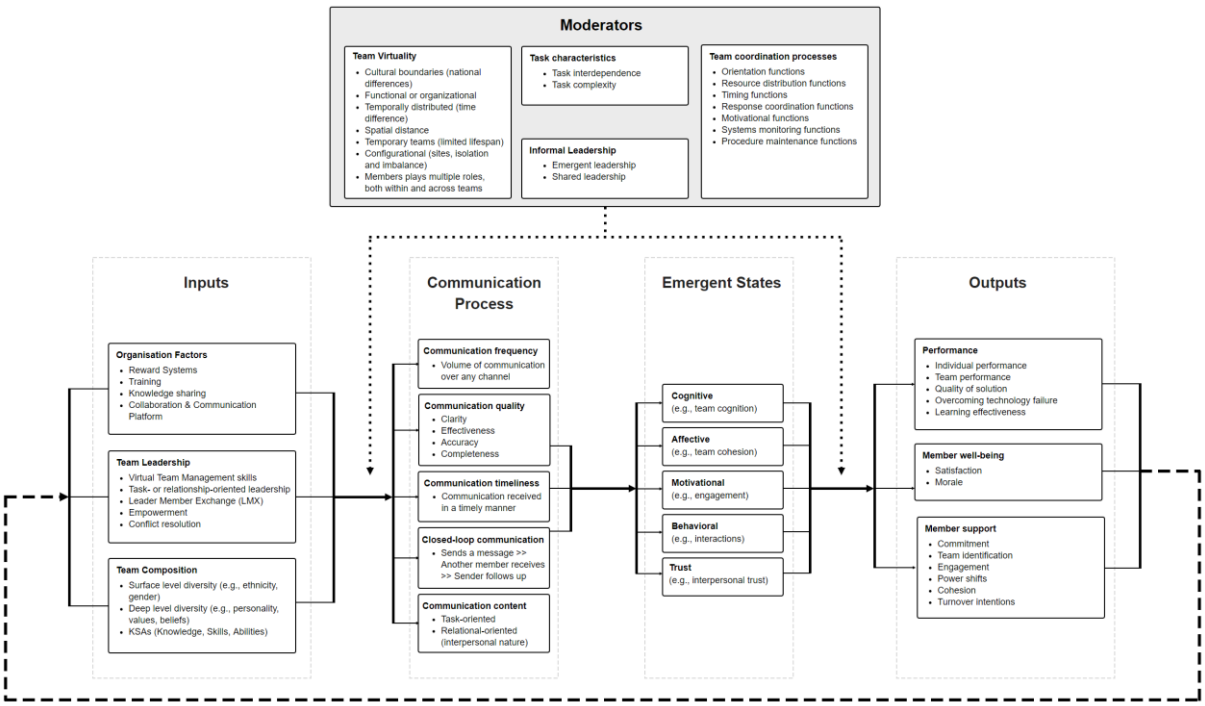


Figure 1 - Conceptual Framework version 1

However, this first conceptual framework developed by the author – as shown in **Figure 1** - Conceptual Framework -**Error! Reference source not found.** is based on a combination of several disconnected studies analysed during the literature reviewed in this research. However, it contains an excessive number of components and relationships which make it too broad to be explored in a single research. Thus, the author has narrowed down the scope of this conceptual framework – as shown in **Figure 2** – Conceptual Framework version 2 (Final) **-** to highlight only the components of this framework relevant to the research questions:

- Culture Diversity (Team Composition)
- Communication
- Team Leadership, Emergent Leader, and Shared Leadership
- Trust

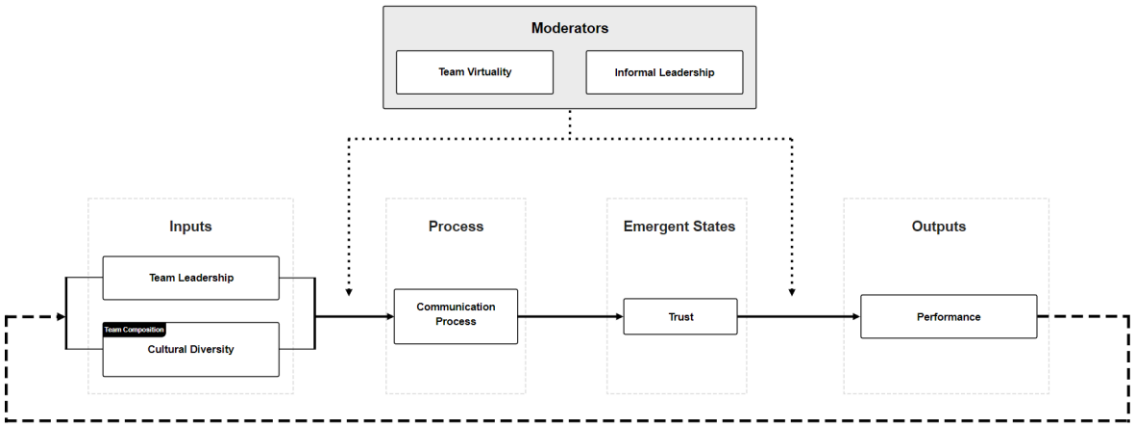


Figure 2 – Conceptual Framework version 2 (Final)

In the following sections, the author will describe each part of this framework, i.e., Inputs, Process, Emergent States, Moderators, and Output, in order to explain the logic behind those components and their relationships.

2.8.1 *Inputs*

Figure 2 – Conceptual Framework version 2 (Final) presents the conceptual framework used for this research. It contains two inputs group which directly affect the dynamic for building effective GVTs.

The first element of the input is Leadership. Many organisations don't prepare the leader to work remotely, and they tend to bring the same set of skills and approaches to the virtual environment. However, these e-leaders needs to apply leadership behaviours to make for the lack of face-to-face interaction with their teams. Thus, it is critical for them to have a well-developed communication skill, be tech-savvy leaders using collaboration technologies, ability to build trust and empower team members remotely, and have the understanding and ability to decode cultural differences.

The second input influencing GVTs is cultural diversity. In the first version of the Conceptual Framework from **Figure 1** - Conceptual Framework, Cultural Diversity is part of the components Team Composition; however, for the second version of this framework from **Figure 2** – Conceptual Framework version 2 (Final), it became a component itself to be discussed as one of the main input for this research. Thus, it brings a composition of different values, beliefs, religions, ethnicities, and experiences (Gibson and Cohen 2003), and influence the process and outcomes. However, these diversities can be a double-edged sword where it can positively or negatively impact the performance of global virtual teams due to the communication challenges mentioned in the literature review.

2.8.2 *Communication processes*

The communication processes and emergent states are mediators of the inputs and outputs. Using a communication platform such as Slack, Skype, Microsoft Teams, Google Meet, and others, virtual teams collaborate more to achieve common goals. However, this virtual environment and asynchronous communication can bring some issues which can delay some projects (Malhotra et al., 2001).

According to Marks, Zaccaro and Mathieu (2000), it is essential to analyse communication frequency and other aspects of communication in isolation, as finding within the literature shows that the team performance is not directly related to a higher frequency of team communication.

Another component of the communication is quality, which is relevant to be analysed in more detail in this research. It is believed that quality can have a more significant impact on communication than frequency.

In regards to communication content, it can be broken down in two types of content such as task-oriented interaction and relational interaction. As the names suggest, one is more about the iterations focused on task completion, and the other one has an interpersonal nature (Keyton, 1997). Using modern communication platform can increase the range of possibility to use media richness to improve cues capable of conveying information which can foster cohesion and trust.

2.8.3 *Emergent states*

Emergent states get developed over time with the interactions amongst team members, and it is a process-oriented states "that characterise properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes, and outcomes" (Marks, Mathieu and Zaccaro, 2001, p. 357).

This research has put emphases on Trust Development, and its impact on the outcomes. As per **Figure 2** – Conceptual Framework version 2 (Final), Trust sits between Communication and Outcomes, as it might impact team performance depending on the rate of trust development throughout the lifespan of the virtual team.

2.8.4 *Moderators*

The moderators represent the factors which moderate the input and communication process pathways as well as the emergent states and outputs pathways by influencing the directions and strength of the connections of the

conceptual framework. Even though team virtuality is the main moderator in the framework, for this research, other elements have been added such as Task characteristics, Informal Leadership, and Team coordination processes, which can directly affect the connection between input and process and emergent states and outputs.

2.8.5 *Outputs*

Finally, the outputs are the last component in the IMOI framework of this research as per Error! Reference source not found.. It has been categorised in performance (relations between the group and the environmental context), member well-being (the development of the team as a system), and member support (ways in which the individual is embedded within the group) (McGrath, 1991).

In the end, it contains the feedback loop following Ilgen et al. (2005)'s input-mediator-output-input (IMOI) model, which demonstrate the complex nature of teams which there is not only a single-cycle progression from inputs through output.

2.9 Conclusion

This chapter provided an overview and definition of Global Virtual Teams and the industries adopting this working style. Additionally, it analysed the four main areas of this research (e.g., cultural diversity, communication, trust, and leadership in GVTs). Additionally, it highlights the main challenges faced by virtual teams found in the literature. Lastly, it defined the Conceptual Framework providing a visual representation of the components covered in this research.

In the following chapter, the author will explain the methodology and research design. It starts with a broad discussion of the philosophy behind this study. And then explains the research strategy and data collection. Lastly, it details the access and/or ethical issues and the approach to data analysis.

3 Methodology and Research Design

3.1 Overview

In this research, the author is seeking an understanding of the world by constructing a subjective meaning of his experiences and looking for the complexity of different perspectives rather than selecting small sets of ideas. Thus, this research relies on the participants' views about virtual team environment and all the other variables which can influence their work as per Conceptual Framework from **Figure 2** – Conceptual Framework version 2 (Final).

This chapter starts with a broad philosophical understanding of Interpretivism philosophy and how this research uses it, then moves through research strategy, which details the rationale for selecting the participants involved in this research. After that, it moves to the data collection process, where the author explains the primary method of data collection using interviews. Lastly, it details the approach to data analysis explaining the use of grounded theory in this research as a research tool to identify common social patterns and experiences across all participants.

The conceptual framework from **Conceptual Framework** defines several relationships among the components, thus, measuring the influence and intensity of these forces would be essential to achieve the research aims and answer the research questions. Therefore, the author decided that the best way to accomplish that was by formatting the data collection as interviews with knowledgeable experts in the field of global virtual teams.

Additionally, to describe, decode, translate those interactions and outcomes of the social world, the author is using a qualitative research method. Thus, the researcher uses semi-structured and open-ended questions so that the interviewees can share their views of the topics being studied, providing some historical and social perspectives in detail.

3.2 Research Philosophy and Approach

The Interpretivism philosophy is appropriate for this research as it was required to understand the human being from the inside, rather than explaining the behaviour of a phenome like natural sciences in a general way or logical empiricism. Thus, it allows qualitative research topics such as leadership, cultural diversity, trust, and communication to be explored in depth from the unique perspective of the interviewees. Additionally, the interpretivism also gives room to the author to take into consideration the unique views of the participants to observe the patterns of action through different contexts explored during the interviews.

Due to the time constraint for this research, positivism wouldn't be suitable to answer the research questions in the level expected by the author. In some degree, it would detach the author from the research, thereby trying to find a universal rule to explain how some variables influence global virtual teams. Additionally, the author was expecting to take advantage of his own professional experiences to get a deeper understanding of the unique view of the participants and be able to identify correlations and trends across all interviews.

Ideally, a mixed-methods research design combining data from interviews with a structured survey from a broader audience - hundreds of people across different industries, hierarchies, and technology expertise - would be the desirable approach by the author.

Furthermore, the positivism is too rigid for this study at this stage. It expects the knowledge generated by the research to be independent of time, context, and value, thereby able to be reproducible by any researcher. However, having a quantitative method to measure human behaviour consistently or trying to find the law which governs the Global Virtual Teams would restrict and ignore the in-depth insights of each participant.

According to Walsham (2015), there is no "objective reality", thereby the knowledge of the reality and people's behaviours and interactions is a social construction; thus it cannot be reproduced by other researchers in contrast to the approach of positivism science. Moreover, the social world does not lend itself to being understood by physical-law-like rules (Snape and Spencer, 2003).

Other realities need to be involved, including external realities similar to what happened in the physical world and internal realities which are subjective and unique to each individual (Bannister, 2005). Since each reality is different, the author will have to deep dive in each situation to understand the reality of each virtual team and some of its individuals.

According to Denzin and Lincoln (2017), qualitative research involves an interpretive, naturalistic approach to the world. Therefore, investigating the natural settings of how virtual teams get influenced by other factors helped to make sense of the meanings people bring to this environment. This research used an inductive methodology to guide the development of a theory on global virtual teams based on one's experiences and observations which was summarised to come up with a general truth.

Furthermore, the author has chosen grounded theory methodology for this research which synthesise subjective sampling and analysis techniques with coding procedures (Straus and Corbin, 1990). The design of this methodology helps to create "conceptually dense" theories formed by patterns of action and interactions amongst social units.

In terms of coding procedure, the author used open coding procedure for breaking down, analysing, comparing, conceptualising, and categorising data in relation to properties and dimensions (Straus and Corbin, 1990). All transcripts of all interviews were analysed line by line, which is considered tedious, but it is recommended during the initial stages. Qualitative data analysis is not a simple process, mainly due to the large volumes of transcripts to be generated, data coding, re-coding, categorisation, searching themes, and testing relationships between issues. However, this interpretivist paradigm often leads to interesting findings when the analysis can be traced and conduct transparently.

Finally, the last point to be exposed on this section is the role of theoretical sensitivity, in which recognise what is relevant in the data and give it a meaning by referring to literature, personal experiences and analysing the data generated from interviews. In summary, ground theory expects the data to speak for itself. Even though the researcher brought some pre-existing knowledge, experience, or conception about the subject under investigation, he was vigilant of potential bias.

3.3 Research Strategy

In the context of our study, the author has focused on virtual teams composed by software engineers and managers from American multinational companies based in Ireland. They work with other teams from different time zones and cultures to achieve common goals such as bugs fixing, developing new features to existing software, or development of a new system. For this research, we have invited eight people from three different teams - as shown in **Table 1** – All interviewees and their respective professional details **-** which works in collaboration with other members and teams from other locations and cultures as per **Table 2** – The details of the interviewees' organisations.

Interviewee	Nationality	Position	Company
Interviewee A	Brazilian	Mid Senior Software Engineer	Verizon
Interviewee B	Brazilian	Senior Software Engineer	Verizon
Interviewee C	Italian	Mid Senior Software Engineer	Amazon
Interviewee D	Italian	**Software Development Manager**	Amazon
Interviewee E	Croats	**Software Development Manager**	Amazon
Interviewee F	Brazilian	Mid Senior Software Engineer	Amazon
Interviewee G	Brazilian	Junior Software Engineer	Amazon
Interviewee H	Brazilian	**Team Lead**	Verizon

Table 1 – All interviewees and their respective professional details

Company	Business Type	Location of other remote teams collaborating with engineers from Dublin
Verizon	Internet of Things (IoT) and Telematics company	New Zealand, US, Mexico, Italy, and Portugal
Amazon	Cloud Service provider	US (Seattle/Palo Alto) and Australia (Sydney)

Table 2 – The details of the interviewees' organisations

As shown in **Table 1** – All interviewees and their respective professional details, there are three people from leadership positions and five software engineers coming from two different companies. Among the software engineers, there are people from different levels of seniority ranging from junior to senior engineers. Thus, this mix of nationalities, companies, and experiences brought a variety of insights to the findings of this research. It helped to mitigate the risk of the same background or company impacting the results. In regards to **Table 2** – The details of the interviewees' organisations, even though these companies have a business in dozens of country, it highlights the location of the teams which interact with the Dublin teams weekly.

The primary method of data collection was performed through individual interviews using a mix of semi-structured questions and open-ended discussions – as per interview questions shown at the end of **Nature of Data** - to deep dive in some specific themes relevant to the research, i.e., Team Virtuality, Culture Diversity, Leadership (formal, information, and shared leadership), Trust, and Communication, thereby assuring the qualitative nature of this research.

To help elaborating our semi-structured questions, the literature review was the start point to learn how Virtual Teams interacted with one another, what are common challenges in virtual communication, what are the impact of cultural diversity in trust, and other topics related to this study. After that, these questions were pre-tested in the first two interviewees (Interviewee A and B) to indicate the participants understanding of the questions and the depth of the research inquiry, and subsequently, it has been slightly refined to make sure the author could get the most out of the 30 min interviewing each engineer. The participants were three software development leaders/managers and five software engineers from two American Tech Giants. All the participants work on teams which relies on other teams from across the globe (i.e., India, Australia, US, New Zealand, Italy) to perform the development of their products.

3.4 Collection Primary Data

3.4.1 *Methods for collecting and sources of data*

As mentioned previously, the author has carried out explanatory qualitative interview research in the IT Industry with software engineers and virtual team leaders, including the emergent leader who is not formally the leader of the virtual team.

Under the current pandemic situation, holding face to face interviews is not an option. Despite social distancing rules as a result of the COVID-19 pandemic, the author was still capable of conducting all interviews through the use of the video conferencing web software called Google Meet.

The author informally contacted the interviewees over the phone, asking if they would be able to participate in this research and explaining the details behind the process. Additionally, all participants received the Informed Consent Form and Plain Language Statement, as shown in **Appendix A** – Informed Consent Form.

All participants and interviewer had the camera on during the interviews, but only the audios were recorded by the author using his mobile phone. Additionally, all audios of all interviews were recorded with the participant consent thereby enhancing confirmability and reliability of this research and allowing the interviewer to concentrate on the interview rather than taking notes, thereby avoiding distraction in both sides. The audio files and interview transcriptions are the only primary data for this research. The secondary research data is related to information from peer-reviewed journals and books cited in the literature review.

At the beginning of each interview while recording, the author read his introduction asking the interviewees to acknowledge that they agree with the content of the Consent Form and the recording of the interview as shown in the full introduction below:

Hi,

Thanks for accepting to participate on the interview for this research and for reading and agreeing with the Consent Form. As mentioned in the Plain Language Statement and Consent Form, this interview will be recorded in order to facilitate data gathering, transcription and subsequent data analysis. All recorded audios or written communication such as emails and messages will be deleted within 12 months after answering the questions.
There are no risks to you in this research study. It should be noted that the interview questions address your knowledge and past experiences leading or working with global virtual teams.
The research won't expose any identifying personal information, including your name, date of birth, or address. Your data collected in this study will be anonymised, and it will be used for research purposes only.

Do you agree with that? Can I start the interview?

For conducting the interview, the author decided to use two interview techniques called Probing and Prompting. Probing helped to motivate the interviewees to add more details to their answers, and Prompting helped the researcher to discuss topics relevant to the research or areas which were not addressed yet. Here are some examples from that based on questions asked by the author during the interviews:

Probing

- **Interviewer asked the Interviewee E (17m 38s):**
  Is there any other practice - not work related - that can improve trust across teams?

- **Interviewer asked the Interviewee H (15m 58s):**
  What do you mean about formal communication? Sending a formal email to improve trust?

Prompting

- **Interviewer asked the Interviewee D (13m 32s):**
  How do you think it is a good practice to strengthen the relationship and the trust in this virtual teams?

- **Interviewer asked the Interviewee C (30m 23s):**
  Let's talk a little bit about communication... What are the biggest challenges for these global virtual teams working on these different time zones?

Initially, the author scheduled two pilot-test interviews for 12th and 13th of July - as shown in **Table 3** – Duration of each interview **-** to try out a first version of the list of questions.

Interviewee	Interview duration	Is pilot-test?	Interview date
Interviewee A	1h 02m 32s	YES	12/Jul/2020 at 6:00pm
Interviewee B	1h 12m 14s	YES	13/Jul/2020 at 7:00pm
Interviewee C	**38m 52s**	**NO**	**05/Aug/2020 at 6:00pm**
Interviewee D	**31m 53s**	**NO**	**06/Aug/2020 at 5:30pm**
Interviewee E	**32m 59s**	**NO**	**06/Aug/2020 at 6:15pm**
Interviewee F	**27m 25s**	**NO**	**06/Aug/2020 at 7:00pm**
Interviewee G	**35m 43s**	**NO**	**07/Aug/2020 at 6:30pm**
Interviewee H	**34m 42s**	**NO**	**07/Aug/2020 at 7:30pm**
Average (excluding pilot-test)	**33m 36s**		

Table 3 – Duration of each interview

The first pilot-interview was productive; however, the author noticed that the questions were not straight-forward for the interviewee to understand. As the participant was not familiarised with some terms or concepts, the author ended up spending a significant amount of time (1-2 minutes) elaborating some of the questions in more detail, so the interviewee could understand. In the end, the interview took over one hour to complete, but it was planned to finish in 30 min.

In the second interview, the author had the same issue trying to elaborate on the questions with too much detail. Moreover, the frequent use of "leading questions" by the author had a negative impact on some answers. This kind of questions is in some degree, closed-end questions that the interviewee can answer using a short sentence or repeating some of the words from the question. Here is an example of that during the interview with the **Interviewee B**:

- **Interviewer (34m 34s):**
  So, do you mean centralized information? Different medias, Different contents? So, these teams that are working in different places, they can have access to this information, even though, they are not actually online talking to each other? Do you think it can help?

- **Interviewee (34m 47s):**
  Yeah, definitely. It helps. Yeah. Okay.

- **Interviewer (34m 51s):**
  I assume they don't have it in the day one. Right?

- **Interviewee (34m 56s):**
  Sometime… we don't have this Wiki Page or this repository.

In order to improve that, the author decided to give to each participant – before the beginning of each interview – a brief explanation for 3-5 minutes about Global Virtual Teams, Cultural Diversity, Leadership, Trust Development, and Communication. Thus, the interviewees got a better idea about the nature of the questions that would be covered during the interview.

The author noted a significant improvement in the ability of the interviewees to interpret the questions and provide answers without the author explaining the topics during the interview. The average time for an interview dropped from 1h to 33 m, which was close enough to the original plan.

As mentioned previously, all interviews were recorded and transcribed by the author. The transcription was loaded in the MaxQDA Software, and the process of analysis is explained in **Presentation and** Discussion of the Findings. For helping understanding the format of the interview, and a full copy of the interview with "Interviewee E" can be found in the **Appendix C** – Full Interview with Interview E

3.4.2 *Nature of Data*

The primary data of this research is based on semi-structured and open-ended questions which were recorded, and also the transcripts of the audios generated by the author afterwards.

For most of the questions in the interview, the author was expecting the respondents to know about the issue, and there was no need for them to consult records or manuals to answer the questions. Thus, here is some best practice followed during the development of the interview questions:

- The questions should not make the respondent uncomfortable or embarrassed. It is to avoid the respondent to lie, so they look better.
- The questions should be related to the areas of knowledge of the respondent to make sure the interview is productive.
- The questions should be impersonal and should not ask for the respondent's opinion about his satisfaction with work or anything similar to that.
- The author should choose the response format for collecting the answers such as Structured Response Formats (Fill-in-the-Blank, Check the Answer, Circle the Answer) or Unstructured Response Formats (Written text). The questions based on the structured format will always be followed by the questions "Why?", thereby helping to expand the answer in detail.
- The author should define how to word the questions in order to get a reliable and in-depth response and also to make sure the questions are not misunderstood or too direct.

Here are some of the questions which were asked during the interviews group by categories of the research questions:

Cultural diversity

- What do you believe are the negative and positive points of having Global Teams from different cultures working together in a common project?
- Do you think cultural diversity could improve innovation in a project?
- Do you think performance would be improved if you diversify the culture between two teams? Have you experienced something like that before?

Trust

- Do you think trust exist in the Day 1? And how do you think the trust gets developed in teams from different places and different time zone?
- Do you feel the managers and the senior members can help the team to develop trust across virtual teams?
- Do you think that trust can be developed when people talk about things that is not just tasks?
- Can you give example when the lack of trust can decrease performance?

Communication

- What are the other challenges that you see in communication across different time zones, different culture, and things like this?
- What are the benefits of having task-related and interpersonal-related communication in virtual teams? Do you think it improves well-being?
- How do you think the interpersonal communication can help to develop trust in a virtual team or you think that people needs to focus only in tasks?

Leadership

- Do you think emergent leaders can improve performance of virtual team?
- Which type of behaviour emergent leaders have in virtual meetings across time zones?
- How do senior members or emergent leaders or managers can help to develop trust between virtual teams?

General questions:

- What are the challenges that you see working in different time zone, different people, and different places? How do you normally mitigate this?
- What do you think can be done to improve well-being in virtual team?
- Is there any kind of physical tool you have in the office that you miss in a virtual environment?

3.4.3 *Access and Ethical Issues*

The author of this study has identified the possible ethical issues and how it had to be addressed from the start rather than waiting until the data collection phase to figure out potential implications.

According to Weis and Fine (2000), the author should consider ethical issues such as his roles as insiders/outsiders to the participants; assess topics he may not be comfortable of disclosing, and also make sure to not stereotype or use labels not embraced by participants. Additionally, Hatch (2002) mentioned that the author needs to be sensitive to vulnerable groups, imbalanced power relations, and putting the respondents at risk.

For this qualitative research, this process of addressing possible ethical issues has started prior to conducting this study, and it continued throughout data collection, data analysis, in reporting the data and in publishing this research.

Following the recommendation from Creswell and Poth (2016) in their book Qualitative Inquiry and Research Design, here are the steps – chronologically ordered – which the author has followed:

- Before submitting the research proposal:
    - The author has already submitted the ethics clearance form to Griffith College for approval.
- In the beginning, to conduct the study:
    - The author has contacted the participants and disclosed the purpose of the study, and informed their participation is voluntary.
    - The author has sent a friendly request to the participants to sign the consent form.
- At the beginning of data collection:
    - The author has discussed the purpose and use of the study data.
    - The author has informed the participants that the data will be retained for 12 months following the conclusion of the project.

    - Once the period of retention has expired, research data will be deleted securely.
- During the data analysis:
    - The author has assigned fictitious aliases to the participants for privacy reasons (Interviewee A, Interviewee B, etc).
    - The author has avoided siding with participants, and he has reported multiple perspectives or contrary findings.
- During the data analysis:
    - The author has not disclosed data that jeopardises the participants' privacy.
    - The author has not plagiarised or falsified authorship, evidence, data, findings, and conclusions.
- After publishing the study:
    - The author will provide copies of the report to participants and stakeholders.

3.5 Approach to Data Analysis

For this research, the author has used the grounded theory as a research tool to identify common social patterns and experiences across all participants. For that, the inductive approach was used to create codes from the transcripts of the interviews.

One of the first steps of the data analysis was to read the interview transcripts many times, cross-referencing, and identifying possible themes to be used. The author has worked inductively trying to let the data speak for itself and avoiding the influence of his own point of view on to those of the interviewees.

While reading the transcripts, the author used MaxQDA Software to highlight short statements that summarise the meaning of the answer into codes. Thus, the codes were used as the building blocks for this analysis, which afterwards were combined into themes.

During each interview, the author was observing whether some key themes were reaching saturation; otherwise, more questions were asked to understanding some areas not discussed. For example, the author noticed the interviewees were not talking much about leadership or how the leaders could help on developing trust, or improving communication in the virtual teams, or minimising the impact of cultural diversity, so the interviewer had to ask some direct questions about Leadership (i.e., emergent leader, shared, leadership) to extract some new codes out of the interviews related to this specific research question. On the other hand, there were cases where the interviewees were talking too often about the issues related to communication and time zones in virtual teams, so the author had to intentionally drive the discussing way from these topics in order to open up a new horizon to help to answer the other research questions.

In the final steps of this process, the themes generated from this analysis are used to drive the discussion to answer the research questions. Using the Code Matrix Browser functionality from MaxQDA, as explained in **Overview**, the author was able to understand the saturation of each theme, and the intensity of each code.

Lastly, the author uses a narrative passage to represent the findings of this research. It has been represented explaining some key themes able to answer

some research questions and discussion of correlated themes. However, there is not a separate chapter for the discussion of findings. It appears in the same **Presentation and** Discussion of the Findings as the findings, making it more practical and concise in qualitative research to have findings and discussion explained together.

In the diagram shown in **Figure 3** – Steps for the Data Analysis, it shows a summarised workflow of the steps taken by the author during this data analysis.

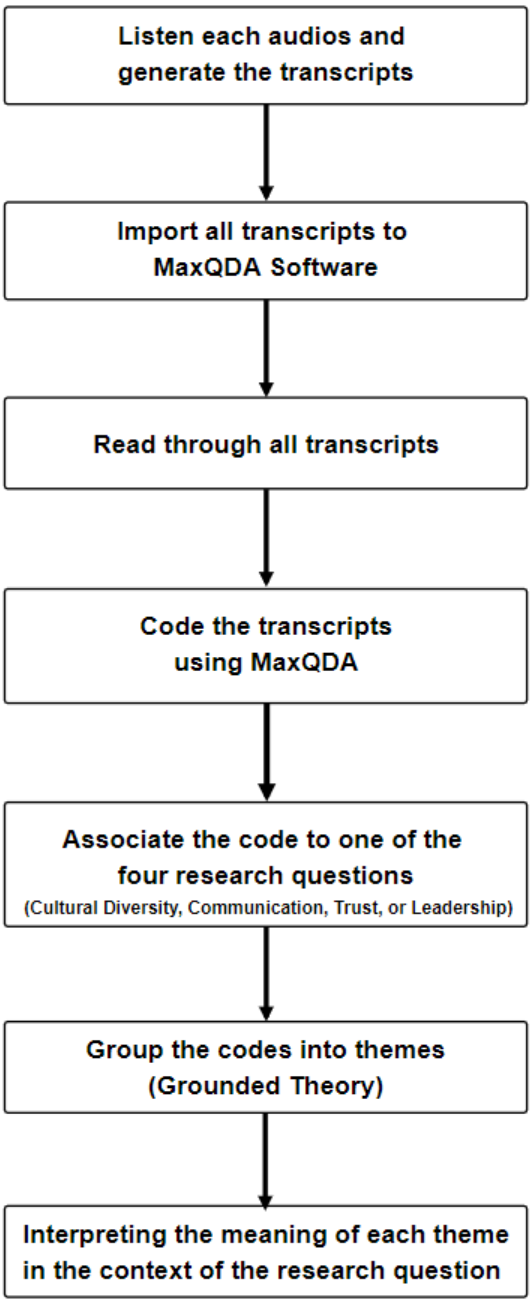


Figure 3 – Steps for the Data Analysis

3.6 Conclusion

At this stage, the qualitative research allowed the author to deep dive – during the interviews - in specific areas of the conceptual framework to be able to understand the relationship across cultural diversity, communication, trust, and leadership. However, the author suggests – for future research - the use of mixed-methods research design combining data from interviews with a structured survey from a broader audience from different industries.

In the following chapter, the author will present and discuss the findings of this research. Each section has been group by research questions, and the presentation and discussion are explained together, making it more practical for qualitative research, hence more comfortable for the reader to understand the rationale behind the analysis.

4 Presentation and Discussion of the Findings

4.1 Overview

The findings of this research have been grouped by research questions in order to facilitate the presentation of the themes and codes extracted from the interviews. Additionally, the author has analysed the occurrence of the same codes in different interviews, and across research questions, which helped to understand the impact and intensity of one aspect such as communication or cultural diversity, can have on trust, for example.

Moreover, there is not a separate chapter for the discussion of findings, making it more practical in qualitative research to have findings and discussion explained together for each research question, hence more comfortable for the reader to understand the rationale behind the analysis.

The research questions were selected based on four different relevant categories impacting Global Virtual Teams such as Culture, Communication, Trust, and Leadership, as per **Table 4** – Categories of each Research Questions:

Category	Research questions
Culture	How does cultural diversity impact GVTs?
Communication	How does communication affect GVTs?
Trust	How does trust get developed in GVTs?
Leadership	How do leaders improve performance of GVTs?

Table 4 – Categories of each Research Questions

These four categories have served as a guide on the development of this study, and the themes and codes of these analyses are linked to parts of the interview transcripts associated with these categories. For accomplishing a deep understanding of the data, the author used a full licensed software called MaxQDA Plus 2020 which provides advanced features for creating and associating codes and themes directly to the paragraphs of the interview

transcripts as shown in **Figure 4** – MaxQDA interface load with the data from this study:

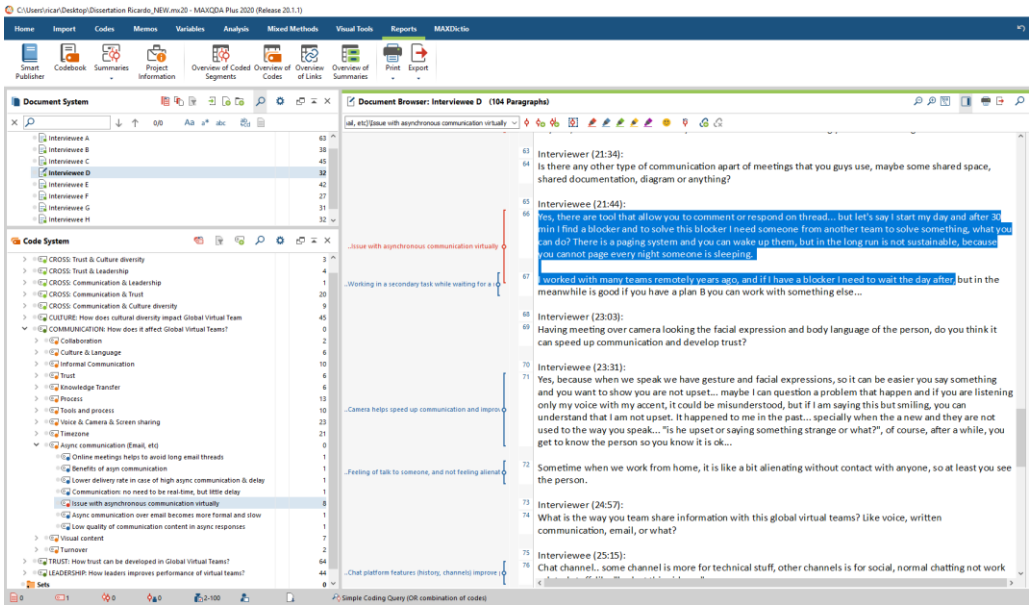


Figure 4 – MaxQDA interface load with the data from this study

In **Figure** 5 – Main sections of MaxQDA Software explained**5,** it takes a closer look at the software interface, which is loaded with real data from this study. It highlights the main sections with red arrows & labels to provide a brief clarification of the work environment used on the development of this project.

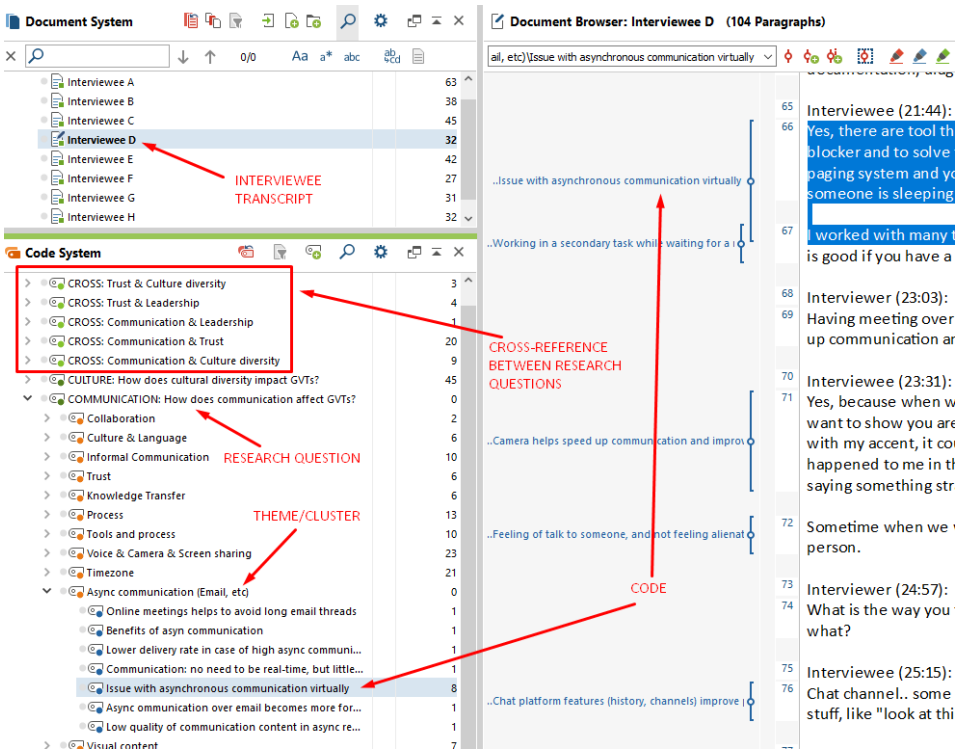


Figure 5 – Main sections of MaxQDA Software explained

The author recorded the audios for all eight interviews and transcribed into text, and then created documents in the tab "Document System" (top left corner in **Figure 5** – Main sections of MaxQDA Software explained) for each interview. After having all transcripts completed, the author started reading all over again each transcript trying to find parts of the interview, which could help to answer one or multiple research questions. For each section of the interview related to a research question, it was created a new code or re-used an existing one, and then associating this code to a theme part of the research question.

For didactic reasons, the list below helps to explain each step used to create the codes and themes in the chronological order using MaxQDA Software:

1. The author recorded all interviews.
2. All audios were transcribed into text. To help to understand the format of the interview, and a full copy of the interview with Interviewee E can be found in **Appendix C** – Full Interview with Interview E
3. The author read each interview carefully and started creating codes and referencing it to parts of the transcripts, as shown in **Figure 4** – MaxQDA interface load with the data from this study.

4. Each code created was associated with one or two research questions.
5. Before start coding the new interview transcripts, the author grouped the existing codes into themes, i.e., if there were multiple codes related to "issues communicating across time zones", so the author moved all those codes to the theme "Timezone" and then associated this theme to the research questions about communication ("How does communication affect GVTs?").
6. Furthermore, there are cases where the code belongs to multiple research questions (categories), i.e., if the code is "Core teams should be in similar timezone", in this case, it can be associated to the research questions "Leadership" and "Communication". Thus, the author created a theme "Team Formation" (Theme) in the " Leadership" (category), and another theme "Timezone" (theme) under "Communication" (category), as shown in **Figure** 6 – Shared code between two themes**6** below:

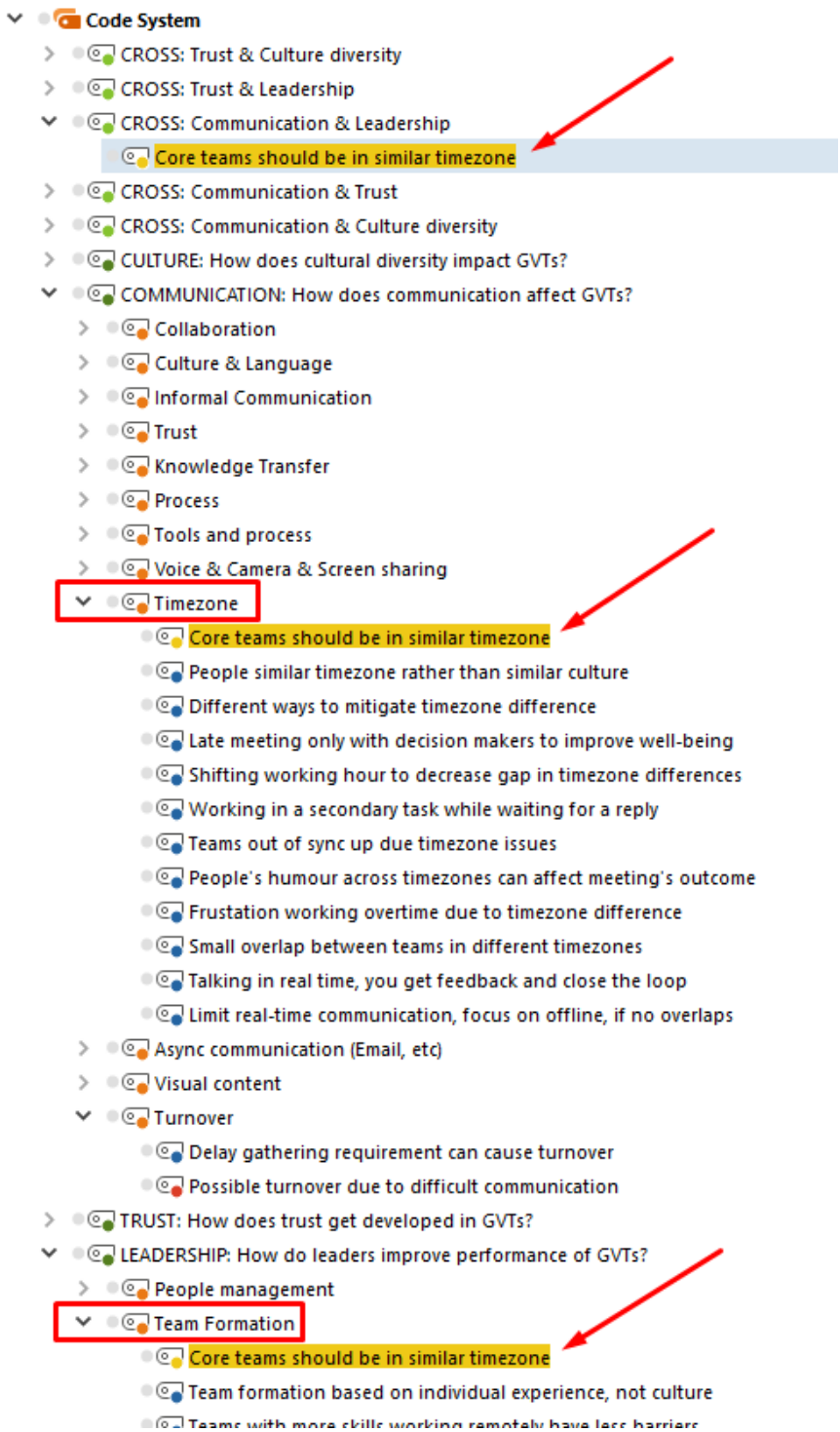


Figure 6 – Shared code between two themes

As described previously, the leadership decision around team formation can have a direct impact on how people communicate across time zone. Thus, in case the core teams - which needs to collaborate frequently – do not have overlapping hours with each other's, it can slow down communication.

In the course of the interviews, 144 codes were generated, and 23 of them have cross-reference between two research questions, as shown in **Table 5** – Number of codes grouped by shared or not shared

Codes overview	
Number of codes referenced in a **single** research question	121
Number of codes referenced in **multiple** research questions	23
Total codes	**144**

Table 5 – Number of codes grouped by shared or not shared

In these next two tables below, it provides a detailed breakdown of those numbers to show how the codes are distributed across the different research questions (Categories):

1. The first one contains the number of codes which are unique to each specific category and do not have any relationship with another question. In case the code is referenced in several interviews and paragraphs of the transcript, it will be counted once in the figures from **Table 6** - Number of codes related to a single research question:

Number of codes referenced in a single research question	
Cultural diversity	20
Communication	48
Trust	23
Leadership	30
Total codes	**121**

Table 6 - Number of codes related to a single research question

2. In **Table 7** - Number of codes referenced to multiple research questions, it provides the number of codes which were cross-referenced by multiple questions. The transcripts associated with these codes help to answer the research questions, but more importantly, to understand how one aspect like "Communication" can influence "Trust" in Global Virtual Teams:

Number of codes referenced in multiple research questions		
Trust	Cultural diversity	2
Trust	Leadership	3
Communication	Leadership	1
Communication	Trust	11
Communication	Cultural diversity	6
Total codes		**23**

Table 7 - Number of codes referenced to multiple research questions

In **Error! Reference source not found.**, the author has explained in more detail those cross-reference between themes across research questions.

4.2 Culture: How does cultural diversity impact GVTs?

In some stage, global companies will face challenges related to cultural diversity which can bring benefits or can slow down projects in case the management team ignores this factor. Thus, forming virtual teams from different countries and culture - working in the same project and interacting with each other daily – is not an easy task and demands lots of strategic thinking to bring the expected outcome.

Due to the importance of this factor, the author asked 3-5 questions during the interviews, which are related to cultural diversity in global virtual teams. The author tried to investigate what is the impact of having teams from different countries working in shared projects and how it could influence the team dynamic, motivation, communication, productivity, and innovation.

After coding and clustering all interviews, the research questions related to Cultural diversity had only 28 codes (16.8%) out of 167, as highlighted in dark blue in **Table 8** - Total number and percentage of codes related to Culture Diversity below. Additionally, the shared codes weights "2", as the same code would be related to two research questions, so it behaves as a duplicated code to come up with the percentage (167 x 16.8% = 28).

Codes related to a single research question			Weight	Total codes
Cultural diversity		20	1	20
Communication		48	1	48
Trust		23	1	23
Leadership		30	1	30
Codes shared across research questions			**Weight**	**Total codes**
Trust	Cultural diversity	2	2	4
Trust	Leadership	3	2	6
Communication	Leadership	1	2	2
Communication	Trust	11	2	22
Communication	Cultural diversity	6	2	12
Total code about Cultural diversity		**28**		**167**
Percentage of codes about Cultural diversity		**16.8%**		

Table 8 - Total number and percentage of codes related to Culture Diversity

Moreover, those codes were grouped into five different themes, and it almost reached the saturation in two of them - the second and third themes on the figure below. Thus, the Cross Matrix Browser from MaxQDA groups the number of times each code occurred per each theme where the bigger is the square, the higher is the number of references made by the interviewees around this theme during their interviews, as per from **Figure 7** – Cross Matrix Browser with all themes about culture**:**

Figure 7 – Cross Matrix Browser with all themes about culture

The **Figure 8** – A code from one of the themes from the research questions about culture expands the third theme to show the codes related to it. As mentioned previously, the third theme almost reached saturation, but it is essential to understand which codes influenced this result. As per image below, the code "Cultural diversity provides a diverse perspective to a project" is associated with five interviewees:

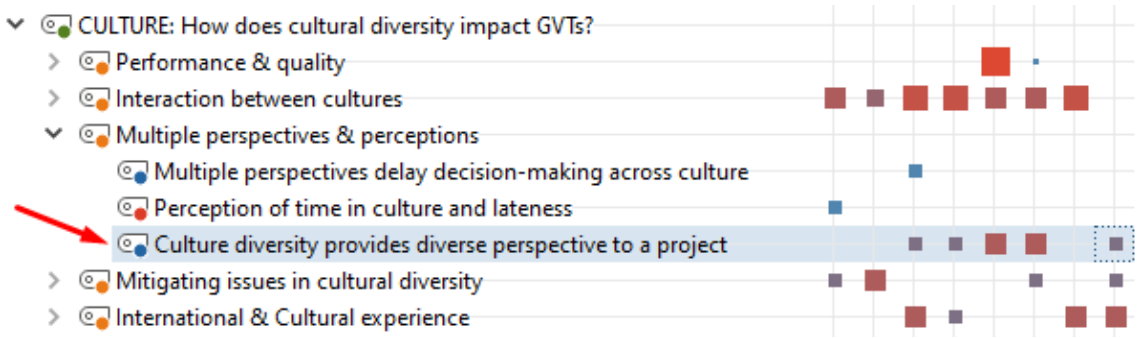


Figure 8 – A code from one of the themes from the research questions about culture

The code highlighted in the image above is about the benefits of having people coming from different countries and companies. This cultural diversity can increase the range of solutions and ideas which could spark innovation and speed up problem-solving, as shown in the quote below:

> **Interviewee H (1m 50s):**
>
> *I think the cultural upbringing of people can affect on the way that people think or react to adversities to different types of problems we need to solve... and also it plays a major factor... my experience working with people with different culture proved to me that thinking together about issues and solving things is facilitated by getting few points from people that were raised differently, have different cultural baggage, and different experience living countries and different organisations.*

The literature review from Error! Reference source not found. describes that cultural diversity could bring barriers around communication due to different native languages and background among team members. The participants mentioned that different native language could limit full expression, decreasing the quality of the message, as shown below in quotes of two participants:

> **Interviewee C (2m 50s):**
>
> *Yeah. I think it is main communication, for example, now we are talking in English. For some people where the communication skills are not great and maybe in their native language they used to be more expressive, and in english they are move direct or straightforward. The language itself allow you to be like that, even the way you address people you dont know is different in my own language, when generally we are more formal or this kind of things. Those little differences that sometimes can affect the way you work.*

Interviewee D (1m 22s):

The negative is that could limit people. Sometime someone could be worried about openly speak because they could be misunderstood or something like that, and that's important to know about this.

Additionally, some cultures - during technical discussions - go direct to the point without going too much in detail which can clash with other cultures which are expecting to get more information to move forward with their tasks, thereby leading to misinterpretation or delay in problem resolution, as shown in the quote below:

Interviewee G (06m 10s):

I do many small talks with these other cultures, and this is something I usually use to talk to some people, try to solve work problem, when I am talking with this people things are more direct... It is almost the same feeling you have to write an email... it is not the same as much productive as talking because you can do a question and a small sub-question right way and have whatever you want or even more. So, when these cultures go right into the point and that is it, you miss lots of opportunities to even analyse better what we are trying to solve...

Moreover, slangs and different terminologies can lead to misinterpretation, and some cultures wouldn't admit they haven't understood something. The fear of being judged makes them pretend they understood the slangs. It comes from the fact that they take longer to trust people, and also some of them are more sensitive to feedback. In the quote from **Interview A** explain about the "Slangs", and the quote from **Interviewee D** explains about the fear to be judged:

Interviewee A (11m 52s)

And then another thing related to this is slangs... sometimes people uses slangs when they are talking and sometimes, it's different for them... for me... I talking to a guy and in the end of the meeting, the guy said: "Oh, okay, sweet."... and they said "sweet". Why Sweet? And I didn't understand because in my language sweet is another thing...

Interviewee D (5m 36s)

As a manager, you should be able to identify a situation like this and try to work with the person to make sure they are confident and you can raise the hand to say something which appear not perfect, or not correct, take time... also for me at the beginning was very difficult, I was scared I would say something stupid, something that people would think I am not good, or could be completely wrong. With time you realised, you are incentivized to share your opinion as you will learn that you only learn if you share your opinion. I remember someone saying: "there are no stupid question, only questions".

On the other hand, participants believe that people with similar culture communicate smoothly, thereby seeking to talk to virtual members from the same native language when if it is available:

Interviewee G (7m 46s)

I can see it is easier for some people that have the same culture or language mainly, it is easier the communication between them... you can see some small clusters of same culture or language... If someone is latin in a virtual team and they are trying to solve something, they will give priority to speak right way with someone that has the same language as they do.

Furthermore, cultural diversity brings different background on the decision-making process, and it could cause conflict or slow down projects in case agreement is not reached. Thus, multiple perspectives could delay decision-making across cultures working in different time zones. Thus, some teams would try to solve the problem without understating the problem in detail, as described in the quote below:

Interviewee C (1m 40s)

I think there is positive and negative aspects. In the positive side, having people from multiple countries can give a different perspective to the problem you can solve, but at the same time, I experience working with people from almost every country and even over different timezones and

sometimes the way I work in my country is different from the way they work in another country, so to agree on this sometimes is complicated.

On the other hand, almost all participants mentioned that cultural diversity provides a diverse perspective to a project which can bring multiple skills and work styles (focus on execution, procedural, creativity), thus increasing the range of inputs to troubleshoot a problem or develop new features, as described in the two quotes below:

Interviewee C (5m 40s)

Let's say you are working in a project and you need to develop a solution to solve a business problem, and if you have multiple perspective, you can have multiple option to choose from. The best one is among them. While if you only have one, you are limited in a way. In this sense, culture diversity improves the quality of the job you are producing in the team.

Interviewee F (5m 10s)

One positive things is that, depending on the culture they would be more creative, focused, procedural, this mix between culture I think it will always need improvement, only one way is not the only way to do a complete project... sometimes you would need to be more flexible, other times you will need to follow strict guidelines, and this mixing culture will bring new ways to work and will spread across the teams.

4.3 Communication: How does communication affect GVTs?

Communication is a key research topic on this study as the literature about global virtual teams has widely mentioned it. Thus, not surprisingly, it has produced 66 codes (39.5%) out of 167, as highlighted in dark blue in **Table 9** – Total number and percentage of codes related to Communication below.

Codes related to a single research question			Weight	Total codes
Cultural diversity		20	1	20
Communication		48	1	48
Trust		23	1	23
Leadership		30	1	30
Codes shared across research questions			**Weight**	**Total codes**
Trust	Cultural diversity	2	2	4
Trust	Leadership	3	2	6
Communication	Leadership	1	2	2
Communication	Trust	11	2	22
Communication	Cultural diversity	6	2	12
Total code about Communication		**66**		**167**
Percentage of codes about Communication		**39.5%**		

Table 9 – Total number and percentage of codes related to Communication

Another interesting figure which got the attention of the author is the appearance of 11 shared codes linking **communication** to **trust.** The interviewees described a strong link between these two components which can go both ways, thus chatting about personal topics can improve trust, or having trust can also speed up communication.

In the first quote below, there is an example of how informal conversation in the virtual working environment can improve trust. It comes from the principle that in order to get trust, you need to give trust. Additionally, it also mentioned a good practice of scheduling recurring meetings with some virtual team members from other countries to touch base, even though there is no agenda for the meeting. Thus, people use the time to talk about personal subject and work, therefore developing an interpersonal relationship.

Interview E (17m 55s)

Yes... sharing some certain level of personal information could leverage trust, so for example, if I am sharing with you some personal information about my personal life, so it means that I am trusting you and I believe what I am telling you or asking you for some kind of advice whether it is personal level of not, that means I am trusting you... because if I dont trust you would share this information with you and that could immediately from your side "oh, this person is trusting me, he is sharing information with me, so most probably I can trust him as well"... so it might encourage other to have some kind of trust there. So, what is happening with me right now with my peers which I dont have interaction in the work level, I am still maintaining a weekly 30 min to talk about daily stuff and if I share something more personal, that's the way we are building the trust more and more, and when it will come to collaborate in a work level I will already have some level of trust there because it would be easier to talk about things that is bothering us on the project level.

In this second quote below, it shows trust influencing positively communication, which can lead to faster problem resolution, and better quality on the information shared between members.

Interview E (15m 02s)

Yes, I have definitely being there. If you have trust from the peers, and if there is enough trust inside the team, so the communications would be much faster because they would not be too much of questioning "why exactly do you think that?"... it is something verified and they can trust it.

The **Figure 9** - Cross Matrix Browser grouped vertically by Interviewees below shows that the codes related to Communication were the ones used the most across every interviewee. It can be explained by the fact that the interviewees mentioned multiple times issues in the communication process across culture and time zones while answering questions not related to communication (e.g., trust, leadership, or cultural diversity). Thus, there are codes referencing communication throughout different stages of the interviews.

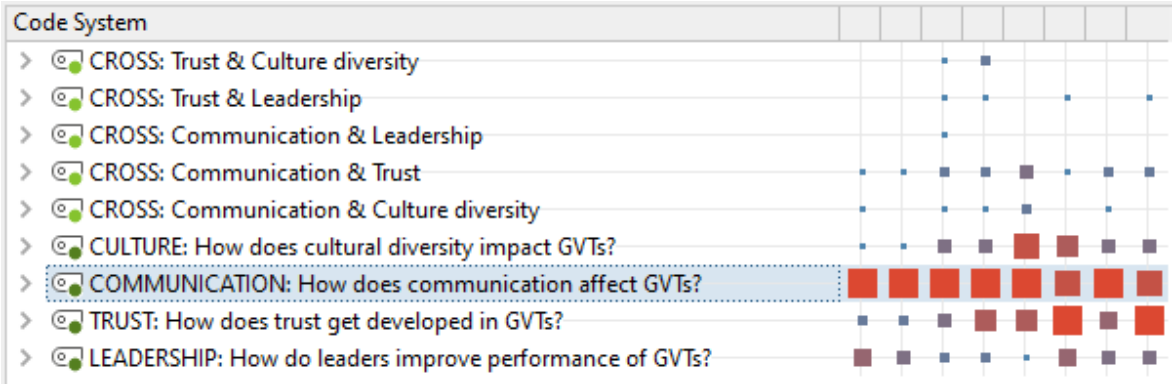


Figure 9 - Cross Matrix Browser grouped vertically by Interviewees

In **Figure 10** - Cross Matrix Browser for Communication grouped horizontally by themes, the Code Matrix Browser was grouped vertically by theme and revealed that 7 out of 12 codes almost reached saturation, and two of them were highly mentioned such as "Voice & Camera & Screen sharing" and "Timezone".

After assessing the saturation of these themes, the author observed that the saturation occurred around negative points such as time zones differences between teams, async communications (i.e., emails, chat applications), and lack of whiteboards or visual contents to share ideas quickly.

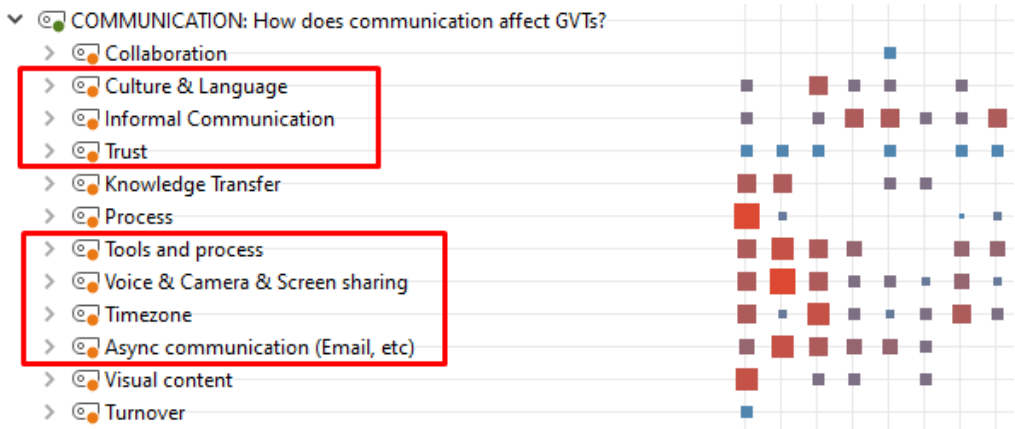


Figure 10 - Cross Matrix Browser for Communication grouped horizontally by themes

As per the image above, the time zone difference between teams was a hot topic across all interviews, and one of the complaints is that teams go out of

sync quite often which can increase the amount of re-work and frustration within the virtual teams, as shown in the quote below:

> **Interviewee C (30m 44s):**
>
> *The biggest challenge is to be up to date. If you need to work with different people from all over the world from different time zones, and even people working in different things, to know what they did… Just to know if it affects your work. It happened to me multiple times that I was on something and they didnt update me with the changes from their side and it affected a lot the delivery time.*

However, the hottest topic across all interviews was about people working with other teams from different time zones with little or no overlap with some team members. The ability for people to work on projects across multiple teams with no overlap between them can have a significant negative impact in the well-being and people's personal life, thereby decreasing the engagement and commitment to the company in the long-run. Moreover, having strong dependencies between these teams make people fall back to async communication, i.e., email, because people won't be willing to be connected out-of-hours every day, thereby adding a significant delay to the virtual projects. Three quotes about this issue can be found below:

> **Interviewee F (1m 29s):**
>
> *A bad one is not about the culture but it is about being distributed, timezones, the time that takes to made the decision, or collaboration... that is the worst that I see.*

> **Interviewee A (2m 57s):**
>
> *…another problem is the different time zones. It's, it's hard because sometimes we don't have, uh, an overlap of time. So some, so for examples, uh, when I need to talk with someone that's in New Zealand, I need to stay late or they need to stay late.*

Interviewee G (17m 48s):

Since it is related in timezone... the short amount in overlapping... this has been challenging because for example I have worked in projects in the past that I was dependent on people from other timezone, and this was quite challenging because I had just one or two hours to contact them or I have to work after hours...

On the other hands, some relevant positive points about communication also reached saturation. The participants detailed several benefits of having meetings over camera & screen sharing, document management system (e.g., Wiki), and channel-based messaging platform (e.g., Slack). Additionally, they also explained the benefits of personal and informal conversation to improve trust and to make people feel closer remotely.

In terms of tooling such as document management system and channel-based messaging platforms, it became visible that they must have that in place from Day 1. These virtual team members - working across time zones – performs better when they can effectively communicate with each other and share documentation in a single place. Thus, these platforms improve knowledge sharing as the content becomes searchable, and users can tag each other generating notification asking for feedback. Therefore, the user in a different time zone can collaborate asynchronously with other teams helping to update documentation such as technical specification or software architecture diagram. The following two quotes bring the view of the interviewees:

Interviewee B (33m 37s):

Central repository of information is very important, especially because when you have different time zones, it is a good place to search for information, if you're working in different locations or different time zones, sometimes you don't have time to do some meetings or to explain something to the team. So, if you have this repository of information is very good because you can share a link to a chart or videos or recorded

meetings. It is a good point, or if you have text information is good too. So yeah, it's very, very important...

Interviewee C (24m 50s):

Yeah, I think it can, because, if you have everything together with the history it is easier to track. In Slack, you can create a channel with one or more people to make the history easier to search, to find, add more people in the channel.

In the theme "Voice & Camera & Screen sharing", the participants believe that the ability to see people over camera benefits the virtual meetings as it develops a closer connection between people on the call. It also improves the attention of the participants as they won't be able to simply walk away from the camera without explaining their absence or spend time on their phone while listening to someone in real-time. Additionally, the facial expression and body language during calls over the camera enrich the communication with nonverbal signals and bring a different meaning to the conversation. Therefore, it helps to minimise misinterpretation of behaviours and intonation across people from different cultures, as shown in the two quotes below:

Interviewee C (36m 58s):

...there are times where, particularly, if you are not native speaker, or even if you are, depending on how you use to talk, you can see things that if you dont understand at all or you dont see the facial expression, they might even interpret as an offence. So, if you see the expression, you might understand, but at the same time, you are explaining a design or you are discussing something, you can understand even if the person is not telling you, maybe they dont agree with you. Or vice and versa, or maybe you might not understand because they might be saying "you should do this better", but their facial expression shows that they dont mind. It is just something you need to do.

Interviewee D (23m 31s):

Yes, because when we speak we have gesture and facial expressions, so it can be easier you say something and you want to show you are not upset... maybe I can question a problem that happen and if you are listening only my voice with my accent, it could be misunderstood, but if I am saying this but smiling, you can understand that I am not upset. It happened to me in the past... especially when they are new and they are not used to the way you speak... "is he upset or saying something strange or what?", of course, after a while, you get to know the person so you know it is ok...

4.4 Trust: How can trust be developed in GVTs?

According to Marlow, Lacerenza and Salas (2017), they analysed the influence of trust in communication as the team virtually increases, however for this study, the author wants to explore how trust can be developed in the global virtual teams due to the nature of the virtual environment.

Trust was the second most mentioned category in this study, and produce 39 codes (23.4%) out of 167, as highlighted in dark blue in **Table 10** - Total number and percentage of codes related to Trust below:

Codes related to a single research question			Weight	Total codes
Cultural diversity		20	1	20
Communication		48	1	48
Trust		23	1	23
Leadership		30	1	30
Codes shared across research questions			**Weight**	**Total codes**
Trust	Cultural diversity	2	2	4
Trust	Leadership	3	2	6
Communication	Leadership	1	2	2
Communication	Trust	11	2	22
Communication	Cultural diversity	6	2	12
Total code about Trust		**39**		**167**
Percentage of codes about Trust		**23.4%**		

Table 10 - Total number and percentage of codes related to Trust

Moreover, those 39 codes about Trust were referenced in 64 part of the transcripts; however, the theme "Trust Development" was reference 41 times (64%) as shown in **Figure 11** – Number of references across all different themes related to trust, which has brought exceptional value to help to answer our research question about the details behind trust development in a virtual work environment. Additionally, the figure below shows the details of how those codes are distributed across the six themes.

TRUST: How does trust get developed in GVTs?								
Building relationship & Collaboration	1	1	1		1	1		1
Building confidence			1	3				1
Performance					1	1	1	1
Time saving				1		2	1	
Trust development	4	3	6	4	7	4	5	8
Activities & Team Building	3	1						

Figure 11 – Number of references across all different themes related to trust

Even though the trust development was the most mentioned theme in the Trust category, there are other themes related to trust, which are also relevant such as "Building relationship & Collaboration" and "Performance". Additionally, those themes from Trust have cross-reference with themes from Communication. It comes from the fact that people associate trust to the ability of people to develop an interpersonal relationship with other team members, thus bringing them closer to effectively work in tasks together, thereby increasing the sense of belonging and well-being. As people spend a significant part of their day at work, people become more productive and confident when they work in an environment where they are not judged, and they feel trusted. The following two quotes cover this argument:

Interviewee H (24m 37s):

Yes, also that. If you are joining a virtual session and you know this person wont be judging you, this person wont make a bad comment or make a mistake, this improves your well-being and how you can perform.

Interviewee A (14m 11s):

Yeah. It's not only meetings, because people are working together, but that's part of their lives. So, that's a human relationship, even if you know you're here as a professional and you're here to do your job. No! That's one third of our life. So, we need to have some human touch. I believe that that's why you, you know.

Moreover, the most mentioned code across all interviews is "**Travel: People collaborate more when they know each in person**", and it belongs to Trust category. It is about the benefits of people travelling to other countries to get to know their virtual team members and other teams early-on.

Virtual team members feel more connected to their remote peers after spending a couple of weeks visiting them in their country. Thus, this sense of friendship makes people prioritise quickly, or work extra hours, to help their remote co-workers. It comes from the fact that after meeting their virtual co-workers in person, the feeling of "we are all in the same boat" increase which helps people to trust each other more and "go through the same storm" together.

Most of the participants have experience travelling to other countries to visit other virtual teams across the globe - for a couple of weeks - before the start of the project or right after joining a new company. They highlighted the value of experiencing informal conversation face-to-face, or having coffee or lunch together, which helped to improve the trust and connection between them. Thus, next time when they need to interact again virtually, they would have a better feeling of helping each other as they would feel they are helping a friend, as shown in the three quotes below:

> **Interviewee F (26m 23s):**
>
> *One thing we didn't mentioned that go across everything, even though the team is virtual having physical contact at some point helps... if you go visit the person, and if your project and one year long project and if you can spend few weeks at the beginning, maybe mid project as well, it helps to know the person and it helps to speed up to earn trust and understand the other culture, so that is something goes across all different things we spoke about timezones about communication, empathy, it is really important... it can go well completely virtual, but it can help if you have some mix between virtual and physical.*

Interviewee G (22m 18s):

Yes... If I had to rank, the personal contact is the best one... even if you have a virtual team, but you can once in a year travel to those locations, because I rank as the most effective, but after that, I would say camera...

Last year, I was able to travel to all these location where I worked in the same project where I was depending on the other people... it was just for one week , but it was way better to know the people that I was talking with, and it changed how I saw they also, and how I trust them...

Interviewee C (16m 36s):

At the same time, it would help to send an engineer from Australia to America for one or two weeks per quarter and even per year. I see from my experience, I have done this and improved a lot. Even when I came back, the way I was interacting with my colleagues in a completely different country, even far from where I was working, Even going out for dinner together physically in the same place. Helped a lot. Those are things which would help in a way.

Furthermore, having leaders introducing people to other virtual members and teams can help with the development of trust. Additionally, leaders can arrange tasks to increase collaboration between specific members in order to make their relationship stronger. Thus, trust development can be shortened if the leader pro-actively identifies the weak connection between teams and use their influence to make the virtual teams more resilient, as shown in the quote below:

Interviewee H (26m 52s):

During the project you also need an open channel for people to discuss... if you are in a management position, you need to make people to get to know each other even superficially, you need to introduce people to each other, like "Ok, you will be working with this guy now", and if you are manager talk a bit about the guys like "he is very experience, I think you

guys will be working well together, you guys have things that complement each other"... I think is one of the functions of the manager there is to introduce people to each other and make informal choices on how they will work together.

4.5 Leadership: How do leaders improve performance of GVTs?

There is a misperception that leaders could be the solution for many of the problems in organisations; however, the interviewees haven't explicitly mentioned too often about leadership in their answers. Thus, most of the codes for this category were implicitly interpreted by the author to answer the research questions about how leaders could improve the performance of Global Virtual Teams.

Leadership was the second least mentioned category in this study, and produce only 34 codes (20.4%) out of 167, as highlighted in dark blue in **Table 11** - Total number and percentage of codes related to below:

Codes related to a single research question			Weight	Total codes
Cultural diversity		20	1	20
Communication		48	1	48
Trust		23	1	23
Leadership		30	1	30
Codes shared across research questions			**Weight**	**Total codes**
Trust	Cultural diversity	2	2	4
Trust	Leadership	3	2	6
Communication	Leadership	1	2	2
Communication	Trust	11	2	22
Communication	Cultural diversity	6	2	12
Total code about Leadership		**34**		**167**
Percentage of codes about Leadership		**20.4%**		

Table 11 - Total number and percentage of codes related to Leadership

During the interviews, the author has intentionally not asked direct questions about leadership not to influence the interviewees on their answers. Thus, the interviews started with questions about the challenges in cultural diversity and then moved to Trust, and then Communication. In the last 5 minutes of the interviews, the author asked questions about leadership, emergent leaders, or shared leadership to fill the gaps in the interview.

At the end of the interview, the author asked some direct questions about Emergent Leader which thereby influenced the appearance of a high number of codes related to the theme "Emergent Leader" as highlighted in **Figure 12** - Cross Matrix Browser for Leadership grouped horizontally by themes**:**

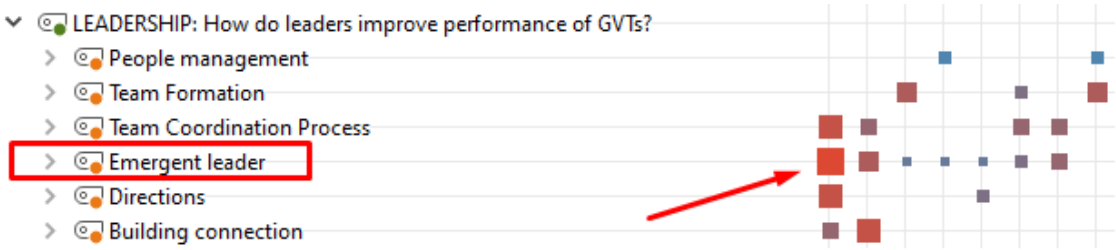


Figure 12 - Cross Matrix Browser for Leadership grouped horizontally by themes

However, there is one specific code that is referred in four different interviews which are about the benefit of Shared & Emergent leadership during the decision-making process, as highlighted in **Figure 13** - All codes related to a theme from Leadership category. In this case, the author didn't ask questions about the decision-making process, so it shows the relevance of this relationship between "Shared/Emergent leadership" and "decision-making process" which can also be explored in future researches.

LEADERSHIP: How do leaders improve performance of GVTs?								
People management				1				1
Team Formation			2			1		2
Team Coordination Process	3	1				1	1	
Emergent leader								
Emergent leader can help people to adquire trust			1					
Quick sync up with decision makers improve problem resolution		1						
Importance of a decision maker in virtual meetings	1							
Shared Leadership scales communication across global virt teams	1							
Someone facilitating a meeting can improve productivity							1	
Emergent leader helps to facilitate and guide discussions	1							
Emergent leader helps in product requirements discussions	1							
High performers cares more in documenting and sharing knowledge		1						
Shared/Emergent leadership can scale decision making process	1	1			1	1		
Leader bound people and helps who doesnt have these skills		1		1				
Emergent leader happens naturally	1							
Emergent Leader becomes a role model to develop others						1		
Only seniority is not enough to become Emergent Leader							1	
Members expects emergent leaders to help manager in his absence							1	
Directions	4				1			
Building connection	1	3						

Figure 13 - All codes related to a theme from Leadership category

As per the findings above, there was a trend throughout the interviews that the formal leader would need help to scale out the decision-making process. So, Emergent Leader would be the ones working closely to the formal leader, helping to provide direction to the team.

Emergent Leaders are well-calibrated members who have the right level of technical and soft skills. Additionally, they help to facilitate meetings, connecting people, involving people in discussions, and making sure to follow up with action items agreed in the meetings, as shown in the quotes below:

Interviewee B (4m 03s):

Not coordinate because I don't think he could do the formal coordination. They could do this type of connections, to try to make things easy, uh, try to create this meeting or to connect people or to solve the gaps. I think it's not the like coordination. I think it's more about create connections... talk to people, see with other people have problems, try to create solutions for these problems.

Interviewee D (31m 11s):

The ability to involve people in discussion... if you are in a meeting and you are new and you keep in silence, and you could say something good and you dont say... so they are the ones that usually say "Hey, tell me your opinion", so you are more or less forced to say something... they drive things better, or if you are going off topic, if you are losing too much time, this kind of stuff.

Additionally, Emergent Leaders are the role models to develop new Emergent Leaders to the team, thereby helping the formal leader in his absence and driving meetings to push the project forward. Some participants mentioned they see the Emergent Leaders as the "Go to Guy" to ask for help, and they also rely on them to acquire trust with other members inside and outside of the team. Using this structure of decentralised and shared leadership, the virtual teams can accomplish more as they can work in multiple working streams and having virtual leaders leading virtual projects within the same team. Thus, the formal leader can make some critical decisions, but they don't need to get involved in the majority of the decision made by the team, thereby improving the level of resilience, autonomy, maturity, and throughput of their teams. An example of that is shown in the quote below:

Interviewee C (28m 43s):

I was working in a team and the manager was not even in the same location where I was working, so this emergent leader had to, I would say, act as manager because it is not the proper way to put it, but to work as a middle man in a way, so the trust within and outside of the team was dependent on these emergent leaders, so they are important, because a manager has a role, but there are people that supposed to be the "go to guys", not necessarily for technical things, because you can be a leader simply because you would be working with this company for years and you have a new hire and this person maybe even more technical than you, but doesnt know the internal process, doesnt know the people, so the

leader can help this new hire as well to developer and to acquire trust and be trusted.

In general, interviewees believe that the emergent leaders within the team can help to speed up the decision-making process, engage people in meetings, and to chase people in the virtual environments to get answers to unblock the team. This role is key to the performance of the team in the virtual environment as the members interact electronically more often, there is a need for an extra layer of coordination across the team.

4.6 Conclusion

Answering four research questions and producing new insights in a single study was a challenge to the author. However, the insights provided by the interviewees - based on their experiences working with Global Virtual Teams - opened up a broad spectrum of codes & themes thereby enriching the input for of the analysis of the findings.

Culture diversity brings a significant challenge to Global Virtual Teams; however, if team members get trained to improve awareness around these barriers, it can boost innovation and bring a new perspective to the decision-making process and problem-solving. In some degree, it can also make the teams more resilient over time as the e-leaders and team members would learn how to deal with different cultures and working styles, therefore improving the ability to onboard new members from any culture seamlessly.

Communication has shown to be a crucial mechanism to move projects towards success. However, the right process and tools need to be in place to allow people to mitigate the side effect of time zone differences. Moreover, having teams isolated in different locations can slow down the onboarding of

new members and knowledge transfer between teams. Additionally, people from different cultures can end up creating virtual clusters which can impact the development of trust equality across the teams and causing some people to be left out in case the leadership is not vigilant to that.

In regards to trust, it is considered to be the glue which connects people online and offline. However, it was not clear before this research, whether it could improve the performance of the teams or ease the barriers in communication across cultures. Having the interviewees sharing their experiences, helped the author to understand that teams without trust are just a group of people battling over decisions with a low level of collaboration. Thus, trusting people allow them to be comfortable with each other, which improves communication, and consequently, collaboration and performance. Additionally, improving individual performance and being more pro-active and delivering results could improve trust between team members across teams. Therefore, building credibility by being a high performer can speed up trust development throughout the lifespan of the virtual teams, mainly in the case where there are not many occasions of social or personal interactions.

Emergent Leaders in a virtual environment are high-performing employees helping the formal leader to increase the capacity of the team by leading different virtual projects. Using the shared leadership approach, multiple members can take accountability for the success of different projects and tasks, thereby increasing the capacity of the teams and also allowing people to emerge as a leader naturally. Thus, developing these role models, help to improve the development of high performing teams using the tactic of raising the bar to provide a trustworthy environment for everyone to become an emergent leader in some stage. Moreover, informal leaders have the autonomy to give direction to the team during the execution of the project, which can help the formal leaders in their absence.

In conclusion, leaders across global organisations are constantly making decisions on how to compose global virtual teams and their dependencies across time zones. Thus, these decisions around team formation can have serious implication on people's personal life which can impact the performance and engagement of team members. In this research, there was an interesting comment about having the core teams working in a similar time

zone due to the high level of interaction they will need to have daily. Moreover, participants believe that teams should be formed based on people experience rather than culture, and hiring people with skills of working in a remote environment can improve the effectiveness of the virtual team.

5 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

5.1 Implications of Findings for the Research Questions

Having teams working across time zones increase the chances of **cultural diversity** impacting the performance of projects positively and negatively. Thus, this research highlighted in **Culture:** How does cultural diversity impact GVTs? that having team members coming from different nationalities and backgrounds brings new perspective, skills, and work styles, thereby increasing the potential for sparking innovation. On the other hand, cultural differences can become a barrier to communication. In case, there is a more significant gap between the cultures, the decision-making process can take longer as some cultures tend to speak briefly and make decisions quickly. Other cultures would request more detailed information before getting in an agreement. Additionally, differences in native languages could limit people to fully express themselves, thereby decreasing the quality of the communication which can get even worse in case native speakers are using slangs.

In regards to how **Communication** can affect Global Virtual Team discussed in **Communication:** How does communication affect GVTs?, there is a strong relationship between communication and trust. Thus, having team members

developing an interpersonal relationship can improve the level of trust. At the same time, having a high level of trust among team members can speed up the performance of the team, decreasing the time to deliver results and improving the quality of information shared between members. Additionally, the findings have also highlighted the importance of having meetings over camera & screen sharing, which can enrich the communication with nonverbal signals and bring a different meaning to the conversation. Moreover, document management system (e.g., Wiki), and channel-based messaging platform (e.g., Slack) empower the knowledge and content sharing among team members across time zone as they can effectively communicate with each other and share documentation in a single place. However, all these benefits and technologies don't solve the problem about the strong dependencies between teams working across time zones with little to no overlap. Thus, team members suffer a negative impact on their personal lives and well-being, thereby decreasing their engagement and long-term commitment to the company.

As discussed in **Trust:** How can trust be developed in GVTs?**,** there are some elements of **trust development** which is not directly related to Communication. Leaders can help introducing people to new team members across teams, and help them to expand their professional network within the company, thus boosting their sense of trust. Additionally, making them comfortable and not judged, improve their confidence, sense of belonging and performance, therefore increasing their chance to get more credibility within the organisation and consequently gaining more trust from their peers. For people working with overseas team members, it is crucial to have them travelling for couple of weeks to visit other teams or the company headquarters early-on. It has shown to be extremely beneficial to strengthen the social bonds and trust, therefore improving the performance and the well-being of those involved.

Finally, the findings of this research highlights the figure of the Emergent **Leaders** acting as crucial players to scale out the shared leadership approach within the global virtual teams, as discussed in **Leadership:** How do leaders improve performance of GVTs?. These high performing team members – or "go-to guys" - helps on the decision-making process in the virtual environment leading multiple work streams, thereby increasing the capacity for the team to deliver

more projects; thus, the formal leaders don't become the bottleneck. Additionally, they help to facilitate meetings, getting people involved in the discussion, and making sure to follow up with action items to deliver the required results.

5.2 Contributions and Limitations of the Research

This research aimed to evaluate the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams. Our analysis of the interview transcripts of eight software engineers (managers and individual contributors) opened up a broader way of thinking about the cross-reference between those components.

Before exposing the contributions of this study, the author should mention two main limitations of our qualitative research. First, our research analysed the behaviour and virtual work environment of software engineers working in two tech companies. Taking in consideration that Global Virtual Teams relies heavily on the use of technology, the perspective of the tech-savvy interviewees could hide some significant challenges faced by virtual teams in regards to the use or availability of technologies to perform their work in the virtual environment. The reason for this choice was to make this research more aligned to the author's experience in the IT industry, therefore allowing a detailed interpretation of the data collected during the interviews. Given the current importance of this topic due to the current situation of remote working due to COVID-19, it would be appropriate to replicate this study with professionals with a different skillset and different industries. Second, this qualitative research has allowed the author to

deeply understand some relevant aspects of virtual teams based on the unique view of each participant. However, it has limited the research to understand the opinion of a broader audience – dozens or hundreds of people across different industries. Thus, due to the time limitation for delivering this research, the author couldn't use a mixed-methods research design combining data from a structured survey with data obtained from interviews.

Notwithstanding these limitations, our findings contribute to the literature in two areas.

First, our findings align with an empirical study from Hoch and Kozlowski (2014), where they analysed a field sample of 101 virtual teams to evaluate the impact of shared leaders in team performance. Similar to their findings, our research also uncovered that shared leadership is an alternative input to support the formal leader to improves the team. As the level of influence of the formal leaders decreases with the increasing level of team virtuality, the shared leadership mitigates this loss of influence by having Emergent Leaders working closely to the formal leader in different working streams, thus, decentralising the decision-making process and scaling out the communication management. Moreover, our research has also produced a similar output compared to their ones in regards to cultural diversity and team virtuality. It has shown that a high level of cultural diversity can increase the feeling of a high level of team virtuality mainly when the teams are working with cultures across time zones. Therefore, having teams with a high level of cultural diversity would naturally benefit from having more Emergent Leaders working in a shared leadership structure to mitigate the feeling of high virtuality across team members.

Furthermore, our findings also align with the Integrated Model of Trust proposed by Hung, Dennis and Robert (2004) where individuals form trust through three routes: the peripheral route, the central route, and the habitual route. They suggested that in the first stage, trust is created by people relying on peripheral cues (e.g., roles, third party information). Then people move to central route where they assess the other people's ability and integrity. In the last stage, they develop the habitual pattern of trust and possible emotional bonds. In this later stage, people have accumulated personal knowledge of the other person and act in automatic, unconscious behaviour. Similarly, our research has shown that people would gain an initial trust in case the formal or emergent leader

introduce virtual team members to each other early-on. Additionally, this trust can also be developed by visiting other virtual teams in another country (Stage 1: peripheral cues). Secondly, the interviewees have also pointed out that being able to deliver results help them to get the credibility and consequently, gaining trust (Stage 2: central route). Lastly, interviewees highlighted that having an interpersonal relationship at the virtual environment can feel like they are helping a friend, thereby forming a more resilient and durable level of trust (Stage 3: habitual route).

5.3 Recommendations for Practice

The following best practices and process can be introduced in the virtual teams, however, it would require Management Team and Human Resources to get involved to push these changes to be introduced in the organisations, as shown in the list below:

- The Cultural Diversity in virtual teams - across time zones - brings multiple valuable perspectives to the solutions. Thus, the author recommends the Management Team to set up regular Innovations Sessions every Quarter with Team Members from different cultures and time zones to take advantage of the broad skillsets and perspectives. It can increase the potential of sparking innovation using a structured and formal Innovation Workshops. However, teams need to have a little of work-time overlap to allow real-time brainstorms and activities.
- In regards to earning trust and improving the sense of belonging in the virtual work environment, Hiring Managers should embed on the onboarding process a Meet & Greet Sessions with most relevant internal and external stakeholders. Thus, the new hires would get to know their key virtual stakeholders in the first couple of months, including people managers, or product owners, project managers, senior engineers, or other leaders.

- Companies need to encourage team members to visit other virtual teams in different locations for a couple of weeks, especially if they need to collaborate in a long-term project intensively. It will help to boost trust and collaboration between virtual teams, therefore increasing performance. In case, all members cannot travel overseas for financial reasons, at least the e-leader should visit other virtual teams, thus, becoming the initial point of contact to leverage strong connections among those virtual members.
- Human Resources needs to implement "Shared Leadership Training" and "Emerging Leaders Programme" across the virtual teams from different locations to encourage the development of new emergent leaders and the introduction of Shared Leadership approach in the virtual environment. As discussed previously, Global Virtual Teams with a high level of virtuality due to distance, or cultural diversity, or other factors, will require more Emergent Leaders to support the formal leaders to deal with multiple workstreams, decisions, and communication flow. Thus, providing more training to individual contributors and formal leaders, increase the awareness and formal education to start the implementation of this new team structure in virtual teams.

5.4 Recommendations for Future Research

There are a number of gaps in the understanding about the global virtual team which did not reach saturation in our findings, including other relevant points that would benefit from further research:

- Similar research needs to be done in other industries such as accounting & finance, customer service, healthcare, marketing, education, and sales, with professionals with a different skillset. Additionally, the author recommends a mixed-methods research design combining data from interviews with a structured survey from a broader audience – dozens or hundreds of people across different industries, hierarchies, and technology expertise. It would help to mitigate the bias of one specific industry or job function influencing or hiding relevant themes for this research topic.
- It would be beneficial to implement this research in global virtual teams working with a high level of cultural differences. For example, the data collection could be done with teams from Korea working with teams from South Arabia and Mexico. Research like this one would be able to help to answer questions such as "How can Cultural Diversity impact Trust in GVTs?". As per the first record from **Figure 14** – Relationship between Trust & Cultural Diversity in the saturation chart from our research, Trust & Cultural Diversity

didn't reach saturation. It only had two participants mentioning some scenarios which correlate these two components.

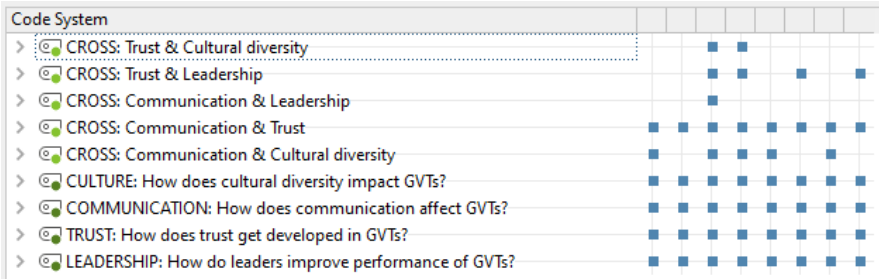


Figure 14 – Relationship between Trust & Cultural Diversity in the saturation chart

- In the current research, there was a trend towards the "Shared Leadership" & "Emergent leadership" influencing the "decision-making process" in Global Virtual Teams. However, this relationship didn't reach the saturation, and it would be relevant to explore in more detail this subject as it would allow the development of new theory to link communication process, informal authority, trust, and performance.

5.5 Final Conclusion and Reflections

The purpose of this research was to analysed and evaluate the influence of cultural diversity, communication, trust, and leadership on the development of geographically and virtually dispersed teams. Through a structured, qualitative analysis of leaders and practitioners in the field, it has uncovered a strong relationship between communication and trust, which can go both ways: trust can intensify collaboration and team performance, but communication can also influence the development of trust. Building trust in such teams is heavily reliant on the use of video cameras and regular meetings. Additionally, it has shown that Emergent Leader can help improving team performance by working closely to the formal leader to mitigate the team virtuality across time zones and cultures. Furthermore, trust can be fostered by having formal leaders introducing virtual team members to each other. However, delivering results and developing interpersonal relationship consolidates a durable and resilient trust.

At the early stage of the team formation, all members must be willing to develop new soft skills such as virtual sub-teaming leadership, rapport building, trust development, expectation management, and communication

management, thus benefiting the team bonding and well-being of these directly and indirectly involved.

After reflecting on my finished research, I have realised how unaware I was in regards to the factors influencing team virtuality. As a Software Development Manager working with teams across time zones, it was significant for my personal and professional development to immerse in the scientific literature to understand the frameworks and researches about global virtual teams. Additionally, I was impressed by how cultural diversity, shared leadership, time zones, tooling, trust, communication, and others factors, can increase virtuality among team members making them feel closer or more isolated. Thus, I enjoyed being able to research a field where I can make an impact on my daily work, but it is, perhaps, the end of the beginning of a long journey of my contribution to this field of study.

References

Bannister, F. (2005) 'Through a glass darkly: fact and filtration in the interpretation of evidence', *Electronic journal of business research methods*, 3(1), pp. 11–24.

Batarseh, F. S., Usher, J. M. and Daspit, J. J. (2017) 'Collaboration capability in virtual teams: examining the influence on diversity and innovation', *International Journal of Innovation Management*. World Scientific, 21(04), p. 1750034.

Bell, B. S. and Kozlowski, S. W. (2002) 'A typology of virtual teams: Implications for effective leadership', *Group & organization management*. Sage Publications Sage CA: Thousand Oaks, CA, 27(1), pp. 14–49.

Brewer, P. E. (2015) *International virtual teams: Engineering global success*. John Wiley & Sons.

Creswell, J. W. and Poth, C. N. (2016) *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Denzin, N. K. and Lincoln, Y. S. (2017) *The Sage handbook of qualitative research*. Sage.

Dulebohn, J. H. and Hoch, J. E. (2017) 'Virtual teams in organizations', *Human Resource Management Review*, 27(4), pp. 569–574. doi: 10.1016/j.hrmr.2016.12.004.

Gibbs, J. L., Sivunen, A. and Boyraz, M. (2017) 'Investigating the impacts of team type and design on virtual team processes', *Human Resource Management Review*. Elsevier, 27(4), pp. 590–603.

Gibson, C. B. and Cohen, S. G. (2003) *Virtual teams that work: Creating conditions for virtual team effectiveness*. John Wiley & Sons.

Gonzalez, A. J. M. *et al.* (2017) 'Cultural Diversity Challenges in Global Virtual Teams and Solutions to Overcome Them', *Emerging Challenges and Opportunities of Global Information Systems Management: Consolidated Assignments from Spring 2017*, p. 105.

Grosse, C. U. (2002) 'Managing communication within virtual intercultural teams', *Business Communication Quarterly*. Sage Publications Sage CA: Thousand Oaks, CA, 65(4), pp. 22–38.

Hackman, J. R. (1987) *The design of work teams. Uit: JW Lorsch (Ed.) Handbook of organizational behaviour*. Englewood Cliffs: Prentice-Hall.

Han, S. J. and Beyerlein, M. (2016) 'Framing the effects of multinational cultural diversity on virtual team processes', *Small group research*. Sage Publications Sage CA: Los Angeles, CA, 47(4), pp. 351–383.

Hatch, J. A. (2002) *Doing qualitative research in education settings*. Suny Press.

Hoch, J. E. and Dulebohn, J. H. (2017) 'Team personality composition, emergent leadership and shared leadership in virtual teams: A theoretical framework', *Human Resource Management Review*, 27(4), pp. 678–693. doi: 10.1016/j.hrmr.2016.12.012.

Hoch, J. E. and Kozlowski, S. W. (2014) 'Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership.', *Journal of applied psychology*. American Psychological Association, 99(3), p. 390.

Hoegl, M., Muethel, M. and Gemuenden, H. G. (2012) 'Leadership and teamwork in dispersed projects', *The Oxford Handbook of Project Management, Oxford University Press, Oxford*, pp. 483–500.

Homan, A. C. *et al.* (2007) 'Bridging faultlines by valuing diversity: diversity beliefs, information elaboration, and performance in diverse work groups.', *Journal of applied psychology*. American Psychological Association, 92(5), p. 1189.

Hung, Y.-T., Dennis, A. R. and Robert, L. (2004) 'Trust in virtual teams: Towards an integrative model of trust formation', in *37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the*. IEEE, pp. 11–pp.

Ilgen, D. R. *et al.* (2005) 'Teams in organizations: From input-process-output models to IMOI models', *Annu. Rev. Psychol.* Annual Reviews, 56, pp. 517–543.

Jimenez, A. *et al.* (2017) 'Working across boundaries: Current and future perspectives on global virtual teams', *Journal of International Management*. Elsevier, 23(4), pp. 341–349.

Keyton, J. (1997) 'Coding communication in decision-making groups', *Managing group life: Communicating in decision-making groups*. Allyn & Bacon Boston, MA, pp. 236–269.

Krumm, S. *et al.* (2016) 'What does it take to be a virtual team player? The knowledge, skills, abilities, and other characteristics required in virtual teams', *Human Performance*. Taylor & Francis, 29(2), pp. 123–142.

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

Lilian, S. C. (2014) 'Virtual teams: Opportunities and challenges for e-leaders', *Procedia-Social and Behavioral Sciences*. Elsevier, 110, pp. 1251–1261.

Malhotra, A. *et al.* (2001) 'Radical innovation without collocation: A case study at Boeing-Rocketdyne', *MIS quarterly*. JSTOR, pp. 229–249.

Marks, M. A., Mathieu, J. E. and Zaccaro, S. J. (2001) 'A temporally based framework and taxonomy of team processes', *Academy of management review*. Academy of Management Briarcliff Manor, NY 10510, 26(3), pp. 356–376.

Marks, M. A., Zaccaro, S. J. and Mathieu, J. E. (2000) 'Performance implications of leader briefings and team-interaction training for team adaptation to novel environments.', *Journal of applied psychology*. American Psychological Association, 85(6), p. 971.

Marlow, S. L., Lacerenza, C. N. and Salas, E. (2017) 'Communication in virtual teams: A conceptual framework and research agenda', *Human Resource Management Review*. Elsevier, 27(4), pp. 575–589.

Martins, L. L., Gilson, L. L. and Maynard, M. T. (2004) 'Virtual teams: What do we know and where do we go from here?', *Journal of management*. Elsevier, 30(6), pp. 805–835.

McGrath, J. E. (1984) *Groups: Interaction and performance*. Prentice-Hall Englewood Cliffs, NJ.

McGrath, J. E. (1991) 'Time, interaction, and performance (TIP) A Theory of Groups', *Small group research*. SAGE PUBLICATIONS, INC. 2455 Teller Road, Newbury Park, CA 91320, 22(2), pp. 147–174.

Mockaitis, A. I., Rose, E. L. and Zettinig, P. (2012) 'The power of individual cultural values in global virtual teams', *International Journal of Cross Cultural Management*. Sage Publications Sage UK: London, England, 12(2), pp. 193–210.

Newman, S. A., Ford, R. C. and Marshall, G. W. (2019) 'Virtual Team Leader Communication: Employee Perception and Organizational Reality', *International Journal of Business Communication*, p. 232948841982989. doi: 10.1177/2329488419829895.

Pearlson, K. E., Saunders, C. S. and Galletta, D. F. (2019) *Managing and using information systems: A strategic approach*. John Wiley & Sons.

Powell, A., Piccoli, G. and Ives, B. (2004) 'Virtual teams: a review of current literature and directions for future research', *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*. ACM New York, NY, USA, 35(1), pp. 6–36.

Ren, Y. (2020) 'Learning in Virtual Teams', in Ren, Y., *The Oxford Handbook of Group and Organizational Learning*. Edited by L. Argote and J. M. Levine. Oxford University Press, pp. 622–634. doi: 10.1093/oxfordhb/9780190263362.013.36.

Settle-Murphy, N. M. (2012) *Leading effective virtual teams: Overcoming time and distance to achieve exceptional results*. CRC Press.

Snape, D. and Spencer, L. (2003) 'The Foundations of Qualitative Research', in *Qualitative Research Practice - A Guide for Social Science Students and Researchers*, pp. 1–23.

Soto, S. L. (2019) 'Information and Communications Technology Strategies for Improving Global Virtual Teams' Success Rates'.

Steiner, I. D. (1972) *Group process and productivity*. Academic press New York.

Straus, A. and Corbin, J. (1990) *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Walsham, G. (2015) 'Interpreting information systems in organizations'.

Webster, J. and Staples, D. S. (2006) 'Comparing virtual teams to traditional teams: An identification of new research opportunities.' Elsevier Science/JAI Press.

Weis, L. and Fine, M. (2000) *Speed bumps: A student-friendly guide to qualitative research*. Teachers College Press.

Zuofa, T. and Ochieng, E. G. (2017) 'Working separately but together: appraising virtual project team challenges', *Team Performance Management: An International Journal*. Emerald Publishing Limited.

Appendices

Appendix A – Informed Consent Form and Plain Language Statement

GRIFFITH COLLEGE DUBLIN

Griffith College GBS
Informed Consent Form

I. Research Study Title

The study in which you are being requested to participate has the working title of '**Building Effective Global Virtual Teams**'. It is being conducted by Principal Investigator Mark Campbell, Lecturer in the Graduate Business School in Griffith College, in collaboration with the MBA student Mr Ricardo de Assuncao Goncalves.

II. Clarification of the purpose of the research

This study aims to understand how organisations build effective global virtual teams. The focus will be on the management and challenges faced by these teams and the factors encouraging the efficiency and effectiveness of these geographically dispersed teams.

III. Confirmation of particular requirements as highlighted in the Plain Language Statement

I will be asked to participate on an online interview which will take approximately 1h, as stated in the Plain Language Statement.

Participant – please complete the following (Circle Yes or No for each question)

I have read the **Plain Language Statement** (or had it read to me)	Yes/No
I understand the information provided	Yes/No
I have had an opportunity to ask questions and discuss this study	Yes/No
I have received satisfactory answers to all my questions	Yes/No
I am aware that my interview will be recorded	Yes/No

IV. Confirmation that involvement in the Research Study is voluntary

I may withdraw from the Research Study at any point. There will be no penalty for withdrawing before all stages of the Research Study have been completed. Participants' involvement in this study is voluntary.

V. Advice as to arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations

I am aware that the data collected is anonymised data, and it will be analysed only by the researchers. Any identifying personal information, including your name, date of birth, or address, will not be requested.

VI. Any other relevant information

I am aware that my involvement/non-involvement in this research project will in no way affect any ongoing relationship with Griffith College.

VII. Signature:

I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project

Participants Signature: _____

Name in Block Capitals: _____

Date: _____

GRIFFITH COLLEGE DUBLIN

Griffith College GBS
Plain Language Statement

I. Introduction to the Research Study

"Building Effective Global Virtual Teams"

Griffith College, Graduate Business School

Principal Investigator: Mark Campbell

Contact details: mark.campbell@griffith.ie

Other Investigators: Mr. Ricardo de Assuncao Goncalves

II. Details of what involvement in the Research Study will require

- Participation in this research will involve an online interview organised by the researcher.
- It is possible that the researcher may request a follow-up interview or ask extra questions over email or chat platform.
- Interviews should last no longer than 1 hour.
- The researcher will request that interviews be recorded (audio only) in order to facilitate data gathering, transcription and subsequent data analysis.
- Participants retain the right to decline the researcher's request to record an interview.

III. Potential risks to participants from involvement in the Research Study (if greater than that encountered in everyday life)

There are no risks to you in this research study. It should be noted that the interview questions address your knowledge and past experiences leading or working with global virtual teams.

IV. Benefits (direct or indirect) to participants from involvement in the Research Study

You will have the opportunity to provide information on your personal experience with global virtual teams which will form the basis for this research. Also, by completing the research, you will be assisting in the development of this area of study which will help organisations to review their best practices and understand common issues in managing geographically dispersed teams.

V. Advice as to arrangements to be made to protect the confidentiality of data, including that confidentiality of information provided is subject to legal limitations

Confidentiality and anonymity are of utmost importance in this study. The research won't expose any identifying personal information, including your name, date of birth, or address. Your data collected in this study will be anonymised and it will be used for research purposes only.

VI. Advice as to whether or not data is to be destroyed after a minimum period

All recorded audios collected in this study which includes your anonymised data will be deleted within 12 months after answering the questions.

VII. Statement that involvement in the Research Study is voluntary

Involvement in this research project is purely voluntary. You are free to withdraw from the study at any stage without prejudice or reason. There will be no penalty enforced on any participants wishing to withdraw prior to the study being completed.

VIII. Any other relevant information

Your involvement/non-involvement in this research project will in no way affect any ongoing relationship with Griffith College.

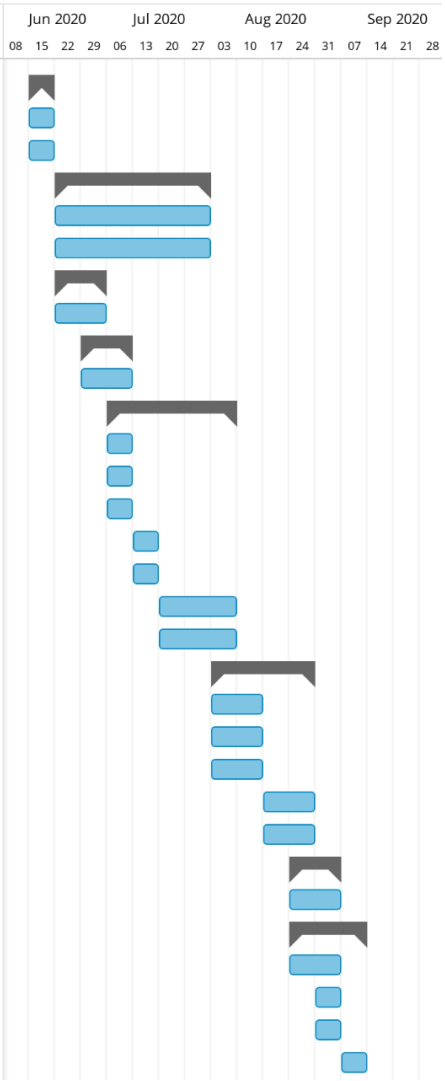
If participants have concerns about this study and wish to contact an independent person.

Please contact:
Dr Garrett Ryan,
Griffith College Research Ethics Committee
South Circular Road, Dublin 8, Ireland

Mail: garrett.ryan@griffith.ie
Tel: +353 1 4163324

Appendix B – Research Time Schedule and Plan

	ACTIVITIES	START	DUE
	Refining research objectives:	**15/Jun**	**21/Jun**
1	Receive and discuss RM Assignment 2 feedback	15/Jun	21/Jun
2	Refine research objectives	15/Jun	21/Jun
	Literature:	**22/Jun**	**02/Aug**
4	Read more peer-reviewed journals	22/Jun	02/Aug
5	Expand the literature review	22/Jun	02/Aug
	Methodology:	**22/Jun**	**05/Jul**
7	Review and refine the methodology	22/Jun	05/Jul
	Research design:	**29/Jun**	**12/Jul**
9	Review and refine the research design	29/Jun	12/Jul
	Collecting primary data:	**06/Jul**	**09/Aug**
11	Select the participants for the interview process	06/Jul	12/Jul
12	Send an email explaining the research purpose	06/Jul	12/Jul
13	Prepare interview questions	06/Jul	12/Jul
14	Pilot test and revise questions	13/Jul	19/Jul
15	Schedule the online interviews	13/Jul	19/Jul
16	Conduct the online interviews	20/Jul	09/Aug
17	Transcription of the audio files	20/Jul	09/Aug
	Data analysis interpretation:	**03/Aug**	**30/Aug**
19	Read through transcripts	03/Aug	16/Aug
20	Create coding schema	03/Aug	16/Aug
21	Assign the best code to each specific comment	03/Aug	16/Aug
22	Analyse findings	17/Aug	30/Aug
23	Relate findings to literature	17/Aug	30/Aug
	Discussion:	**24/Aug**	**06/Sep**
25	Review collected data	24/Aug	06/Sep
	Final write up:	**24/Aug**	**13/Sep**
27	Final adjustment in literature review	24/Aug	06/Sep
28	Create a conclusion related to the findinds	31/Aug	06/Sep
29	Review the final report	31/Aug	06/Sep
30	Print, bind and submit	07/Sep	13/Sep



- **Refining research objectives**

  In the Week 1, the author received the feedback of the RM Assignment 2, and he will refine the research objectives.

- **Literature**

  Between the Week 2 and Week 6, the author read more peer-reviewed Journals to make the Literature Review more robust in order to cover other components from the Conceptual Framework which were not detailed in the RM Assignment 2.

- **Research design and methodology**

  Between the Week 2 and Week 4, the author imrpoved the the research design and methodology based on the feedback from the RM Assignment 2.

- **Collecting primary data**

  Between the Week 4 and Week 8, the author selected the participants to be interviewed, and he got in touch with them over the phone to explain the purpose of this research. Additionally, the author selected two participants for pilot-interview to help refining the questions and make improvemenets. After that, the author interviewed all the participants using the new set of questions.

- **Data analysis / interpretation**

  Between Week 8 and Week 11, the author read through all transcripts and associated existing code to the comments and created new one, accordingly. After that, the author analysed the findings and extended the dissertation to reflect the outcomes of this research.

- **Discussion and Final write up**

  In the Week 11 and Week 12, the author reviewed the collected Data and made the final adjustment to the literature review after discussing with his supervisor.

  In the Week 12, the author worked on the conclusion of the dissertation and reviewed the final report, and in the Week 13, the author submited the dissertation.

Appendix C – Full Interview with Interview E

AUDIO 1

Interviewer (00:01):
Hi. Thanks for accepting to participate on the interview for this research and for reading and agreeing with the Consent Form. As mentioned on the Plain Language Statement and Consent Form, this interview will be recorded in order to facilitate data gathering, transcription and subsequent data analysis. All recorded audios or written communication such as emails and messages will be deleted within 12 months after answering the questions.
There are no risks to you in this research study. It should be noted that the interview questions address your knowledge and past experiences leading or working with global virtual teams.
The research won't expose any identifying personal information, including your name, date of birth, or address. Your data collected in this study will be anonymised and it will be used for research purposes only.
Do you agree with that? Can I start the interview?

Interviewee (00:53):
Yes, I agree with that.

Interviewer (00:57):
What the negative and the positive points you see about having global virtual teams from different cultures working together in a common project?

Interviewee (01:23):
..Culture diversity provides diverse perspectiv
I see positive points because we have different view of different perspective on project which might leads to the faster solutions.

..Slangs & terminologies leading to misi
..Slangs & terminologies leading to misi
..Slangs & terminologies leading to misi
About negatives points, if they are from different country, they use phrases in one way or another and takes time to understand exactly what people is trying to say... they know how to communicate with their team and they are used to this part, but when it comes to cross team collaboration, it might be that the terminology that is used in one team not that common in another team, it needs to go through the process to understand what is the terminology from another team to effectively communicate the ideas and collaborate.

Interviewer (02:45):
Do you think this cultural diversity improves performance in virtual teams? Can you give some examples you experienced before.

Interviewee (02:52):
..Benefits of knowldge transfer process and c
Yes, I think so. We have something called "Knowledge Sharing", this way a person can their ideas on how the process can be improved or share their experience from their on team and based on that team can pick up the process and leverage in their development as well. So, just by collaborating within the team might the person from their career's perspective.

Interviewer (03:50):
How do you think having teams from different countries... how this cultural diversity can improve innovation or performance? Or dont improve at all?

Interviewee (04:15):
..High virtual collaboration is affected by
..High virtual collaboration is affected by
..High virtual collaboration is affected by
The team can come up together with a solution faster because they are globally distributed, so when everybody is in the same timezone... ok... you are asking more from their cultural perspective... Not from the cultural perspective, but from the individual perspective... I collaborate with people from various countries, from different countries, and all of the cultures are quite open and the easy to share ideas and know how to communicate... there are some people are closed and might be difficult...

Interviewer (05:56):
When you say close you mean distance or culturally close?

Interviewee (06:00):
..High virtual collaboration is affected by
..High virtual collaboration is affected by
I mean culturally close, but that would be more from them from individuals rather than the culture itself... the open/close personally is not something coming from the

1/5

..High virtual collaboration is affected by
..High virtual collaboration is affected by shynes:
..High virtual collaboration is affected by shynes:

culture, but more often from the individual itself.

Interviewer (06:28):
So do you think maybe performance would not be improved if you diversify the culture between two teams from different countries?

..Culture diversity might improve performanc
..Some cultures can performance better in

Interviewee (06:54):
I think it can improve... if you have the variety in the culture in the long run... more in the short term... because if it is just few months or half year, people would not be so comfortable with people from different culture because they have different perspective in communications sense, but over time they might adapt things that they see better from other culture and the team itself might become better... from my perspective managing the team, it is better to have people from different culture and the reason from that if they are behaving differently, communicating differently then they might be a signed the task is more appropriated for this kind of approach... someone might be more direct... more data oriented... other more affect in emotions... not all of them would be appropriated in the same level... distributing the tasks from the country they are coming from...

Interviewer (08:29):
So do you believe that the type or characteristics or complexity of the task can be selected based on the mix of culture that you are trying to achieve to work together?

Interviewee (08:51):
Yes...

Interviewer (08:57):
So, do you think it could improve performance or decrease performance depending on the task?

..Some cultures can performance better in sp

Interviewee (09:05):
It can improve performance... if dont choose the right task it can decrease... in the long run it will probably increase the overall, but in the short term you might make the wrong choice quite easily and decrease the performance rate.

Interviewer (09:33):
Have you experienced something like that before... because of the nature of the task they could performance better?

..Some cultures can performance better in sp
..Some cultures are more sensitive and les

Interviewee (09:45):
Yes... from my experience I worked with some specific culture... Vietnamese... they wouldnt tell very easily if they are not agreeing with something. So, if there is manager, he will quite hard get the information from the team on how they feel about the management, tasks, their performance... it was very hard to get the information from them. And then, it needed to really high level of understanding of human emotional to see that it might be a problem from that team or specific individual, but they were quite good from the technical perspective. So, if you give them some kind of a task, you could really rely that they would spend if needed 6-8 hours to find out the solution and they would work on it until they find the solution... they would hardly say they would not know how to solve a thing, they would rather spend 3 times more than is needed just to make sure they are able to do it, but if you push them to hard, you wouldn't get the feedback from them, they would just leave.. So, working with that culture, you need to have a very good level of interpersonal understanding and understanding of the emotions.

Interviewer (11:58):
So do you believe the nature of the task can influence them to have a better or lower performance?

..Some cultures can performance better in sp

Interviewee (12:05):
Yes, because if you give them a task they are not interested, there is a high chance they would just leave, rather than spend more time to try to resolve it, but at the end they would just leave because it is not something i am interested, rather than saying upfront or during the implementation.

Interviewer (12:32):
I am going to talk about trust development... do you think trust exist in the Day 1? And how do you think the trust gets developed in teams from different places and different timezone?

..Earn trust by close collaboration

..Bringing value and benefiting other can impr

..Trust might speed up communication

..Trust might speed up communication

..Trust might speed up communication

..Credibility from past deliveries to helps in

..Introduce people at the beginning to impr

..Chatting about personal topics might ir

..Chatting about personal topics might ir

..Chatting about personal topics might ir

..Talking over camera can help on trust c

..Talking over camera can help on trust c

..Talking over camera can help o

..High level of trust helps overcor

..High level of trust helps overcor

..High level of trust helps overcor

50 Interviewee (13:28):

51 I can say from my personal experience... the way I gain trust to keep people close is to actually care about what exactly you agreed with. I dont think that trust is there. It is something you start, it needs to be earned... same culture or across location... in any case it needs to be earned. And one way to earn is having close collaboration with this people...

52 and if there are some tasks that my impact somebody else... or you found out about a specific information that might impact others, and if it is on time, it is a way to build the trust because they will find out they can rely on you and trust you because of the information that are coming from you are rely valuable and that's is the way how to earn trust.

53 Interviewer (14:56):

54 Do you think that trust can improve performance in global virtual teams?

55 Interviewee (15:02):

56 Yes, I have definitely being there. If you have trust from the peers, and if there is enough trust inside the team, so the communications would be much faster because they would not be too much of questioning "why exactly do you think that?"... it is something verified and they can trust it.

57 Interviewer (15:45):

58 What would be a good practice to strengthen the relationship and the trust in this virtual teams when they are forming these teams?

59 Interviewee (16:26):

60 I think it can... when the people get introduced... just to know the person you are interacting with you can immediately by that gain the trust... if you have delivered a lot and it is visible and most probably when you interact with new people from a different culture or different location, you would immediately have some level of trust there, but if any kind of a delivery from you is not visible before hand, so you wouldnt have any level of trust there, because the only thing people would know about you is what do you say at that time.

61 Interviewer (17:38):

62 Is there any other practice - not work related - that can improve trust across teams?

63 Interviewee (17:55):

64 Yes... sharing some certain level of personal information could leverage trust, so for example, if I am sharing with you some personal information about my personal life, so it means that I am trusting you and I believe what I am telling you or asking you for some kind of advice whether it is personal level of not, that means I am trusting you... because if I dont trust you would share this information with you and that could immediately from your side "oh, this person is trusting me, he is sharing information with me, so most probably I can trust him as well"... so it might encourage other to have some kind of trust there. So, what is happening with me right now with my peers which I dont have interaction in the work level, I am still maintaining a weekly 30 min to talk about daily stuff and if I share something more personal, that's the way we are building the trust more and more, and when it will come to collaborate in a work level I will already have some level of trust there because it would be easier to talk about things that is bothering us on the project level.

65 Interviewer (19:58):

66 Is there any other comment do you want to make about how trust can affect virtual teams? Something that I haven't asked before I move to the next topic that is about communication.

67 Interviewee (20:10):

68 Yes, I think the trust can improve collaboration a lot in the sense for the virtual team, lets say you have meeting with no video enable, in such meeting, and in this meeting you dont have the attention, because you dont see how they are reacting in that moment. And there is so many thing in the communication level apart of words, so if you dont have the emotions from the person because you cannot see, it is hard to detect. So for example, we might be in a meeting where you cannot see the person and you are just talking and talking, and you dont know if they are rolling their eyes, or not caring about the things you are talking about or if they are actually listening to you actively, and you expect a feedback, so if you dont have trust, you cannot tell what it is, but if you have a trust on these people, the you can be pretty much sure or comfortable

..High level of trust helps overcome lack
..High level of trust helps overcome lack
..High level of trust helps overcome lack of came

in believing that keeping close attention you are talking about, and they are act listening...

Interviewer (21:58):
What is the challenges that you see working in different timezone, different people, and different places? How do you normally mitigate this?

Interviewee (23:15):

..Issue with asynchronous communication virt

..Benefits of asyn communication

The challenge is most level of information you need to get from another team is something that happen at the end of your working day, so you start working in something in the morning and start working on something throughout the day and you get the information you need, and then you find out you need to sync up with another team and you send an email about this and this... so you send an email or try to reach them out.. in that moment if they are in timezone in front of you, so it is 4-5pm, it will be midnight and it will be hard to reach them and the only way to communicate is to send an email and wait another day to get the response from them, but they might get some data during their morning and send you the reply, and they are not working when you read their email and the communication just get prolonged, but it has some benefits, there was some cases where I was communicating in some teams from Seattle and I was stuck around 5pm here in my timezone, so I sent an input over email saying "can you help me", because in that moment they were not available in the tool we use for the chat, and the next day when I get to work I had the answer, so that is a benefit. If they were there in the same location as I am, probably I wouldn't get this one in the next day in the morning...

..Shifting working hour to decrease gap in tim

There is a bad side, if if I ask a question and I dont provide the information there, then t hey will have a follow up question, so the only way to resolve that one is to set up a meeting in the day after and the whole data and collaboration gets prolonged... so there is a upside and downsides... I always try to accomodate the other side to have few hours of the day overlapping, so when I was working with this other teams from Vietnam... there was 6h difference, so I started working 5:30am then I had 6h of overlapping time, which was enough to have a very close collaboration when we had a tight deadline. Similarly when I am collaborating with the team in US so from time to time I slide a little bit the working time window to have more overlapping and work more in the afternoon.

Interviewer (26:55):
What is the benefits of having task-related and interpersonal-related communication in virtual teams? Do you think it improves well-being?

Interviewee (28:10):

..Mix of personal & task-oriented chat in
..Mix of personal & task-oriented chat in
..Mix of personal & task-oriented chat in

The benefits I can see is that people stay in touch more... if they are not just talking about work but also personal stuff , then you can be pretty sure you will get ping from them often and often... if they ping you about something it is quite easy to change topics... let's say you ping about something personal... in the meantime.. at the end I will ask you "do you remember you were talking about this task, can you give me a brief state?"... so it is a good thing, because when people are not talking just about specific work/task, then they will have more flexibility because they will be more encourage to switch the context during the talk itself.

Interviewer (29:15):
Do you think this kind of behaviour can improve cohesion between people? Do they get cognitively closer? Like they would need to talk less to understand each other.

Interviewee (29:28):

..Culture diversity provides diverse perspectiv

Yes, on that level yes, but they will start thinking in the same way to resolve the problem, I dont think that much... it is even better because if people continues to try to solve the problem from thinking perspective like they did before, then you have their diversity in coming up with ideas so from more diversity with ideas, you can come with better approach, better final solution, so it is something that can improve the overall performance of virtual team.

Interviewer (30:10):
How Emergent Leaders in each virtual teams can improve performance of the virtual teams working together?

Interviewee (30:58):

..Shared/Emergent leadership can scale deci

I think the communication between them can help a lot, but they would need to be really close... from that perspective. They will have a better insight about their local

..Shared/Emergent leadership can scale deci

team members, and they are close enough, close in a means that they are collaborating a lot in both work and personal perspective, then they would share the perspective of their team members as well which might help a lot which might help a lot from you as a leader because you can talk with either of them to get a pretty good insight about the overall virtual teams as well.

86 Interviewer (31:54):
87 But if the Emegent Leader doesnt know the answers, maybe they are not the most technical guy, what is the type of behaviour they demonstrate in these meetings?

88 Interviewee (32:06):

..Emergent leaders help the formal leader to

89 In that case, they quickly point you to other person, that might help in your specific case, that what I see as a huge benefit, you can trust them to ask any kind of question, and if they dont know the answer they will most probably be able to respond you "I am not about that one, I have a pretty good idea who can respond that" and quickly point you to another person.

90 Interviewer (32:47):
91 So do you think they have a pretty good empathy to point you to the right direction?

92 Interviewee (32:53):
93 Yes