CHALMERS

Management of Global Virtual Project Teams between Europe and East Asia

In cooperation with Infineon Technologies

Master of Science Thesis in the Master's Programme International Project Management

REGINE DUGAS

Department of Civil and Environmental Engineering
Division of Construction Management
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden 2013
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ABSTRACT

Since research about global work is less focused on certain regions, this thesis emphasizes the working in a global virtual project team spread over different locations in Europe and Asia. Based on a literature research, eight challenges of global virtual project teams are identified which result from the cultural and geographical distance that global virtual projects encounter. In addition to that, the scholars' recommended actions to mitigate these challenges are summarized. In the practical section, a global virtual project team from Infineon Technologies and its existing cultural and geographical distances are analyzed. The perceived challenges are identified based on ten interviews with team members from different locations. Two of the scholar's challenges are supported: the project team encounters a 'Lack of Cultural Awareness' as well as a 'Lack of Language Knowhow'. As a result, it is discussed how these challenges can be mitigated.

Key words: Global virtual teams, virtual projects, project management, challenges, obstacles, power distance, individualism versus collectivism, uncertainty avoidance, face-to-face

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List of Abbreviations

AG	Aktiengesellschaft, a German publicly listed company
AP	Asia Pacific
APAC	Asia Pacific
GVPT	Global Virtual Project Team
IBM	International Business Machines Corporation
IDV	Individualism Index
PDI	Power Distance Index
PMT	Processes, Methods and Tools
SAP	Name of an Enterprise Resource Planning System by the German company, which is called SAP as well
SMDH	Supplier Master Data Harmonization
UAI	Uncertainty Avoidance Index
UTC	Universal Time Coordinated

1 Introduction

Companies aim at being present globally to reduce labour costs, specialise expertise and understand emerging markets as a result of the ongoing globalization (Hinds et al. 2011). Therewith, the growth of international work increased over the last decades significantly (Walker 2007). Thus, companies who work across countries are rapidly growing as well (Walsh et al. 2006). In order to manage their work and expansion cross-nationally, these companies more and more assemble teams consisting of multicultural and geographically dispersed employees, the so-called global virtual teams, in order to execute strategic projects. On the one hand, the companies want to use therewith their diverse and multicultural expertise. On the other hand, they see the need for involving the different cultures into their strategic decisions to stay internationally competitive. These teams provide increased opportunities (Wright and Drewery 2006). Thus, they have become common today (Hinds et al. 2011) and are predicted to be assembled in the future even more often in order to accomplish important tasks (Zakaria et al. 2004).

Although the number of global virtual projects increased significantly over the last years, these projects still are not as successful as traditional ones (Potter and Balthazard 2002). 50% of them even fail to meet their strategic or operational objectives (Zakaria et al. 2004). This minor success can be explained by the more complex character of global virtual project teams (Hinds et al. 2011). They face a more and different kinds of challenges compared to their traditional counterparts (Dubé and Paré 2001 as well as Zakaria et al. 2004). But if these challenges are identified and met, global virtual project teams can perform effectively (Chudoba et al. 2005).

Many researchers identified already challenges of global virtual teams, unfortunately 90% of this research is US based (House 1998) and thus not multicultural itself. In addition to that, the majority of scholars focus on developing universally applicable best practices when regarding the challenges. Since best practices cannot be applied universally across cultures (Hinds et al. 2011), the existing literature does not help companies in improving their cross-national work (Hinds et al. 2011). On that account, this thesis analyzes global virtual projects between Europe (Germany and

Austria) and East Asia (Singapore, China and Malaysia) aiming at finding the concrete challenges of this specific cultural setting. In order to meet these challenges, solutions from researchers shall be identified. In addition to that, the practical approach by Infineon Technologies towards these challenges will be analyzed. With the combination of theoretical solutions and the practical approach, it shall be identified, how managing these projects can be improved in the future.

In order to achieve the above described aim, the following research question and sub-questions have been formulated:

What are the challenges global virtual project team members encounter while working together and how can these be met?

- What is a global virtual project team?
- What are the challenges while working on global virtual project teams?
- How can these challenges be met?

To give answers on the named questions, a literature research on global virtual project teams was executed, using mainly the databases ebsco, sciencedirect and isi web of knowledge. Based on the academic research, characteristics and resulting challenges for the global virtual projects have been derived (see Chapter 2 'Global Virtual Project Teams'). In addition to that, scholars' recommended actions to meet the challenges have been identified (see Chapter 3 'Characteristics and Resulting Challenges' and Chapter 4 'Challenges and Recommended Actions') Further, the involved countries and their geographical as well as cultural distances have been analyzed (see Chapter 6 'Analysis of Involved Countries'). Based on the challenges of global virtual project teams, an interview guideline has been developed in order to interview employees from Infineon Technologies. By interviewing global virtual project team members, the approach on how challenges are met in this project has been detected (see Chapter 7 'Findings from the interviews'). In the end, a combination of the theoretical suggestions and the practical approach was developed as a suggestion how challenges of comparable global virtual project teams can be met and thus their management improved (see Chapter 8 'Discussion').

2 Global Virtual Project Teams

In order to understand the topic of this thesis, it is important to clarify the term global virtual project teams. Therefore, its definition and characteristics as well as its advantages and disadvantages will be highlighted in this chapter.

2.1 Definition and characteristics

Global virtual project teams (GVPTs) are project teams whose members are geographically dispersed (Zakaria et al. 2004) in two or more nations (Connaughton and Shuffler 2007). Thus, they have to cooperate with each other across national boundaries (Hinds et al. 2011). Thereby, the degree of virtualization can be different: Teams consisting of people spread over different continents are often more socially, culturally and linguistically complex than people who are dispersed over one country (Zakaria et al. 2004). The greater the degree of virtualization, the more complex is the project (Qureshi and Zigurs 2001). This is because more people need to coordinate working together in completely new ways (Qureshi and Zigurs 2001). Additionally, team members often have diverse cultural backgrounds (Hinds et al. 2011). Hence, they can differ also in their linguistic attributes (Zakaria et al. 2004), their ethnicity, religion or faith (Connaughton and Shuffler 2007). This adds even more complexity in the coordination of team members.

Since this thesis focuses on project teams, these teams work together for a finite time span. Therefore, team members have only a limited history of working together. Furthermore, they have less potential of working together in the future (Zakaria et al. 2004). Thus, it can be assumed that project team members have less motivation to make huge efforts regarding relationship building or similar activities.

Due to their geographic dispersion, GVPT members meet rarely face-to-face and thus are dependent on electronic communication technologies (Zakaria et al. 2004) as their primary interaction channel. This as well as working across time zones, distances and organizational boundaries are the major differences compared to traditional project teams. These characteristics are also the reason why GVPTs encounter more challenges (Dubé and Paré 2001). Due to those differences, GVPTs cannot be

compared to traditional project teams and have to be managed differently (Zakaria et al. 2004). This different management style often has to be learned, since most project managers have acquired their management know-how mainly on traditional project teams. According to Duarte and Snyder (2006) this will change in the future: many employees will start their project management career with leading virtual teams. This statement is consistent with the prediction of Zakaria et al. (2004) who believe the number of global virtual projects will increase in the future since organizations tend to trust global virtual teams more and more in accomplishing important tasks.

2.2 Advantages and disadvantages

As explained, global virtual teams encounter more challenges than traditional teams. But next to challenges, GVPTs offer also opportunities (Connaughton and Shuffler 2007) which traditional project teams cannot contribute. So, there are reasonable situations in which companies are setting up global virtual project teams in order to accomplish a task.

One reason why companies see working across boundaries as the key to success (Connaughton and Shuffler 2007) is the GVPTs' creativity and therewith their capability to solve problems. This results from team members' mediated knowledge structure (Zakaria et al. 2004 as well as Baba et al. 2004) and the diverse resource base of the GVPT (Connaughton and Shuffler 2007). By using global virtual teams, multinational companies can better meet their customers' needs and thus increase their profit margins (Connaughton and Shuffler 2007). Zakaria et al. (2004) even see an advantage in the absence of physical presence. They indicate that it could lead to more positive intra-team coalitions and stronger working relationships than traditional teams encounter (Zakaria et al. 2004). Thus, global virtual teams can lead to a competitive advantage for multinational companies (Zakaria et al. 2004).

Nonetheless, many global virtual project teams fail to meet their objectives (Zakaria et al. 2004) due to the challenge of managing the high complexity their multicultural practices implicate (Hinds et al. 2011). Global virtual project teams require more time to make decisions (Zakaria et al. 2004), have less similarities, fewer shared experiences, less team spirit or identity, less open communication, and less

information sharing (Hinds and Weisband 2003). Therefore, miscommunication and misunderstandings occur often and resulting conflicts are difficult to manage (Zakaria et al. 2004). A reason for the GVPTs' difficulties could be their inherent characteristics which cannot be overcome. These characteristics and resulting challenges shall be analyzed in the following chapter.

3 Characteristics and Resulting Challenges

Since GVPTs are found to be less successful than traditional project teams (Zakaria et al. 2004 as well as Potter and Balthazard 2002), researchers analyzed many characteristics of these teams as potential reasons for their minor success. In general, there is no definition for these characteristics; scholars use also different terms like obstacles or boundaries. Additionally, various interpretations and diverging detail levels exist. Whereas some researchers stay on a high level and name characteristics such as the geographical dispersion, others define characteristics more detailed by giving the example of language barriers.

In this thesis, characteristics shall be defined as the basic, inherent features of GVPTs which are unalterable. If one wants to overcome them, the global virtual project has to be changed into a traditional project. Due to the fact, that GVPTs have their advantages and shall thus be accomplished in the future as well (see Section 2.2 'Advantages and disadvantages'), their characteristics have to be accepted. But challenges result from the characteristics. These challenges influence a GVPT's performance as well. The contrary to characteristics is that challenges can be actively met while working on a GVPT. By managing a GVPT's challenges, their challenging influence on the GVPT can be mitigated. Therefore, the aim of this thesis is to find ways how the challenges can be managed in order to manage GVPTs more successfully. Figure 1 visualizes the described relation between characteristics and challenges.

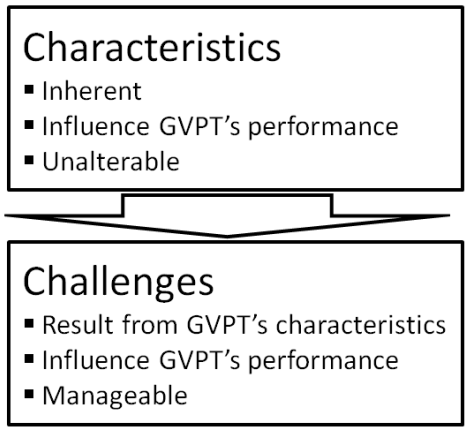

Figure 1: Relation between characteristics and challenges (Reference: Own illustration)

Based on the literature review, this thesis defines two main characteristics of GVPTs: cultural distance and geographical distance. With these characteristics a wide majority of researchers agrees (e.g. Zakaria et al. 2004, Garcia and Canado 2005, Lagerström and Andersson 2003, Hinds et al. 2011, Chudoba et al. 2005, Cogburn and Levinson 2003, Connaughton and Shuffler 2007 as well as Martins et al. 2004).

In order to lead to the resulting challenges, these characteristics shall be analyzed further in the following chapters.

3.1 Geographical distance

The characteristic geographical distance is divided into 'Being in Dispersed Locations' and 'Being in Different Time Zones'.

'Being in Dispersed Locations' means the physical distance between the locations of the GVPT members. The further away the team members of the GVPT are from each other, the more time-consuming and expensive it is to meet each other face-to-face. The degree of how far team members are located from each other therefore can be measured by the time a team member would need to visit the other team member's site. This can be calculated by the travel time, e.g. driving or flight hours.

The second characteristic 'Being in Different Time Zones' means that the countries' and therewith the GVPT members' time differs. The further the time of each GVPT member is apart from the others' time zones, the more difficult it is to arrange meetings since working hours might overlap only shortly if at all. But being in different time zones can also have an advantage. If distributed team members work at one task and are spread across different time zones, they might even work the whole day at one document and thus use the whole 24 hours. The degree of how far team members are away from each other regarding the time zone can be measured by comparing different time zones and with it normal working hours and thus see how much the working hours overlap.

3.2 Cultural distance

Culture is defined by the Oxford University Press (2013) as "the ideas, customs, and social behaviour of a particular people or society". Although this sounds as if culture is dynamic, Leung et al. (2005) describe the traditional view of culture as being static and in the people's head. Connaughton and Shuffler (2007) see culture as multilayered. They include nationality, place of birth, ethnicity, language and religion or faith as characteristics of culture.

Since in global virtual project teams more than one culture is involved, it becomes more complex. According to Connaughton and Shuffler (2007) there are, next to a developing team culture, multiple other cultures and subcultures existing or emerging in GVPTs. One might assume that with the ongoing globalization, countries tend to get closer to each other and thus their cultures will conform to each other in the long run. But Leung et al. (2005) as well as Hofstede et al. (2010) assure that the cultures' cores will stay significantly different. Therefore, it will continue to be important to understand other cultures in order to work together successfully.

Cultural distance itself analyzes the difference of cultures which are involved in the GVPT. As Zakaria et al. (2004) state, teams from different continents have a higher cultural distance than people who are dispersed only over one country. A higher cultural distance leads to more differences in behaviours. Thus, in GVPTs cross-cultural misunderstandings develop easily (Blackburn et al. 2003). Therefore, it can be assumed that in GVPTs more misunderstandings among team members occur if they are not actively prevented. Hence, a higher cultural distance can lead to more challenges for a GVPT. Measuring how far cultures are away from each other is difficult. Nonetheless, there are several frameworks from scholars who attempt to compare cultures in chosen dimensions. The probably most discussed and cited one is the framework by Hofstede.

3.3 Cultural distance measured by Hofstede's framework

1980 it all began with a study in one global company (IBM) which has been affirmed and improved up until today (Hofstede et al. 2010). Hofstede's categorization

dimensions have acted as a basis for many other researchers (inter alia Chong 2008, Zakaria et al. 2004 as well as Triandis 2004). But next to his good reputation, Hofstede is also criticized intensively (Chiang 2005). Jacob (2005) discusses in her article the generalization of Hofstede's findings. In her opinion, a country's culture cannot be seen as homogenous because there is no cultural purity (Jacob 2005) which ends at a country's borders. McSweeney (2002) agrees that a country's culture cannot be assumed as being uniform. Additionally, he criticises the research methodology of Hofstede. Those two aspects, the generalization of Hofstede's findings and Hofstede's method of data collection, combined with his subjectivity and cultural boundedness are according to Chiang (2005) the most criticised factors of Hofstede's work. Nonetheless, Chiang (2005) admits that Hofstede's model helps to understand culture better.

Hofstede provides one of the frameworks to identify and quantify cultural differences. Therefore, his model shall be used in order to analyze the countries' cultures and therewith provide a measure of cultural difference within the GVPT.

Hofstede analyzes national cultures, meaning the cultures of countries. In his opinion, national cultures are developed already in the childhood with the influence of the family, schools and organizations the child acts in (Hofstede 2001). With this early imprinting a child's values are developed, which in the end will be the most differentiating attributes compared to people from other cultures. While Hofstede believes cultural values provide answers why people behave in a certain way, Potter and Balthazard (2002) argue that personalities are the main driver of behaviour in face-to-face as well as in virtual project teams. But Hofstede et al. (2010) argue that personality is only one driver, a higher impact has the cultural imprinting of a human. Hofstede et al. (2010) explain their view with a pyramid on the mental programming of humans (see Figure 2).

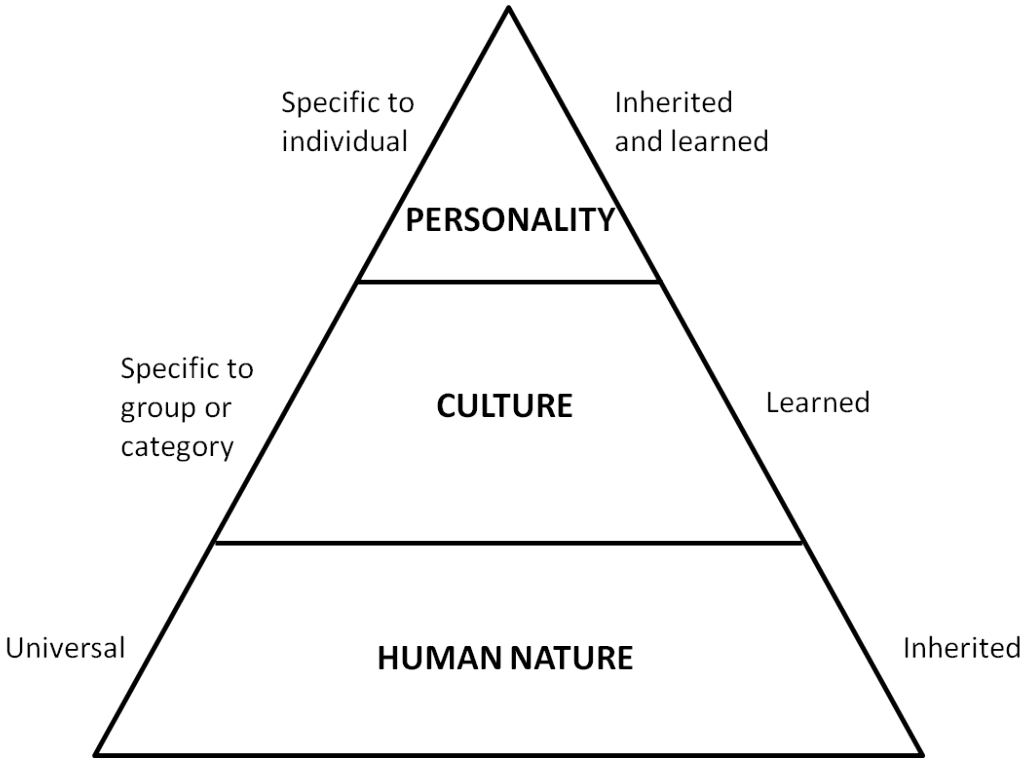

Figure 2: Three Levels of Uniqueness in Mental Programming (Reference: Hofstede et al. 2010)

The pyramid shows Hofstede's differentiation between human nature, culture and personality. Human nature is thereby the basic layer. It is the main differentiation attribute compared to other mammals. Thus, it is universal and inherited for every human being. Human nature includes all the similarities humans share, from external looks to certain behaviours, like for example walking with two legs or using a language to communicate.

Culture is the next layer of the pyramid. It is the main differentiation attribute between humans on a regional level. Culture is thereby specific to a certain group. Depending on the detail of the analysis, these groups could be continents, countries or regions within a specific country. While an analysis of cultures of continents would be quite rough, an analysis of regions within a country would be very detailed. An analysis of countries' cultures – not too rough, not too detailed – is therefore a good compromise. Thus, this shall be as well the detail level considered in this thesis. A country is thereby used in the following analysis as the representative of a culture. The attributes that shape a human in a culture are learned and adapted from other actors in this culture. Culture includes behaviours like using a tissue or not as well as eating with cutlery, chopsticks or hands.

The top layer of the pyramid is the personality which is specific for an individual and thus unique. The personality is thereby both inherited as well as learned. This layer is the one Potter and Balthazard (2002) are talking about. Of course the personality influences the behaviour of a global virtual team member. However, Hofstede does not want to stereotype the persons from one national culture because in his opinion this range of personalities is too multifaceted in order to do so (Hofstede et al. 2010). So, his analysis will not predict how a specific person behaves in specific situations (Hofstede 2001). But it provides an insight on the possible behaviour of a people. By knowing the cultural background of a person, one might not predict its behaviour but one can explain why a person behaves how. To analyse the expected behaviour of GVPT members, it is difficult to get to know the personality of each project team member especially due to the limited project duration. Therefore, knowing the cultural background and therewith reasons for a certain behaviour, should be the first step to manage those teams. Hence, the cultural background is a first step to improve working together in a global virtual project team.

Hofstede describes a country's culture with six dimensions: power distance, individualism versus collectivism, uncertainty avoidance, masculinity versus femininity, long- versus short-term orientation and indulgence versus restraint. Each dimension has an index which measures a specific country's culture. In the end, cultures and with it countries can be compared by comparing the indexes.

Since Hofstede introduced first only four dimensions, those four (power distance, individualism versus collectivism, uncertainty avoidance, masculinity versus femininity) are the ones which received most attention in the literature, e.g. by Chong (2008), Zakaria et al. (2004) as well as Triandis (2004). In addition to that, masculinity versus femininity dimension has been less discussed by scholars (Triandis 2004). Therefore, this thesis will focus on the three dimensions power distance, individualism versus collectivism and uncertainty avoidance. In order to understand these dimensions, they will be explained in the following paragraphs.

3.3.1 Power distance

The basis to understand power distance is the knowledge of omnipresent human inequality. Inequality can occur in a variety of areas such as physical and mental characteristics, social status and prestige, wealth, power, laws as well as rights and rules (Hofstede 2001). Depending on the values of a society, status is weighted and expressed differently. As Hofstede (2001) states in organizations, differences in power are inevitable and functional. This inequality gets especially clear when considering superior-subordinate relationships (Hofstede 2001). Depending on the culture, these relationships can be seen as strong hierarchical. Then, the subordinate has considerably less power than the leader. Or these relationships are seen as almost equal in a less hierarchical culture. Hence, power distance is defined as how the fact that people are unequal is handled in different countries (Hofstede et al. 2010).

The power distance of a country influences the preferred leadership style. In less hierarchical cultures, a consultative leadership style is preferred (Hofstede et al. 2010). This means that the leader should involve its subordinates in the decision-making process, but still keeps the power to make the decision in the end (Hofstede et al. 2010). Subordinates can express this wish for involvement because of their limited dependence on their leader. Next to that, they and their leaders see each other as equal and roles might change in the future: who today is the subordinated could be tomorrow the superior (Hofstede et al. 2010). Additionally, there is only a small emotional distance between leader and subordinate, leading to subordinates who directly approach and contradict their leaders (Hofstede et al. 2010). Furthermore, superiors are accessible to every employee. All in all, the ideal leader of small power distant cultures is a younger democrat (Hofstede et al. 2010). Organizational structures are adapted to this mindset as well. In small power distance cultures, organizations are usually decentralized and have flat hierarchies with only a limited number of supervisors (Hofstede et al. 2010). Since status is nothing that is worshipped and rather seen as volatile, nobody with a higher status should be treated as something special. Therefore, subordinates as well as leaders use the same parking lot, restrooms and cafeterias (Hofstede et al. 2010). Since status symbols are seen as something to show off, the new, expensive car of the leader will in general not be admired.

In strong hierarchical cultures and thus countries, things are the opposite. Superiors and subordinates are existentially unequal (Hofstede et al. 2010). This is something static and will not change in the future. Thus, subordinates prefer not to be involved in the decision-making process by their superior. They prefer a leader who decides autocratically or paternalistically (Hofstede et al. 2010). Subordinates expect to be told what to do and it is not likely that they approach or contradict their leaders directly (Hofstede et al. 2010). The organizational structures are as well adjusted to this mindset: Power is commonly centralized in a few hands, but there is a large number of supervisory personnel which is structured in strict hierarchies with many reporting steps (Hofstede et al. 2010). Since it is in the nature of the leader to be superior, he is entitled to enjoy many privileges (Hofstede et al. 2010). Subordinated would not challenge these since they also accept their subordinated role totally. Thus, subordinates would rarely initiate contacts with superiors; this power is kept by the superiors (Hofstede et al. 2010). The ideal leader in a large power distance culture is an older, benevolent autocrat or a 'good father' (Hofstede et al. 2010). Since status symbols are highly appreciated, the subordinate is proud to talk about the status symbols of his leader, like an expensive car or watch, and the leader is willing to show what he has got.

Power distance is measured by the Power Distance Index, in short PDI (Hofstede et al. 2010). According to Hofstede et al. (2010) Malaysia and Slovakia, each with a score of 104 have the highest power distance whereas Austria with an index of 11 has the lowest power distance.

3.3.2 Individualism versus collectivism

The second dimension of Hofstede's framework is individualism versus collectivism. It indicates if a culture is more focusing on the individual and its needs or the collectivity. According to Hofstede (2001) this dimension can be easily observed when regarding the way people live together: do they either live in smaller groups such as singles or small families? Or do they live together in bigger groups such as extended families or tribes? The chosen way of living can show a lot about a culture's values and behaviours (Hofstede 2001). In addition to that, it is the one of the dimensions which is least understood among the different cultures: for individualist

cultures individualism might be a blessing, while collectivistic cultures perceive it as something strange (Hofstede 2001). This is supported by Paul et al. (2005) who describe this dimension of Hofstede as the most distinguishing one.

Collectivist societies are cultures in which the interest of the group dominates the interest of an individual. People in these societies are born into a strong, cohesive group. They will be protected their whole lives by the group and in return provide unquestioned loyalty (Hofstede et al. 2010). In individualist societies instead the interest of the individual dominates the interest of the group (Hofstede et al. 2010). The ties between individuals are looser: one has to look only after oneself and the immediate family (Hofstede et al. 2010).

While individualists wish for enough personal time, freedom and challenging work to do in a job, collectivists hope for training opportunities, good physical working conditions as well as the use of their personal skills and abilities (Hofstede et al. 2010). These differences can be understood with knowing that individualist countries tend to be richer and collectivist countries poorer (Hofstede et al. 2010). While the wishes of collectivistic countries might seem to individualists as basics which they would take for granted, these are essentials for collectivists in order to distinguish a good from a bad job (Hofstede et al. 2010).

Since the individualism versus collectivism dimension is the most distinguishing one, it influences the behaviour in the working environment. Whereas collectivists combine working relationships with emotions, in individualist societies there is a stronger separation between private and work life: A business relationship is seen as a calculative one between buyer and seller in a labour market (Hofstede et al. 2010). This means for example that poor performance is accepted by both the employer as well as the employee as a reason to terminate a contract (Hofstede et al. 2010). All this influences the management style in these societies. In an individualist society, an individual is managed and the individual performance is decisive for bonuses. In a collectivist society instead a group is managed and thus the group also gets the incentives and bonuses depending on the group's performance (Hofstede et al. 2010). Therefore, it is important that a group is working harmoniously together which could lead to putting people of the same ethnic backgrounds in one group in order to make them feel more integrated and thus improve their relationship to the group (Hofstede

et al. 2010). Instead, individualistic managers think of a diverse group as an advantage, because each team member can benefit from the influence of the others.

Another main differentiating criterion which results from the individualism versus collectivism dimension is the feedback culture. Whereas in an individualistic society, it is seen as direct and positive to discuss an employee's performance openly with him or her, it is perceived as a loss of face in collectivist societies. Instead they prefer more subtle and indirect ways to give their feedback in order to avoid losing each other's face (Hofstede et al. 2010). Zakaria et al. (2004) name this differences in the communication style 'high context' and 'low context' cultures. High context cultures are the described collectivistic societies, which use a more indirect and subtle communication. The emphasis is hereby put on non-verbal and behavioural signals. Instead, low context cultures are individualistic societies, who emphasize verbal communication and thus use a direct style (Zakaria et al. 2004). These different communication styles are the reason why trainings based on direct sharing of feelings can hardly be applied in collectivistic societies, in spite of their popularity in individualistic countries (Hofstede et al. 2010).

Individualism versus collectivism is measured by the Individualism Index, in short IDV. According to Hofstede et al. (2010), the United States with a score of 91 are the most individualistic country whereas Guatemala with an index of 6 is the most collectivistic one.

3.3.3 Uncertainty avoidance

The dimension uncertainty avoidance refers to unawareness about the future. According to Hofstede (2001) humans handle this uncertainty with technology, law or religion. It shall not be mistaken for risk avoidance (Hofstede 2001) which has a negative connotation. Instead, it expresses neutrally how different cultures cope with the fact that they cannot predict the future. Thereby, Hofstede et al. (2010) state that the feelings and ways how to handle uncertainty are acquired and learned and thus belong to the cultural heritage of a society.

Uncertainty avoiding people can be perceived from others as busy, fidgety, emotional, aggressive, or suspicious (Hofstede et al. 2010). On the contrary, people from

countries with low uncertainty avoidance might seem to be dull, quiet, easygoing, or lazy (Hofstede et al. 2010). These people prefer less formal rules as the better solution in order to solve problems (Hofstede et al. 2010). However, uncertainty avoiding people need their rules. Even if those are dysfunctional, these rules are necessary in order to satisfy the people's need for a formal structure (Hofstede et al. 2010).

Uncertainty avoidance is measured by the Uncertainty Avoidance Index, in short UAI. If a country scores high in uncertainty avoidance, it means that this country tries to avoid uncertainty because its people fear it. Therefore they try to implement a variety of formal rules and regulations to keep uncertainty as low as possible. According to Hofstede et al. (2010), Greece with a score of 112 has the highest uncertainty avoidance whereas Singapore with an index of 8 has the lowest uncertainty avoidance.

3.4 Resulting challenges

A higher cultural distance among GVPT members can lead to more challenges for the GVPT (see Section 3.2 'Cultural distance'). Nonetheless, cultural distance can also provide advantages, but only if it is understood (Duarte and Snyder 2006). Therefore, the first challenge which can occur while working together in a GVPT is 'Lack of Understanding Cultural Differences'. Many authors agree on this challenge because cultural understanding is seen as the key to perform successfully (cf. Durnell Cramton 2001, Baba et al. 2004, Hofstede et al. 2010 as well as Walsham 2002).

A shared understanding, team spirit and identity are important for a project team. Scholars choose these different terms to describe mainly the same necessity. In this thesis the common term team cohesiveness shall be used. Team cohesiveness is less strong when a team is virtual (Hinds and Weisband 2003). Therefore, the second challenge which can occur while working in a GVPT is 'Missing Team Cohesiveness'. The importance of cohesiveness and with it team spirit as well as a shared understanding and identity is also identified by several other authors (cf. Baba et al. 2004, Langfred 1998, Hinds et al. 2011, Wendt et al. 2009, Earley and Mosakowski 2000, Blackburn et al. 2003 and Mortensen and Hinds 2001). However, Nibler and Harris (2003) cannot identify a dependency between cohesiveness and performance.

According to Kirkman et al. (2002), the greatest challenge of a GVPT is building trust. Therefore, the third challenge is 'Lack of Trust and Difficulty in Trust Development'. This challenge is agreed on by several other authors (cf. Alge et al. 2003, Jarvenpaa and Leidner 1999, Oertig and Buergi 2006, Maznevski and Chudoba 2000 as well as Duarte and Snyder 2006) who believe that creating trust is one of the key issues of GVPTs.

In GVPTs, conflicts are difficult to manage (Zakaria et al. 2004). Thus, the fourth identified challenge is 'Difficulty in Managing Conflicts'. Other authors agree that managing conflicts is challenging for GVPTs but on the same time an important factor to perform (cf. Durnell Cramton 2001, Montoya-Weiss et al. 2001, Hinds and Mortensen 2005, Jarvenpaa and Leidner 1999, Paul et al. 2005 as well as Earley and Mosakowski 2000).

Another challenge of GVPTs is language. In most teams the world language English is spoken. But speaking English on a professional level as a second language can lead to major misunderstandings since it will not reach the level of a mother tongue. In addition to that, English itself is varying between countries, even countries where it is the official language, like the United States, Australia, Great Britain or Singapore, the meaning of a word can vary (Zakaria et al. 2004). As Lagerström and Andersson (2003) point out even if all team members speak English well, everyone speaks an own kind of English. Therefore, the fifth identified challenge is 'Lack of Language Knowhow'. This challenge is as well supported by many other authors (cf. Ayyash-Abdo 2001, Ulijn et al. 2000, Marschan et al. 1997, Garcia and Canado 2005, Goodall and Roberts 2003, Dubé and Paré 2001, Oertig and Buergi 2006 as well as Kayworth and Leidner 2002).

Next to language, the amount and quality of interaction is important to perform in a GVPT. Durnell Cramton (2001) found out that when communicating across distance and via technology, information gets lost. They mention that especially in GVPTs no reply is also a reply which can be interpreted in different ways (Durnell Cramton 2001). Although Jarvenpaa and Leidner (1999) state that quality and predictability of communication is more important than quantity, Hinds and Mortensen (2005) point out the importance of frequent interaction. Hence, the sixth challenge is 'Less and Worse Interaction in the GVPT'. In addition to the mentioned authors, this challenge

is taken up by other scholars as well (cf. Warkentin et al. 1997, Piccoli and Ives 2003, Oertig and Buergi 2006, Zakaria et al. 2004, Gudykunst 1997, Kumar 2006, Maznevski and Chudoba 2000 as well as Connaughton and Shuffler 2007).

Since GVPTs are dependent on technology for communication, knowing how to use the technology is important. As Dubé and Paré (2001) state, there can be wide differences between the technological skills of team members. Next to knowing how a certain technology is used, it is also important to know which technology suits to which purpose. Hence, the seventh challenge is 'Diverging Acceptance and Skills in using Technology'. Several authors describe problems with technology usage in GVPTs and name the importance of how to use technology efficiently (cf. Durnell Cramton 2001, Oertig and Buergi 2006, Zakaria et al. 2004 as well as Duarte and Snyder 2006).

Based on their previous experience, project team members have an expectation in their mind how a team leader should be. Those experiences of team members vary significantly in a GVPT because of their missing history and their different cultural backgrounds (House et al. 2002). Thus, the eighth and last challenge is 'Diverging Expectations from the GVPT Leader'. This challenge is supported by many authors who perceive that diverging expectations based on different cultural backgrounds can turn out to decrease a team member's satisfaction and thus performance if the team leader does not suit to the expectation (cf. Paul et al. 2005, Piccoli and Ives 2003, Den Hartog et al. 1999, Aycan et al. 2000, Zakaria et al. 2004, Chevrier 2003, Dickson et al. 2003, Wendt et al. 2009, Chen and van Velsor 1996 as well as Kennedy 2002).

All eight challenges could occur in GVPTs. If they do so, they might have significant consequences on the cooperation. Therefore, GVPTs should prevent or meet these challenges. The suggestions by the scholars how those challenges can be met or even be prevented are provided in the following chapter.

4 Challenges and Recommended Actions

The identified challenges from Section 3.3 ‘Resulting challenges’ show fields in which the management of a global virtual project team can be improved. From the literature research, recommended actions for each challenge are identified which should be executed in GVPTs. The actions are summarized in the following tables.

4.1 Lack of Understanding Cultural Differences

In order to meet the challenge ‘Lack of Understanding Cultural Differences’, researchers recommend different actions, see Table 1.

Table 1: ‘Lack of Understanding Cultural Differences’ and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Lack of Understanding Cultural Differences	Selection of cultural competent team members with excellent interpersonal skills Use behavioural questions and scenario-based questions to select team members Promote cultural exchange among team members Execute cross-cultural trainings, if possible at every stage of team development Create cultural awareness also for the team members’ own cultures
Based on the scholars: Baba et al. 2004, Blackburn et al. 2003, Duarte and Snyder 2006, Dubé and Paré 2001, Durnell Cramton 2001, Durnell Cramton and Hinds 2004, Hofstede et al. 2010, Kirkman et al. 2002, Oertig and Buergi 2006, Uber Grosse 2002, Walsham 2002, Warkentin et al. 1997, Zakaria et al. 2004	

The researchers focus on two main areas: selection of team members and education of the selected team. With the first two recommended actions they name selection criteria. Regarding the area of education, team members should according to scholars attend cross-cultural trainings, or learn from the other team members.

4.2 Missing Team Cohesiveness

The challenge ‘Missing Team Cohesiveness’ can be met according to scholars with the actions summarized in Table 2.

Table 2: 'Missing Team Cohesiveness' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Missing Team Cohesiveness	*Execute team-building activities
	Increase the team members' interactions
	Stimulate intra-team relationships
	Develop a shared understanding of a common team goal
	Develop trust among team members
	*Execute cross-cultural trainings
	Select a team name
	*Create a team workspace
	Identify shared interests among team members
	Share personal information
	Share day-to-day activities
	*Execute face-to-face meetings and trainings
	*Select team members with similar backgrounds
	Give more complex tasks to individualist team members
Based on the scholars: Baba et al. 2004, Blackburn et al. 2003, Earley and Mosakowski 2000, Hinds et al. 2011, Hinds and Weisband 2003, Kirkman et al. 2002, Langfred 1998, Man and Lam 2003, Maznevski and Chudoba 2000, Mortensen and Hinds 2001, Qureshi and Zigurs 2001, Wendt et al. 2009, Zakaria et al. 2004	

The recommended actions by the scholars reach from simply applicable tasks like 'select a team name' to more complex ones like 'develop a shared understanding of a common team goal'. Whereas a team name might be selected within minutes, the development of a shared understanding can last until the end of the project. Several actions are mentioned already for other challenges. These are marked with a * in order to increase readability. By implementing these actions, several challenges can be met at once. Therefore, these actions can be assumed to have a high impact on the GVPT. Two of the actions, marked boldly, are referring to other identified challenges of GVPTs. This shows, that the resulting tasks with their actions are influencing each other: by increasing interaction and developing trust, team cohesiveness can be developed in return.

4.3 Lack of Trust and Difficulty in Trust Development

Scholars recommend several actions in order to meet the challenge 'Lack of Trust and Difficulty in Trust Development'. These are consolidated in Table 3.

Table 3: 'Lack of Trust and Difficulty in Trust Development' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Lack of Trust and Difficulty in Trust Development	*Select proactive team members in order to demonstrate swift trust[1]
	Support proactive communication
	Share expectations
	Make sure to meet deadlines
	Make sure team members are reliable, consistent, responsive
	*Establish rules for communication e.g. deadlines for answering emails
	Integrate all team members in the team
	Establish a positive and respectful tone among team members
	Support continuous and frequent interaction
	*Arrange face-to-face interaction
	*Execute face-to-face trainings in the early stage of the project
	Leaders should organise socialization, planning, and coordinating activities
	Engage team members in trust-building
	*Develop team building activities
Based on the scholars: Alge et al. 2003, Blackburn et al. 2003, Connaughton and Shuffler 2007, Duarte and Snyder 2006, Jarvenpaa et al. 1998, Jarvenpaa and Leidner 1999, Jarvenpaa et al. 2004, Kirkman et al. 2002, Maznevski and Chudoba 2000, Morris et al. 2002, Oertig and Buergi 2006, Piccoli and Ives 2003, Roberts 2000, Zakaria et al. 2004	

In line with the recommended actions for the other challenges selection criteria, face-to-face interaction and trainings as well as team building activities are recommended by the scholars. In addition to that, they focus on establishing rules in order to define reliability. Furthermore, trust can be promoted by an active involvement and integration of all team members. By referring to interaction, researchers show the dependency between the challenges 'Lack of Trust and Difficulty in Trust Development' and 'Less and Worse Interaction in the GVPT'.

4.4 Difficulty in Managing Conflicts

According to researchers, 'Difficulty in Managing Conflicts' can be met with the recommended actions summarized in Table 4.

[1] Swift trust is according to Jarvenpaa and Leidner (1999) an advance trust: team members initially import trust, which could mean that the level of trust is the highest in the beginning of the project.

Table 4: 'Difficulty in Managing Conflicts' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Difficulty in Managing Conflicts	*Select globally experienced, open minded team members * Select diverse team members *Deadline adherence and management style need to be made transparent *Develop norms/ rules/ consensus-building processes to solve conflicts Implement fast and effective feedback possibilities **Set up awareness of differences in conflict management among cultures** **Decrease number of conflicts by increasing cultural awareness** Develop creative ways how to solve problems via videoconferencing Create an early warning system to detect conflicts in the beginning **Promote frequent spontaneous interaction** *Execute face-to-face meetings Solve conflicts as early as possible Include in the conflict solving only involved team members instead of the whole team *Execute virtual trainings on problem solving
Based on the scholars: Blackburn et al. 2003, Connaughton and Shuffler 2007, Durnell Cramton 2001, Earley and Mosakowski 2000, Hinds and Mortensen 2005, Jarvenpaa and Leidner 1999, Kirkman et al. 2002, Montoya-Weiss et al. 2001, Mortensen and Hinds 2001, Orr and Scott 2008, Paul et al. 2005, Zakaria et al. 2004	

Next to before mentioned actions, scholars suggest implementing feedback possibilities and naming the importance of detecting and solving conflicts early. In order to do the latter, they recommend including creative methods. Furthermore the relation between conflict management and other challenges is shown: By improving cultural awareness and interaction among team members, conflicts might be prevented or managed effectively.

4.5 Lack of Language Knowhow

Since communication plays a major role when team members are working together across countries, researchers recommend several actions in order to meet the challenge 'Lack of Language Knowhow', see Table 5.

Table 5: 'Lack of Language Knowhow' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Lack of Language Knowhow	*Select open-minded team members with adequate English skills *Provide training in English language, intercultural communication and nonverbal communication Develop skills to support communication especially for weak English speakers, such as drawing, repeating or rephrasing Establish structured sessions moderated by the team leader to include the opinion of each team member Establish a tolerant and empathic atmosphere to encourage team members to participate Prepare a protocol of each oral communication session Integrate grammar and spell checkers as well as translators into email software
Based on the scholars: Ayyash-Abdo 2001, Dubé and Paré 2001, Garcia and Canado 2005, Goodall and Roberts 2003, Kayworth and Leidner 2002, Lagerström and Andersson 2003, Marschan et al. 1997, Oertig and Buergi 2006, Uber Grosse 2002, Ulijn et al. 2000, Zakaria et al. 2004	

Once more, researchers see an appropriate selection of team members as a possibility to have a high language knowhow among GVPT members. In addition to that, they also suggest trainings in English, intercultural as well as nonverbal communication. Next to conventional methods like writing minutes of each meeting, they also suggest innovative actions like the development of supportive communication skills like drawing, repeating and rephrasing. Furthermore, researchers mention that a tolerant atmosphere will encourage team members to participate and thus overcome language barriers.

4.6 Less and Worse Interaction in the GVPT

In order to meet the challenge 'Less and Worse Interaction in the GVPT', scholars suggest several actions which are summarized in Table 6.

Table 6: 'Less and Worse Interaction in the GVPT' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Less and Worse Interaction in the GVPT	Provide timely and detailed information of the status quo among team members
	Provide timely thorough feedback on team members' contributions
	Create awareness that quality and predictability is more important than quantity of communication
	*Execute face-to-face-meetings at the others' sites, especially one in the beginning
	Increase cohesiveness in order to mitigate complexity from messages
	Develop communication plans
	Select appropriate technology to communicate
	Structure virtual team meetings and prepare their agendas in advance
	*Execute a virtual training in meeting management
	Define different time perceptions and how the project team deals with it
	Learn to interpret signals sent by other team members
	Promote frequent (maybe even daily) and unplanned communication
	Establish routine phone calls or emails in order to keep isolated team members informed
	*Create an interactive platform or virtual space where team members can actively exchange information
Based on the scholars: Blackburn et al. 2003, Duarte and Snyder 2006, Durnell Cramton 2001, Earley and Mosakowski 2000, Gudykunst 1997, Hinds and Mortensen 2005, Hinds and Weisband 2003, Jarvenpaa and Leidner 1999, Kirkman et al. 2002, Kumar 2006, Maznevski and Chudoba 2000, Oertig and Buergi 2006, Piccoli and Ives 2003, Saunders et al. 2004, Uber Grosse 2002, Warkentin et al. 1997, Zakaria et al. 2004	

On the one hand, researchers emphasize the quality of interaction. They say communication should be structured and prepared. On the other hand quantity seems to be important to keep the team members close to each other. This is shown by the actions which suggest frequent or routine interaction and also unplanned one. Once more interaction is related to other challenges: by increasing cohesiveness and selecting appropriate technology, interaction will be improved as well.

4.7 Diverging Acceptance and Skills in Using Technology

The challenge 'Diverging Acceptance and Skills in Using Technology' can be met according to scholars with the recommended actions in Table 7.

Table 7: 'Diverging Acceptance and Skills in Using Technology' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Diverging Acceptance and Skills in Using Technology	*Select team members with sufficient technological skills
	Identify technology proficiencies of team members and choose accepted technologies
	Ensure all team members' technology access
	*Provide technological training and support for team members
	*Provide training how technology can be used to communicate efficiently
	Choose stable, predictable and reliable communication channels
	Choose appropriate technology depending on the amount of people involved in the communication and the context
	Choose appropriate technology to share documents and give feedback
	*Develop rules which and how technologies should be used
	*Create a virtual space
	Use videoconferences to decrease lack of physical interaction
	Develop backup plans in case a technology does not work
Based on the scholars: Blackburn et al. 2003, Duarte and Snyder 2006, Dubé and Paré 2001, Durnell Cramton 2001, Hinds and Weisband 2003, Kirkman et al. 2002, Maznevski and Chudoba 2000, Morris et al. 2002, Oertig and Buergi 2006, Uber Grosse 2002, Zakaria et al. 2004	

Firstly, researchers focus on the ability of using technology, like access to the chosen communication tools and knowing how to use them. Secondly, they emphasize the efficiency of technology. Therefore scholars recommend that team members should know which communication tool to choose regarding a certain context and situation. Additionally, they mention the importance to know how to use the communication tools in an efficient way. Furthermore, scholars name technologies like a virtual space or videoconference which can help a GVPT to mitigate the negative influence of the distance.

4.8 Diverging Expectations from the GVPT leader

According to researchers, 'Diverging Expectations from the GVPT leader' can be met with the recommended actions summarized in Table 8.

Table 8: 'Diverging Expectations from the GVPT leader' and recommended actions (Reference: Own illustration)

Challenge	**Recommended actions** **Bold action:** action refers to another challenge ***action:** similar action mentioned before
Harmonize expectations and adapt leadership style	*Select a leader with the following characteristics: Work experience in GVPTs or other cross-cultural competence Collaborative leadership style and excellent communication skills Expressively supportive for the global team Mentoring quality characterized by concern for the members, understanding, and empathy Shows patience, care, sensitivity Charismatic, encouraging, trustworthy, communicative, dynamic, positive, confidence building, motivational, creative and open to change *Arrange training before it is needed Have an understanding what each team member expects from the leader Develop and maintain leadership style in agreement with team members Make the GVPT leader's management style transparent Write a project leader diary to expose some subtle behaviours and attitudes Identify essential knowledge that is needed on the project, and make sure that this knowledge is shared, especially across sites Keep turnover of human resources low *Encourage team members to visit the work locations of other team members *Recognize when a face-to-face meeting has to be organized *Travel more often in order to meet team members face-to-face Adjust to the team members' individual needs regarding Performance feedback (e.g. use a 360-degree evaluation model to feedback) Involvement in decision process
Based on the scholars: Aycan et al. 2000, Blackburn et al. 2003, Chevrier 2003, Den Hartog et al. 1999, Dorfman et al. 1997, Duarte and Snyder 2006, Dubé and Paré 2001, Durnell Cramton and Hinds 2004, Hinds and McGrath 2006, Hinds and Mortensen 2005, Hinds and Weisband 2003, House et al. 2002, Jarvenpaa and Leidner 1999, Kayworth and Leidner 2002, Kennedy 2002, Kirkman and Mathieu 2005, Kirkman et al. 2002, McKenna 1998, Oertig and Buergi 2006, Paul et al. 2005, Piccoli and Ives 2003, Uber Grosse 2002, Walsham 2002, Wendt et al. 2009, Workman 2005, Zakaria et al. 2004	

Next to certain characteristics GVPT leaders should have, they are responsible to prevent and meet the challenges named before. The detailed analysis what they should do regarding the other challenges can be found in the Appendix (see Chapter 10 'Appendix A: Long list of team leader's tasks'). In addition to that the researchers' recommendations show that project leaders should be ahead of time: they should foresee the need for trainings and face-to-face meetings. Furthermore, the team leaders should identify the different expectations of the team members and adapt his

management style accordingly. Additionally, the chosen style should be made transparent for all team members.

5 Methodical Approach

Firstly, the research question (see Chapter 1 'Introduction') including its sub questions has been answered based on a theoretical analysis. Secondly, answers were found in a practical surrounding. Therefore, a project from Infineon Technologies was observed to indicate whether the identified challenges from the literature are encountered in practice as well and what the project does to solve them. The case study research design was chosen to increase the practical applicability of the results. Since the topic of this thesis is not quantifiable, it required to analyze a project in detail including several interviews to get a holistic view. Due to the limited resources of this thesis, it was decided to focus on one case. Since every project is unique by definition, this design implicates that the observed project cannot be seen as representing every global virtual project. Nonetheless, there are other projects in a similar context which can benefit from the insights and results given.

Infineon Technologies AG is a German semiconductor manufacturer, founded in 1999 as a spin-off from Siemens AG. The company focuses on three sectors: Energy Efficiency, Mobility and Security. Therefore, it offers semiconductors and system solutions for automotive and industrial electronics as well as chip card and security applications. The headquarter of Infineon Technology is located in Neubiberg close to Munich in Germany. In addition to its presence in Europe, Infineon Technologies has production sites abroad, especially in Asia. In this thesis, a project from Purchasing has been analyzed whose team members are spread mainly over the sites in Germany, Austria, Singapore, Malaysia and China. The analyzed project is called Supplier Master Data Harmonization (SMDH). This project is in the responsibility of Processes, Methods and Tools (PMT) which is part of the Purchasing department. PMT has key users in all locations of Infineon who are working together in projects in order to standardize and harmonize processes, methods and tools across countries. The aim of the observed SMDH project is to harmonize the supplier master data across all sites of Infineon Technologies. From this SMDH project ten people have been interviewed:

- The project manager located in Munich, Germany
- The coordinator for PMT projects in Asia Pacific located in Singapore, Singapore
- Key users located in the involved sites in:
    - Munich, Germany
    - Regensburg, Germany
    - Dresden, Germany
    - Warstein, Germany
    - Villach, Austria
    - Singapore, Singapore
    - Malacca, Malaysia
    - Wuxi, China

Although the participants are located at these sites, their countries of origin were varying. Eventually, the interviewees turned out to be from the following cultural background:

- Four interviewees from Germany
- Two interviewees from Malaysia
- Two interviewees from China
- One interviewee from Austria
- One interviewee from Albania

A qualitative research approach has been conducted with semi-structured interviews. This method was decided upon the assumption that the topic is a sensitive one, which might make it difficult to grasp with a questionnaire. By interviewing people this way, it was not only possible to rephrase a question if necessary, but also to read or listen between the lines in order to get the answers. On that account, this method was chosen. Although it is typical to include other data collection methods next to the interviews in such case study research (Eisenhardt 1989), it was not possible in this

case. Nonetheless, observations from the interviews were also included in the analysis.

For the interview, an interview guideline containing 28 questions in English has been developed. This guideline can be found in the Appendix (see Chapter 11 ‘Appendix B: Interview Guideline’). All interviews were arranged as telephone interviews except of the two in Singapore which were executed face-to-face. Although it could have been possible to interview the German and Austrian team members in German language, all participants were interviewed in English in order to stay as objective as possible. The assumption was that all team members should have sufficient English language skills to answer the questions if they work on a global virtual project team. After the interviews were executed, the recording was typewritten and sent to each participant in order to get the approval for using the statements. All the essential answers regarding the identified challenges were extracted from the interviews and clustered in order to compare them to the theoretical analysis.

Since many challenges were only detectable by reading between the lines, the qualitative approach turned out to be useful. Nonetheless, sometimes it was difficult to get a dialog with the participant: answers were really short; most of the participants have not told any longer stories from the project. In addition to that, there were misunderstandings. Although the interview guideline was sent to the participants in advance it seemed sometimes that they did not understand the questions. One reason for these difficulties might be the fact that all participants including the interviewer know English only as a second language. However, these observations gave an insight into how communicating in a GVPT might be, so these experiences can be used to support the result of this thesis.

The recorded interviews have all been transliterated. Therewith, it was possible to extract important statements and cluster them according to the perceived challenges. Afterwards, statements reflecting only a single opinion were deleted in order to represent the team’s opinion. Furthermore, multiple statements from one person on one topic have been combined.

6 Challenges and Actions from the SMDH project

All ten conducted interviews provided insights into the work of the SMDH project. In order to answer the research questions, it shall be derived from the statements what the challenges of the SMDH project are and how the project team meets them.

6.1 General observations

The analyzed SMDH project belongs to the function Processes, Methods and Tools (PMT) from the Purchasing department. Since the project team members are commonly selected from the same pool of employees, they know each other already for some time, in best cases for several years already. In addition to that, most of the PMT employees are experienced in working in GVPTs since they worked together in such teams before. Furthermore, these team members share the same responsibility in their organization: they are the key users for SAP. Therefore, they also share the same problems and can help each other in solving them across sites. On that account, they have contact with each other next to their project. Sometimes the team members even work on several projects together at the same time. Thus, they frequently interact with each other. Based on this background, some team members even develop private relationships. Two team members said in the interview that they go regularly on holiday together, which shows their close relation beyond professional networking.

Culturally, the team is even more diverse than expected. The interviews showed that the interviewees do not necessarily have the cultural background of the sites they are located in. The two participants located in Singapore are originally from China and Malaysia. Therefore, there is no Singaporean on the project. Furthermore, the Germany based project manager immigrated ten years ago and is originally from Albania.

6.2 Cultural differences between Asians and Europeans

Although, the project team members work together for several years already, there seems to be a gap in these relations: Germans among each other and the Austrian team

member seem to be related closely. On the other side, there are the team members from China, Malaysia and Singapore who work together closely. In between the two continents Europe and Asia, bonds seem to be weaker. Some team members do not even see the project team as a whole. Whereas the Asians noticed that in their project Germany is still included – since they have contact with the project manager and she is located in Germany – some of the Europeans did not know if the Asians belong anymore to the project team. One interviewee even stated that in her project team there are only Europeans involved. In addition to that between Europeans and Asians has been only minimal interaction since there were less cross-continental interfaces in their project assignment. There are sometimes calls with all sites involved, but these seem to be rare.

The impression of weaker bonds between Europeans and Asians was supported by statements from the interviewees. The key user from China describes a closer relation to her Asian colleagues and explains it with cultural similarities:

"Our background and our culture are more similar. So for me, if I have questions the first contact person must be APAC colleagues and sometimes the APAC colleagues cannot help me then I need to contact our European colleagues for some help."

Key user from Wuxi, China

The Singaporean key user explains instead the closer contact among Asian colleagues with the fact that they met more often face-to-face than with the other colleagues:

"Some of them I know, the APAC ones, are the closer ones because we have been meeting up a few times already for some workshops within APAC. So we had the chance to really get to know each other. For the European colleagues, you only meet up during conference calls, there wasn't really shared more."

Key user from Singapore, Singapore

But the weaker bonds did not used to be like that in all GVPTs. As the key user from Dresden describes, there has been other projects where the relationship between Europe and Asia has been closer:

"We didn't have so much contact in this project with the APAC colleagues. I think there were other projects were there was a deeper connection between Europe and APAC."

Key user from Dresden, Germany

In addition to that, most of the team members are not aware of the others' cultures, especially not the ones from the other continent. Nonetheless, they notice cultural differences between the team members:

"The Asian colleagues, they have this pragmatic way of doing things. This is my personal impression, probably I am wrong. This is a pragmatic way. Just to find a solution, to do it and to go forward. For the Europeans what I see is they have to see and need more time how they can do it in the long term better, not in the short term. Sometimes, they are more afraid to take decisions. So, shortly taking decision, this is missing. From Asians, it is more the pragmatic way but sometimes it is difficult to know what they think [...]and also to take a decision by their own. The European, they want to take a decision, that is not a problem, but they need to see all the details to prove if everything is okay to make the decision."

Project manager from Munich, Germany

Interestingly, cultural differences seem to be especially encountered between Europeans and Asians. This is also supported by another statement from a key user from Dresden:

"If we were dealing with the APAC colleagues we had in the beginning all the issue that they were mostly saying "yes I understood everything, everything is fine" and afterwards there came up all those questions because they were afraid to do those discussions with us over the phone because they didn't know us. For now as we are mostly all involved in different projects and know each other quite well, I think this is something that is not anymore like this."

Key user from Dresden, Germany

All comments support the observation that the relationship between Europeans and Asians is less strong than the one between colleagues who are closer located to each other. A reason why this was perceived more in this project could be the fact that in the SMDH project the team was split into Europeans and Asians. According to the project manager this approach was easier to get the team aligned:

"It was easier to get aligned in German with the German colleagues and to do it with Asian colleagues in English. So basically, I started together, but it was quite difficult not only for the languages but also for the way of working and the way of quality and the view, because Asia is different than Europe. So, also the persons are different. For me it was easier to handle it, when I did the separation. I did not have the feeling that it was really a language problem because everyone can speak quite good English but sometimes I saw that when I did

it in German separately there were more discussions, so more input and more ideas, because it was more free."

Project manager from Munich, Germany

The statement shows that this split helped the project manager to align each group more easily due to cultural and language reasons.

The key user from Dresden said that problems according to the different cultures vanished by getting to know each other better and by working more closely. Especially for the communication across continents, a face-to-face meeting had a huge impact.

"I think they (Asian team members) are a bit more open than if they know one only from the telephone. That is something I really faced out after we were in Singapore last year: the communication went afterwards really better."

Key user from Dresden, Germany

This is also supported by another statement by the key user from China:

"Just before this project, frankly to say I nearly didn't know anything about their culture. But during the middle of August we had a workshop, but only an APAC workshop in Singapore. In this workshop I also met other team members from Singapore, from Malacca and Kulim and also one from Germany. And then after that I knew something about them and I knew also something about their culture."

Key user from Wuxi, China

With this statement the key user from China promoted the effect of meeting face-to-face which helped her to understand the others' cultures better. The effect of this workshop was also observed by the project manager.

"That was the best thing that I did from my point of view in this project. [...] So, I did one workshop in Europe, with the European sites, and one workshop in Asia where we met together. So, this was the best thing."

Project manager from Munich, Germany

Additionally, the team tried to manage the situation by increasing their interaction as a key user from Warstein stated.

"Yes, I think we have this [lack of cultural awareness] in the project. But we have to talk again and again to find the right understanding."

Key user from Warstein, Germany

All in all, the statements of the team members show that there is a lack of understanding the cultures between the European and the Asian countries. In order to mitigate problems with this, the team has been split from the beginning in two groups (Europeans and Asians) in order to get aligned easier. In addition to that, some team members had the chance to meet during a face-to-face workshop, which influenced the quality of the communication positively. Another way to improve the cultural understanding was to increase the quantity of communication.

6.3 Misunderstanding between Europeans and the project manager

The interviews revealed one misunderstanding between Europeans and the project manager. Since this misunderstanding had an impact on different challenges, it shall be analyzed in detail.

6.3.1 History of the misunderstanding

There was one main misunderstanding, or as the key user from Dresden said a 'conflict topic': the team was told to have influence on an important decision. Therefore, they worked out their opinions and arguments for the discussion. In the discussion all key users were aligned regarding one solution. Nonetheless, in the end the team lead decided differently. The key user from Villach describes the decision-making process.

"Every key user was asked. There were three possibilities to choose. At the end the EU key users have decided only for the decentralized solution like we had it before with one contact person. But at the end there was a decision from Munich that we take the opportunity with the central team in Porto."

Key user from Villach, Austria

So, at first the team members were ask for their involvement in the decision. Although they agreed on one solution, another one was chosen by the team lead. The interviewees stated that the reasons for this decision were explained to them by the team lead. Nonetheless, it seemed to disrupt the relation especially between project manager and the European team members significantly. As the key user from Munich said:

"What is very important for me is acceptance of other opinions. That's what has been a problem in the last time. [...] we all have the same opinion and we align and communicate that. Then the team leader decides that this way is not possible or it will not be done this way. And that's a bit difficult because we don't have any possibility to influence that."

Key user from Munich, Germany

The key user from Dresden supported this view with her statement. She and her local colleague had the feeling that their opinion seemed to be ignored by the project manager. Therefore, they involved each others' local heads several times in order to achieve an agreement.

"Especially when I look in Dresden we had some topics. My colleague from here was also involved in the project. If we both can't go through these topics with the project lead we did of course some kind of escalation. Mostly we just involved the boss of the project manager or we involved also our boss and we did extra phone calls to clarify the different topics. [...]We were involving them to show the awareness is there that we have got an issue. And when I am talking to our project lead and I am not heard, she doesn't care what I say and the same topic is told by my boss there is sometimes the funny thing that it is then heard."

Key user from Dresden, Germany

She describes her feeling that when a hierarchical higher person was involved, the opinion or topic was taken more seriously by the project manager.

The project manager mentioned the topic as well, interpreting and explaining the situation to be change management which is difficult to adapt to for people.

"Based on this project, it was a change in organization structure and its big change management which is difficult to accept also locally. [...] So, there were some conflicts and so it was important to say, why we have to do this change [...]. I did many separate calls, bilateral. I asked them for their suggestions [...]. In the end, we made a discussion and I tried

to convince them. And they were not convinced. In the end, you have to say "You have to accept it, it is like that."

Project manager from Munich, Germany

With this statement the project manager describes the same sequence as team members did before: the team members were asked to prepare their suggestions. Afterwards the project manager tried to convince the team members and unfortunately was not successful in doing so. In the end, she had to decide without including the team members' suggestions.

All German project team members expressed in the interviews their wish to have a project manager who accepts other opinions. The key user from Munich did not have the feeling that the SMDH project manager accepted the team members' opinions.

"[I expect that she] can lead the team, a good preparation of meetings and what is very important for me is acceptance of other opinions. That's what has been a problem in the last time."

Key user from Munich, Germany

Next to accepting the opinions from the team members, the key user from Warstein thinks it is also important to include these opinions into decisions.

"To be a lead, to be open for all the proposals of the team members and also include this into decisions, because sometimes we have the feeling here, you say and do things and prepare things and in the end it is not considered."

Key user from Warstein, Germany

6.3.2 Lack of Cultural Awareness

In addition to the cultural differences among Europeans and Asians, team members noticed that they are not aware of the culture from the project manager. This lack of awareness was only observed by the Europeans. However, all Europeans knew that the project manager comes from Albania. None of their Asian colleagues knew about that fact and could not answer where the project manager is from or assumed she is from Germany. Nonetheless, cultural differences are detected by the Europeans as the following statement shows:

"Probably it would be easier [if the project manager was German] because of the same mentality. And communication would be much easier. In the moment, it is sometimes a mixture of English and German. So, it is sometimes hard to follow up."

Key user from Regensburg, Germany

Other comments showed that for the team members it seems to be difficult to evaluate whether differences with the project manager are based on a different cultural background or different personality.

"I don't know if it is cultural or person-related because she has another personality than we. But we didn't have those issues in other projects before. There is always something to discuss, where you have different opinions but we always found a solution for those topics. But now this was quite hard to find a solution because the thing was that we got the solution from our team lead. This wasn't at all the solution that we team members wanted."

Key user from Dresden, Germany

6.3.3 Impact on other challenges

The described conflict or situation were mentioned by the majority of the European team members and influenced other topics like trust, the interaction in the team as well as the technologies used.

Regarding trust, the key user from Munich pointed out:

"In the team [trust] was good but to the team leader not so good."

Key user from Munich, Germany

The project manager noticed that lack of trust towards her as well. She reflected it and thought it was because of the fact that she joined the company later.

"Yes, I can say in the beginning, as a new person, there is a lack of trust. You need to prove yourself. The only thing, I think, with a lack of trust is time. You need time, a long time and many other projects to work together."

Project manager from Munich, Germany

In her statement the wish for more trust is obvious and she hopes that it will develop by working together more often. But during other interviews, it turned out that the reason for a lack of trust towards the project manager was not only the limited history

she shared with the team members. Team members saw the misunderstandings with the project manager causing the lack of trust.

The key user from Dresden observed that the before mentioned conflict had also its influence on the interaction between the team members and their work performance.

"I think everyone was a bit frustrated about all those discussions and all those blocking of inputs and that's why [interaction] went down. [...] I think nobody can tell us that we didn't do what we should have done. But I think if I am even looking at me now, I did only what I really had to do. And that's normally not how I work. I only did what was necessary and normally I am doing even more or doing it in better quality."

Key user from Dresden, Germany

The project manager observed it similarly. She had the feeling when the project did not work well that she was the only one left who felt responsible for it and who worked on getting back on track.

"If they are in the project [...] and if this project is not working well, they have to feel responsible. [...] everyone should have this feeling of responsibility if something is not working well. And this is missing."

Project Manager from Munich, Germany

In addition to the influence on trust and interaction, the conflict also had his influence on the usage of technologies. The key user from Dresden described that emails were wrongly used as a conflict management tool. Due to a high frustration, team members did not want to talk to the other person they had the conflict with. The email was chosen as a communication tool which was acceptable for the involved conflict parties. Nonetheless, this led to long emails which were again followed by similar long emails.

"Due to the fact that we had got this issue in managing conflicts, we had really long emails with also language issues in there so that it was some kind of weird in the end and you don't really understand what the other one wanted. [...] If I think of other projects before and we had an issue we would call each other but the frustration was already here so high that nobody really wanted to talk to each other at some stages for those topics anymore. So that's why there was all this email communication which I think was sometimes not so good."

Key user from Dresden, Germany

6.4 Lack of Language Knowhow

The main challenge of the project team turned out to be the language. Therefore, two different problems occur. The first is the different English language level that team members encounter. This is especially identified by the team members whose language level is worse than the one from the others.

"It's only on my side. I have problems with the language; all other team members are perfect. It's only my problem."

Key user from Munich, Germany

"Yes, the language difficulty is the biggest problem for me. And maybe sometimes for me listening is better than speaking. [...]I think for other colleagues, it's okay. But for me sometimes English is a challenge."

Key user from Wuxi, China

Although both team members face obviously problems with the English language, interestingly both think they are the only ones who encounter that problem. In addition to that, no other colleague said that there are colleagues who have problems with speaking or understanding English. Since these problems were also observed during the interviews, because these interviewees had more problems with the language than their colleagues, it can be assumed that these team members hide their language problems during the project work. The team member from China stated what she does if she cannot understand the content of the meeting completely:

"Sometimes after the meetings I will line off to contact other colleagues such as the Singapore colleagues or Kulim colleagues to ask them some questions about the meeting. Because also in the meeting the language is English and sometimes I cannot understand on time. So after the meeting I will line off to ask them for more clearly understanding."

Key user from Wuxi, China

This shows that the team members are probably too shy to ask during the meeting if something was not clear. Since the team meetings are conducted via LiveMeeting on the phone, the expressions of the team members cannot be seen by the project manager. Therefore, it is not obvious for the project manager if somebody cannot follow the content. Nonetheless, the key user has found a way how to keep being on track in spite of the language barrier.

The second problem that occurs regarding the language is caused by the fact that all team members use English as their second language. Therefore, communication is sometimes time-consuming. As the project manager explains:

"You have the impression that you need more time to speak, to come to a point. Due to a lack of language, it is sometimes difficult to do short sentences. So, this is challenging, to summarize. It has to do with the language because you cannot express yourself so good."

Project manager from Munich, Germany

This is supported by a key user from Regensburg.

"If you communicate in your mother tongue to another guy in the same language, it is much faster than to communicate to English speaking people one based in Germany and one in China."

Key user from Regensburg, Germany

The coordinator of APAC from Singapore also observed that communication in the project is more time-consuming since people from different cultural backgrounds seem to interpret the English language in a different way. Therefore, there are difficulties in understanding the people from the other continent, as the coordinator of APAC explains. In the end, it takes more time to get aligned across the continents.

"I think, in general with our AP team, there is none of the [language] difficulties. I have to be very honest that sometimes with our German colleagues, you have to be very careful, because sometimes you understand the language, but the way of interpretation or to interpret the follow-up responsibilities or actions can be a bit different. So, it is very important, that you keep it very good in the minutes.[...] And then also due to some cultural difference, I would say, people interpret in a different way."

Coordinator APAC from Singapore, Singapore

The key user from Singapore sees also a different understanding of the English as the reason for a more difficult communication. According to her this misinterpretation can lead to misunderstandings. Her advice is to use as simple language as possible in order to bring the message across.

"I feel that it is always good to use simple language when it comes to meetings and writing emails. Some people might think they are good in English, so they try to use some bombastic words but the other party might not understand. At the end of the day, it might create some

confusion or some misunderstanding. The most important is we want the message to be sent across. So, I always feel that writing simple English is the best way for the other party."

Key user from Singapore, Singapore

All in all, the statements of the SMDH team members confirm that 'Lack of language knowhow' is the major challenge for the project team. Team members have different levels of language skills. In addition to that among all team members misunderstandings occur and communicating is time-consuming. In order to align easier and therewith get along with the lack of language knowhow, the project manager has split the team into Europeans and Asians (see 6.2 'Cultural differences between Asians and Europeans'). Additionally, for each meeting there are the presentation slides provided as well as shown in the meeting and afterwards minutes of the meeting are sent around. Next to that, one team member who has a shortcoming regarding the language calls another team member after the meeting and they discuss the content in their mother tongue. Furthermore, one team member suggests using as simple language as possible in order to bring the message across.

6.5 Positive comments on working with different cultures

Even though team members were criticising something on the team work, when it came to working with different cultures, all team members saw a positive influence. Therefore, four comments were chosen to reflect the joy that all team members feel while working with other cultures and learning from each other.

"I think it is beautiful. [...] It makes the project richer."

Project manager from Munich, Germany

"I get to know the other cultures better and I get to know how they work and can learn from them."

Key user from Munich, Germany

"It makes it much more interesting. You see in the end the other point of view. It does not mean you are always right. People from other cultures are thinking in different ways which leads in the end to a better solution."

Key user from Regensburg, Germany

"All those different people have different strengths and we all benefit from this."

Key user from Dresden, Germany

All in all, the statements of the SMDH team members show that they in principle enjoy working with different cultures.

6.6 Further ideas of improvement from the participants

The interviewees had the chance to provide ideas for the improvement of such global virtual projects. The most important point for all team members across the continents was the wish for more face-to-face meetings. This was especially suggested to be accomplished in the beginning of the project to get to know each other as well as in the end of the project to wrap-up and to discuss lessons learned.

"Get to know each other before the project kick-off, meaning to meet the people face-to-face to know each other."

Key user from Regensburg, Germany

"When we had a huge, global project in my previous company at least we would have one face-to-face meeting for all the team members to get know each other, to interact.[...] the personal interaction was a key to success for the project. I think, that is also one of the reasons why this is very, very important."

Coordinator APAC from Singapore, Singapore

"We can have the face-to-face meeting with all the team members. And then to let each key user from PMT to understand and experience the culture, to get working experience from different sites."

Key user from Malacca, Malaysia

"I would wish that we can have face-to-face meetings, not on every meeting, but at least during kickoff sessions we would be able to meet the rest of the team members. Because by meeting the team members face-to-face, it actually makes you feel warm, the trust is there, it's like I really know you instead of just from a phone call."

Key user Singapore, Singapore

"At least if it's a big project like the SMD for example I really would say that at least once in the beginning all the team members need to meet face-to-face [...] I think also it would be good if you do it in the end also together just to wrap up and share the lessons learned. I think

to do lessons learned over LiveMeeting and telecon is something you should never do because it doesn't make sense because the one who is frustrated won't say anything. Especially if I think of the APAC colleagues they wouldn't do it in such a telephone conference and wouldn't say anything because they are thinking of losing their face."

Key user from Dresden, Germany

"To do more on-site communication that would have been helpful, also together with the colleagues being responsible for the processes in the future."

Key user from Warstein, Germany

"It could be helpful to have kind of a kickoff meeting in the beginning just to know each other [...] And also more face-to-face meetings because I think it is easier to interact face-to-face than on the phone or via LiveMeeting."

Key user from Villach, Austria

"Maybe we can hold some workshop just like I already joined in the middle of August. [...]If we can, we can hold a regular workshop together. It's very helpful for our whole work to know each other better."

Key user from Wuxi, China

In the SMDH project, the key user from Dresden felt the advantageous situation that she already participated in a cultural training. Therefore, she suggests implementing such training with all members of PMT who work regularly on GVPTs together in order to learn more about the other cultures. In addition to the cultural training, she suggested a training where everyone gets to know more about the own personality. This training is already established in Infineon. All project team members could participate in this training and share their results. By knowing the other team members' personality better, it would be easier to work together since every team member knows what to expect and how to influence or convince the others.

"I think especially for all our project teams this [cultural training] should be something that we should all get offered just to make our work together better. [...] Different colleagues from different sites did this colour training. [...]I think this would also be something for those project team members that we could do at one stage just to know how you can deal with the others."

Key user from Dresden, Germany

Another potential field for training was provided by the key user from Singapore. Since she mentioned it would be easier and there would be fewer misunderstandings if everyone would have a generally higher capability to speak English.

"So let's say, if everyone understands the same language [...], this would make things easier and cause fewer misunderstandings."

Key user from Singapore, Singapore

Three key users also wished for changes regarding project management in future projects. Whereas the key user from Munich hoped that the team was more accepted, the key users from Regensburg and Malacca wished for a more experienced project manager.

"I would wish for more acceptance of the team [by the team leader]."

Key user from Munich, Germany

"Install an open-minded and experienced project lead. I think it is easier to have people with a very open-minded thinking because it is more difficult to work in a global project or in a virtual project team, but it is nothing special."

Key user from Regensburg, Germany

"I would like to request a good, experienced project manager."

Key user from Malacca, Malaysia

All in all, the statements of the SMDH team members show that they suggest having more face-to-face meetings and implementing intercultural as well as personality training for PMT employees. In addition to that, one team member hopes for a better language knowhow and others wish for a more experienced project manager.

7 Discussion

The findings from the interviews shall be combined in the following with the recommendations from the scholars in order to find suggestions how GVPTs can be managed better. First, the involved locations are analyzed regarding their geographical distance and the involved cultural backgrounds regarding their cultural distance. Afterwards, the identified challenges from the SMDH team (see Chapter 6 'Challenges and Actions from the SMDH project') are discussed.

7.1 Analysis of involved countries

Global virtual projects across countries and cultures are more complex than virtual projects within just one country (Zakaria et al. 2004). This complexity is even higher if the social, cultural and linguistic context of the involved countries differ a lot (Hinds et al. 2011). Chong (2008) analyzed differences between North American and East Asian managers' behaviours. He found major differences in their leadership and decision-making behaviour as well as in influencing skills and people development competencies (Chong 2008). His analysis shows that dissimilarities should not be underestimated and play a significant role when regarding cross-cultural work. Hinds et al. (2011) support these findings. They state that different cultures result in different expectations and norms about how to communicate in the workplace. This again leads to different perceptions of interpersonal relationships (Hinds et al. 2011). All those differences can also be assumed to be found when comparing other countries. Since the interviewed key users of the SMDH project are located in Germany, Austria, China, Malaysia and Singapore these countries will be analyzed regarding their geographical distances. However, originally the team members are from Germany, China, Malaysia, Austria and Albania (see Chapter 5 'Methodical Approach' for further information). Thus, these countries' cultures shall be analyzed regarding their cultural distances. Therewith, dissimilarities shall be detected which can influence the behaviour during the project.

7.1.1 Geographical distance analysis

In order to analyze the geographical distance of the GVPT, the two dimensions 'Being in Dispersed Locations' and 'Being in Different Time Zones' have to be considered.

7.1.1.1 Being in Dispersed Locations

'Being in Dispersed Locations' means a distance exists between the sites of the GVPT members. In the observed GVPT employees are located in Germany (Munich, Dresden, Regensburg and Warstein), Austria (Villach), Singapore (Singapore), China (Wuxi) and Malaysia (Malacca). The distances between those locations differ between 126 km (Regensburg – Munich) and ~14,476 km (Warstein – Singapore), thus they vary between 1.5 hours by car to about 12 hours by airplane. This distance leads to the assumption that it is rarely possible and very expensive to meet the other GVPT members face-to-face.

Although the geographical distance could lead to challenges for the GVPT, it turned out to be less influential in the observed project. Next to the SMDH project its team members work together already for years. Their counterparts (other SAP key users) are spread over all the other sites. Dealing with dispersed locations is day-to-day business. Although there were comments that the geographical distance leads to some challenges, it can be summarized that the team members manage the distance successfully.

7.1.1.2 Being in Different Time Zones

Another characteristic resulting from a geographical dispersion is that time zones might differ. Since the analyzed project has employees located in Germany, Austria, Singapore, China and Malaysia, there are two different time zones included. Germany and Austria belong to Central European Time which is Universal Time Coordinated (UTC) +1. In summer they belong to Central European Summer Time which is UTC+2. Singapore, Malaysia and China are all in the time zone UTC+8. Therefore, the time difference between the GVPT members is during summer 6 hours and during winter 7 hours. Regarding common business hours from 8 am to 5 pm, in winter time there is only an overlapping time of 2 hours. Thus, the different time zones can have an influence on working together in the analyzed project.

Although ‘Being in Different Time Zones’ can have a negative influence on the GVPT, the observed team did not have major issues with it. Since the team members work together for years, they are familiar with the time difference and have adapted to it.

7.1.2 Cultural distance analysis

In order to analyze the cultures the observed GVPT includes, their country profiles shall be compared according to the dimensions by Hofstede (see Section 3.3 ‘Cultural distance measured by Hofstede’s framework’). The comparison of the country profiles according to Hofstede et al. (2010) is visualized in Figure 3. Since there is no profile for Albania, the country of origin of the team leader, could not be included in the comparison.

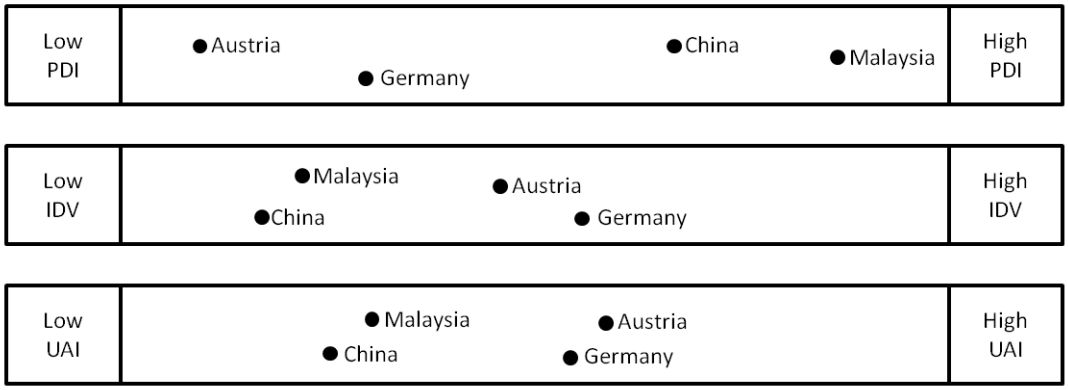

Figure 3: Country profiles' comparison (Reference: Own illustration)

At one glance, the average spread between pairs of countries over the dimensions is not easy to grasp. Nonetheless, it is not a secret that Germany and Austria and on the other side China and Malaysia are culturally closer together. China shows with an average spread of 12 across all three dimensions to Malaysia most similarities. Germany and Austria are with an average spread of 14 close together as well. Austria and Malaysia show with the widest average spread of 52 most differences. This is mainly due to their main difference in the power distance dimension. Far away from each other are also Austria and China with an average spread of 48. Thus, the cultures of these country pairs are probably most different to each other. Therefore, it can be supported that most divergences in the multicultural teams exist between the European and the Asian countries. According to this analysis, the Asians among each

other and the Europeans among each other should encounter less multicultural problems while working together.

The power distance dimension reveals the widest spread between the highest and the lowest ranked country. The other dimensions show a minor span between the involved countries. Therefore, it can be assumed that the involved societies vary significantly regarding their behaviours towards the power distance dimension. Therewith, behaviours and expectations which are affected by this dimension might differ widely. This could cause significant misunderstandings regarding the cooperation in the multicultural team.

Unfortunately, Albania is not defined by Hofstede regarding the three analyzed dimensions. But surrounding countries (like Greece, Serbia, Croatia, Bulgaria etc.) and thus maybe culturally closer ones show all a high ranking in PDI, low in IDV and high one in UAI. Therefore it can be assumed that Albania has a high power distance and therewith is hierarchy-oriented, collectivistic and avoiding uncertainty. Since the project manager spend his whole childhood and youth in Albania, it can be assumed that she is imprinted by that cultural background. Therefore, it can be expected that there will be more differences in PDI and IDV between Germans, Austrian and Albanian team members, whereas regarding UAI there will be more differences to the Asian team members.

7.2 Lack of Cultural Awareness

The SMDH team encounters the challenge ‘Lack of Understanding Cultural Differences’ and is therewith supporting the scholars’ opinion of this being one challenge of GVPTs (cf. Durnell Cramton 2001, Baba et al. 2004, Hofstede et al. 2010 as well as Walsham 2002). However, the challenge was apparent in two instances: A ‘Lack of Understanding Cultural Differences’ was especially observed across the continents as well as between European team members and the project manager.

7.2.1 Lack of Cultural Awareness across Continents

The findings from the interviews reveal that there is a 'Lack of Understanding Cultural Differences' amongst European and Asian team members (see Section 6.2 'Cultural differences between Asians and Europeans').

In order to get aligned easier, the project manager split the team from the beginning in two groups (Europeans and Asians). If there is no alignment between the continents needed, such a split might bring relief. As the cultural analysis shows (see Section 7.1.2 'Cultural distance analysis'), the Asian countries and the European countries are more homogeneous among themselves and thus should be handled easier. Therefore, working on the project can become more efficient. Nonetheless, such a split can also lead to disadvantages. Especially since the objective of the SMDH project is to harmonize a process globally, the benefit of a split can be doubted. If there is an alignment between the continents needed, this split might make it more difficult to get aligned in the long run since it decreases cultural awareness among the team members. In addition to that, the positive aspects (see Section 6.5 'Positive comments on working with different cultures') as well as advantages of working together in a GVPT get lost or cannot be benefited from. From a strategic perspective, splitting a GVPT might influence future projects negatively if team members have to work together in other projects. This would be the case in the SMDH project since its team members continue in working together in other global virtual projects afterwards. A split could lead to team members distancing themselves from each other. Therefore, it might be more difficult to develop team cohesiveness in future projects. All in all, the decision to split the project team might be based on valid reasons. Nonetheless, it can have negative long-term influences which seem to be more significant than the perceived short-term relief.

The SMDH team met in the beginning of the project for two face-to-face workshops, one among the Asian colleagues and one among the European ones. Both workshops influenced the quality of the communication positively (see Section 6.2 'Cultural differences between Asians and Europeans'). This is in line with the recommended actions of the scholars: Face-to-face interaction is recommended in order to mitigate five of the eight identified challenges of GVPT. Therefore, it can be considered to be the action with the highest impact on the work in a GVPT. Since the observed project

team was split into the European and the Asian group before, it made sense in this specific case to conduct two workshops. However, for GVPTs in general it is recommended to execute the face-to-face workshop in the beginning of a project with all project team members together, in the observed case with Europeans and Asians together. This way, it might even benefit the GVPT more, because the negative impact of the distance between cultures can be mitigated.

In addition to that, all SMDH team members suggested increasing the amount of face-to-face meetings since they noticed a better understanding of the other cultures and personalities after they had met, especially across continents. Therefore, the huge geographical as well as cultural distance (see 6.1 'Geographical distance analysis' as well as 6.2.6' Comparison of the country profiles') between the continents which the SMDH project team members noticed could be mitigated. This is in line with the opinion of the scholars who promote the beneficial effect of face-to-face meetings and thus suggest having regular face-to-face meetings (cf. e.g. Blackburn et al. 2003, Connaughton and Shuffler 2007, Hinds and Weisband 2003, Kirkman et al. 2002, Maznevski and Chudoba 2000, Oertig and Buergi 2006 as well as Uber Grosse 2002). But meeting face-to-face is always combined with costs. Therefore, the amount of face-to-face meetings can only be limited in GVPTs. Nonetheless, the lasting effect of such a meeting can have positive influence on the work performance. Especially if there are always the same people involved in the GVPTs like it is in the PMT team of Infineon, every face-to-face meeting will be beneficial and even an investment into future projects. Therefore, it is highly recommended to conduct face-to-face meetings.

Furthermore, researchers see the importance of selecting the team members for the global virtual project team. In order to create cultural awareness and competence, they suggest including cultural competence as a selection criterion (e.g. Warkentin et al. 1997 and Zakaria et al. 2004) and to use behavioural and scenario-based questions in order to select GVPT members (Kirkman et al. 2002). In practice, the example of the SMDH project shows that the pool from which project team members can be chosen consists often of a limited number of employees and thus only limited selection opportunities. Additionally, there is often only a short time for arranging the team. Therefore, it is beneficial to have employees in the pool who are experienced in global virtual projects and then to choose the team members from this pool as it is with the

PMT team at Infineon. However, since the 'Lack of understanding cultural differences' was present in the SMDH project, more actions should be executed to increase cultural awareness. Intercultural trainings are one way to do so. According to the team member who had such training, this might increase the understanding among all team members. Since the Human Resources Training Center of Infineon offers intercultural trainings, it should be requested to offer them for all members of PMT. This way, the cultural awareness within the pool of employees for GVPTs could be increased. The focus hereby should be especially on the countries of origin of the employees and not only on the ones where team members are located at. Intercultural trainings are also promoted by the researchers (cf. e.g. Blackburn et al. 2003, Dubé and Paré 2001, Oertig and Buergi 2006, Walsham 2002 as well as Zakaria et al. 2004). They are seen as critical for global virtual project teams (Zakaria et al. 2004) and therefore can be highly recommended in order to mitigate the challenge 'Lack of Cultural Awareness' in a global virtual project team.

7.2.2 Lack of Cultural Awareness between Europeans and Project Manager

The misunderstanding between European team members and the project manager played an important role in all the interviews with European team members. In the interviews with the Asian team members the misunderstanding was not even mentioned. However, the European key users were not aware of the project manager's culture. Therefore, they could not say whether the differences with the project manager are cultural ones or because of a different personality. Albania belongs geographically to Europe. Nonetheless, Albanian culture is neither one Western Europeans are commonly familiar with nor do they have a stereotype in mind. In addition to that, the project manager is probably their first contact with the culture and there is no other person with that cultural background in the project team. Therefore, the key users cannot say whether differences with the project manager are culturally related or they assume it is personality related.

But the cultural difference might be the cause for the misunderstanding. Since Austrians as well as Germans are imprinted by a low power distance (cf. Hofstede et al. 2010), they are used to be involved into decision making processes. Especially,

when they are actively asked by the project manager for their input, they want their ideas been taken seriously into consideration. The example from the project shows, that if the team members have a different cultural background than the project manager, this might result in misunderstandings. It can be assumed that if each team member had been aware of the others culture, this misunderstanding might have played a minor role or could have even been prevented.

The example of the SMDH project showed that the misunderstanding led to 'Lack of Trust and Difficulty in Trust Development', 'Less and Worse Interaction' as well as 'Diverging Acceptance and Skills in Using Technology'. Due to this influence the challenge 'Lack of Understanding Cultural Differences' should be met from the beginning. In order to mitigate the negative effects of a 'Lack of Understanding Cultural Differences' the before mentioned actions like a face-to-face workshop in the beginning, regular face-to-face meetings during the project and intercultural trainings should be executed (see 7.2.1 'Lack of cultural awareness across continents'). Therewith, the understanding increases among the team members and other challenges of the GVPT are mitigated as well.

Additionally, personality trainings as suggested by one key user might help the team members to get to know the other's cultural background and personality better. With such a training it can also be identified which leadership style a leader applies. Therewith, a GVPT leader can make transparent how he plans to lead the team. Especially in a GVPT many diverse persons from different cultural backgrounds have to work together. Therefore, everyone will have an own expectation how a project manager should lead the team (House et al. 2002). Since the team lead cannot satisfy every team member, it is even more important to lead the team in a predictable manner to be understandable for the team members. Thus, it can be helpful for GVPT leaders to make their management style transparent so that team members know what to expect (Zakaria et al. 2004) Therewith, they might not agree with every decision but how a decision is made is comprehensible and will not be contested. Therefore, it is recommended for a GVPT's leader to identify the own leadership style with the help of a personality training and to communicate it transparently to the project team.

7.3 Lack of Language Knowhow

'Lack of language knowhow' was perceived as the major challenge of the analyzed SMDH project and therewith confirms the scholars' opinion to be a challenge of GVPTs (cf. Zakaria et al. 2004, Lagerström and Andersson 2003, Ayyash-Abdo 2001, Ulijn et al. 2000, Marschan et al. 1997, Garcia and Canado 2005, Goodall and Roberts 2003, Dubé and Paré 2001, Oertig and Buergi 2006 as well as Kayworth and Leidner 2002). In the observed project, the team members differed in their English language skills and misunderstandings occurred among team members, especially across the continents.

The project manager of the SMDH project provides for each meeting presentation slides, so that team members can read them while the context is explained. This is especially supportive for team members who have shortcomings regarding the language, since they can read the presentation slides, listen to the explanation and therewith understand it better. Additionally, minutes of the meeting are sent around by the project manager after a team meeting. They help as well to clarify if something remained unclear. Such a protocol is also promoted by Dubé and Paré (2001) since it increases the ability of understanding. Therefore, both methods are good ways to support the oral communication of the telephone conference and therewith support team members with weaker language skills to understand and follow the content better. Hence, showing presentation slides during the meeting as well as sending minutes after each meeting are both recommended for GVPTs.

Sometimes, the presentation slides and the minutes are not sufficient. As the observed project shows, some team members were not fully able to understand the meetings. Therefore, one team member with weaker English skills called sometimes another team member after a meeting in order to discuss the unclear topics of the meeting in their mother tongue. This could be established as a permanent mentor – mentee relationship in GVPTs. Therewith, team members with weaker language skills could get a partner with whom they shortly discuss important issues after a meeting. Thus, it can be taken care that every team member is informed about the status quo. Additionally, team members with stronger English skills should use as simple language as possible in order to support their team members, as one key user from the SMDH project suggested. Combined with the English language trainings suggested by

the researchers (cf. Dubé and Paré 2001, Garcia and Canado 2005 as well as Oertig and Buergi 2006), these are methods to get the English language level of team members balanced. Therefore, it is recommended for GVPTs to have mentor – mentee relationships of weak and strong English speakers, to use as simple language as possible while communicating on the project and to provide English language trainings to all team members.

8 Limitations and Future Research

One limitation of this thesis is the sample chosen. First of all, there was only one project and thus only one GVPT analyzed. In addition to that, this project phases a special situation: the team members have been working together in several GVPTs for years. Since a GVPT often has only a limited history (see Section 2.1 'Definition and characteristics'), the observed project is a special GVPT. Therefore, some challenges might be less strong or nonexistent compared to other GVPTs. In order to verify the results, a further analysis of other European-Asian GVPTs should be conducted.

Unfortunately, Albania could not be considered clearly in the cultural distance analysis since it is not analyzed with the Hofstede dimensions so far. Instead, the value of the scoring was estimated according to neighbouring countries' scores. In order to compare Albania's culture regarding the Hofstede dimensions in future research, its score has to be measured first. In addition to that, the project manager immigrated to Germany around ten years ago. It could be that she adapted already during that time, so that the differences may not be explained by cultural differences. This is another topic that might be interesting in future research: people who have been living in different countries for several years, can they still be connected to one cultural background or do they adapt to different cultures and should thus be considered to have an 'international' background? The same question could be analyzed for people from migrated parents or whose parents come from different countries and with it different cultural backgrounds.

9 Conclusion

The thesis analyzes the ‘Management of Global Virtual Project Teams between Europe and East Asia’. Therefore, the main research question ‘What are the challenges global virtual project team members encounter while working together and how can these be met?’ has been answered.

From the literature research eight challenges of GVPTs have been identified, most of them have been approved by the interviewees of the observed GVPT. Two challenges played a major role between the Europeans and Asians in the project: ‘Lack of Cultural Awareness’ and ‘Lack of Language Knowhow’. These major challenges had a negative influence on other challenges. Thus, mitigating the impact of those two major challenges can be beneficial for the GVPT. In order to increase cultural awareness, scholars as well as the interviewees agreed on regular face-to-face meetings, as a possibly expensive but the most effective action. The ‘Lack of Language Knowhow’ can be properly managed by using as simple language as possible in order to bring the message across. Additionally, weaker English speakers can be given a mentor (another team member with the same mother tongue) who can clarify if something remained unclear after a meeting. By mitigating the challenges, the ‘Management of Global Virtual Project Teams between Europe and East Asia’ can be improved.

In order to conclude, the last words shall belong to one of the interviewees. He said about the ‘Management of Global Virtual Project Teams between Europe and East Asia’:

“It is a bit more difficult in general, but it is not rocket science.”

Key user from Regensburg, Germany

10 Appendix A: Long list of team leader's tasks

Create cultural awareness and competence	Show respect for other cultures and know the own cultural bias Be sensitive to cultural differences Involve effective cross-cultural communication and understanding Understand different cultures and their expectations
Develop team cohesiveness	Ensure that there is a collective sense of belonging Compose teams in which members have similar backgrounds Highlight and emphasize similarities among team members Facilitate sharing of personal information, especially early in the project Facilitate sharing of information about day-to-day activities throughout the project
Develop trust among team members	Build relationships and with it build and maintain trust Conduct an orientation meeting face to face in the beginning of the project Determine the types of team-building activities that are appropriate for the cultures and types of experience represented on the team Communicate continuously, use active listening
Manage conflicts effectively	Address and resolve conflicts
Increase average language knowhow	Check for understanding and ask for clarification Monitor participation rates Keep communication simple and clear Facilitators, as well as intermediaries in the event people face difficulties in sending and receiving the intended messages across the borders
Increase and improve interaction	Encourage team members to actively engage in a knowledgesharing culture Monitor and/or facilitate collaboration Involve effective cross-cultural communication and understanding Coach virtual team members to avoid long time in responding, unilateral priority shifts, and failure to follow up on commitments (e.g. answer to emails in between 24h) Encourage face-to-face meetings with team members early in the project and periodically throughout longer, more difficult projects
Improve technology usage	Select and use appropriate electronic communication and collaboration technologies Choose the right technology for each task Understand how to communicate effectively Provide easy access to and support for (including training and technical support) videoconferencing and online team spaces
Tasks of a leader in general	Establish team's objectives and norms quickly Ensure that teams have the necessary resources Ensure team values, task assignment and plans are shared Build intra-team participation, ensure that all ideas are heard Define clearly the responsibilities and rules, co-ordinate activities Managing the performance, development, and career development of team members Standardize work processes and tools, control performance tightly
References: Aycan et al. 2000, Blackburn et al. 2003, Chevrier 2003, Den Hartog et al. 1999, Dorfman et al. 1997, Duarte and Snyder 2006, Dubé and Paré 2001, Durnell Cramton and Hinds 2004, Hinds and McGrath 2006, Hinds and Mortensen 2005, Hinds and Weisband 2003, House et al. 2002, Jarvenpaa and Leidner 1999, Kayworth and Leidner 2002, Kennedy 2002, Kirkman and Mathieu 2005, Kirkman et al. 2002, McKenna 1998, Oertig and Buergi 2006, Paul et al. 2005, Piccoli and Ives 2003, Uber Grosse 2002, Walsham 2002, Wendt et al. 2009, Workman 2005, Zakaria et al. 2004	

11 Appendix B: Interview Guideline

Short introduction

1. Who are you?
2. What do you do on the SMDH project? What is your primary task and role?
3. Where are you located and is this your home country? (If not, then what is your home country?)
4. Do you mainly work in your native language or another language? Which language is this?
5. Which language do you use when communicating on the project?
6. Do you perceive any language difficulties in communicating with other team members?
7. Have you worked on a global virtual project before? (If yes: how many times, when?)

Before the project:

8. How did Infineon support you in preparing for the work in the project team?
9. How did your team start-up? (Kick-off-meeting? Introduction of team members? Met personally? Team-building activities?)
10. People from which countries are involved in the project?
11. Are you aware of the national cultures of the remote team members?
12. If yes: How have you gained this knowledge? (Visited other sites? Had cultural trainings?)

Working on the project:

13. How often do you interact with your team colleagues?
14. Is this interaction formal (meeting), or also informal and in between meetings?
15. Are there particular sites with which you interact more than with other sites? Why?
16. If you interact: what technologies do you use? (Email, telephone, fax, chat, team space, telephone, videoconference?)
17. Please describe a normal meeting! (Technology used? Who is participating? Who is talking?)
18. How many people from the project team have you met face-to-face (roughly)? (Do you meet regularly?)
19. What is the cultural background of your project manager?
20. What would be different if the project manager was from your country?
21. What do you expect from a project manager?
22. Think about a situation, where there was a conflict between project team members. What did the team do to manage this conflict?

Reflection:

23. How well do you feel integrated in the team?
24. If you compare the project to one where team members are located at one place: where do you see the most differences in working together?
25. Do you feel that working with different cultures in your project influences the collaboration? (How does it influence?)
    a. Positive influence
    b. Challenging influence
26. How do you deal with these challenges in your own work?
27. I will now go through a list of 8 challenges that are identified for global virtual teams in the theory. Please say to each challenge, if you encounter that challenge in your project and what you do in your team to solve it.
    a. Lack of understanding cultural differences
    b. Missing team cohesiveness
    c. Lack of trust and difficulty in trust development
    d. Difficulty in managing conflicts
    e. Lack of language knowhow
    f. Less and worse interaction in the team
    g. Diverging acceptance and skills in using technology
    h. Diverging expectations from the team leader
28. If you could change anything you want (no matter of costs etc.), what would you change when you work together in such a global virtual team? (please name three things)

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