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The Effectiveness of Global Virtual Teams: Cultural, Technological and Relational Aspects

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Bc. Simone Skrucana

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1 Introduction

Since globalisation is as fast-paced as ever, many businesses, especially large multinational corporations established their activities all around the globe (Chang, Chuang & Chao, 2011). Companies are constantly moving their capital abroad to seek out new investment opportunities. In the recent years, this trend is only growing (OECD, 2015).

Investing abroad brings many advantages to a company. First of all, for many it is a way how to lower costs by achieving economies of scale or economies of scope. Other companies pursue a relative or absolute advantage of the foreign country, e.g. cheaper labour force, access to raw materials or other precious commodities. Establishing a plant abroad usually lowers distribution and supplier costs and enables the penetration in the local economic system, which could be from the law perspective impossible otherwise. Furthermore, for some companies it is a question of simply gaining market power, following or fighting competition, widening their network of customers and increasing their profits.

Even though establishing a business abroad is nowadays very common, it still proposes a challenge. First of all, these processes are very costly. The costs not only include simply building new plants or reconstructing premises, e.g. green field and brown field investment costs as such, but also involve a wide range of administrative costs. When investing abroad the company must understand properly the foreign market. In order for that to happen, it must employ specialists who understand the local economy, laws, tax system, culture and language. Often these people were not employed in the company before and had to be recruited for purpose of the new investment.

Secondly, moving capital to a foreign country brings together people and businesses from different cultures and backgrounds. Even though it is hard to express in numbers, it is a time-consuming process needing lot of effort to align interests of different people and build trust and mutual understanding between them.

On the other hand, also people as human capital are changing their premises in order to find a more suitable job for themselves. Since many countries are relaxing their employment migration laws (e.g. the member states of the European Union (EU)), there are many new possibilities opening up for people searching for new job opportunities. According to Eurostat (2015) in 2014-2015, 2 million people, i.e. approximately 7% of the total EU employment, lived and worked in a member state of which they were not a citizen. A slight majority of these people were non-EU residents and the rest were coming from another EU member state.

This brings many advantages for job seekers. They can work in places where qualification, specialisation or language knowledge is needed, which is especially important in cases where there is no job opening in the ones current location. The jobseeker can also move to a city or country, where his or her talents will be appraised the most. Nowadays, in the EU one can think of a relatively united labour market, where perhaps only local language knowledge and personal logistics create obstacles. However, these obstacles have a greater impact on one's life than we might think. Many people are tied to their places of birth or current residential areas for family or other reasons and do not want, or are unable to move, because of a job opportunity.

Fortunately, in today's fast-paced world, there are ways how to forgo such radical changes, apart from outsourcing, for the both companies and individuals, by keeping up with trends of globalisation. The companies, in order to be able to expand rapidly, facilitate their worldwide business activities and become strategically flexible (Garrison, Harvey & Novicevic, 2005), create Global Virtual Teams (GVTs) to satisfy the organisational needs of globally active businesses (McDaniel & Paul, 2004). In simple words, GVT consist of people usually coming from the same company, who work together towards one goal. The unusual is that they do not sit in one office, but the team members come from different countries and are maybe scattered across the whole globe.

It is apparent that GVTs propose a unique organisational structure in comparison to co-located teams. A co-located team may profit from face-to-face communication, the possibility of building real personal relationships. They also can respond more rashly to

colleague's needs, offer assistance when needed and since time difference is not an issue they better coordinate their time working together. We can expect that there is a smaller possibility of a language barrier, because there is a higher probability that the team members come from the same cultural background and speak the same language.

However, we see GVTs occurring more and more in the organisational structure of companies (Zakaria, Amelinck & Wilemon, 2004; Dekker, Rutte & Van den Berg, 2008). Culturally diverse people have often different ideas and working methods which bring variability and flexibility to the team. These qualities undoubtedly foster innovation. Diverse language knowledge may be beneficial in situations where team members come in contact with their colleagues from other subsidiaries or customers from other countries. Being located across the world brings the possibility of responding rashly to local markets needs and also to across time zones. Another difference of having team members scattered across countries or continents is that the team members are hired in several locations. However, the mentioned benefits of creating such teams are also potential challenges that may hinder the performance of the team. Especially lacking face-to-face communication and smaller possibility of creating inter-personal relationships may cause mistrust and conflict within the team. These teams have to communicate via technology and most probably in a foreign language. This means that the team members have to possess advance technical knowledge and be capable to apply it where needed.

The author focuses on all above-mentioned topics in the following sections. All these raw assumptions lead to a more precise definition and literature-supported description of the different aspects of GVTs, advantages they bring to the team and the challenges that they have to face. The effectiveness of GVTs is in the spotlight since she tries to identify the characteristics that make an efficiently working team.

2 Background

This chapter gives an overview of the research topic. Firstly, it provides reasons why studying the effectiveness of GVTs proposes an attractive research topic and explains the deep relevance this topic has for today's business. Secondly, the logic behind choosing research questions is explained and the objective of this research thesis clearly defined. Thirdly, the thesis structure is described in order to help the reader to get an overview of the whole paper.

2.1 Theoretical and practical relevance

There are various reasons why GVTs propose an exciting master thesis topic. Firstly, GVT are a part of global processes that did not receive as much attention as others, like employee migration or foreign direct investments. Also, when comparing the amount of research done on GVTs to traditional co-located teams, the research of GVTs is still lacking in numbers (Pinjani & Palvia, 2013). Kozlovski and Ilgen (2006) highlighted that GVTs are not only an emerging trend, but also teams consisting of members from different cultures are becoming widely present. However, the theory and research on multicultural GVTs is still very limited (Duarte & Tennant Snyder, 2000).

Secondly, research in GVTs has a great practical relevance, since they are occurring more and more in companies (Zakaria, Amelinck & Wilemon, 2004; Dekker, Rutte & Van den Berg, 2008). Some researchers go far by saying GVTs are nowadays a standard and an inseparable part of today's business. Cannaughton and Shuffler (2007, p. 388) refer to geographically dispersed teams as "the norm for businesses and governments around the world." Trzcielinski and Wypych-Zoltowska (2008, p. 504) believe that "at present it seems that forming virtual teams is inevitable." Similarly Lu, Watson-Manheim, House & Matzkevich (2005) believe that in order to withstand the pressures of globalizing economy, organizations are almost forced to implement GVTs.

However, things in GVTs sometimes do not run smoothly. In a Gartner Group survey (Zakaria et al., 2004), it was estimated that by 2004 in Global 2000 companies 60% of

professional and management tasks will be done by virtual teams. Unfortunately, it was also estimated that 50% of these teams will be dysfunctional and unable to meet their goals. That is why they propose a challenge for managers and create the need for deeper understanding.

Furthermore, it seems, these teams are not only gaining in numbers, but also in importance. According to Chudoba and Maznevski (2000, p. 489) “GVTs are assigned some of the most important tasks in the organisation. These teams were made possible by information technology, and future technological developments will only increase their numbers and importance. Given this trend, it is essential that management researchers develop a strong understanding of GVT performance.”

Dubé and Paré (2001, p.71) found in their research that GVTs are “far more prevalent in organisations today” however they “confront significant challenges over and above more localised virtual teams.” It is obvious, that GVTs are becoming more and more important in today’s business and that brings many challenges on with it. They are becoming widely spread across the globe and they create pressure on both team members and managers to understand this new organisation unit. Therefore, they create an interesting topic for research with both practical and theoretical relevance.

2.2 Research questions and objective

As mentioned, GVTs are becoming a standard in today’s business. Nowadays, more and more companies make use of these teams. There are many advantages and disadvantages these teams bring and many reasons why they are preferred over co-located teams. But are they really more efficient? Therefore the first research question was formed:

RQ1: When comparing to the co-located teams, can the advantages that GVTs bring for a business make up for the challenges which these teams have to face?

The potential benefits of GVTs are positive effects from multiculturalism, e.g. innovation and flexibility and understanding of different cultures, language diversity, and responsiveness to local markets, being more reachable across time zones and the higher

probability of finding suitable work force. Potential disadvantages of such teams are the lack of interpersonal relationships, face-to-face communication, the need to master technology and foreign languages and negative effects of multiculturalism like conflicts or misunderstanding. Therefore, after briefly reviewing the benefits which GVTs bring for a company, but also disadvantages and challenges that they have to face, the second research question arose:

RQ2: Can the advantages that GVTs bring make up for the disadvantages?

In order for GTVs to function, special rules and resources may have to be introduced. To enable the team members to communicate, they need the support of technology and they have to be able to operate it properly. This technology-mediated communication can be exercised, for example, via mobile phones, computers, fax or tablets by sending text messages, instant messaging, e-mails, and videoconferencing. However, the GVT members also have to find time and place how to communicate. Therefore, special rules have to be introduced for them to be able to communicate regularly or to reach each other when needed. One such way is to establish video-conference meetings on regular daily, weekly or monthly basis which all team members would have to attend. The team members may be provided by company mobile phones, or their computers with special software. The team managers can introduce special communication styles or exercises which would help the team members express their feelings and emotions which are hard to express during technologically-mediated communication. After considering all these factors, the third research question was formulated:

RQ3: Which rules and resources do global businesses introduce to GVTs in order to facilitate their work together?

The last research question, and perhaps the most important one, is concerning the effectiveness of GVTs. In this thesis the goal is to find out which factors facilitate and hinder the effectiveness of these teams. The author concentrates her attention on:

- Inter-team relationships and performance, more concretely trust, conflict, reflexivity and individual effort

- Management skills of team leaders which include monitoring and providing the needed rules and resources
- Language skills of team members, understanding the cultural diversity
- Provided technology and the teams' readiness to use it

All these categories are summarised in the following research question:

RQ4: Which factors influence work effectiveness of the GVT?

Research questions 1, 2 and 3 will be answered theoretically, by conducting a wide literature review. The forth research question will be answered also empirically, by a survey.

The objective of this master thesis is to provide an overview of GVTs, to discuss the different characteristics of the teams, their advantages and disadvantages, the rules that they introduce and resources they use. The main goal is to identify the key factors which make an efficiently working GVT.

2.3 Thesis structure

In this master thesis advantages and disadvantages of the GVT are analysed and the potential problems that may occur while working in such a team are identified. GVTs are compared with co-located teams, the differences between these two are assessed and any potential benefits and challenges of these teams are discussed. Subsequently the attention is focused especially on the cultural, technological as well as behavioural aspects of such teams. Furthermore, the author investigates what are the key factors that make such teams work efficiently.

The theoretical analysis of the chosen topic was conducted by a wide literature review which identified the key factors that impact GVTs effectiveness. These are later verified in a survey. In conclusion, the results of the questionnaire are compared with main findings of the literature review and critically assessing any similarities and contradictions between them.

The structure of the thesis is as follows. In the first chapter a brief introduction to the topic will be provided. The second chapter is dedicated to the background of this thesis, namely the theoretical and practical relevance of the proposed topic, proposed research questions, main objective and the structure of this thesis.

The third chapter includes the literature review. It clearly defines GVTs, discusses their cultural, technological and relation aspects, compares them with traditional co-located teams and discusses the effectiveness of GVT. The topic of the fourth chapter is the research model derivation of the research hypothesis. This chapter focuses on the main goal of this master thesis, and that is the formulation of the research model which tries to answer the fourth research question. The logic behind the formulation of the research model is explained and the research hypotheses are derived.

The fifth chapter concentrates on methodology, sample selection and data collection. The methodology used in this thesis is described and the research instrument is introduced, which in our case, is a questionnaire. Furthermore, conducted pre-tests are explained and details about data collection elaborated upon. The completion statistics and demography data conclude this chapter. The sixth chapter provides the results of the empirical analysis. It describes the descriptive statistics of the sample and also the results of the test hypothesis.

In the seventh chapter the results are discussed and critically assessed. They are also compared with the main findings of the literature review. In the eighth chapter the contribution of this thesis for practitioners and the world of research are highlighted, and some directions for future research is given. Last but not least, it critically assesses the methodology and discusses the limitations.

3 Literature review

The third chapter provides the theoretical foundations for this master thesis by discussing a wide range of scientific literature. This chapter clearly defines GVTs and provides information on the cultural, technological and relational aspects and compares them to traditional co-located teams. It touches upon topics like multiculturalism, language barrier, cultural understanding, and different ways how to communicate via technology, knowledge sharing, team leadership, mutual trust and psychological aspects of working in such teams. The author discusses the various rules and resources which team member or team leaders introduce to the team in order for it to work effectively. Furthermore, the author elaborates on the advantages and disadvantages that such virtual environment brings. Additionally, comparison of GVTs to traditional, co-located teams is offered. To conclude this chapter, the literature is narrowed down to the main goal of this master thesis, the question of GVT effectiveness, which will lead to the specifications of the research model.

3.1 Defining GVTs

In practice it is easily observable that companies use the world team differently, since its meaning can range from top management to departments (Scott, 2013). DuBrin (1988, p. 218) characterised teams as “a small number of people with complementary skills who are committed to a common purpose, set of goals, and approach, for which they hold themselves accountable.” Scott (2013, p. 302) extended this definition. He emphasises that independence and shared goals are necessary for colleagues to function as a team. These team members work together on common tasks, with common goal and joint accountabilities. In order to achieve that, they must share knowledge, coordinate their activities and all the participants have to make decisions jointly. Hence, a team that may be considered as successful is characterised by a clearly defined goal, competent team members and established working standards (LaFasto & Larson 1989). On the other hand, an ineffective team lacks in a common mission and positive collaboration as well as external support (Scott, 2013).

Teams can be located in one location, e.g. in the same country and the same office. These teams we call co-located teams. Trzcielinski and Wypych-Zoltowska (2008, p. 504) define co-located teams as teams where “team members meet in the same place and at the same time. All work, settlements, and decisions are made during face-to-face meetings of all or nearly all team members. The main way of communication in this kind of team is a direct contact, which enables the exchange of information in both verbal and nonverbal manners.”

Contrary, there are also teams where team members do not work in one location. They are dispersed internationally, often across the whole world. These teams are called dispersed teams or global teams. According to Weathley and Wilemon (1999, p.1) global teams “take many forms; however, the global team is usually considered a team that is comprised of individuals that are located in many different countries or geographic areas.”

Since these teams have to coordinate their work via technology and consequently find themselves in a “virtual world”. Cohen and Gibson (2003) suggest that virtual teams have 3 main attributes. Firstly, they are a functioning team. Even though the team members are independent from each other considering task management, they have shared responsibilities for their outcome and collectively manage relationships across companies’ organizational boundaries. Secondly, the members of the team are geographically dispersed. Thirdly, instead of face-to-face communication they rely on communication that is mediated by technology. According to Lipnack and Stamps (1997, p.18) a virtual team is a “group of people who interact through interdependent tasks guided by common purpose” and they work “across space, time and organisational boundaries with links strengthened by webs of communication technologies.”

A GVT is proposed as a combination of a global and a virtual team. It is a team which operates globally and its network is facilitated via a web of communication technologies. Chudoba and Maznevski (2000, p. 474) characterised GVT as “groups that (a) are identified by their organisation(s) and members as a team; (b) are responsible for making and/or implementing decisions important to the organization’s global strategy; (c) use technology-supported communication substantially more than face-to-face communication; and (d) work and live in different countries.” For the purpose of this master thesis we define GVTs as a team

which has team members located globally, their work and relationships are facilitated and mediated through a technology-supported network.

3.2 Cultural aspects: The gifts and dangers of multiculturalism

As Hofstede (1983, 2001) pointed out in his work and many other scientists followed, each culture has its unique attributions. Every nation has its own religion, habits, lifestyle, language and history. It is widely known and accepted, that even though two countries may share a same attribute or several attributes, e.g. language, religion and history it cannot automatically be assumed that the inhabitants would behave the same. Take Austria, Germany and Switzerland for instance, who share all these characteristics; they still do not score the same values on Hofstede's classification of cultural dimensions.

As mentioned before, companies are making use of international teams more and more. The consequence is that people from different backgrounds are forced to work together. These people share the same objective, but may have a different way how to achieve it. There are many studies which have done a research in multicultural teams. Many studies have found that multicultural teams outperform homogenous teams (e.g. Lovelace, Shapiro & Weingart, 2001; Watson, Hohnson Kumar & Critelli, 1998; Watson & Kumar, 1992).

Not only co-located teams, consisting of members from different countries are becoming more and more present, but also GVTs (Kozlovski and Ilgen, 2006). As stated before, the theory and research of multicultural GVTs is very limited. Cannoughton and Shuffler (2007) pointed out those cultural differences among the team members are an important aspect that need to be considered. It is especially important when considering the effectiveness of GVT. However, cultural diversity can also be an advantage. Team members coming from different backgrounds bring multiple perspectives to problem solving, which often leads to greater creativity and innovation (Zakaria et al., 2004).

The evidence about the positive effects of multiculturalism in GVTs is rather mixed. According to Dubé and Paré (2001) cultural diversity in GVT causes that management styles and culture often clash. Examples of such clash are the difference in communication

styles, accountability and in ideas about what demonstrates good performance. Therefore leaders of GVT should keep in mind the potential conflicts that can arise from these cultural differences. All team members should exercise empathy, tolerance and show the desire to discuss any potential conflict situations. The authors recommend all GVT members to receive cultural training before they start working on the actual project. Highlighting the cultural difference and addressing any potential issues in a positive manner can support the creation of a GVT that is enriched, and not hindered by cultural differences.

Also Brett and Janssens (2006) studied the multicultural aspects of GVTs. In their fusion model of collaboration they combine people from different cultures and by that their precepts for teamwork, information extraction and teamwork. The authors found, that if a team is combined in a certain way, the presence of different cultures may have positive effects on the team performance. However, these positive effects may be achieved only when team members are aware of their differences and respect them. The potential weakness is “over combining” which may lead to “confusion” rather than fusion.

Decker et al. (2008) investigated GVTs located in US, India, Netherlands and Belgium, and tried to explain the behaviour of team members based Hofstede’s (2001) classifications of cultural dimensions. Similarly as Brett and Janssens (2006), they found that national cultures have different perceptions of effort and output, meaning that what one culture considers as a significant contribution to the teams output might not be necessarily viewed the same by other nationalities. In order to fully utilize the positive effects of combining culturally diverse team members, these colleagues have to fully understand the differences between their cultures. Therefore the authors suggest that information about the cultural norms in associated countries should be shared among the team members, they should be engaged in activities which would enable them to explore the diversity and get training which would prepare them to deal with other cultures. Emphasis should be put on the understanding of consequences ones actions have on member from other cultures so the GVT members “become aware that their views of what behaviours are not automatically shared with people from other cultures.” (p. 450)

English language is increasingly being adopted as a corporate language of many companies (Zander, Mockaitis & Harzing, 2010) and therefore is one of the most commonly used language in GVTs and in many cases English is the second or even third language of the team members. English is chosen often because it is the language of the headquarters, the native language of most team members or simply because it is the most widely spoken foreign language. In the case when the language knowledge is not sufficient it causes misunderstandings in communication, which hinders the team performance (Brett & Jensens, 2006; Dubé & Paré, 2001). These issues become even more apparent when the communication is not exercised face-to-face but in an electronic context (Dubé & Paré, 2001), which is naturally the case of global virtual teams.

Language affects the total space where the transfer takes place. It also affects the transfer capacity of the sender, the absorbing capacity of the recipient and also influences the operations and therefore goes way beyond the simple knowledge transfer. It is safe to say that it is reconfiguration various elements of working processes (Welch & Welch, 2008). However, according to Zander, Mockaitis & Harzing (2010) the choice of language, whether it is a native language or English, does not matter in connection to leadership scenarios. Instead, leadership reactions and decisions are dependent more on situational and cultural context.

3.3 Technological aspects: Working in the virtual world

It is widely recognised that technology is a powerful supporting tool of GVT's performance (Zakaria et al., 2004; Cummings & Kiesler, 2002; Hardin, Fuller & Davidson, 2007). We can go even so far in saying that without technology GVT would not exist. Without communicating face-to-face, GVTs rely on technologically mediated communication. The traditional ones undoubtedly widely present in any type of team are phones, emails and fax machines. The more advanced types of applications are desktop videoconferencing, intranets, collaborative software and virtual private networks. This communication is often facilitated by the internet. It offers high-speed communication which helps to integrate GVT members (Kanji, 2002). A company should invest in building up a technological

infrastructure. Under investing in communication technologies may bring the work of a GVT to a standstill (Dubé & Paré 2001).

Chudoba & Maznevski (2000) observed a number of different GVTs, they found out that the more complex is the conveyed message and higher level of decision-making, the more complex is the used communication medium. Their results have shown that the most effective teams had regularly scheduled conference calls, coordination meetings and impromptu calls. The GVT members used the time between meetings for communication about “day-to-day stuff” which suggests willingness to create interpersonal relationships.

Mastering communication technologies is a quality that leaders should support. Leaders should provide technical support and training that is specifically costumed to the needs of the team and team members. It should be aimed especially at the participants who feel the most uncomfortable when using computers and other kinds of communication technologies (Dubé & Paré 2001). In order for virtual teams to succeed, technology must fully support their work, weather it is their innovative capacity, formation, or performance (Germain & McGuire, 2014).

However, communication technology is not a factor existing solely. In order for it to work properly, the GVT has to be comprised of the right people. (Zakaria et al., 2004, p. 15) stated that “Computer-facilitated communication technologies are only as effective as those using them.” The crucial elements to the team are intra-team trust and relational bonds, intercultural communication competence and cross-cultural training, or leadership skills. This is investigated in further parts.

Members of Multicultural GVTs are often reluctant to share knowledge (Brett & Jentsen, 2006). Building a knowledge sharing community is far more challenging in GVTs than for co-located teams. It is mostly due to the fact that GVTs are widely viewed as task-focused team where relationships and environment do not play a significant role (Zakaria et al., 2004). Another possible reason is competition between the team members. Other issues to think about during the transfer of knowledge are the use of right communication media. Klitmoller & Luring (2013) found out that certain types of media are more appropriate for

certain type of knowledge-sharing than others. The most influential factors are linguistic and cultural variations between the communicating parties.

3.4 Relational aspects: Leadership, trust and conflicts

Given the many benefits that these teams bring to organization, GVTs are undoubtedly becoming a majorly used organisation form in companies nowadays. Therefore, it is becoming a fundamental competence for the managers in internationally and globally operating companies to understand how these teams work and how to lead them (Duarte & Tennant Snyder, 2000). However, there is still lack of knowledge and research in this matter, why some teams succeed some do not. It is obvious that some type of teams are more resilient to the challenges they have to face, or simply do not face as many challenges. According to Scott (2013), with GVTs becoming increasingly important not only for MNCs but also middle-sized international businesses, it is necessary to understand these challenges and find ways how they can be overcome.

In the existing literature we can find various methods that help to moderate the challenges faced by GVTs. One such method, that helps moderating interpersonal relationships, is ensuring the knowledge distribution is equal as well as the status (Cramton & Hinds, 2005). Unequal power distribution is mostly caused by different time zones, cultures and languages. Being located in different time zones gives often an advantage for a team which workday starts the first. In case of team located on the other sides of the globe this might not be true due to the relative normal distribution of incoming information. However, for team members located just hours apart, this may be an advantage. The ones having the advantage of coming to the office sooner would be informed first.

It happens quite frequently, that the teams are not equally distributed across countries, e.g. there are more team members located in one country than in other. Even though many countries employ multicultural employees, we can assume that still the majority of workers will be natives. In this case, there are more team members sharing one culture the others may feel “left out”. Similarly, it is often the case that in many teams “the team language” is a foreign language for some team members, and for others it is a native language. Language

knowledge creates an advantage for those team members, who are native, or simply for the ones who master the language better. As mentioned in previous subchapters, cultural training, as well as language training, is the best way how to cope with these challenges.

GVTs propose a big challenge not only for the team members, but also for the team leaders, managers. According to Morris (2008) there are several qualities that a manager has to possess. Those include the ability to choose the proper technology, use it and teach using it, the ability to choose the right people, who are comfortable to work in a virtual environment, and the ability to understand such environment, where relationships are not created in face-to-face communication and cultures clash. Since the natural psychology of the human beings concentrates more on things that are happening directly around them, rather than distant matters, the leader should give their subordinates clear-cut plans, short-term goals, and a strong business case. It is important that the team members see their link in the web of virtual reality. Introducing team values when relationships are still to be made and forcing these relationships can be hurtful to a team. It is advised to be patient and invest time in building bonds.

In order for teams working in the virtual reality to function properly, they have to foster trust worthy environment (Brahm & Kunze, 2012; Rusman, Van Bruggen, Cörvers & Koper, 2009). However the main problem is who to trust and how to build up trust (Morris, 2008), especially when the teams rarely meet face to face (Greenberg, Greenberg & Antonucci, 2007). It is prudent that teams start building up trust very early in order to reach high performance outcomes (Brahm & Kunze, 2012; Germain & McGuire, 2014). Similarly, Rusman et al. (2009) found out in their experiment, that sharing personal information in the first few weeks of forming the team help the team members to form good impressions of one another. Later are these impressions based on the quality of work, communication style and behaviour during interaction. Therefore it is becoming a fundamental competence for the managers to be able to create this trustworthy environment (Greenberg, Greenberg & Antonucci, 2007). Even though it might seem as challenge, Siller, Mennecke, Fui-Hoon Nah & Luse (2014) found out that it is possible. They claim that trust

may be fostered in the virtual environment and it is possible for the team members to collaborate effectively.

The issue of trust may also have many psychological effects. Creating an effective GVT is a very challenging task for any organisation, particularly in cases when decision processes are time consuming and when misunderstandings and miscommunication occur (Zakaria et al., 2004). These often cause stress and conflicts in the team. GVTs often have to cope with uncertainty and anxiety (Gudykunst, 1995). One of the main causes of these negative feelings undoubtedly is an issue of self-identification. Morris (2008) highlighted, that “the big question today is not “Am I in a virtual team?” so much as “How virtual am I?” moreover, “the reality of workplace has been replaced with the reality of virtual work space” (p. 130).

3.5 Rules and resources introduced to the team

Unfortunately the scientific literature has not gone too far in discussing the ways how to improve GVTs effectiveness. Even though several studies have successfully identified the main drivers behind GVTs effectiveness, only few mentioned ways how to achieve those, or how to solve any other potential issues regarding the teams’ effectiveness (Giddents, 1984; Scott, 2013).

There are certain techniques which help building up good relationships, respect and team dynamics. Both interviews and observations conducted by Scott (2013) show that shared principles and values have contributed significantly to the team effectiveness. The same goes for introduced rules and rituals. Shared values such as “meeting halfway,” “communicate through the roof,” and “we are a team” were articulated frequently by the team members as discursive resources. Their aim is to direct the behaviours and to regulate the interactions within the team. They suppress the “us” versus “them” mentality and promote the equal status in the team. An efficient rules and ritual proved to be “sprints”, the software “scum” and “fist of five” respectively. “Sprint” is a type of work organization which helps to structure the work of the team. These units of monthly periods are carefully planned and reflected on. “Scum” is special software which was designed to structure the

team's work, introduced solely for the purposes of this team. "Fist of five" is a way how to express the confidence of the team members with the proposed plan. Upon request, every team member shows simultaneously a number of fingers which reflect their feelings after the meeting. This ritual ensures that each team member can express his feeling independently of their colleagues.

There are ways how to cope with the cultural differences between the team members. Introducing special programs may help the team members to understand the perspectives of their colleagues, their views and ideas and also help to understand their communication styles and working habits. This training helps to make predictions about how others think and what they do. Additionally, this concept helps co-workers to feel comfortable, improves social interaction and most importantly, makes them feel like a part of the team (Brandl, 2009). These programs are namely Cultural Awareness Program and Cultural Orientation Program. The cultural Awareness Program concentrates on the understanding of different areas of conflicts and ways how to make adjustments to minimize them. Therefore it is not focused on the geographic area. The Cultural orientation program tries to bring understanding to the differences between nations and cultures using country specific knowledge (Hofstede, 1983; Hofstede 2001; cited in Brandl & Neyer, 2009).

The Structuration Theory by Giddens (1984) proposes an alternative for better understanding of the interaction of GVTs. The theory helps us to understand why some the team members work together successfully and some do not. The theory explains how team members, by simply working together, create a social system. In this system they introduce certain resources and rules to the team. Resources are things that team members use in their interaction, e.g. knowledge. Rules are routines which guide member's actions, e.g. meetings (Poole & McPhee, 2005). In the case of mistrust, the theory suggests that team members should introduce certain resources and rules to overcome these difficulties. Therefore the Structuration theory is often used to analyze teams, how a structure within a team influences member communication and interaction (Walsham, 2002). Consequently, we can use the framework to understand the complex relationships within GVTs. However it is

important to keep in mind, that in comparison to traditional co-located teams, GVTs have many more challenges they have to face, e.g. geographical and cultural distance.

3.6 Comparison of GVTs with co-located teams

3.6.1 Advantages and benefits of GVTs

One of the benefits GVTs bring is the possibility of putting together people who are not located in one place in the world (Scott, 2013), which means that the company is “in two places at once” (Morris, 2008, p.130), and in many cases in even more places. This has several positive consequences like scouting for talent and local responsiveness. A company which is recruiting their team members in different location will, most probably, get into contact with more candidates. These candidates will be more diverse, speaking different languages and having various education and work experience. Therefore it can be easier for the company to find the candidate with the matching profile.

Another advantage of having teams dispersed globally is the ability to locally respond to a certain market within the global market (Zakaria et al., 2004). We can look at this from two perspectives – cultural proximity and time. Since some team members are geographically closer to their market, it allows them to respond to certain needs more rashly. If GVTs are indeed dispersed globally, it allows them to cover different time zones. Additionally, it also allows the team members, who better understand the local market, to respond to the request. We can demonstrate this advantage with a simple example. A GVT is located in Germany, Argentina and Indonesia and an issue in Austria arose. Theoretically, all the team members are able to respond. However, the German team decides, or is delegated to respond. Why? Firstly, because they are in the office ready, while their colleagues in Indonesia are already on their way home and the colleagues in Argentina did not even get to work yet. Secondly, since Germans and Austrians speak the same language, there is no need to communicate in the GVTs language, but in their mother tongue. This benefits all participants, since communicating in the native language is often easier and more efficient than in a foreign language and potential miscommunication is avoided.

Forming and facilitating the work of GVT is undoubtedly a costly process (Trzcielinski and Wypych-Zoltowska, 2008). Most of the costs concerning GVTs are related to working in the virtual space. These costs include the technology purchased to facilitate the work and the costs related to mastering these technologies, e.g. costs which are mainly used to organize meetings. The researchers compared these costs with the cost of organizing face-to-face meetings. They observed that the costs of organizing face-to-face meetings are significantly higher than for organizing teleconference meetings. The difference depends on the frequency of the meetings and the distance of travels, but even for the shortest travelling costs are the costs of teleconferencing lower. The travel costs are often one of the largest cost, therefore a strategic allocation of the team members can save up to 33% of annual overhead costs (Morris, 2008, p. 131). Additionally, lower travelling minimises the carbon footprint. Even though not entirely, we can consider GVT as a “green alternative” to business.

Another benefit that globally dispersed teams bring is that shift work is avoided. The team members located geographically the closest to the task can respond. On the other hand, the same advantage can be a disadvantage when team meeting have to be organised. Moreover, if the team or company finds itself in a need of a specialist, this person can be found within hours and be invited to the virtual workplace. This specialist knowledge is a significant benefit for the organisation. We can conclude from these examples that GVTs create “debt, breadth and diversity of expertise across the globe” (Morris, 2008, p.130).

As mentioned before, many studies have proven that multicultural teams outperform homogenous teams. Team members coming from different backgrounds bring multiple perspectives to problem solving which often leads to greater creativity and innovation (Zakaria et al., 2004). Since this matter has already been broadly discussed in the previous parts, it will not be done here.

3.6.2 Disadvantages and challenges of GVTs

The very same characteristics of GVTs that often make them unique when compared to co-located teams and bring many advantages, can cause challenges for the team. These

characteristics like physical distance and culture or time difference can create difficulties and complexity for the team (DeMarie, Hendrickson & Townsend, 1998). The often occurring consequence of these challenges is mistrust and conflict within the team (Cramton, 2001; Chand, David & Newell, 2007).

Members of multicultural GVTs are often reluctant to share knowledge or even critical information (Brett & Jentsen, 2006). This may cause misunderstandings in communication, minimise individual contribution, cause conflict, mistrust or hinder the working processes in another way. This behaviour, in the end, might sabotage the objective of the work and the common goal of the team.

Proper cooperation and collaboration is generally facilitated in personal communication, when people do meet face-to-face. In this kind of relationships trust and mutual understanding can be established from the very beginning (Cummings & Kiesler, 2002; Trzcielinski and Wypych-Zoltowska, 2008). The physical proximity between team members creates a better group identity, conformation to group norms, commitment, larger focus on the thoughts of others and a greater trust between the team members (Connaughton & Daly, 2004). On the other hand, remote working can generate psychological issues like depression, aggression, loneliness, apathy and unwillingness to cooperate. All these “symptoms” decrease the effectiveness of the team (Kirschner & van Bruggen, 2004).

English-Lueck, Darrah and Saveri (2002) illustrated in their paper that a team which relies on “technologically-mediated communication, requires a high degree of trust” (p. 90), so that knowledge sharing is facilitated. As demonstrated a GVT finds itself in a “vicious circle”. On one hand, quality relationships and proper understanding is created in face-to-face communication, but on the other hand these teams only rarely get an opportunity to meet each other in person.

Furthermore, communication via teleconference is for all the participants mentally exhausting. They are often forced to listen to the vast majority of the teleconference meeting without any action from their side, which makes them lose concentration and

consequently lowers the absorption of information. Often there is a lot of time lost during these meetings, when some team members do not understand the message, or shift the attention of the participants to an unrelated topic. A way how to forgo these problems is to keep the participant regularly updated before and after the meetings and encourage active participation instead of a passive listening (Morris, 2008).

Dubé & Paré (2001) consider the lack of physical interaction of as one of the biggest disadvantages of GVTs. During technologically facilitated interaction are many aspects of non-verbal communication lost, which may lead to mistrust in the team. As illustrated, GVTs find themselves in a vicious circle. On one hand, they are unable to build up solid relationships, because they do not meet face-to-face, and on the other hand, in order to work effectively, avoid mistrust and facilitate knowledge-sharing, they need to create quality interpersonal relationships. Videoconferencing proposes an alternative to face-to-face communication and may help to build relationships on a more personal level Dubé & Paré (2001). Moreover, compared to co-located teams, conflicts in GVTs are more difficult to resolve and tend to last longer than conflicts within a co-located team (Hinds & Mortensen, 2005). Again, the reasons behind this are weaker relationships, increased miscommunication as well as insufficient information sharing (Zakaria et al., 2004).

It happens quite often that power is not equally distributed in the team. Brett & Jenses (2006) pointed out, that some team members are more powerful simply for organisational reasons like supporting a larger market or being closer to critical information. Insufficient communication between the team members then causes an unequal information distribution as well as power. Geographic distance can split up the team members into competing subgroups. The parts of the teams sitting in offices together can create a “sub-team” which can compete against their colleagues sitting in another office of country. “Us versus them” mindset can be created (Cramton & Hinds, 2005).

As mentioned before, the most common working language of GVT is for many team members a foreign language. In the case when the language knowledge is not sufficient it causes misunderstandings in communication, which hinders the team performance (Brett & Jenses, 2006; Dubé & Paré, 2001).

3.6.3 Effectiveness of GVTs and co-located teams

GVT, when compared to a co-located team, has many distinctive characteristics (Scott, 2013). Firstly, the work of the team members is interdependent; however the team members are located far from each other. Very often they are not scattered only across the country, but across a whole continent, or even around the whole world. This leads to different cultures and languages meeting in the team's working process. Distance plays a huge role since face-to-face communication between the team members is rather rare. The team members have to rely on communication technologies such as telephone, e-mail, instant messaging, videoconferencing or wikis (Dekker et al., 2008; Cummings & Kiesler, 2002). According to the study of Warekentin, Sayeed and Hightower (1997) have shown that teams which fully replaced face-to-face communication with virtual communication are less satisfied with group interaction. Zigrus (2003) summarized that GVT is a type of a team where "trust is difficult to build, influence is difficult to express, self-leadership is required and communication is often ambiguous" (p.342)

Many studies have compared the effectiveness and output levels of GVTs with traditional co-located teams. Potter and Balthazard (2002) have found out that co-located teams have a better performance on all outcome measures than GVTs and McGrath and Hollingshead (1994) found out that they are more efficient. Similarly, Gallupe, Cooper, Grise and Bastianutti (1994) examined electronic and non-electronic groups and came to the conclusion that the former group perform worse than the latter. From the research done by Furst, Reeves, Rosen and Blackburn (2004) it is apparent that virtual teams fail more often than succeed. One of the main reasons for failure is the different preconceptions about teamwork that the GVTs have in comparison to co-located teams (DiStefano and Maznevski, 2000; Earley and Gibson, 2002; Gibson and Zellmer -Bruhn, 2001). However Morris (2008, p. 130) believes that "with the appropriate insight, skills and support there is no reason why a virtual team cannot work just as effectively as a co-located team."

3.7 Towards building the model of GVTs effectiveness

As previously mentioned, even though GVTs are becoming a very popular topic in the recent years, the research only scratched the surface of the complexity of GVT. Most of the research has been done only on a very small scale, in a form of short group studies, literature reviews, experiments, observations and concentrated only on a small range of GVTs aspects. Most of the researchers focused their attention on the comparison of traditional co-located teams to GVTs (Pinjani & Palvia, 2013). Majority of the research on GVTs has focused on interpersonal trust, conflict, group cohesiveness and individual and group identity (Martins & Gilson, 2004).

The most frequent topic of GVT research was the importance of mutual trust, how to build and sustain trust in the team, overcoming the obstacles of not being able to communicate face-to-face and the creation of trust-based relationships (Brahm & Kunze, 2012; English-Lueck, Darrah & Saveri, 2002; Germain, & McGuire, 2014; Greenberg, Greenberg & Antonucci, 2007; McDaniel & Paul, 2004; Rusman et al., 2009; Schiller et al., 2014).

The cultural aspects of GVTs also received much attention. Cultural intelligence, cultural training and the impact of cultural differences on team work have been the objective of many researchers (Brett & Janssens, 2006; Brandl & Neyer, 2009; Dekker, Rutte & Van den Berg, 2008; Hardin, Fuller & Davison, 2007). Other topics include leadership (Connaughton & Daly 2004; Zigurs, 2003), knowledge sharing (Cramton, 2001; Klitmoller & Luring 2013; Zakaria, Amelinck & Wilemon, 2004), technology (DeMarie Hendrickson & Townsend, 1998), subgroup dynamics (Cramton & Hinds, 2005), understanding conflict (Hinds & Mortensen, 2005) or comparison of virtual teams with traditional face-to-face teams (Warekentin, Sayeed & Hightower 1997).

During the literature review a broad theoretical framework served as a background for the research model. Even though this research did not directly concentrate on GVT effectiveness, it already has provided direction for research in this matter. The following table identifies some factors which may contribute to GVTs effectiveness, or in contrary, hinder it.

Study	Factor
Brett & Jensens (2006); Dubé & Paré (2001)	Insufficient language knowledge
Cannaughton and Shuffler (2007)	Cultural differences
Dubé & Paré (2001)	Difficulties with using computers and other kinds of communication technologies
Siller et al. (2014)	Trust
Zakaria et al. (2004)	Misunderstandings and miscommunication

Table 1: Summary of qualitative-based research suggestions on GVTs effectiveness.

Only a few studies have focused their attention to GVTs effectiveness because the research of team effectiveness has been limited to the studying of traditional co-located teams (Pinjani & Palvia, 2013). Trzcielinski and Wypych-Zoltowska (2008) concentrated their attention on the cost factors that influence GVTs effectiveness which was measured by the extent by which the team met its goals. According to their research, under certain conditions, virtual teams are more financially profitable than co-located teams. The main differences in costs are caused by videoconferencing meetings which take place instead of face-to-face meetings. The savings increase relatively to the geographical distance between the team members, since overcoming long distances requires higher cost of transport often connected to accommodation and other expenses. Furthermore Guo, D'Ambra, Turner and Zhang (2009) found evidence that virtual teams who share the same mental models may be as effective as traditional co-located teams.

Research of the factors that influence GVT effectiveness is ambiguous (Lin, Standing & Liu, 2008) and is still lacking complex models that would put emphasis on the mediating and moderating factors of GVTs (Brahm & Kunze, 2012). Like many other researchers they introduced emphasis in their research on just one factor, trust in GVTs. They proved that trust plays a significant role in achieving high performance of GVTs.

Messner (2015) concentrated on the cultural and relational aspects of GVTs. They found out that effectiveness of GVTs is directly connected with the ability of establishing

interpersonal relationships, successfulness of communication, avoidance of psychological stress and the ability to accept cultural differences.

Scott (2013) studied a GVT in a company originating in the US which has team members based in the US and India. Through observation and interviews he identified the rules and resources of the team, advantages that such organisational structure brings, challenges the team members have to face, their working practices and group dynamics. He found out that shared values, quality collaboration, structured meetings, thorough planning and clearly stated goals are the main factors which influence team effectiveness. He also pointed out that videoconferencing can make up for the lack of face-to-face communication however, it is important to demonstrate respect and appreciate difference during the communication process.

Chudoba and Maznevski (2000) used various methods to study GVT dynamics and effectiveness in a single organisation. They conducted semi-structured and unstructured interviews, observed face-to-face and conference call meetings, distributed questionnaires and studied communication logs and other company documentation. Through their qualitative and quantitative research they found out that effective GVT adjusts their communication style to the complexity of the given task, generate a rhythm of interpersonal interactions. Intense regular face-to-face meetings are followed by less intensive and shorter interactions by using various forms of media.

Only a few studies proposed a complex view on the problem of the effectiveness of global virtual team, in a sense that more factors have been considered. Decker, Rutte and Van der Berg (2007) investigated teams from US, India, Belgium and Netherlands with the aim to find whether or not interaction behaviours critical for the functioning of GVTs differs in these countries. They grouped all the found incidents into 13 categories, which proved as categories containing behaviours that are mostly exclusive for functioning of virtual teams. The results showed, that team members coming from different nations value incidents differently. While the use of media and handling diversity was important for all the participants, interaction volume and in-role behaviours are perceived as important in all the countries but US. Structuring of meetings and reliable interaction add to the teams

perceived efficiency in Netherlands and the USA, whereas active participation fosters teams in US, Belgium and India. Respectfulness has to be included for the smooth functioning of GVTs in India and Belgium. Additionally, including team members has proved to be a valuable asset for an efficiently functioning team in the US.

Lin, Wang, Tsai & Hsu (2010) investigated by a survey perceived job effectiveness of GVTs. Their research has proven that job effectiveness is influenced by a number of factors, indirectly by shared value, perceived benefit and perceived trust via the mediation of competitive conflict and cooperative attitude and directly by cooperative attitude, competitive conflict and knowledge sharing. The results of a later study suggest that job effectiveness is directly influenced by knowledge sharing and social capital indirectly influences team effectiveness through the mediating effects of team commitment (Lin 2011). The research also implies that personal relationships are very important in building team effectiveness. Additionally, job effectiveness is influenced indirectly by team politics and social capital by the mediation of team emotional intelligence, team competence and cooperation (Baruch & Lin, 2012). Baruch and Lin (2012) also researched knowledge sharing and found out that team politics and social capital (shared vision, trust and social interaction) have an indirect effect via the mediation of competition and cooperation.

Lin, Standing and Liu (2008) found out in their research that it is important to consider social dimensional factors very early on in the creation of virtual teams since they contribute strongly to the teams' effectiveness. Social dimensions are directly influenced by communication and additionally team performance is positively related with team satisfaction. Rice, Davidson, Dannenhoffer & Gay (2007) came to the conclusion that adaptation of structured processes and formal procedures increase the effectiveness of virtual teams significantly.

Wakefield, Leidner & Garrison (2008) focused on the relationship between conflict, leadership and performance in virtual teams. Their findings suggest that communication technologies are an effective tool in reducing task conflict. Likewise the team leader also can mitigate task conflict when he exercises the role of monitor. Finally, the team leader performance has a significant effect on virtual team performance.

Pinjani & Palvia (2013) researched the relationship between deep level diversity and functional diversity and their effects on team effectiveness with the mediating effects of knowledge sharing and mutual trust. They found out that this relationship really exists, furthermore team effectiveness can be increased if mutual trust between the team members is increased and the shared knowledge is enhanced.

From the above mentioned research studies, only some support their findings with a statistical analysis (Baruch & Lin, 2012; Lin, 2011; Lin, Standing & Liu, 2008; Lin, Wang, Tsai & Hsu, 2010; Pinjani & Palvia, 2013; Wakefield, Leidner & Garrison, 2008). They have provided evidence of both direct and indirect effects of different factors on team effectiveness. In the following table you can find a summary of all the found statistical evidence.

Study	Factor	Mediator
Baruch & Lin (2012)	Team politics, social capital	Emotional intelligence, team competence, cooperation
Lin (2011)	Social capital	Team commitment
Lin (2011), Lin, Wang, Tsai & Hsu (2010); Pinjani & Palvia (2013)	Knowledge sharing	-
Lin, Standing & Liu (2008)	Social dimensional factors	-
Lin, Wang, Tsai & Hsu (2010)	Cooperative attitude, competitive conflict	-
Lin, Wang, Tsai & Hsu (2010)	Shared values, perceived benefit, perceived trust	Cooperative attitude, competitive conflict
Pinjani & Palvia (2013)	Mutual Trust	-
Wakefield, Leidner & Garrison (2008)	Team leader performance	-

Table 2: Summary of statistically-based research findings on GVTs effectiveness.

However some studies have researched GVT effectiveness in a qualitative way. They draw their conclusions based on interviews and observations or indirectly from a quantitative

research model. (Chudoba & Maznevski, 2000; Decker, Rutte & Van der Berg, 2007; Messner, 2015; Rice, Davidson, Dannenhoffer & Gay, 2007; Scott, 2013). In the following table you can find the evidence summary of factors which influence teams' effectiveness, or implications of such relationship.

Study	Factor
Chudoba & Maznevski (2000)	Ability to adjust communication style to task complexity, rhythm generation of interpersonal interactions
Decker, Rutte & Van der Berg (2007)	Reliable interaction, active participation, respectfulness, including team members
Decker, Rutte & Van der Berg (2007); Scott (2013)	Structured meetings
Messner (2015)	Successfulness of communication, avoidance of psychological stress
Messner (2015); Decker, Rutte & Van der Berg (2007)	Ability to accept cultural differences and diversity
Messner (2015); Lin (2011)	Ability to establish interpersonal relationships
Rice, Davidson, Dannenhoffer & Gay (2007)	Adaptation of structured processes and formal procedures
Scott (2013)	Shared values, quality collaboration, thorough planning, clearly stated goals

Table 3: Summary of qualitative-based findings on GVTs effectiveness.

As demonstrated by the two tables, only some factors have been proven as statistically significant. However the qualitative research in this matter indicates also other factors that might be playing a major role for the effectiveness of GVTs nonetheless.

4 Research model and derivation of hypothesis

In the fourth chapter the research model is clearly stated. The logic behind the choice of constructs is explained as well as the relationships between them. The independent variables, dependent variables and the moderators are introduced. Additionally, the hypotheses are formulated.

Both qualitative and quantitative researches propose many interesting ideas to build the model. Since trust has been a widely researched subject in general for many types of teams and collaboration, and the research has been straightforward for both GVTs and other types of teams (De Jong & Elfring, 2010) there is no need to provide further research. Mutual trust does have a significant and positive effect on GVT effectiveness (Pinjani & Palvia, 2013). Also several studies confirmed the positive effects of knowledge sharing in GVTs (Lin, 2011; Lin, Wang, Tsai & Hsu, 2010; Pinjani & Palvia, 2013). The same goes for the research regarding shared values (Lin, Wang, Tsai & Hsu, 2010; Scott, 2013), where effects on virtual teams were confirmed and research in this topic is relatively fruitful on other types of teams.

Similarly as some other researchers (Baruch & Lin, 2012; Lin, 2011; Lin, Wang, Tsai & Hsu, 2010; Lin, Standing & Liu, 2008; Pinjani & Palvia, 2013 and Wakefield, Leidner & Garrison, 2008) the author of this thesis decided to follow the statistically-based research method. She considered statistical analysis as the best way to achieve clear cut results, and at the same time it has been rather scarce since the research was initiated mostly by one author. For more details about the findings of their statistically-based research refer to table 2 on page 37.

In order to bring added value to the existing research of GVTs, the author decided to provide statistical evidence on the findings and conclusion that were not drawn in a quantitative way and operationalise the findings in statistically measurable variables. A brief summary of these findings was already provided in table 3 on page 38.

In total five constructs are measured and represented in the model: team cohesion, decision quality, ability to accept cultural differences, collaborative technology and team effectiveness. “Team cohesion” and “decision quality” were jointly derived from the theoretical work of several studies (Lin, 2011; Messner, 2015; Scott, 2013) which discussed the importance of quality collaboration among team members and also establishing interpersonal relationships. They were operationalised in the work of Guo, D’Ambra, Turner, & Zhang (2009). The impact of accepting cultural differences and diversity on team effectiveness has been discussed by two studies (Decker, Rutte & Van der Berg, 2007; Messner, 2015). Their theoretical assumptions were operationalised in a construct that can be found in the work of Pinjani & Palvia (2013).

The influence of successful communication on team effectiveness has been researched by numerous authors (Chudoba & Maznevski, 2000; Decker, Rutte & Van der Berg, 2007; Rice, Davidson, Dannenhoffer & Gay, 2007, Scott, 2013). They did not discuss only the verbal communication as we know it, but also the technological and organisational aspects, complexity, structure and formal procedure. Since GVTs communicate via technology, these theoretical findings were jointly operationalised in construct “collaborative technology” that can be found in the research paper of Messner (2015). Team effectiveness, which is in the centre of all mentioned research, was operationalised by the construct found in the work Pinjani & Palvia (2013).

Based on the availability of the constructs and lack of quantitative research author decided for these independent variables and agrees with previous research that decision quality and team cohesion have an effect on GVT effectiveness. The following table lists all the constructs, their definitions as used in this research, and the original study, from which they were derived.

Construct	Definition	Study
Decision quality	“The degree to which team members think that their decision was good”	Guo, D’Ambra, Turner, & Zhang (2009)
Team cohesion	“The degree to which an individual feels attracted toward his or her team”	Guo, D’Ambra, Turner, & Zhang (2009)
Collaborative technology	“The degree to which a technology is perceived to support team processes”	Pinjani & Palvia (2013)
Ability to accept cultural differences	“The ability to tolerate, accept and advocate cultural differences and key to accomplishing set goals in a manner which is appropriate to the context and intercultural relationship.”	Messner (2015)
Team effectiveness	“Team-produced output (performance) and consequences to team members (satisfaction)”	Pinjani & Palvia (2013)

Table 4: Constructs and their definition.

However, the author argues that ability to accept cultural differences and the ability to work with collaborative technology have a moderating effect on GVT effectiveness. The logic behind choosing of moderating variables is fairly simple and follows the logic of Pinjani & Palvia (2013). Since the GVT team members located in different countries hardly ever meet face-to-face, they have to communicate via technology. Their relationships, work, decision-making processes exist only in the virtual reality and technology provides the means how all these factors get transferred.

With almost certainty we can claim that GVTs are multicultural, with team members from at least two different cultures having to find a way how to work together. The research on the effect of cultural differences on team effectiveness in business relations has been extremely rich. The negative effects of cultures clashing and on the other hand the positive effects of cultural respect and understanding on team effectiveness have been proven numerous times. However, the author failed to find a study on GVTs which tested the moderating effect of this factor. The research model is demonstrated by the following figure.

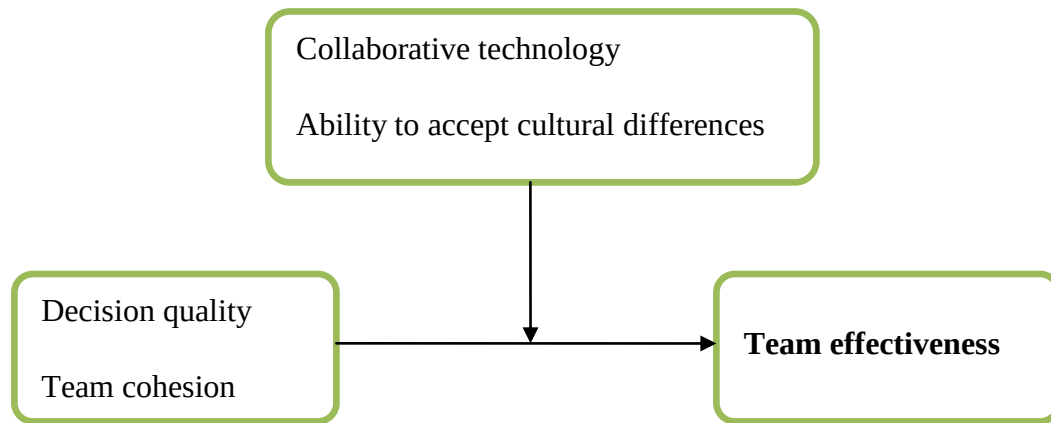


Figure 1: Research Model

Team members in their every day work have to make decisions. There is a whole variety of decision to be made, ranging from organising a teleconference meeting, marketing plan or a yearly budget. Different teams have different roles within the company, but nonetheless it is important to make good decisions, so the team achieves their daily goals. If the team decision process is in any way hindered, the team either is incapable to make these decisions, meet the deadlines or achieve the goals. For these reasons, we suspect that there is a positive relationship between decision quality and team effectiveness, as formulated in the following hypothesis.

H1a: Decision quality is positively associated with team effectiveness.

Team cohesion is another factor that needs to be considered. Team members have to be somewhat synchronised in their work both in their working style and feelings, so the team reaches the desired outcomes. As mentioned in the previous chapter, in order for the team members to work effectively, they have to feel psychologically involved in the team and have a sense of unity and mutual understanding. The following hypothesis was formulated.

H1b: Team cohesion is positively associated with team effectiveness.

Undoubtedly, collaborative technology plays an important part in the daily work of GVTs. Without having proper equipment and implicitly being able to apply the equipment properly, the team members would not be able to neither get in touch with one another nor to coordinate their work. We argue that the better the team is equipped, and simultaneously

the better the team members are able to use this technology, the easier it will be for the team members to achieve their objective. Therefore,

H2a: Collaborative technology moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

H2b: Collaborative technology moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

With many teams consisting of team members from more than one culture, the pressure to understand each other's differences and the ability to cope with them is rising. As has been proven numerous times in the research of other types of teams, mastering these skills has a positive impact on the executed work. On the other hand, ignorance and preference of the home habits lead to a breakdown in team dynamics. Therefore, we suspect the same relationship in the case of GVT.

H3a: Ability to accept cultural differences moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

H3b: Ability to accept cultural differences moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

5 Methodology, data collection and sample description

The fifth chapter describes the empirical part of this master thesis. It introduces the methods of data collection, sample selection, and the pre-tests. In the last part the competition statistics and demography data are presented.

5.1 Sample selection and methods of data collection

The empirical part of this thesis was conducted by a survey. The target researched group had no limitations considering geographical or demographical criteria. In order to achieve a diverse sample, there were no limitations set for the type of employment or position in the company hierarchy. Participants working in every company field or department were invited to participate. The only criterion that was set strictly was being part of a GVT.

In order to ensure that only members of GVTs participate in the study, the questionnaire was primarily distributed through author's private networks. The author's friends, family members, past and current colleagues were asked to fill in the questionnaire. Firstly, the author asked questions to confirm that the participant is really a member of a GVT and therefore meets the criteria set by Chudoba and Maznevski (2000), Cohen and Gibson (2003) and Lipnack and Stamps (1997). Some of the respondents volunteered to distribute the questionnaires to their team members. Majority of the questionnaires were distributed by social medium Facebook, LinkedIn and E-Mail by private mailings. However, since the distribution was also carried out by second parties, the exact participation rate in each group is unknown.

The questionnaire was created solely for the purpose of this thesis and was distributed primarily online via an online programme SoSci Survey 2016. The link to the questionnaire was mailed electronically to the participant. Several questionnaires were handed out in a printed version. The distribution period was from 2nd June 2016 to 4th July 2016. The questionnaire consisted of 17 questions. First four questions were aimed at demographic information which delivered descriptive statistics about the respondent. The seven following questions collected information about the company where the respondent works

or worked as a GVT member. The last six questions contained the six constructs, which measure the two independent variables, one dependent variable and the moderator. For more information about the constructs, refer to table 4. In order to see the whole questionnaire, refer to the appendix.

The statistical analysis itself, e.g. the testing of instrument reliability by computing Cronbach's Alpha, the calculation and visualisation of descriptive statistics and the testing of hypothesis was executed in software SPSS. Some parts of descriptive statistics were processed in software Excel.

5.2 Pre-tests

To ensure the high quality of the research instrument, the author decided for two types of pre-test; a face-to-face pre-test and online pre-test. The face-to-face pre-test was conducted with 5 participants, working in different companies and departments, in different countries and with a work experience ranging from 2 to 20 years. The participants were not asked to fill out the questionnaire, but were asked to explain how they understood the formulations and if they thought that there was an answer missing in the given options.

The face-to-face pre-test uncovered several issues that needed to be dealt with. If asked to distribute the questionnaire to colleagues, it was unclear to the participants who of their colleagues belonged to the target group. They had a tendency to give the questionnaire also to colleagues who did not work in a GVT. Therefore, an option to the 5th question was added, where the participants could choose "I have never been in contact with any colleagues located abroad." Participants who chose this answer were later deleted from the sample.

Participants during the face-to-face pre-test had also trouble identifying the correct team and situation in reference to which they should answer the questions. They tended to answer the questions regarding their current employer and not the employer, where they worked in a GVT. Therefore an extensive explanation with examples was added to the fifth question to eliminate any misunderstandings. A reminder was placed also in the seventh

question. The changes were discussed with all the participants of the face-to-face pre-test and after that no further problems were reported. The face-to-face pre-test did not uncover any other issues regarding the formulation of questions or answers. No question or item was added or deleted.

A second pre-test was conducted online. 25 questionnaires were collected to assess the reliability of the instrument. All constructs proved to be reliable measures with very satisfactory results overall. Cronbach's Alpha ranged from 0,755 to 0,930. For more detailed results see the following table.

Construct	Cronbach's Alpha
Decision quality	0,783
Team cohesion	0,899
Collaborative technology	0,917
Ability to accept cultural differences	0,755
Team effectiveness	0,930

Table 5: Pre-test reliability of the instrument.

5.3 Participation data and instrument reliability

A total of 206 participants took part in the survey, however only 150 questionnaires were fully completed. 144 responses were collected online and 6 questionnaires were collected in a printed version, and therefore added manually into the software. Majority of the dropouts occurred on the first and second page of the questionnaire. One of the reasons for this might be the loss of motivation or interest in this research. Another reason could be the understanding of the participant that she does not belong to the sample, since after choosing the option "I have never been in contact with any colleagues located abroad" in the fifth question, the participant is not able to answer the following questions. During the review of the collected data, it became obvious that the second reasoning proved to be the main issue. Two more responses had to be deleted from the sample because the participant answered the option mentioned above and even so completed the questionnaire. The final sample consisted of 148 respondents.

The measurement scale was tested on the full sample in two ways – the factor analysis and Cronbach's Alpha. Firstly the factor analysis was conducted. The construct "decision quality" achieved a value of 0,550 in the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO test) which is a rather low number, but acceptable for measures conducted in the field of social sciences. However the Bartlett's Test of Sphericity (Bartlett's test) proved statistical significance with a p-value of 0,000. The correlation matrix has not revealed any values coming close to the threshold of 0,8 with the highest value of 0,599 and the determinant value of 0,432.

The construct "team cohesion" achieved a value of 0,829 in the KMO test and proved to be significant in the Bartlett's test. Also the correlation matrix delivered relatively satisfactory results, with the determinant value of 0,014 and the highest correlation value of 0,772. A significant result of the Bartlett's test and a value of 0,684 confirmed the structure of the construct "collaborative technology". The determinant value of 0,074 and the highest value in the correlation matrix of 0,713 have also fit into the required threshold.

The KMO test for construct "ability to accept cultural differences" delivered a value of 0,626 and the Bartlett's test proved statistical significance. The determinant value of the correlation matrix was 0,166 and the highest value within the matrix 0,638. The construct "team effectiveness" achieved a very satisfactory result in the KMO test (0,870) as well as the Bartlett's test (p-value 0,000). The correlation matrix had a determinant value of 0,035 and the highest value within the correlation matrix was 0,679.

When looking closer at the result, even though all values were kept within the acceptable limits of sociological studies, some values were slightly questionable. However when adjusting the constructs according to the outputs of the pattern matrix, which delivered only some vague ideas for the adjustment of constructs, the impact on the correlation matrix and the KMO test was barely visible. Therefore it can be concluded that the overall the results were satisfactory for all constructs and further analysis will provide more insight into this matter.

Secondly, a reliability test of Cronbach's Alpha for the full sample was also conducted. The results were very satisfactory for all constructs, with the exemption of the construct "ability to accept cultural differences". The construct "decision quality" consisting of 5 items achieved a Cronbach's Alpha 0,856 which is way above the minimal threshold where the results are considered valid. The mean $\bar{X} = 5,477$ and rather low variance tells us that the average decision quality of the teams in question is rather good. The variation between the values is rather small, therefore the respondents answered quite consistently.

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5,477	5,108	5,601	,493	1,097	,043	5
Item Variances	1,427	1,022	1,852	,831	1,813	,107	5

Table 6: Summary statistics of construct "decision quality".

The construct "team cohesion" consisting of 6 items achieved a very high Cronbach's Alpha of 0,932. The mean had a value of $\bar{X} = 5,536$ which tells us that the participants' teams are rather cohesive. Variance can still be considered as rather small.

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5,536	5,264	5,811	,547	1,104	,042	6
Item Variances	2,084	1,529	2,319	,790	1,517	,101	6

Table 7: Summary statistics of construct "team cohesion".

The construct "collaborative technology" consisting of 6 items also achieved a Cronbach's Alpha that may be considered as very satisfactory. Its value is 0,871. With the mean value of $\bar{X} = 5,334$ and variation in acceptable limits one can suggest that most of the respondents consider the provided technology as satisfactory for their work.

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5,334	4,885	5,649	,764	1,156	,100	6
Item Variances	1,979	1,623	2,511	,888	1,547	,132	6

Table 8: Summary Statistics of construct “collaborative technology”.

The construct “ability to accept cultural differences” consisting of 6 items had a lower Cronbach’s Alpha of 0,662. However, after deleting the sixth item of the construct the value improved to 0,697. Since this value is still not satisfactory, further analysis has been made and also the fifth item was deleted. After this operation the Cronbach’s Alpha improved to 0,803 which is finally above the needed threshold for reliability. One of the possible explanations is the fact that these items were reversed-scored. The respondents might have been influenced by their answers in previous questions. The descriptive statistics follow.

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5,757	5,703	5,818	,115	1,020	,003	4
Item Variances	1,891	1,693	2,116	,423	1,250	,048	4

Table 9: Summary statistics of construct “ability to accept cultural differences”.

The fifth and final construct “team effectiveness”, consisting of 8 items, achieved a very satisfactory value of Cronbach’s Alpha 0,905. Again we can consider it as very reliable. The mean value of $\bar{X} = 5,487$ and variance suggests that generally, the respondents consider their teams as effectively working.

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5,487	5,365	5,615	,250	1,047	,008	8
Item Variances	1,498	1,068	1,934	,866	1,810	,092	8

Table 10: Summary statistics of construct “team effectiveness”.

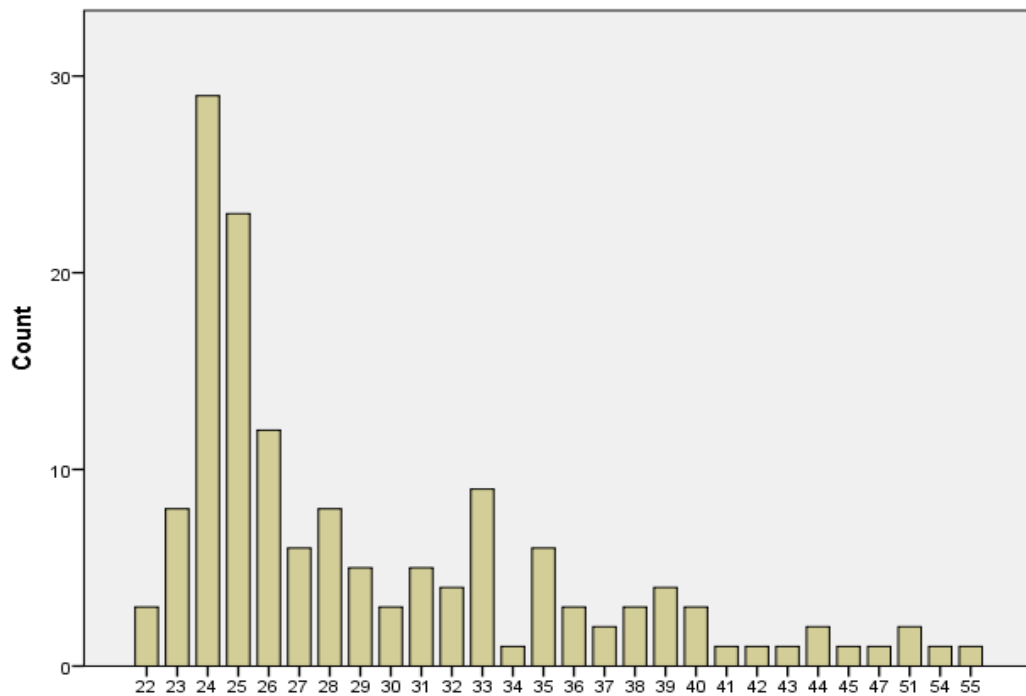
Overall it can be concluded, that the data and constructs passed both tests. Even though some results in the factor analysis were coming close to the required thresholds, they were balanced out by the very satisfactory results of the Cronbach’s Alpha. Furthermore, the constructs have been previously used by scientists in previous research and achieved satisfactory results. Therefore the constructs and sample data may be considered as valid and reliable and further analysis may be preformed. In the following it will be preceded with hypothesis testing.

6 Findings

In this chapter the empirical findings are discussed, namely the descriptive statistics and the analysis of the hypothesis. Firstly, the demographic characteristics of the respondents and the characteristics of their working environment are described. Secondly, the model is tested and the validity of the 6 hypothesis discussed.

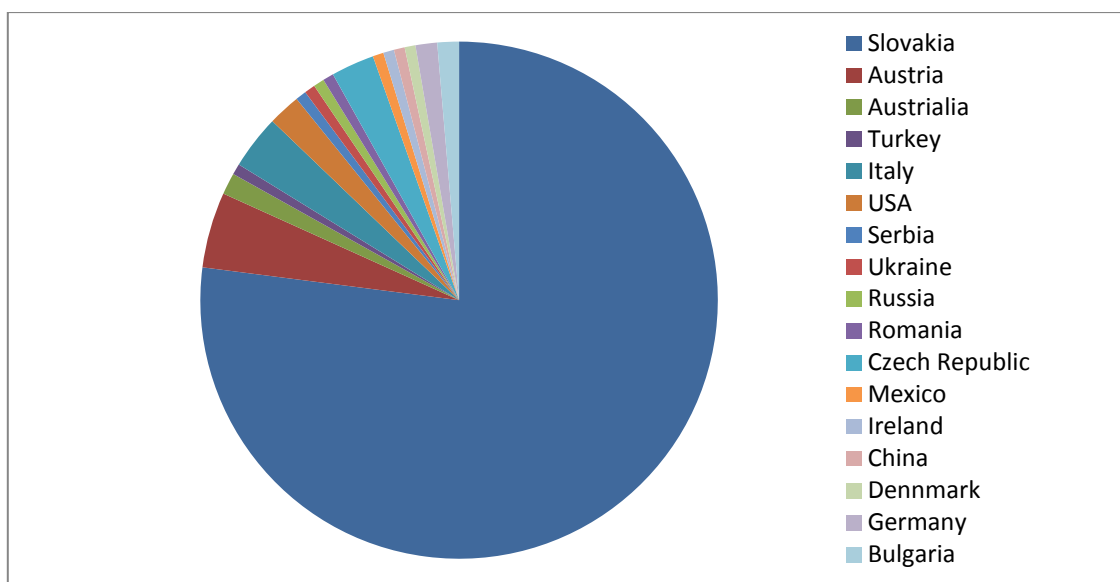
6.1 Descriptive statistics

The sample consisted of 148 respondents where majority of the respondents were female $N = 84$ (56,7%) and the rest of the sample were male participants $N = 64$ (43,2%). The average age of participants was 29,5 years with the average age for male and female participants nearly identical with 29,4 years for female participants and 29,6 years for male participants. The minimum age was 22 years and the maximum 55 years. An overwhelming majority of the respondents are under 30 years old ($N = 97$; 65,5%), exactly 25% of the respondents aged 30-39 years and 9,5% of the respondents are older than 40 years.



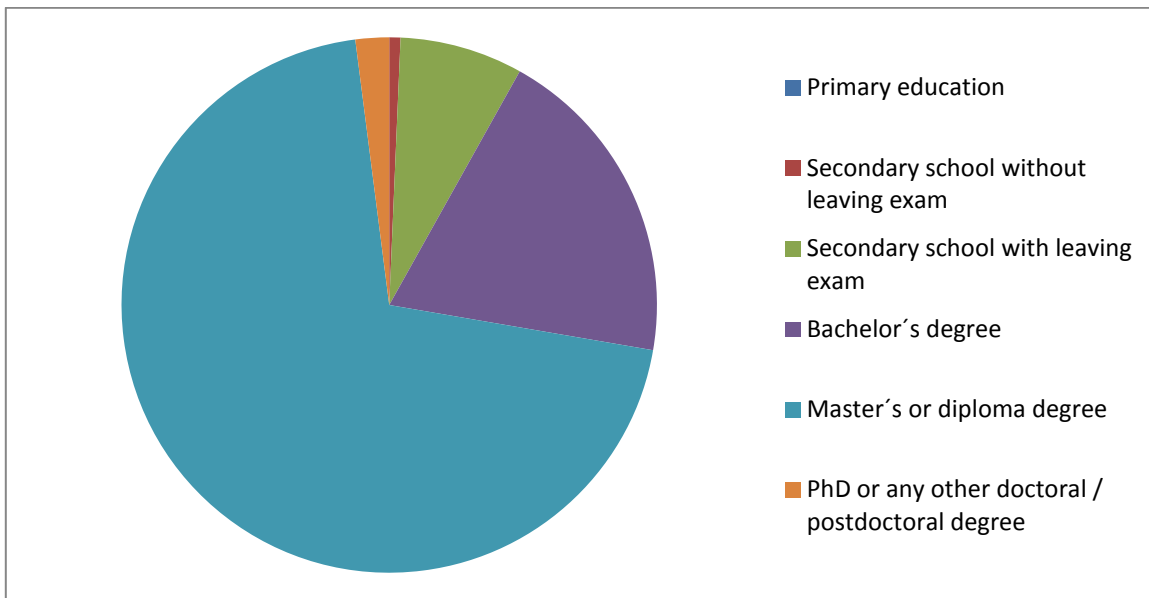
Graph 1: The age distribution of the sample.

In total 17 nationalities took part in the study. An overwhelming majority of respondents came from Slovakia N = 114 (77%). Seven respondents came from Austria, five from Italy, four from Czech Republic, three from United States of America, two from Australia, Germany and Bulgaria, and other nations had only one representative taking part in this study. You can find all the participating nations in the following graph.



Graph 2: Nationalities of the participants.

Out of all participants 104 had a master's degree (70,3%), nearly 20% had a bachelor's degree (N = 29) and for 11 participants (7,5%) their highest form of education was secondary school with leaving exam. Three participants had a PhD or other doctoral / postdoctoral degree and one participant had secondary education without a school-leaving exam. In the following graph you can find the education levels of the sample.



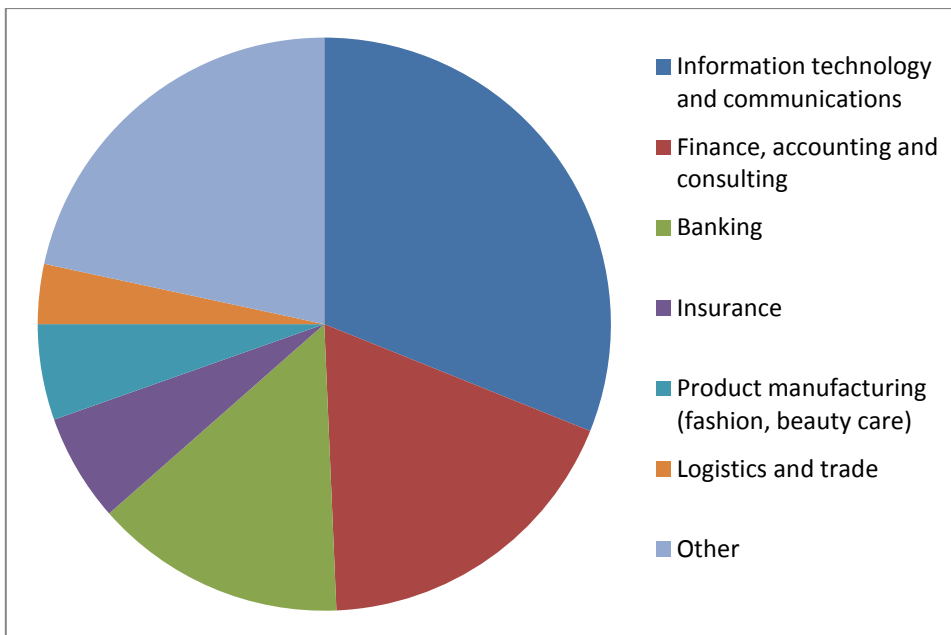
Graph 3: Level of education of the sample.

121 respondents (81,8%) claimed they work with their colleagues abroad on a regular basis, daily, weekly or monthly. A minority of the respondents (N = 27; 18,2%) claimed they work with their GVT members only on a project basis.

When asked about the nationality of the colleagues abroad, the answers were very various. Most of the respondents wrote more than 3 different countries. Many different countries were mentioned, belonging to nearly all continents, namely Europe, Asia, Africa, South and North America. However the most frequent countries were European countries, namely Italy, Germany, Austria, UK, France, Turkey and many other Eastern European countries. USA was the most mentioned non-European country. Among the other mentioned countries were Brazil, United Arab Emirates, Egypt, Canada, Mexico, Israel, Singapore, Malaysia, Morocco, Chile and other South American countries.

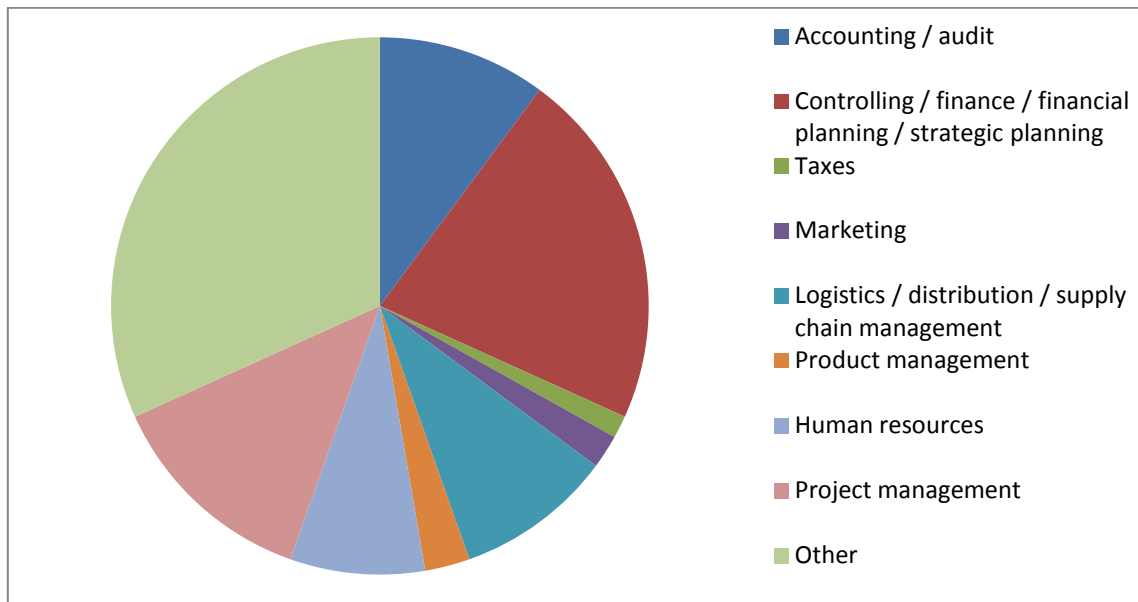
The average number of employees working in the company in total was 178 188 ranging from 5 to 500 000. The average team size was 33,2 team members in one team ranging from 3 to 1000. An average participant is working for the company for 3,9 years with the minimum of few months and the maximum time of 33 years. The average time that a team spent at the current location was 5,2 years is ranging from few months to 25 years.

Most of the respondents were working in companies within the “information technology and communications” industry (31,1%), followed by “finance, accounting and consulting” with 18,24% and banking with 14,2%. Other industries which achieved 6% and less were “insurance”, “product manufacturing (fashion, beauty care..)” and “logistics and trade”. 21,6% of the respondents claim they work in “other” industry.



Graph 4: Employer industry overview.

The top departments where the respondents claim to be working are “controlling / finance / financial planning / strategic planning” (21,6%), “project management” (12,8%), and “accounting / audit” (10,1%). Less than 10% achieved in the following decreasing order “logistics / distribution / supply chain management”, “human resources”, “product management”, “marketing” and “taxes”. A rather large group of respondents chose the option “other” (31,8%).



Graph 5: Department overview

6.2 Hypothesis testing

H1a: Decision quality is positively associated with team effectiveness.

When running the regression in SPSS the regression achieved R Squared of 0,383 and the adjusted R squared of 0,379. Even though these numbers are rather low, it is very usual for sociological studies since human mind is relatively unstable and predicting the emotional reactions and perceptions is very difficult if not impossible. However, the ANOVA table has shown that the model is statistically significant (p-value 0,000). Therefore, the relationship between the independent variable and dependent variable were tested. The coefficient has a value of 0,617 and is statistically significant. Even though this value is rather low, there exists a positive relationship between “decision quality” as an independent variable and “team effectiveness” as an independent variable. When checking for homoscedasticity, the plot showed random scatter, so the assumptions of regression were met. Therefore the H1a hypothesis is not rejected.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	2,109	,360		,000
	DecisionQuality	,617	,065	,619	,000

a. Dependent Variable: Teameffectiveness

Table 11: Coefficient values and significance of H1a hypothesis.

H1b: Team cohesion is positively associated with team effectiveness.

When testing for the relationship between “team cohesion” and “team effectiveness” the R Squared had a value of 0,49 and the adjusted R squared value is 0,486. Even though this number is higher than in the previous analysis, it is still rather low. However again, it is a standard showing of sociological studies, therefore further analysis was executed. The ANOVA table has shown the statistical significance of this model (p-value 0,000). The coefficient achieved a value of 0,533 which proves the positive relationship between these two variables, even though it is quite slight. Both constant and the coefficient have proved to be statistically significant. When checking for homoscedasticity the results have confirmed that the assumptions of linear regression are also met. H1b hypothesis is not rejected.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	2,540	,255		,000
	TeamCohesion	,533	,045	,700	,000

a. Dependent Variable: Teameffectiveness

Table 12: Coefficient values and significance of H1b hypothesis.

H2a: Collaborative technology moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

When testing the regression with coefficients “decision quality” and “collaborative technology” the R Squared achieved the value of 0,473 and adjusted R Squared 0,466. Both of the coefficients are statistically significant, as well as the model (p-value 0,000).

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,370	,366		,000
	DecisionQuality	,471	,067	,472	,000
	Collaborativetechnology	,289	,058	,334	,000

a. Dependent Variable: Teameffectiveness

Table 13: Coefficient values and significance of H2a hypothesis (regression analysis without moderator).

In a mediation analysis the research expects that by executing this simple linear regression, one of the coefficients is not significant and therefore one must search for other factors that could improve the R squared of the model and significance of the coefficients. Even though this first analysis did not deliver promising results in terms of the research hypothesis, the author decided to proceed with further analysis in order to understand the complexity of the research topic. After computing the moderator variable and testing this model, the R squared achieved a value of 0,484 and adjusted R squared achieved a value of 0,473. The model remained statistically significant (p-value 0,000) constant and coefficient obtained the following values.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,610	,389		,000
	DecisionQuality	,454	,067	,455	,000
	Collaborativetechnology	,267	,059	,308	,000
	DecColl	-,065	,038	-,110	,087

a. Dependent Variable: Teameffectiveness

Table 14: Coefficient values and significance of H2a hypothesis (regression analysis with moderator).

Depending on the threshold the moderator variable “DecColl” may be or may not be considered as significant. However, if an only slightest change in R squared value is considered, it is safe to conclude that this moderator variable has not brought any additional value to the model. Therefore, the H2a hypothesis is rejected. One of the reasons for the result of such analysis might be multicollinearity of the independent variables. In this case there was such relationship proved between the two independent variables.

H2b: Collaborative technology moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

When testing for the moderation effects of “collaborative technology” on “team cohesion”, firstly a simple linear regression was computed with these two constructs as independent variables. The R squared of this regression has a value of 0,552 and the adjusted R squared of 0,545, which may be considered as satisfactory for sociological studies. Again, the ANOVA table has shown a statistical significance of the model (p-value 0,000). The coefficients have following values and significance levels.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,789	,293		,000
	TeamCohesion	,435	,048	,572	,000
	Collaborativetechnology	,242	,054	,280	,000

a. Dependent Variable: Teameffectiveness

Table 15: Coefficient values and significance of H2b hypothesis (regression analysis without moderator).

Even though the significance levels show that “collaborative technology” most probably does not have the classifications of a moderator, to make the analysis complete the author proceeded with the moderator analysis by standardising the variables and creating the moderating variable. Comparing to the regression without the moderator, the R squared rose slightly to 0,556 and adjusted R squared to 0,547. The model remained statistically significant (p-value 0,000). However the moderator, in this case called “CohColl”, is not significant. Therefore it is not needed in the regression. Therefore the H2b hypothesis can be confidently rejected. There is also multicollinearity of the two independent variables.

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,936	,318		,000
	TeamCohesion	,429	,048	,563	,000
	Collaborativetechnology	,226	,056	,261	,000
	CohColl	-,052	,044	-,070	,240

a. Dependent Variable: Teameffectiveness

Table 16: Coefficient values and significance of H2b hypothesis (regression analysis with moderator).

H3a: Ability to accept cultural differences moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

A very similar scenario as the case of testing H2a and H2b happened when testing the H3a and H3b hypothesis. When testing the H3a hypothesis the R squared value of the regression with variables “decision quality” and “ability to accept cultural differences” was 0,457 and adjusted R squared 0,450. The models (p-value 0,000) as well as both coefficients were statistically significant. After adding the moderator variable the R squared and adjusted R squared remained nearly the same at 0,465 and 0,454 respectively, model significance at (p-value 0,000). The moderator variable “DecAbility” was however insignificant. Therefore, it can be left out of the regression. The hypothesis is rejected. Again, multicollinearity between the two variables is present.

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	1,045	,415		2,519	,013
	DecisionQuality	,555	,063	,557	8,875	,000
	Abilitytoacceptculturaldiffere nces	,244	,055	,280	4,465	,000

a. Dependent Variable: Teameffectiveness

Table 17: Coefficient values and significance of H3a hypothesis (regression analysis without moderator).

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	1,219	,431		,005
	DecisionQuality	,543	,063	,544	,000
	Abilitytoacceptculturaldiffere nces	,228	,056	,261	,000
	DecAbility	-,056	,040	-,090	,159

a. Dependent Variable: Teameffectiveness

Table 18: Coefficient values and significance of H3a hypothesis (regression analysis with moderator).

H3b: Ability to accept cultural differences moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

R Square values and adjusted R squared values of the regression with variables “team cohesion” and “ability to accept cultural differences” was 0,540 and 0,534 respectively, model (p-value 0,000) and coefficients themselves were statistically significant. However, there was significant multicollinearity in this case as well. After adding the moderator variable “CohAbility” into the regression, the R squared improved to 0,561 and adjusted R squared fell to 0,522, model was still significant (value 0,000). In this case, the moderator variable is statistically significant. However, one can debate about its function as a moderator. Since also the two variables “team cohesion” and “ability to accept cultural differences” showed multicollinearity, the hypothesis is rejected.

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	T
1	(Constant)	1,632	,333		4,904
	TeamCohesion	,485	,044	,638	10,916
	Abilitytoacceptculturaldiffere nces	,203	,051	,233	3,997

a. Dependent Variable: Teameffectiveness

Table 19: Coefficient values and significance of H3b hypothesis (regression analysis without moderator).

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	T
1	(Constant)	1,847	,336		5,492
	TeamCohesion	,486	,044	,638	11,139
	Abilitytoacceptculturaldiffere nces	,171	,051	,197	3,339
	CohAbility	-,121	,046	-,150	-2,628

a. Dependent Variable: Teameffectiveness

Table 20: Coefficient values and significance of H3b hypothesis (regression analysis with moderator).

7 Discussion of results

The main aim of the seventh chapter is to discuss the results of conducted statistics and provide answers to the research questions. Firstly, the descriptive statistics is discussed, e.g. the sample size and structure, demographical data, the data concerning the professional background of the respondent, the data concerning the employer of the respondent. Secondly, the results of the hypothesis testing are discussed. The empirical results are explained in more detail in order to provide deeper understanding of the research topic. In the third part of this chapter, the fulfilment of the research question and objectives will be reflected. To conclude this chapter, a brief comparison between the theoretical and empirical research is provided.

7.1 Discussing descriptive statistics

As mentioned before, the final sample consisted of 148 respondents. This number is considered as satisfactory, given that the occurrence and excess of such teams is limited. These teams usually exist only in multinational companies, e.g. in shared service centres or company or company headquarters. Since the sample consists of only respondents that are actually part of a GVT the choice of respondents is rather small. The sample does not include respondents that are just communicating with colleagues with supporting functions, or just having a manager located abroad or being a subordinate team to another team abroad.

Majority of the respondents were female $N = 84$ (56,7%) and the rest of the sample were male participants $N = 64$ (43,2%). Usually, more men take part in online research. However, in this case the sample was rather controlled. The average age of 29,5 years suggests a rather young sample, which is consistent with the usual sample of online questionnaires (Atteslander, 2013, p.166).

17 nationalities took part on this study, where overwhelming majority of respondents were Slovak (77%). This fact would also explain the rather low average. The current situation at the Slovak job market is very favourable for young people. The most job opportunities are

coming from large multinational corporations which are in the past 10 years dominating the job market for recent graduates. The preference is not strictly for graduates, but thanks to historical reasons, only the younger generation is able to speak English and other foreign languages, which are essential for the work. These companies open shared service centres in Slovakia, and therefore employ employees which execute various supporting functions for other countries. These kinds of employees are abundant and in the sample play a major role in the sample.

This fact would also explain the education structure of the sample, where an overwhelming majority of the respondent possess a master's degree (70,3%). These companies in Slovakia employ preferably graduates with a master's degree. The situation is naturally similar for all other nationalities that took part in the survey.

81,8% of the respondents claimed that they work in a GVT on regular basis whereas 27,8% claimed they work within a GVT on a project basis only. This means that the sample consists of respondents that most probably have a lot of experience with such teams. This is also supported by the fact that many respondents work with more than 3 nationalities. We might expect that these employees feel more comfortable in working in such environment.

The sample was very diverse also considering the geographical dispersion of the team members. Many teams were distributed not only within one continent, but also globally. This fact also suggests that cultural issues may be in play, where it is also certainly more difficult to work across time and distance.

The average number of employees working in the company in total was 178 188 ranging from 5 to 500 000. This is rather a wide scope, however the results are therefore not biased and propose a good sample considering making general assumptions. The same holds for the team size. The sample offered a wide range of 3 to 1000. An average participant is working for the company for 3,9 years with the minimum of few months and the maximum time of 33 years. This number is rather low considering that an employee needs some time to get adjusted to the company and team environment. The average time that a team spends

at the current location was 5,2 years ranging from few months to 25 years, which indicates that most of the teams are already well established at their current location.

The analysis of employer industry and department showed a variety of different economic specialisation within the sample. However, nearly 32% of the respondents chose the “other” option in the department selection. This shows that most probably a preferred option was omitted. This option was most probably the information technology department.

7.2 Discussing results of hypothesis testing

When speaking about the test hypothesis it is important to stress out that the study works with sociological data. It happens very frequently in such research; the R squared of the regression analysis is rather low. The most common explanation is that human brain is rather unstable in its decisions and acts emotionally rather than rationally in many cases. Decisions are based on memories and experience, where selective memory may bias the results quite heavily. A relative low value of R squared is present in all of the regressions.

H1a: Decision quality is positively associated with team effectiveness.

The first hypothesis was not rejected. There indeed exists a positive relationship between decision quality and team effectiveness. In the reliability testing both constructs “decision quality” and “team effectiveness” achieved a very high score (Cronbach’s Alpha of 0,856 and 0,905 respectively) and a relatively high mean value ($\bar{X} = 5,477$ and $\bar{X} = 5,487$ respectively). This suggests that the results are reliable and within the sample many respondents consider their team as rather rich in these qualities.

However, the coefficient itself had a value of 0,617 which indeed means that the relationship is positive, but not particularly strong. With also R Squared value of 0,383 (adjusted R squared of 0,379) it may be concluded that there is an omission of variables in the analysis. There are most probably other factors that influence the team effectiveness.

H1b: Team cohesion is positively associated with team effectiveness.

This hypothesis was not rejected. There exists a positive relationship between “team cohesion” and “team effectiveness”. Both of the construct achieved a high Cronbach’s Alpha (0,932 and 0,905 respectively) and also a relatively high mean value ($\bar{X} = 5,536$ and $\bar{X} = 5,487$) respectively. Again the results suggest a reliable analysis where team members consider their teams as very effective and additionally cohesive.

The coefficient had a positive value of 0,533. The relationship between the two constructs truly exists with the R squared value being higher than in the previous case (0,49; adjusted R squared value is 0,486). Again, we may conclude that there is probably an omitted variable in our analysis that would be able to predict the results of the regression better.

H2a: Collaborative technology moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

When testing the regression with coefficients “decision quality” and “collaborative technology” the R Squared achieved the value of 0,473 (adjusted R squared 0,466). Both of the coefficients are statistically significant, and both constructs achieved a high Cronbach’s Alpha (the construct “collaborative technology” achieved a Cronbach’s of 0,871). With the mean value of $\bar{X} = 5,334$ it is safe to say that most of the respondents consider the provided technology as satisfactory for their work.

These results already suggested that the moderator analysis is not in place here. It was also supported by the fact that the computed moderator variable proved not to be statistically significant (with the p value 0,087 it is only significant at the 0,1 level), the constructs stayed significant. Therefore, this variable had no significant extra explanatory power, which is also supported by the value of R squared of this new regression (0,48; adjusted R squared 0,473).

In a mediation analysis the research expect that by executing this simple linear regression, one of the coefficients is not significant and therefore, one must search for other factors that could improve the R squared of the model and significance of the coefficients. Even though this first analysis did not deliver promising results in terms of the research hypothesis, the author decided to proceed with further analysis in order to understand the complexity of the research topic. After computing the moderator variable and testing this model, the R squared achieved a value of 0,484. The constant and coefficient obtained the following values. The research hypothesis was therefore rejected.

One of the statistical explanations of this situation is multicollinearity between the two independent variables. A practical explanation is the impact that technology has on the work of a GVT. In this research technology was treated as a moderating variable, but it might be possible that it has a role of independent variable. It has a strong impact on team effectiveness by itself. A statistical argument in favour of this assumption is the R squared value (0,38) of the regression that tested only the impact of “decision quality”. Comparing to the regression where “collaborative technology” was added it is much lower (0,38 versus 0,48 respectively).

H2b: Collaborative technology moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with high levels of collaborative technology than for teams with low level of collaborative technology.

A very similar situation occurred in the case of constructs “team cohesion” and “collaborative technology”. Both constructs having relatively high Cronbach’s Alpha and means have proven to be statistically significant in the simple regression without the moderator. Therefore one can doubt the function of “collaborative technology” as a moderator, which is supported also by the barely visible improvement of R squared values (0,552 to 0,556 respectively; adjusted R squared of 0,545 and 0,547 respectively). In the regression which included the moderator analysis, it turned out that the moderator is not

statistically significant (value 0,24). Therefore, the H2b hypothesis was rejected with confidence.

The reason for this may be considered the multicollinearity of the variables, which was demonstrated above. Another reason is the same as in the previous case. “collaborative technology” may be equally as important for the proper functioning of GVT as “team cohesion.”

H3a: Ability to accept cultural differences moderates the relationship between decision quality and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

The third hypothesis introduced a new variable, “ability to accept cultural differences”. This construct had to be adjusted slightly, since the Cronbach’s Alpha of the construct consisting of 6 items had a lower value Cronbach’s Alpha of 0,662. After deleting the last two questions of the construct, the value increased to very satisfactory 0,803. One of the possible explanations is the fact that these items were reversed-scored. The respondents might have been influenced by their answers in previous questions and thought that answering in the opposite direction would provide false results. However, this thought was incorrect in many cases and the proper meaning of the questions was not understood correctly.

When testing the simple regression consisting of the two variables “decision quality” and “ability to accept cultural differences”, the R squared value was 0,457. Both coefficients were statistically significant. After adding the moderator variable the R squared remained nearly the same at 0,465 and the moderator variable was insignificant. Adjusted R squared remained nearly the same at 0,465 and 0,454 respectively. The hypothesis was confidently rejected. Again, multicollinearity between the two variables was present.

The reasoning behind the situation remains similar as in the case of proving the H2a and H2b hypotheses. The simple regression, in the beginning of our analysis, which consisted only of one independent variable “decision quality” (hypothesis H1a) had a value of 0,383.

When adding the variable “ability to accept cultural differences” into the regression, the R Squared values improved to 0,457. Therefore there exists a possibility that the construct “ability to accept cultural differences” should be treated as an independent variable, not a moderator.

H3b: Ability to accept cultural differences moderates the relationship between team cohesion and team effectiveness, so that the relationship is stronger for teams with ability to accept cultural differences than for teams with low ability to accept cultural differences.

The simple regression with variables “team cohesion” and “ability to accept cultural differences” has R squared value of 0,540 and the coefficients themselves were statistically significant. After adding the moderator variable into the regression, the R squared improved to 0,561 (adjusted R squared was originally 0,534, it fell to 0,522). Unlike all the other cases, the moderator variable proved to be statistically significant. However, the two variables “team cohesion” and “ability to accept cultural differences” showed multicollinearity.

Even though the moderator variable is statistically significant, it does not fulfil its intended function. It does not help to explain much of the fitness of the regression, nor does it increase the significance of the two independent variables. The hypothesis is therefore rejected.

After reviewing all of the hypotheses an interesting research possibility arose. It is obvious that it might be the case that all of the constructs previously considered as moderators may play a role of independent variables in the analysis and the relationship between them and the dependent variable is linear.

A regression analysis consisting of 4 independent variables, namely “decision quality”, “team cohesion”, “collaborative technology” and “ability to accept cultural differences” showed that the assumptions have not proved to be far from the truth. After regressing dependent variable on the four independent variables “team effectiveness”, the regression

achieved R squared value of 0,624 and adjusted R squared of 0,613, which is a much higher value than all other previous analysis. Model (p- value .000) and all of the coefficients (excluding the constant) have proved to be statistically significant and have a positive value.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,554	,360		1,540	,126
	DecisionQuality	,242	,066	,243	3,693	,000
	TeamCohesion	,315	,051	,414	6,176	,000
	Collaborativetechnology	,171	,052	,198	3,299	,001
	Abilitytoacceptculturaldiffere nces	,165	,047	,190	3,521	,001

a. Dependent Variable: Teameffectiveness

Table 21: Coefficient values in the alternative research hypothesis.

This last analysis offers possible ideas and directions for future research. This is discussed in the following chapter.

7.3 Discussing the connection between theoretical and empirical findings

The empirical findings do not support the assumptions of moderating effects of technology and cultural awareness, but nonetheless, they deliver very important results concerning GVT effectiveness. The results show that all the constructs (decision quality, team cohesion, collaborative technology, ability to accept cultural differences) influence team effectiveness. This influence is positive, meaning that they contribute positively to the effective working GVT. All these findings are consistent with the views of the studied literature, that was analysed in the earlier stages of this thesis and which ultimately led to the creation of the research model.

7.4 Discussing the research questions and objective

RQ1: When comparing to the co-located teams, can the advantages that GVTs bring for a business make up for the challenges which these teams have to face?

There are several studies which compared the GVTs with traditional, co-located team. Their evidence is rather mixed. As explained in the third chapter, especially in part 3.6.3, some studies consider GVTs as equally effective as co-located teams and some believe otherwise. Some researchers identified the lack of face-to-face communication as the main obstacle, others trust or different perception of team work or just generally, a mix of factors. However other studies have shown better performance of GVTs.

Even though the literature is rather sceptical, there is something to be said about the conclusion of Morris, he believes that “with the appropriate insight, skills and support there is no reason why a virtual team cannot work just as effectively as a co-located team” (2008, p. 130). Therefore, after proper planning, implementing the right processes and choosing the right people, there is a possibility of GVTs working just as effectively as GVTs.

RQ2: Can the advantages that GVTs bring make up for the disadvantages?

The advantages and disadvantages of GVTs were discussed in detail in parts 3.6.1 and 3.6.2. Here are some examples.

Advantages: Recruiting locally in more places (access to more specialist knowledge), local responsiveness (cultural, language proximity and time), higher installation costs but overall lower costs, green alternative to business (lower travel costs), avoidance of shift work, multiculturalism, innovation.

Disadvantages: Physical distance, cultural distance (psychological issues connected to the distance), mistrust, conflict, misunderstandings, miscommunication (foreign language), “vicious circle of GVT”, teleconference communication as mentally exhausting, nonverbal aspects of communication lost, coordination, competition between subgroups, reluctance to share knowledge.

As expressed, there are many advantages and disadvantages that GVTs have. Since establishing a GVT is such a complicated process and it has so many attributes, it is undoubtedly very challenging to overcome all the disadvantages. The most important thing that managers should have in mind is relationships among the team members, since interpersonal interactions seem to be the biggest source of problems. Manager should choose her team members accordingly, people who are able to work in a multicultural environment, communicate within the virtual word, have advance knowledge of appropriate languages, and are able to establish relationships without face-to-face contact. Under these conditions, a GVT is certainly capable to overcome the disadvantages that arise.

RQ3: Which rules and resources do global businesses introduce to GVTs in order to facilitate their work together?

Even though some scientific literature has devoted its attention into studying the effectiveness of GVTs, most of the authors only identify the certain factors which influence it. However, only very rarely do authors also discuss ideas and techniques how to enhance these factors. The only found theory that might be applied to enhance the effectiveness of GVTs, and is mentioned by several authors, is the Structuration theory by Giddens (1984). However, the theory itself was created in times, when the GVTs we know nowadays, did function completely differently. The technology that is available today has advanced rapidly and opens a wide range of applicable possibilities that did not exist. Therefore, it is safe to say that a huge gap in research exists in this matter.

In practice it is possible to find some examples of rules and resources that improve GVT effectiveness. These examples include shared principles and values, rules and rituals like “meeting halfway,” “communicate through the roof,” and “we are a team”. They suppress the “us” versus “them” mentality and promote the equal status in the team. Introducing special software which facilitates the work of GVT members is also proved to have positive effects on team collaboration.

Another example is the introduction of special programs that may help the team members to understand the perspectives of their colleagues, their views and ideas and also help to understand their communication styles and working habits. This training helps the team members to understand how others think and what they do. The programs are namely Cultural Awareness Program and Cultural Orientation Program.

Even though it was possible to get some information about the rules and resources GVTs introduce to their daily routine, the information is rather scarce. Given the extent in which GVTs are being established, there certainly needs to be done more research in this matter.

RQ4: Which factors influence the effectiveness of work of the GVT?

Throughout the whole thesis, but especially in the third and fifth chapter, there were many factors identified that influence the effectiveness of GVT. Some of them influence the performance in a positive way, others in a negative way. The list of these factors follows. It is however important to point out, that the distinction between the three categories is just to bring an overview. The complexity of these factors is deep and they are mutually interdependent.

Cultural aspects: cultural differences, ability to accept cultural differences and diversity, language knowledge

Technological aspects: computer literacy, use of communication technologies, knowledge sharing, structured virtual meetings, ability to adjust communication style to the task complexity, rhythm generation of interpersonal interactions, reliable interaction, adaptation of structured processes and formal procedures

Relational aspects: trust, misunderstandings, miscommunication, respectfulness, team politics, social capital, social dimensional factors, cooperative attitude, competitive conflict, shared values, perceived benefit, team leader performance, active participation, including team members, ability to establish interpersonal relationships, avoidance of psychological stress

Furthermore, the regression analysis conducted in the empirical part of this thesis has statistically proven other aspects that contribute to the effectiveness of GVT – decision quality, team cohesion, collaborative technology, ability to accept cultural differences.

Throughout the whole thesis there has been a wide range of factors identified. The long list of factors with many examples and explanations and the deep literature review has provided exhausting results.

The objective of this master thesis is to provide an overview of GVTs, to discuss the different characteristics of the teams, their advantages and disadvantages, the rules they introduce and resources they use. The main goal is to identify the key factors which make an efficiently working GVT.

Establishing a GVT is surely a complicated process. However, in today globalised economy it is an arrangement that keeps the business working flexible. It is an important attribute that keeps the business going. When making the comparison between these two organisational designs, one must not think in black-and-white terms. Many advantages that GVTs bring propose a disadvantage at the same time and vice-versa. What it comes down to is the skills of the management, combining team members, which are able to work together, giving them proper cultural training, providing proper technology and giving them enough guidance and motivation.

The technical and cultural aspects are easier to control, however also relational aspects come into play. When looking at people's psychology, some are able to work in the virtual reality, and some are not. It also comes down to the skill of the manager, who is choosing her team members, to pick people, who are able to overcome the physical and psychological distance between the colleagues. One of the ways a manager can overcome this distance between the employees is to introduce adequate rules and resources to the team. These support the team work and belong to the many factors which influence the efficiency of the GVT.

The main goal of this thesis, as mentioned above, was to bring overview of the functioning of a GVT. Considering that research in this topic is still rather scarce and this new phenomenon is just gaining attention and importance among researchers, the objective of this master thesis was fulfilled.

8 Limitations, contribution and future research

This chapter discusses the contribution this thesis has brought to the business practice and the academic world. It gives ideas and directions for the future research and also elaborates on the limitation of this master thesis.

The methodology used in this thesis should be widely applicable for the future research. However, when reflecting the methodology of this thesis a few limitations were uncovered, which might have biased the results. A piece of information was omitted in the questionnaire which could provide extra information about the sample. The missing question was the time which the team member had been part of the team. Also, the overwhelming nationality in the sample was Slovak as well as the younger generation under 30 years. The results were certainly biased in favour of these groups. The last question mark remains hanging above the sample size. For a more reliable study a bigger sample should be chosen. However, for the purpose of this master thesis, the sample size is considered as satisfactory.

This master thesis has many implications of practice. Managers support their team members in their every-day work and try to keep their team members as motivated and happy as possible. In order to achieve high performance, it is undoubtedly the aim of every manager to keep their team intact and efficiently working. This thesis uncovered a wide range of factors, which influence the performance of GVTs and which could serve as a guideline in the strategic and organisational decision-making process.

Also, human resources managers can find valuable advice in this thesis. During the recruiting process they are looking for certain types of people that would fit in teams. In this thesis they can obtain advice on which characteristics are important for fitting in a GVT. Managers responsible for making strategic and organisational decisions may also find some useful remarks in this thesis. This thesis analyses the advantages and disadvantages of GVTs, therefore a manager can find some basic ideas of what it takes to organise and manage such team.

The most important theoretical contribution was the research in GVTs itself. This topic did not receive as much attention as other topics. The movement in global economy is as fast as ever, and globalisation can be considered as an unstoppable phenomenon. Given the fast pace of today business, the research in this matter has to yet catch up to the need of information for practitioners.

Most of the research has been concentrating on the comparison of GVT and traditional, co-located teams. Not many authors conducted a research of GVTs themselves, and if so, the main topic was identification of factors that influence the effectiveness of GVTs. This research however, was only very rarely conducted in a form of statistical analysis. Therefore this thesis adds an empirical value to the existing research, especially by proving the significance of the four factors which has not been proven before.

Another idea for research comes from the questionnaire. The sample consisted of respondents that work in a GVT on regular basis and respondents that work in a GVT on project basis. In the scope of this master thesis was not to compare these two groups, nor was it a scope of other papers that the author came across. Another interesting research topic would be to compare respondents of different nationalities, or working with different nationalities. Since the cultural differences are larger between different nations, future research could give some valuable advice to practitioners. The same would be true for comparing company headquarters with shared service centres, or industries and departments.

Another research gap that this thesis uncovered was the lack of research in rules and resources that can influence the effectiveness of these teams. The existing literature has uncovered the factors that influence the performance of teams, but only rarely explains how to master and adjust these factors, e.g. if mistrust one of the main aspects that influence the performance of GVTs, how can we facilitate the level of trust in the team? These are still questions that need to be answered and propose an exciting research topic for the future.

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Appendix: Questionnaire

Dear Participant,

Welcome to the survey! The aim of this survey is to study the effectiveness of global virtual teams. This survey is a part of master thesis conducted at the University of Vienna and the results will be used only for the purpose of this research.

It should take you about 5-6 minutes to complete. Your participation is strictly confidential and anonymous.

In case of any questions do not hesitate to reach out to a1347476@uniwie.ac.at or simone.skrucana@gmail.com.
Thank you for your participation in advance!

Kind regards,
Simone Skrucana

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Question: 1. What is your gender?

Answer: one option possible

- ☐ Female
- ☐ Male

Question: 2. Indicate your age in years

Example: 25

Answer: (open-ended)

Question: 3. What is your nationality?

Example: Slovakia, Austria, Germany..

Answer: (open-ended)

Question: 4. Indicate your highest completed level of education

Answer: one option possible

- ☐ Primary education
- ☐ Secondary school without leaving exam
- ☐ Secondary school with leaving exam
- ☐ Bachelor's degree
- ☐ Master's or diploma degree
- ☐ PhD or any other doctoral / postdoctoral degree

Question: 5. Indicate how often you are in contact with your colleagues abroad

This questionnaire is aimed at your time spend working with your colleagues ABROAD, independent of

the duration and regularity (daily, monthly, project basis, onetime project..)

- If you are not in contact with your colleagues abroad on a regular basis, think about the last international project
- If you are not currently working in such a team, think about the last time you worked in such a team (including the time you spend at your previous employer)

Example 1: You are an accountant in a subsidiary of a multinational corporation in Slovakia. You communicate two times per month with your colleagues in France and Canada. All following questions concern your relationship and cooperation with your French and Canadian colleagues, NOT the ones from your office in Slovakia

Example 2: You are not in daily contact with colleagues working abroad in your current company. However, at your previous employer you worked on a project with colleagues in Ireland. Answer the questions concerning your cooperation with the Irish colleagues at your past employer

Answer: one option possible

- on a regular basis (daily, weekly, monthly)
- on a project basis
- I have never been in contact with any colleagues located abroad

Question: 6. What is the nationality of the colleagues located abroad? If you work with several nationalities, name the ones you have the most contact with

Example: Italy, UK, USA...

Answer: (open-ended)

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Question: 7. Indicate the industry of the company

Remember this questionnaire is aimed at your work with colleagues located abroad. The company may not be your current employer. Answer the following questions concerning the company where you worked internationally.

Answer: one option possible

- Information technology and communications
- Finance, accounting and consulting
- Banking
- Insurance
- Product manufacturing (fashion, beauty care...)
- Logistics and Trade
- Other

Question: 8. Indicate the department

Answer: one option possible

- Accounting / audit
- Controlling / finance / financial planning / strategic planning
- Taxes
- Marketing
- Logistics / distribution / supply chain management
- Product management
- Human resources
- Project management
- Other

Question: 9. Approximately how many employees work at the company worldwide?

Example: 35 000

Answer: (open-ended)

Question: 10. Indicate the number of team members working in the team

Include team members both in your office and also in locations abroad. Example: 20

Answer: (open-ended)

Question: 11. How long have you been working in the company?

Indicate in years using decimal places. Example: 2,75

Answer: (open-ended)

Question: 12. How long does the team exist at its current location?

Indicate how long ago was the team (team members) relocated to the current location. Indicate in years using decimal places. Example: 1,5

Answer: (open-ended)

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Question: 13. Answer the following questions about your cooperation with your colleagues located abroad

Indicate on the scale how much you agree or disagree with the statements below

1. The overall quality of the work is good
2. The outcome of the work is satisfactory
3. The issues explored in everyday discussion are important
4. The manner in which team members examine issues is constructive
5. The team members usually get to a conclusion

Answer: seven point likert scale from "strongly disagree" to "strongly agree"

Question: 14. Answer the following questions about your cooperation with your colleagues located abroad

Indicate on the scale how much you agree or disagree with the statements below

1. I want to remain a member of this team
2. I like my team
3. I feel involved in what is happening in my team
4. I feel included in the team
5. In spite of individual differences, a feeling of unity exists in my team
6. Compared to other teams I know of, I feel my team is better than most

Answer: seven point likert scale from "strongly disagree" to "strongly agree"

Question: 15. Answer the following questions about your cooperation with your colleagues located abroad

Indicate on the scale how much you agree or disagree with the statements below

1. Team members are equipped with the adequate tools and technologies to perform their tasks
2. Technology enables team members to work on different subtasks simultaneously
3. Technology enables team members to view each other's work whenever mutually desirable
4. Technology enables team members to modify other members' work whenever desirable
5. Technology enables the development of social relationships among team members
6. Technology enables the sharing of knowledge among team members

Answer: seven point likert scale from "strongly disagree" to "strongly agree"

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Question: 16. Answer the following questions about your cooperation with your colleagues located abroad

Indicate on the scale how much you agree or disagree with the statements below

1. I believe that cultural differences influence the way we think, communicate and work
2. I keep discovering cultural differences
3. I think that my colleagues have a right to hold different beliefs about right or wrong
4. I believe that diversity is an asset
5. I usually do not have time to think about cultural differences
6. I feel that my identity, style of working, and career is threatened

Answer: seven point likert scale from "strongly disagree" to "strongly agree"

Question: 17. Answer the following questions about your cooperation with your colleagues located abroad

Indicate on the scale how much you agree or disagree with the statements below

1. In the past, the team has been effective in reaching its goals
2. The team, at present, is meeting its business objectives
3. Completion of work is generally on time
4. Completion of work is generally within the assigned budget
5. In the past, the team has been efficient in performing the task
6. At present, the team is producing work of the highest quality
7. Each member's input is valued by the team
8. Members enjoy being a part of this team

Answer: seven point likert scale from "strongly disagree" to "strongly agree"

Last page

Thank you for completing this questionnaire!

Summary

In the recent years the globalisation of the world economy is as fast as ever. Businesses around the world are trying to keep up with the changes that are happening every day. They have to maintain flexibility in order to survive in the tough global competition. One way is to change premises, outsource services, or support employee's migration.

The other option in achieving flexibility arises by establishing global virtual teams (GVTs). These teams, in comparison to traditional co-located teams, might be dispersed around several countries or even the whole globe. The team members have often never met in person, but they work together in reaching the same goal. Without having any face-to-face contact, their work is facilitated by communication technologies and requires a special skill set, which in many cases causes different challenges that these teams have to overcome.

The goal of this master thesis is to identify the key factors that influence the performance of GVTs. This will be done both theoretically, by conducting a deep literature review, as well as empirically, by building a research model and testing their performance with statistical methods. Other research goals include defining the difference between traditional co-located teams and GVTs, characterising the advantages and disadvantages of global virtual teams and introducing the rules and resources that facilitate the efficient performance.

Zusammenfassung

Die Globalisierung der Weltökonomie schreitet in den letzten Jahren so schnell wie nie zuvor voran. Unternehmen auf der ganzen Welt versuchen mit den Veränderungen, die jeden Tag stattfinden, Schritt zu halten. Sie müssen flexibel bleiben, um im harten globalen Wirtschaftswettbewerb zu überleben. Ein möglicher Weg ist die Veränderung der Prämissen, Auslagerung von Dienstleistungen oder die Unterstützung der Migration der Arbeitnehmer.

Eine weitere Möglichkeit zur Erzielung der Flexibilität eines Unternehmens ergibt sich aus der Gründung von globalen virtuellen Teams (GVTs). Diese Teams sind, im Vergleich zu den traditionellen, stationären Teams, auf mehrere Länder in der ganzen Welt verteilt. Die Mitglieder dieser Teams haben sich oft nie persönlich getroffen, aber arbeiten dennoch zusammen um dieselben Ziele zu erreichen. Ohne persönlichen Kontakt muss ihre Arbeit durch Kommunikationstechnologien erleichtert werden - dies erfordert spezielles Wissen, was in manchen Fällen Herausforderungen verursacht, die diese Teams bewältigen müssen.

Das Ziel dieser Masterarbeit ist die Identifikation der Grundfaktoren, welche die Realisierung von GVTs beeinflussen. Dies wird sowohl theoretisch, durch intensive Literaturrecherche, als auch empirisch, durch die Erstellung eines Forschungsmodells und dessen Überprüfung mittels statistischer Methoden, durchgeführt. Weitere Forschungsziele beinhalten die Definition der Unterschiede zwischen den traditionellen, stationären Teams und GVTs, die Charakterisierung von Vor- und Nachteilen dieser globalen virtuellen Teams und auch die Einführung von Regeln und Ressourcen, die eine effiziente Realisierung ermöglichen.

Curriculum Vitae

Name: Bc. Simone Skrucana
Address: Belehradská 3, 83104 Bratislava
Phone: +421 904 901 858
E-Mail: simone.skrucana@gmail.com
Place of Birth: Carlton, Australia

Education

University of Vienna (September 2013 - present)

Master of Science in International Business Administration

Focus on **Corporate finance** (portfolio management, corporate finance and restructuring, valuation, financial derivatives, international financial management, currency exchange operations, business mathematics, statistics and econometrics, international organisation and strategy)

Master Thesis: "The Effectiveness of Global Virtual Teams": Cultural, Technological and Relational Aspects

Erasmus in WS 2015: **Jonköping International Business School, Sweden** (focus on accounting communication and environmental reporting, globalisation)

University of Economics in Bratislava (September 2010 – June 2013)

Bachelor in International Economic Relations

Focus on business management (finance, accounting, economics, marketing, math and statistics) and international economic relations (int. finance, int. trade and world economics)

Bachelor thesis: "The Common Aviation Market of the European Union" – thesis was awarded first place at the faculty level of the student research contest

Gymnasium Jana Papanka, Bratislava (September 2002 – June 2010)

Completed A-levels in Slovak language and literature, English, German and Geography

Extracurricular Activities

Integration and Activity Committee, Jönköping University, Sweden (September – December 2015)

Member of the committee organising events and international trips for 10 000 students

Christian Albrecht University in Kiel, Germany (August 2013)

International language course focused on German society, culture and economy

Ohio State University: Global Consulting Program, Bratislava, Slovakia (June 2013)

Working in team on a complex case study on company culture and employee motivation in TPA Horwath/Crowe Horwath offices in Slovakia, Czech Republic, Austria, Romania and Kenya

Martin Luther University in Halle, Germany (September 2012)

International project focused on practical understanding of Bratislava and Sachsen-Anhalt regional economy

Published article: Unemployment as One of the Most Actual Problems of the EU Economy (Comparison Germany and Slovakia), published in ISBN 978-80-225-3707-0

Internships

UniCredit Bank Austria, Vienna (March – June 2016)

Product Management Deposits Intern: Support of Deposits team that is responsible for creating new investment funds, which are offered in Austria to corporate and retail clients.

IBM Slovakia, Bratislava (July 2014 – July 2015)

Financial Planning and Analysis Intern: Responsible for coordinating a project involving over 80 people and 40 countries in EMEA region aimed at the correction of data HW cost data in ledger.

German-Slovak Chamber of Commerce, Bratislava (September 2013 – February 2014)

Project Management Intern: Support for organizing of international projects, conferences, fairs and meetings of Slovak and German companies' representatives and other members of the trading community in Germany and Slovakia.