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BENEFITS AND CHALLENGES OF VIRTUAL TEAMS

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ABSTRACT

Virtual teams are a growing phenomenon in both the world of research and business. They have evolved as a response to development in electronic communication technology and various global trends.

Businesses started utilizing virtual teams before there was any strong research on the subject. While research has increased exponentially since then, there have been few works that have collected the various results together. This thesis aims to summarize the current research on virtual teams and the various benefits and challenges faced by organizations in utilizing them, and compare research with the results from an empirical study that focuses on current top management's viewpoint.

Virtual teams are teams where members rarely meet each other physically. They rely on electronic communication to collaborate and achieve their goals. The members are usually both structurally and geographically separated. The use of an unfamiliar communication medium and other characteristics lead to a number of challenges but also to surprising benefits.

Significant benefits lie with cost-savings and efficiency, whereas challenges arise in leadership, communication and trust. As communication technology develops and improves, it is likely that virtual teams will also increase in abundance. Organizations must be prepared for this and be able to differentiate between traditional teams and virtual teams.

The results from the study suggest that most top management acknowledge the main challenges as found via research, while stated benefits are mostly cost benefits. The study also suggests a number of targets for potential future research.

1. INTRODUCTION

The development of the computer and the Internet has changed the human way of life significantly within the last few decades. We spend our free time differently and we also work in a different way. Being connected is emphasized in both cases, with social media changing the way we interact within our social lives, and the development of electronic communication changing how we cooperate globally. The first well known virtual team was born in 1989 (Boeing–Rocketdyne, see Majchrzak et al. 2004). Virtual teams represent this new way of working and the transition towards becoming more and more ubiquitous. Initially, virtual teams did not receive much research attention, instead being experimented with by few in the business world. However, as a result of global trends like globalization, increase in travel costs and the development of the Internet, more people have started to realize the potential of virtual teams. These trends are not weakening. Research on virtual teams has increased exponentially and so has their uses in business. This makes the topics of virtual teams and virtualization very contemporary, both in the worlds of research and business.

Virtual teams are groups of individuals that communicate with each other using only electronic communication technology. In short, they are teams where the members will most likely never meet each other although they work together on projects. Until now, research has mostly focused on the singular aspects of virtual teams (Qureshi 2001, Majchrzak et al. 2004, Lipnack 2010), with emphasis being placed on comparing traditional face-to-face (F2F) teams with their virtual counterparts (Purvanova & Bono 2009, Erskine 2009). Overall, research into virtual teams is still taking baby-steps and there are many areas that will continue to need attention (Powell 2004: 14–20). While some of these areas, such as leadership, have received attention since 2004 (e.g. see Lipnack 2010, Ebrahim 2009), many decisions concerning virtual teams are still made *ad hoc* and *on the spot* (Lipnack 2008) without any theoretical support. So far, research has tended to take an optimistic view on virtual teams (e.g Townsend 1996, Järvenpää 1999). The use of virtual

teams in businesses has been ever evolving, from individual virtual freelancers to whole work groups existing online. This evolution has taken place in waves, and currently we are experiencing the Third Wave in virtual work that emphasizes collaboration (Johns 2013).

For a long time, research was lagging behind actual business practices. Only recently theoretical research has started to produce valuable information (Powell 2004: 8–13). At present, the field of study is very fragmented; a great deal of singular studies function as pieces of a puzzle. It is the intention of this thesis to put together these pieces and summarize the benefits and challenges of virtual teams from a top management point of view. This theoretical review will be compared with the results of an empirical study on the benefits and challenges of virtual teams as viewed by established top management personnel. The study will be restricted in scope but can give insight on the current relationship between contemporary research and reality.

1.1 Objective and research problem

The objective of this thesis is to summarize the benefits and challenges of using virtual teams per contemporary research, to make conclusions concerning their usefulness, and to contrast this summary through empirical study with various top management views. Critical analysis of current theory and literature will be essential to this paper. As stated in the introduction, there is a gap between research and reality concerning virtual teams and their uses. With events like the Jasmine Revolution, Syrian civil war and the steady rise of oil prices, it seems that the trends pushing virtual teams forward are not ebbing and the importance of these teams will only increase. For this reason, it is vital to bridge this gap and provide an analytical summary of virtual teams for both research and top management.

The research problem that this study focuses on is what are the benefits and challenges of virtual teams to an organization? This study will try to answer this problem using both contemporary research and an empirical study focusing on top management. The results

will then be compared to see if current theory overlaps with current top management opinions.

1.2 Structure

The structure of this paper is divided into five distinct parts, with sections **2** and **3** functioning as the main theoretical parts. The first part introduces the topic and research questions. Also, important terms are defined and a general understanding of virtual teams is given to the reader.

Sections **2** and **3** discuss the benefits and challenges of virtual teams. The division to two sections represents the two viewpoints being analyzed. Each section is further divided into **Overall** and **Individual** benefits/challenges. Overall refers to the effects concerning the whole organization, whereas individual refers to effects on the individual employee. It must be noted that there will be overlap between these two due to the basic nature of organizations being a collection of individuals working towards a shared goal.

The various benefits and challenges will be further divided into various subcategories, which include performance, organizational and leadership subcategories. The use of subcategories is justified by the large amount of various characteristics, and its purpose is to aid in comparing various groups of benefits and challenges to each other. It will also be used in the analysis of empirical results.

This is followed by section 4, which discusses the methods of data collection and analysis used in the empirical part of this study. Focus will be placed on discussing both the advantages and limitations of the chosen methods. Finally, the results will be presented in section 5, followed by analysis and comparison to current theory. Section 5 will also contain the conclusions that can be drawn from this study, with a focus on providing concrete advice on how top management can better utilize virtual teams.

1.3 Definitions

In any scientific text it is important to provide exact definitions of keywords to gain precision in discussion and analysis. However, the tendency within certain areas of research – especially relatively new ones such as virtual teaming – is that the definition evolves and changes through time. Usually, this leads to the rise of a predominant text or research within the area, which results in that particular definition getting adopted into general use.

1.3.1 Virtual team

Table 1: Various definitions of the term virtual team.

Source	Definition of virtual teams as per source
Townsend 1996	*A virtual team is characterized by the fact that its members' primary interaction is through some combination of electronic communication systems.*
Järvenpää 1999	*A virtual team is an evolutionary form of a network organization enabled by advances in information and communication technology.*
Lipnack & Stamps 2000: 18	*Virtual teams are groups of people who work interdependently with shared purpose across space, time, and organization boundaries using technology to communicate and collaborate.*
Powell 2004	*[Virtual teams are] groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks.*
Malhotra 2007: 60	*Virtual teams are teams whose members are geographically distributed, requiring them to work together through electronic means with minimal face-to-face interaction.*
	Virtual teams, composed of members who are geographically

de Pillis & Furumo 2007: 93	*dispersed, interact primarily via information and telecommunications technologies.*
Ebrahine 2009: 1578	*[Virtual teams are] small temporary groups of geographically, organizationally and/or time dispersed knowledge workers who coordinate their work predominantly with electronic information and communication technologies in order to accomplish one or more organization tasks.*

Table 1 lists a number of definitions for the term *virtual team*. The definition given by Townsend (1996) is the first proper attempt at a definition, whereas Järvenpää used the term as a synonym for electronic teams as a tool and a form of future network organizations and identified some teams (Järvenpää 1994: 17). Järvenpää later alludes to this work and reaffirms it as her definition in 1999. While the Townsend definition might be the original one and established the initial form, the definition given by Lipnack & Stamps (2000) was more popular (Kirkman 2007:67) and is used especially in leadership- and management-related texts. However, Powell's 2004 definition is currently thought to be the most accepted version (Ebrahim 2009: 1578).

When following the chronological development of definitions as exemplified in Table 1, one can also follow the general development of the field of research concerning virtual teams. Townsend's (1996) original definition is simple compared to the later ones, describing it as a team that communicates primarily through a combination of electronic systems (Townsend 1996). During that time, virtual teams were considered just as another form of the traditional team, which can be seen for example in the predominance of comparison studies (Powell 2004). The uncertainty of their role in the future of organizations is seen for example in the discrepancy between Townsend's and Järvenpää's definitions.

The definition by Lipnack & Stamps (2000) introduced an important aspect of virtual teams, namely the three dimensions that virtual teams operate in and cross (Lipnack & Stamps 2000). These are *space*, *time* and/or *organization*. They have been repeated in definitions ever since. These three factors define virtual teams and produce both the benefits and challenges that will be discussed in the later parts of this thesis.

The definitions for these three factors are standard and unanimous. While virtual teams can inhabit all these dimensions, they necessarily do not.

- *Space* refers to absolute, geographical distance. Traditional F2F (face-to-face) teams exist and work at the same location, whereas members of virtual teams traditionally function and communicate across long distances.
- *Time* is a product of the *space* factor. Since the Earth is divided into various time zones, members of a virtual team can literally function at different points of the day.
- *Organization* is the most complex of the three main factors. It refers to the fact that traditional F2F teams are composed of members of the same part of the organization, while virtual teams commonly have members from a number of organizations and divisions.

  (Lipnack & Stamps 2000: 62–64)

The definitions given for the term *virtual team* have been criticized for a number of reasons. One of the most repeated criticisms can also be seen in Table 1, namely the profound lack of depth (Ebrahim 2009: 1578). Only Järvenpää's (1999) definition is significantly different. Others, like Powell (2004) and Ebrahim (2009), have built on

Townsend, adding defining factors and features. De Pillis & Furumo (2007) focus on geographical separation, and Malhotra (2007) focuses on its immediate effect in their definitions. While the contents of Table 1 do not include all the definitions used by scientists, it does show the various types currently in use.

The second form of criticism focuses on the word *team*. To be precise, it has been stated that teams are "*groups that display high levels of interdependency and integration among members*" (Powell 2004: 7). While Powell does not refer to the exact source of these words in her article, the statement does sound plausible. Since the common perception of virtual teams is that they do not have a high level of interdependency and integration, should virtual teams be called *virtual groups* instead? Powell solves the dilemma by referring to the definition of a team given by Cohen & Baily (1997):

> *"A team is a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems, and who manage their relationship across organizational boundaries."*
> (Powell 2004: 7)

This is the definition of *team* that will also be used in this study because it describes virtual teams in an appropriate manner.

Ebrahim has comprehensively analyzed the various definitions used by research in his 2009 literature review, from which Table 2 was produced.

Table 2: Characteristics of virtual teams (Ebrahim 2009: 1579).

Characteristics of virtual teams	Descriptions
Common criteria	✓ *Geographically dispersed (over different time zones)* ✓ *Driven by common purpose (guided by a common purpose)* ✓ *Enabled by communication technologies* ✓ *Involved in cross-boundary collaboration*
Other characteristics	❖ *It is not a permanent team* ❖ *Small team size* ❖ *Team member is a knowledge worker* ❖ *Team members may belong to different companies*

Table 2 describes the various characteristics Ebrahim compiled from a number of definitions used in the study of virtual teams. The **Common criteria** section describes characteristics shared by *all* virtual teams, while the **Other characteristics** lists features that are common but not omnipresent. It is based on this table that Ebrahim (2009: 1579) created his definition as described in Table 1.

The only criticism that can be aimed at Ebrahim's definition (2009) is the addition of temporary as a defining characteristic. The question of temporary characteristics is one of the more heated topics concerning the definition of virtual teams (Ebrahim 2009). For example, Wong & Burton (2000) describe it as a defining quality, whereas Powell states *"it is not a defining characteristic of the virtual team but rather a byproduct of the specialized function they serve"* (Powell 2004: 7). Most studies about virtual teams ignore temporary as a defining characteristic in their definitions (Lurey 2000: 3).

This study also decides to ignore short-term/temporary as a *common criteria* for a number of reasons. One of the benefits that will be discussed later is that virtual teams use dynamic

membership (Townsend 1996). The fact that the membership of a virtual team changes according to purpose and task can easily be mistaken as a sign of a temporary team. However, as Powell points out, the core of the virtual team remains. That core can be composed of only the team leader, the virtual environment of the team and/or other members. Essentially, while some virtual teams are certainly temporary, like the legendary SLICE team of Boeing–Rocketdyne (Majchrzak 2004: 131–133), others merely evolve to fit their new purpose and task, all the while retaining the information heritage of their old incarnations.

Thus, the definition that will be used by this thesis for the term *virtual team* is

> "[Virtual teams are] *groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks."*
> (Powell 2004)

While Ebrahim's definition (2009) is more exact, the previously mentioned concept of temporary as common criteria is not accepted. The characteristics listed in Table 2 (Ebrahim 2009: 1579) are more than adequate for any readers who wish to identify virtual teams.

Virtual teams are not a homogenous entity. They vary according to the purpose, the tools and the environment. Lipnack & Stamps (2000) identify teams on a two-dimensional graph that determines their *degree of virtuality* (Lipnack & Stamps 2000: 62). This graph is shown in **Figure 1.**

Spacetime			
Global	Global Sites	Global Cross-Functional	Global Alliance
Local	Distributed Sites	Local Cross-Functional	Local Alliance
Same Place	Traditional work unit	Co-located Cross-Functional	Joint Venture
	Same Organisation	**Cross-Internal**	**Cross External**
Degree of Virtuality			

<center>⟵   *Organization*   ⟶</center>

Figure 1: Various types of virtual teams (Lipnack & Stamps 2000: 62)

The figure above describes the various types of virtual teams as identified by Lipnack & Stamps (2000). They are categorized according to the two dimensions of *spacetime* and *organization.* Spacetime is concretely the amount of geographical and temporal distance that separates the various members of the team. Local refers to for example teams operating within the same state, while global teams are literally global. The organizational dimension, in turn, describes the distance between members organizationally. Cross-Internal teams operate for example within the same multinational corporation but in different divisions. Cross-External teams, on the other hand, can contain members from completely different organizations. (Lipnack & Stamps 2000: 62–65.)

The *degree of virtuality* measures how virtual a team is. Traditional work units include conventional F2F teams, while global alliance teams exemplify purely virtual teams. The latter faces the greatest challenges of virtuality while also enjoying the greatest potential in uniting knowledge and performance (Lipnack & Stamps 2000: 64–65).

2. BENEFITS OF VIRTUAL TEAMS

Using virtual teams provides an organization a number of benefits (Ebrahim 2009, Townsend 1996, Lipnack & Stamps 2000). These benefits vary in nature and are of course contextual and individual per organization. But virtual teams can in no way be seen as the Holy Grail for organizations, as Townsend (1996) for example presented them in his article. There are numerous examples of how an unprepared organization has decided to utilize virtual teams without understanding them, thus leading to failure (de Pillis 2007). However, when used correctly and in the right context, organizations can see astonishing savings in cost and increases in performance (Majchrzak 2004). Essentially, virtual teams excel in situations that require "*cross-functional or cross boundary skilled inputs*" (Ebrahim 2009: 1579).

When discussing benefits and advantages, it is important to remember that there are always two sides to a coin. Cost savings are a boon to an organization, but they might lead to reductions in employee morale (Robertson 2006). A number of benefits and challenges that will be presented here are interlinked. The aim of this study is to provide the reader with an all-round knowledge of the benefits and challenges of virtual teams from an organizational point of view that aids in decision-making.

This section is divided into two general parts that are then further categorized. *Overall* discusses the organizational benefits of virtual teams. These are the general competitive advantages that probably most influence top management's decision-making. Due to this, they are commonly cited as the greatest advantages virtual teams bring (Ebrahim 2009). *Individual benefits* in turn describe and analyze the benefits an individual employee gains from working with and/or in a virtual team. The fundamental logic is that if the performance of an individual employee is enhanced through enjoyment or efficiency, it also benefits the organization.

2.1 Overall benefits

The overall benefits are sub-divided into *cost, performance, organizational* and *other benefits*. They describe the various areas in which utilizing virtual teams can be beneficial according to contemporary research. The overall benefits are then summarized into a final sub-chapter where their synergy is also discussed. Different managers are interested in different benefits, and for example lean organizations gain less from utilizing virtual teams than traditionally hierarchical organizations. On the other hand, a lean organization has a greater chance of succeeding with virtual teams due to fewer organizational boundaries.

2.1.1 Cost benefits

The most common benefits connected to virtuality in the business world are cost savings. The simple and sound logic behind this is that – if you can perform some job from your computer instead of actually travelling to a certain location – you save a number of costs. For example, CISCO has started to implement their sales conferences virtually and report over 90% savings (or at 10% of previous cost) without any loss in benefits (Diaz 2007).

Naturally, this extends to virtual teams as well, with the reduction in costs receiving a large amount of research (Ebrahim 2009: 1580). Also, it is often most quoted. Global events like the 2008 economic recession will drive top management to search for ways to cut operating costs (Verick 2010), and many might turn to virtual teams for that exact reason. However, if the decision to use virtual teams is only done as a cost-saving measure without any understanding of virtual team challenges, the *virtual gap* (Lipnack & Stamps 2000: 7–8) will lead to disappointing results.

It is important to note that it is impossible to give any standard figures on the cost savings that virtual teams produce. This is due to the wide variety of the types of virtual teams (see Figure 1). The costs of virtual teams are highly situational and context-dependent with

major emphasis on the purpose and size of a virtual team (Levenson 2003: 147). While this means it is hard to predict the financial effects of utilizing virtual teams within an organization, there is a common consensus among researchers that virtual teams, when *created and supported properly*, will lead to reductions in cost when compared to F2F teams (Ebrahim 2009: 1580, Levenson 2003: 148).

The two most common types of costs that virtual teams appear to reduce are *travel* and *relocation costs* (Levenson 2003: 152). They are both products of using communication technology instead of physical movement to communicate and work. Travel costs are generally a benefit of virtual work (Diaz 2007), whereas relocation costs are more specifically connected to teamwork. Travel costs are essentially the costs of collecting team members for face-to-face meetings, while relocation costs are the costs of permanently moving a member closer to the team hub.

One of the most commonly quoted benefits of virtual teams is the fact that an organization can utilize its distributed knowledge more effectively (Townsend 1996). A multinational organization might have its best engineer living in India, while their best Project Manager lives in the USA. The only way to bring these two knowledge workers together has been either through intensive travel or relocation. In either case, costs would be great and other challenges would also arise. The organization might be forced to compromise by not utilizing the best knowledge in their organization merely to save costs. The extent of these travel and relocation costs is determined by the geographical distribution of the team (Levenson 2003: 153). In other words, the greater the *degree of virtuality* of a team, the greater the costs would be in implementing that team as a traditional F2F team. Using virtual teams allows an organization to utilize teams in situations where they would otherwise be too costly (Townsend 1996).

One of the results of the various performance benefits that will be discussed in section 2.1.2 is a lesser Time-to-Market (Ebrahim 2009, Levenson 2003, Lipnack & Stamps 2000). For example, May (2001) observed a decrease of 20–50% in the time-to-market of an

automobile firms supply chain after the chain started using virtual teams. Time-to-market is essentially the amount of time it takes for a product from being conceived to being available for sale to customers. A synonym is *cycle time*. It describes the time it takes for the virtual team to achieve its goals to satisfaction (Levenson 2003: 148). There is a strong correlation between reduction in cost and reduction in time-to-market (Rabelo 2005). A reduced time-to-market also has other customer-related benefits.

The cost benefits listed here are objective overall benefits of virtual teams (Levenson 2003). This means that they do not require any specific action by top management to achieve, but are to an extent a natural benefit of virtual teams. The only criteria are that the virtual team is successful and supported. There are hundreds of valid pieces of work that describe how to create successful virtual teams (e.g. Lipnack & Stamps 2000, Gibson & Cohen 2003), and the challenges associated with virtual teams are discussed in this study. Kirkman (2000) identified five factors that are critical in the success of a virtual team.

- Establishing trust between team members.
- Supporting and training team members in virtual teamwork.
- Creating an appropriate virtual environment.
- A proper selection of team members for appropriate technical and interpersonal skills.
- Creating clear channels of feedback and giving the team clear goals.
  (Kirkman 2000: 70)

Many of these factors have been reaffirmed in other studies (e.g. Lurey 2000).

2.1.2 Performance benefits

While the cost benefits of virtual teams are obvious and well known, researchers have mostly focused on the performance benefits that partially lead to those cost benefits (Ebrahim 2009). All of these benefits are tied to the common characteristics of virtual teams by the degree of virtuality. In other words, the more diverse the team is in terms of spacetime and organization, the stronger these benefits are (Lipnack & Stamps 2000). Naturally, this also applies to the challenges.

The world is filled with stories of seemingly highly successful virtual teams. The Boeing–Rocketdyne SLICE team, which was one-tenth of the size of other similar project teams, managed to

> *"design a reusable rocket engine, called SLICE, in only one-tenth the time span it took to develop its predecessors – and 1% of the actual number of hours. --- it cost millions of dollars less to manufacture* [than previous models]."
> (Majchrzak 2004: 131)

Sabre Inc., a major company in electronic commerce for the travel industry, managed to

> *"improve customer satisfaction ratings each year from a low of 60 percent in 1997 to 85 percent in 2000. In addition, North American market share increased from 43 percent in 1997 to 50 percent in 2000."*
> (Kirkman 2000: 76)

Naturally, such stories have to be taken with a grain of salt, but the numbers are undeniably impressive. While Sabre's fortunes can be explained by other measures the company took, its employees at least felt that virtual teams played a huge role in the success (Kirkman 2000: 77). The greatest way that the SLICE project benefitted from being virtual was that it allowed forming a team that would not have otherwise been feasible due to cost reasons. Instead of collecting a large number of medium talent, the team was formed out of the best in the field and connected electronically. These are just two examples of the beneficial

effects of virtual teams, but Lipnack & Stamps (2000) have recorded and studied a number of organizations that have begun using virtual teams, mostly with beneficial results.

One of the major performance-increasing factors comes from the diversity of the virtual team (Gibson 2003: 408). This diversity creates a number of benefits that increase performance. Performance, in this case, is related to the team fulfilling their objectives. Diversity in teams has always been identified as having a correlation with team creativity (McShane & Travaglione 2003: 269). Since virtual teams cross both cultural and organizational barriers, it can be stated that Global Alliance teams (see Figure 1) are more diverse than traditional teams. This leads to the conclusion that virtual teams are more creative than traditional F2F teams. However, creativity can also suffer if the members of the team are not properly trained to function in the virtual environment (Gibson 2003: 150).

Diversity within virtual teams benefits an organization through a faster and improved decision process. The fact that teams do not have to gather their members physically together to make decisions makes the process faster. A virtual team can quickly adapt to new situations and, accordingly, make decisions faster than traditional teams through the use of communication technology and the virtual environment (Majchrzak 2004, Bergiel 2008, Ebrahim 2009). The rate of adaptation and change can be a distinct competitive advantage in business organizations. Of course, the quality of these decisions can be questioned because communication in virtual teams is lesser than in F2F teams (Lipnack & Stamps 2000, Kirkman 2000, Järvenpää 1999, Ebrahim 2009, see **3.2.1**).

One of the original advantages identified for virtual teams is their dynamic membership (Townsend 1996). Members can quickly leave and join virtual teams so that they become effective members of that team. Traditional teams have a great deal of social history and other such hidden knowledge that is not immediately apparent to a new member. With virtual teams, all the past discussions, decisions and actions are immediately available for review in the virtual knowledge environment. This allows for new members to be brought

up-to-date on the team and its history very fast. It also makes the team much more flexible and adaptable, which in turn translates to performance.

The decisions made by virtual teams are also better implemented (Gibson 2003: 408). If a diverse virtual team of a global organization makes a decision, the fact that the members of the team are spread around the globe also helps implementing the decision locally. For example, when a F2F team in the USA makes a decision concerning its local organization in China, they can only communicate that decision to the Chinese organization and hope that the implementation goes as planned. However, when a virtual team makes this decision, one or more of its members probably represent the Chinese organization. Due to their role in the making of this decision, they can more effectively implement it. Virtual teams allow for more local representation which, in turn, increases the quality of the decisions (Levenson 2003: 148).

While the creativity and quality of virtual teams can be considered as *subjective business outcomes* (Levenson 2003: 147), meaning that they are individual and hard to measure, the fact that virtual teams can work asynchronously is a strong objective statement on their behalf (Levenson 2003, Lipnack & Stamps 2000, Ebrahim 2009). A traditional collocated F2F team works a normal workday, for example eight hours a day. A global virtual team, on the other hand, works asynchronously, meaning that when the workday for some members in Europe ends, the Asian members pick up and continue the work. In an ideal global virtual team, the team works around the clock. It also implies that somebody from the team can be contacted at all times, which improves customer relations (Kirkman 2000). All in all, virtual teams can complete projects at a tenth of the time of an F2F team (Majchrzak 2004).

2.1.3 Organizational benefits

Already Järvenpää (1994: 1) discussed the possibility of *virtual/electronic* teams as the building blocks of future organizations. These future organizations were labeled as network

organizations, which are today a predominant form of organizational structure. The prerequisites of technological development stated by Järvenpää (1994: 2–3) have mostly been fulfilled. While the scenario described (Järvenpää 1994: 4–8) still sounds futuristic – despite that the 10–15 years (Järvenpää 1994: 3) estimated for it have passed – the scenario is surprisingly accurate for a 17-year-old prediction. Virtual teams can be beneficial to any type of organization, but they are most effective in network organizations where

1. *structure will dominate strategy,*
2. *credentials will give way to performance and knowledge, and*
3. *human resources will be the only sustainable advantage.*
   (Järvenpää 1994)

Essentially, Järvenpää refers to networked organizations that utilize knowledge workers as their greatest competitive advantage. These organizations have a well-established flow of information and the structure is free-flowing instead of rigid. This type of organization benefits the most from virtual teams, and organizations that use virtual teams extensively will become such networked organizations due to the characteristics of virtual teams (Järvenpää 1994).

A networked organization might present the ideal organizational structure for virtual teams, but it allows the transformation of traditional organizations into flatter and less bureaucratic, namely leaner organizations (Fulk & deSanctis 1995). The benefits of lean organizations have been discussed extensively in research and will not be restated here. It is suggested that the pinnacle of a lean organization structure is a virtual organization (Qureshi 2001). The greatest benefit associated to these lean organizations is their flexibility, which is also one of the major benefits of virtual teams. This flexibility is a result of increased communication through technological advances (Fulk & deSanctis 1995: 338–339). The organization form described by Fulk & deSanctis (1995) is very similar to the one described by Järvenpää (1994). Since virtual teams increase inter- and cross-organization communication (as will be discussed next), their use allows an

organization to become leaner. Furthermore, they can actually be used as a tool to drive this change.

One of the characteristics associated with virtual teams is cross-boundary communication. This includes crossing *spacetime* and *organizational* boundaries (Ebrahim 2009). A natural benefit of this is that it increases information transfer and learning both inside and through the organization (Levenson 2003: 151). In a traditional organization, expertise and knowledge is spread around and isolated in their respective departments/divisions. Virtual teams break these barriers and connect knowledge together, possibly leading to innovation and new knowledge that would have otherwise been left unfound.

Another benefit of the cross-boundary characteristic in organization terms is that the organization can utilize the best knowledge workers for tasks that would otherwise have been fulfilled by less knowledgeable workers due to cost and/or time constraints (Lockwood 2008: 8). Virtual teams allow for the best to be used, which naturally results in increased performance and quality. Also, since virtual teams crave less time from its members than traditional F2F teams due to dynamic time management, the expertise of a single knowledge worker can be more widely spread around the organization and thus used more effectively (Lockwood 2008). This eliminates slack from the organization since it utilizes the same resources more effectively, consequently turning the organization leaner and more flexible.

2.1.4 Other benefits

There are a number of other overall benefits that cannot be classified in the previous sections but are not important enough to warrant their own discussions. One of these is the increased customer satisfaction that is gained through the faster response times and perceived closeness of virtual teams (Levenson 2003: 149). This is also enhanced by the local representation that was discussed earlier (see section 2.1.2). Because global virtual teams operate asynchronously and with a faster decision making process, they can respond

to customers much faster (Levenson 2003: 148). Combined with the fact that if the market from which the customer hails from is important, then more likely than not the team contains a representative/expert on that market, which then provides extra value for the customer. Of course, the importance of this kind of benefit can be discussed because virtual teams rarely operate directly with customers (Lipnack & Stamps 2000), but as the Sabre Inc. case describes (Kirkman 2000), it can be the greatest benefit in the right situation.

Another benefit that can be deduced from virtual team characteristics is its effect on the organization's brand and attractiveness as an employer. Virtual teams provide its members with more freedom (Ojasalo 2008) because the teams are not physically bound to certain locations. This freedom allows members to better balance their work with their personal lives (Lockwood 2008: 4), which in turn can be an attractive prospect to some potential employees. As Ojasalo's (2008) findings report, such personal freedom is also connected to innovation, but does produce more demands on leadership and organization skills.

One possible direction for future research is the study of the relationship between expatriation and virtual teams. Since expatriates are usually considered to act as representatives and to provide consultation from the mother company to the subsidiary, this could be replaced by virtual teams. Essentially, a local leader of the subsidiary could be included into a virtual team and, through that, he or she could gain the guidance of the mother company. This could provide strong cost benefits for the MNC because expatriation is usually considered to be an expensive prospect.

2.2 Individual benefits

While the overall benefits listed in 2.1 might be the greatest reasons why top management might decide to utilize virtual teams, there also exist benefits to gain from an individual level. These benefits can be seen as either a benefit to the organization directly through increasing individual performance, or indirectly through for example increasing employee

satisfaction. Again, these benefits are context-dependent and individual, but virtual teaming can offer a good substitute to traditional work processes (Cascio 2000).

Section 2.2 is sub-sectioned similarly to section **2.1**. Namely, the benefits are divided into *Performance, Leadership* and *Enjoyment* benefits. The aim of the division is to give a concise and broad idea on how contemporary research views virtual teams as benefitting individuals who partake in them.

Most research on virtual team benefits and challenges focuses on the overall level (Ebrahim 2009). Naturally, some of these overall factors can be considered also as individual factors, but leadership (Lipnack & Stamps 2000) has been the focus when studying virtual teams through an individual's perspective. For example, research about the effects of virtual teaming on employee satisfaction is almost nonexistent.

2.2.1 Performance benefits

As section 2.1 discusses, virtual teams can perform better than traditional F2F teams when properly supported (Townsend 1996, Gibson 2003, Lipnack & Stamps 2000, Majchrzak 2004). This is partially the result of individuals increasing their performance and efficiency in virtual teams, as the following discussion will show. Since many of these are a result of the virtual team characteristics discussed already earlier, they will be only briefly represented.

One of the clearest individual performance benefits of virtual teams is that the team members do not have to travel unnecessarily (Levenson 2003: 147). The time spent travelling is usually time that could have been used more efficiently. Currently, employees can do a limited amount of work while travelling but they are removed from the processes and information flow of the organization. Virtual team members do not have to travel and thus can spend their time more effectively. This also leads to better cost efficiency.

Some researchers have reported that virtual teams experience more task-related communication since they cannot rely on non-verbal or unofficial communication (Majchrzak 2004: 132, Gibson 2003: 408). While it is generally accepted that global virtual teams experience less social communication (Järvenpää 1999) and simultaneous dialogue (Bergiel 2008: 102) due to time zone barriers, the nature of virtual team communication makes it more task-oriented. Clear and good communication is generally accepted as a prerequisite of a high-performance team in both F2F and virtual variants (Bergiel 2008: 100).

The social network and contacts of an individual have always been regarded as highly valuable. It has even lead to the saying "*It's not what you know, but who you know*". The term *social capital* is used to discuss "*the ability to find, utilize and combine the skills, knowledge and experience of others, inside and outside of the organization.*" (Krebs 2008: 38). Social capital has been identified as being comparable to physical and human capital in importance (Krebs 2008). Networking is considered a vital part of social capital and, because virtual teams are networks (Järvenpää 1999), virtual teams can play an important role in the upkeep and creation of individual and organizational social capital (Striukova 2008). Even on the most basic level, the use of virtual teams assists in social capital upkeep because

> *"The strength of the* [social] *tie depends on such factors as duration, intensity and reciprocity of interactions. Strong ties are created by intense and repeated interactions between actors."*
> (Striukova 2008: 105)

As virtual teams cross various boundaries, members experience more interaction with several other networks and individuals that would otherwise be left outside. These interactions, in turn, strengthen and upkeep the social capital of the individual and the organization.

2.2.2 Leadership benefits

While it is generally accepted that the leadership of a virtual team requires a different skill set than leading traditional teams (Lipnack & Stamps 2000), there are some areas in which virtual teams are actually easier to manage and lead. Also, some leadership styles are better suited to virtual teams than others (Purvanova 2009), because virtual teams are significantly different from traditional teams.

Virtual teams experience less conflict, thus leading to a reduced need for conflict management by the team leader. This is due to a number of factors. Firstly, as stated before, virtual team communication is more explicit and task-oriented, which leads to fewer misunderstandings because all communication can be reviewed later on. Relationship conflict is also scarcer because relationships between team members remain more professional due to less social communication. Furthermore, behavior within virtual teams is generally more socially acceptable:

> *"In terms of influence processes, rationality and sanction are used more frequently in virtual teams, and these tend to be the most functional forms of influence. The less popular and socially acceptable influence tactics, such as pressure, sanction, and legitimating, are typically used less frequently because lower familiarity and intimacy serve as gatekeepers to these tactics. --- Cultural boundaries and differences restrain people from using extremely aggressive influence and politics."*
> (Gibson 2003: 408)

Since there is less conflict within virtual teams, an individual's membership in them can become a more pleasant experience.

Transformational leadership is more effective in virtual teams than in traditional F2F teams (Purvanova 2009). Transformational leadership focuses on change and the influence of the leader over the followers. It manifests in leaders as charisma, the ability to inspire, individualized consideration and intellectual stimulation. According to Purvanova's (2009)

study, transformational leaders have a greater influence in virtual teams due to the ambiguity of virtual communication. This leads to situations of *"social and psychosocial uncertainty"* (Purvanova 2009: 352) which make followers more susceptible to a leader's influence.

2.2.3 Enjoyment benefits

Virtual teaming carries a number of enjoyment benefits for the individual team member. In some categories, working as a member of a virtual team can be more pleasant for an individual than working in a traditional F2F team. One of the greatest benefits is the possibility of working from home, thus better balancing an employee's work with their personal time. Obviously, the possibility of this type of activity is limited in scope, but it can lead to workers contributing in new ways towards the organization (Townsend 1996).

Working from home has been a part of the evolution of working – partially caused by virtual teams and virtualization. The evolution can be described in three waves (Johns 2013: 68). The first wave was the proliferation of virtual freelancers: employees not committed to any single organization and often working from their own home and/or office. The second wave is tied closely to the common perception of virtual teams. It emphasized cross-organizational work in a virtual environment while working from home or on the road. Many organizations are still at this point, with IBM having for example 45% of its contractors and employees working from home (Johns 2013: 69). The third wave that is currently rising is the increase of virtual coworkers. In a way, this is a step backwards because organizations started suffering too many synergy disadvantages from the lack of colocation (see **3.1.2**) and started focusing on providing a mutual work place. This has created a hybrid model where employees are working from the same location but are constantly connected virtually to each other and across organizational borders. While the trend is relatively new and there are few studies on its effect on virtual challenges, the potential exists for organizations to gain the virtual team benefits without suffering through the challenges.

Another possible benefit of virtual teams that make them more attractive to individuals is the possibility of being close to critical processes. Usually, if an employee gets transferred far away from the organizational headquarters, their chances of promotion and achievement drop. However, through virtual teaming, members living far away from the headquarters can still be a part of critical projects that allow individuals to present their capabilities and knowledge. While this is in no way comparable to actually working at headquarters, it can still be viewed as an upgrade over the traditional situation.

2.2.4 Summary of benefits

The benefits listed here are the crucible of virtual teams, the reasons why organizations decide to utilize virtual teams in their operations. It is important to point out that a single virtual team is not enough to bring about all of the organizational benefits described in section 2.1.3. All the benefits are also in correlation with the *degree of virtuality* of the team. This means that the more cross-boundary and global the team is, the more virtual team benefits it produces/exhibits.

With the cost benefits described in section 2.1.1, it is important to note that using virtual teams only for cost-saving purposes leads to reduced organizational morale and the probability of failure due to the *virtual gap*. The general consensus among researchers is that virtual teams – if properly created and supported – will lead to cost savings when compared to F2F teams, but they are by no means assured. The greatest amount of savings is gained from *relocation* and *travel* costs. An increased cycle time also contributes because projects generally take less time to complete.

From a broader point of view, most individuals working in virtual teams can find it a very pleasant experience. While this naturally relies on the individual and their preferences, virtual teaming can be a preferred tool for at least task-oriented people. Communication is task-oriented and more efficient, with a noted lack of social conflict. It can be theorized that

if an individual values their work for its social context, they will draw less enjoyment from virtual teaming than others.

Performance-wise, virtual teams also have some benefits when compared to traditional F2F teams. Most notably, virtual teams are more diverse, which translates into creativity. This diversity allows for local representation in a global effort, thus leading to a better quality of decisions and better implementation. The decision-making process is enhanced by the fact that the team does not have to physically gather together to make decisions. Consequently, virtual teams are faster to react to new situations.

Virtual teams function in a virtual environment where all information and data is saved. This allows for dynamic membership without the extended time to get the new member integrated into the team. All past discussions and history are available to the new member, which means that they can get up-to-date on the knowledge base of the team faster than in traditional F2F teams.

Virtual teaming also allows an individual to expand their social network beyond traditional spacetime constraints. This leads to increased social capital which is valuable to both the organization and the individual. Virtual team members can also avoid needless travel, leading to more productive time management and less unnecessary stress. Of course, it has to be emphasized that if an individual enjoys work-related travel, they would not see its reduction as a benefit. Virtual teams also allow individuals to better stay in contact with critical sections of their organization and take part in critical processes, despite being geographically separated. Traditionally, the geographical distance has been seen as a major disadvantage of expatriation, since the individual feels that their chances of advancement and importance have diminished. Furthermore, the organization loses a possibly valuable presence and the individual might become emotionally distanced from the company, possibly leading to the individual moving on to other challenges.

Organizationally, virtual teams produce benefits through their characteristics, and virtual teams have been identified as being an integral part of a network organization. Through their flexibility and cross-boundary communication, they can make the organization flatter and more open. This also leads to increased organizational learning and information transfer which, in turn, fosters innovation. All in all, organizations extensively using virtual teams can use them as a tool of organizational change. The network organization they produce combines a number of benefits from various organizational structures and is currently considered as the most competitive organizational structure.

Finally, performance-wise, virtual teams can work asynchronously which allows for diminished project time and reduces the Time-to-Market of the processes that the team is involved in. Moreover, there is nearly always a member of the team working who can thus quickly react to new situations and be contacted by customers. This directly increases customer experience.

For individuals who want to work and be effective, virtual team membership can be a very valuable tool. On the other hand, individuals who value their work for social and/or other reasons might see virtual teaming as a punishment or disadvantage. This leads to an important fact that is repeated throughout this paper: the success of virtual teams is context-dependent. In the same way that not all organizations can utilize virtual teaming successfully, not all individuals can be effective virtual team members. Keeping this in mind, there are several potential directions for further research. One possible area of research is the study of the correlation between different personalities (e.g. according to the MBTI model) and their enjoyment of virtual teaming.

3. VIRTUAL TEAM CHALLENGES

> *"The virtual organization has different and/or greater challenges than the traditional face-to-face workplace environment, with lines of work crossing over geographies, markets, countries and cultures, alliances, partnerships, and supplier networks."*
> (Lockwood 2008: 1)

In many regards, virtual teams are described as a tool that has tremendous potential but is very hard to utilize (Lipnack & Stamps 2000, Gibson 2008). It requires extensive support in both direct investment and environment. This is why virtual teams face numerous challenges (Ebrahim 2009) that must be overcome in order for them to become an effective part of the organization and produce a competitive advantage.

The challenges are divided in a similar way as the benefits section, namely into *Overall* and *Individual* challenges. This categorization is intended to help the reader compare factors related to similar issues.

3.1 Overall challenges

Similar to section **2.1**, this section will discuss the overall challenges in using virtual teams. The challenges essentially include large-scale consequences that influence not only the individual members of the teams but possibly the whole organization. As with overall benefits, cost-related issues will be a main point and will be discussed in sub-section 3.1.1. Synergy issues, which are usually related to the greatest challenges in virtual teams and directly related to their performance, will also be discussed. As before, a number of subjectively minor challenges will be discussed last.

3.1.1 Cost and investment

Virtual teams are not a cheap tool (Cascio 2000). If established badly and without any support, they can turn into a sinkhole that produces only costs without any benefits (de Pillis 2007). They require significant initial investments and further upkeep in the form of both training and resources. In other words, virtual teams require continuous dedication from the organization and cannot be expected to produce an immediate positive effect (Cascio 2000). There is also little new concrete study on the costs of virtual teams, since the costs vary greatly from country and provider. The sums quoted in this text are based on old studies done in the USA.

The most common objective challenges associated with establishing virtual teams are the original *investment/setup* costs (Levenson 2003). Virtual teams are by nature reliant on technology (Ebrahim 2009, Powell 2004), which means that an organization wanting to utilize virtual teams must acquire the technology needed. The costs of this are dependent on the established technology level of the organization.

For example, the costs associated with equipping a mobile or home office for virtual teamwork cost $3000–$5000 (Cascio 2000: 82). However, those numbers are for the year 2000, and for example e-mail and videoconferencing has become much more common and thus cheaper to utilize after that. According to the same study, if one takes into account the upkeep costs and the savings gained in rent and other office-related costs, a virtual team member essentially starts producing savings 3–5 years after the original investment (Cascio 2000). These costs do not include the costs of training employees to use the technology efficiently. This sort of training is established to be a very important factor in virtual team success (Lurey 2000: 10).

Virtual team upkeep is also composed of objective costs (Levenson 2003: 487). As with any technology-based process, upgrades and maintenance are required. For virtual teams, this was estimated to be around $1000 per individual annually (Cascio 2000: 82). There are

also support costs, such as an online technical support/help desk for employees. Furthermore, due to developments in technology and new upgrades, team members are required to be trained to proficiency with this new technology, thus increasing upkeep costs.

The training of employees is useful in other ways as well. Since virtual communication as a medium is not the most natural choice for most individuals, upkeep training by the organization makes people more comfortable in using electronic communication as the primary form of communication. If an organization really wants to commit itself to the performance and usage of virtual teams, it could make virtual communication an integral part of its organizational culture and even eventually evolve into a virtual organization. Consequently, workers would use the virtual medium as a natural way of communicating, thus reducing friction in communication in virtual teams. There are already some examples of this. The most telling factor of an organization's evolution is the fact that organizations are starting to design office spaces with virtual work in mind (Johns 2013: 71). Instead of office space being used for storage, the emphasis is being placed on colocation to offset certain virtual disadvantages like negative effects on the culture of the organization.

3.1.2 Synergy losses

Synergy is usually the reason why organizations use teams. Combining and organizing individual effort and skill towards a mutual goal is what teaming is about. Ideally, a team is more than the sum of its parts. Essential to this synergy is communication between different members. This is where the electronic communication of virtual teams again creates challenges, because a number of team synergy benefits are lost in virtual teams due to this. It can also make cooperation between the virtual teams and the rest of the organization harder.

3.1.2.1 Team synergy

Conventional wisdom states that a great deal of innovation is the result of so-called water cooler discussions and chance encounters between individuals. As earlier stated, people use F2F communication as their preferred medium for communication due to the amount of information transmitted in body language. If this ease of communication is removed from F2F teams – as it is in virtual teams – they lose a lot of their positive synergy effects. These effects are exactly the water cooler discussions and chance encounters that lead to innovation. (Kirkman 2002: 71.)

Furthermore, virtual teams can also experience negative synergy effects (Kirkman 2002: 71). In other words, instead of functioning better than the sum of its parts – like a traditional F2F team should – it might not even function **equal** to the sum of its parts. Essentially, a virtual team might produce less than the combined effort of its members. This is naturally an annoying proposition to profit-oriented organizations, since it would mean that not only would the initial investment be lost, but it would have actually harmed the company.

One of the stated benefits of virtual teams is dynamic membership (see **2.1.2**). While this aspect of virtual teams has received less attention in the form of empirical research, some effects can be theorized. For example, if a virtual team is involved in tasks that change often and thus require a varying skillset from its members, it is more than likely that the team will change its members on a regular basis. This leads to a state of perpetual change and to members always having to reintegrate themselves with new members. This, combined with possible communication problems, can lead to losing very much of the traditional synergy benefits in teams.

Studies have also been conducted on the potential imbalance within virtual teams regarding membership (Privman 2013). Some members of a virtual team can be collocated while others can be distributed in spacetime, leading to the possibility of the collocated members

communicating and cooperating more with each other. This, in turn, can lead to the distributed members experiencing unhappiness and to a so-called Us vs. Them effect (Privman 2013: 45).

3.1.2.2 Organizational synergy

While team synergy is important for the success of the team's main goals, modern organizations are not based on and do not support isolated individual teams. Instead, individuals can be members of a number of different teams. Also, various parts of the organization are meant to support each other. This is referred to as *structural distance* (Erskine 2009: 12) and can be thought of as organizational synergy. Organizations have started to move from models that increase structural distance, like the divisional organization structure, to more synergy-producing versions.

It is important to note that team members may not share the same social environment because they are usually distributed in spacetime (Erskine 2009: 12–13). They can be from different organizations, different cultures and different fields of work. The members can find it hard to have something in common, which can lead to problems in communication. It reduces trust (Järvenpää 1999, Kirkman 2002: 69–71). A shared social medium is also important in the synergy between a team and the rest of the organization. In the same way that distributed team members can feel isolated (Kirkman 2002: 72), virtual teams might be structurally more distant from the rest of the organization due to different social environments.

This effect can be countered by finding something in common between the various members and the organization: for example, the vision and mission of the organization (Erskine 2009: 12) can unify the team. Another possibility, though not researched, is the influence of organizational culture. Organizational culture is influenced by a large number of factors, but if all members of the virtual team are a part of the same organization, they should experience the organizational culture in a similar way. This, of course, depends on

the strength of the culture in the organization and how much variance is found in for example different divisions. For cross-organizational virtual teams, the team leader can emphasize the team's purpose.

Another way in which virtual teams can influence the rest of the organization is by becoming a cost saving measure, although this could have a negative influence on organizational morale (Robertson 2006). While the underlying reasons for this are unproven, it can be theorized that the leap from normal social communication to electronic communication is a negative experience for most people, and individuals will blame the organization for making negative changes merely to save money. In this type of a scenario, virtual teams would automatically have a negative stigma on them from the beginning and would thus be less likely to succeed.

Another way virtual teams and virtualization in general can have a negative influence on organizational morale is through presenteeism. As stated previously, most critical processes transpire at the company headquarters and, subsequently, it is beneficial for the employees to be a part of or proximate to these processes. In a way, employees can be afraid of being forgotten by management. Presenteeism describes the situation where employees feel the obligation to come to the office – only to be present and to be seen – even though they can work effectively from home.

3.1.3 Other challenges

There exist a number of other challenges that have not yet received much empirical research and can only be theorized based on virtual team characteristics. These include problems with customer relations and problems organizations have in using virtual teams.

As was previously stated, one of the identified characteristics of virtual teams is that they are often temporary and use dynamic membership. While this is one of their advantages, as discussed in section 2.1.3, it does have its drawbacks. If virtual teams are in direct contact

with customers for longer periods of time, perceptions of the lack of permanency, reliability and consistency might appear (Järvenpää 1999: 792). An analogy of this could be calling your company's supplier and always having a different person answer the phone.

The fact that a customer rarely can meet the whole virtual team directly emphasizes the aforementioned perceptions. Especially with global virtual teams, the costs of gathering the virtual team together for a customer meeting is usually the reason why the company has resorted to using virtual teams in the first place. As a result, customers might also be forced to communicate electronically if their representative is the virtual team. For some customers, this might even be the preferred mode of contact, whereas others enjoy F2F meetings.

Virtual teams are a relatively new phenomenon for organizations. Most often, organizations make the mistake of treating them in a similar way as F2F teams. While some of the supporting processes designed for traditional teams also work with virtual teams (Poehler 2007), they do require some modification and are usually not sufficient. Organizations have a tendency to consider virtual teams as traditional teams with a technological component. When faced with problems, organizations then focus on the technological component. For example, if there is a problem in trust creation (which is common) the organization might mistakenly invest in improving the communication technology (Lurey 2000).

3.2 Individual challenges

As has been stated a number of times before, virtual teams force its members to adopt a mode of communication that is unnatural to them. While this leads to certain benefits, it can be seen by many people as a challenge that needs to be overcome instead of as an opportunity. This is especially true for leaders. A large number of studies place leadership challenges as the greatest challenges faced by virtual teams (Järvenpää 1999, Lipnack & Stamps 2000, Ebrahim 2009). The greatest singular issue is trust creation.

While the following challenges are **individual challenges** (i.e., the challenges individuals face), it does not leave the organization without a role. The majority of these challenges are dependent on the individual. For example, some enjoy working alone through a computer, whereas others require social context (Hunsaker 2008: 87). Support from the organization can obviously play a key role in overcoming these obstacles, although it is the individual who faces these challenges.

3.2.1 Leadership challenges

Leaders of virtual teams require other qualities than leaders of traditional F2F teams. Some leadership styles are more effective in virtual teams, such as transformative leadership (Purvanova 2009: 352), while leaders relying on *personal charm* are less effective (Lipnack & Stamps 2000: 45). Leaders relying on their personal charm are unable to convey it through the electronic medium. The nature of virtual teams forces all team leaders to change their way of leading (Purvanova 2009: 352), with some making a positive and others a negative change in terms of effectiveness. Traditional team leaders can be successful with virtual teams as long as they learn to project their good leadership qualities also virtually (Kayworth 2001: 30).

One of the main characteristics of virtual teams, especially global ones, is the diversity among their members. As a consequence, virtual team leaders will have to improve themselves at cross-cultural management (Ebrahim 2009: 1581). This is also compounded by the fact that diversity is one of the greatest benefits of virtual teams in terms of innovation (see **2.1.2**). It is through effective cultural management that trust is built in a virtual team, and this prevents geographical and organizational distance from becoming a psychological distance (Järvenpää 1999: 792).

Järvenpää did an explorative study in 1999 about the existence and development of trust in virtual teams. Previously, it was thought that trust could not appear in virtual teams due to

the lack of physical contact resulting from both the large distances between members in virtual teams and a different medium of communication. Järvenpää's study (1999) showed the existence of trust but came to the conclusion that its creation is more challenging than in traditional teams. Essentially, teams that had a high level of trust were better equipped to face the challenges of the virtual environment, leading to better results.

Järvenpää tied the concept of *swift trust* to virtual teams. In essence, due to the finite average lifetime of virtual teams, trust would have to be created very fast. As in traditional social contact, first impressions are very vital. According to Järvenpää's results (1999), few teams could move from a low-trust situation to a high-trust situation in their brief lifespan. A virtual team leader can create swift trust from the start through clarity in both communication and operation, and by handling possible conflicts effectively and proactively. Throughout projects, leadership has to be more task- and process-oriented than with traditional teams. Emphasis is placed on the ability to delegate responsibility to various members, since monitoring is practically impossible (Lipnack & Stamps 2000). Having trust helps with this delegation.

Conflict management is also a challenge for virtual team leadership. While research shows that virtual team communication is more fact- and task-oriented, leading to fewer conflicts, the conflicts that arise are usually harder to defuse. This difficulty arises from the fact that, most often, leaders cannot meet the problem. Instead, they have to rely on electronic communication with all of its deficiencies. Especially inter-personal conflicts can be hard to solve.

The role of a team leader in virtual teams is different from the role of a traditional team leader. It emphasizes skills like communication, but renders other attributes like personal charisma less important. This is evident also in the fact that virtual team leaders are usually assigned to the task, instead of emerging naturally (Sivunen 2010: 5). The assignment of leaders can lead to some issues, because assigned leaders might not have the full

confidence of the team behind them. They might also lack the virtual skills necessary to be successful leaders, since their merits might have come from traditional team leadership.

Within virtual teams, leaders are more responsible for organizing and administrating the activities within the team (Sivunen 2010: 22). They can be the only real link between a team member and the virtual team as a social identity, facilitating identification with the team. They have to be active communicators and be able to motivate the team members. In other words, the team leader has to be more task- and process-oriented (Järvenpää 1999), an organizing presence. The skills in leadership and mentorship are more critical than concrete skills (Sivunen 2010: 23).

The role of the team leader in a virtual setting can also be made more difficult through the use of deceit, which studies show has a greater role in virtual teams than in F2F teams (Marett 2012: 104). While the amount of deceit observed is not significantly different than in normal teams, the success rate of deception is higher. As a result, the deceit influences the team's actions more. It can be theorized that the unfamiliar communication medium can make it harder for other members to notice deception, although the cause of the higher success rate is unclear.

3.2.2 Unhappiness

Virtual teams are not a suitable form of teamwork for everyone due to the lack of social contact (Erskine 2009: 13). With little or no social interaction, team members can feel isolated and out of the loop (Kirkman 2002: 72). For many people, the social environment of their workplace can be very valuable, even bringing value to the job. Obviously, virtual teams vary in nature. Sometimes a virtual team membership can be a secondary or even tertiary task to an employee who for example functions as a representative of their division. For others, virtual team membership might be their primary work-related social environment, for example when an employee works from home or travels constantly. It is

the latter group that suffers the most from feelings of isolation. This is also related to individual personality (Kirkman 2002: 73).

The first stage in dealing with this challenge is through team member selection. Employees should be given the option to decline from virtual team work if they find it socially stressful. Secondly, leaders and managers should strive for strong communication with the members who have the strongest chance of isolation. It gives the members the feeling that they are in the loop. If isolated members are left out of the team processes, it can lead to an Us vs. Them situation in decision making (Privman 2013:44). As a result, the majority within a virtual team might make decisions among themselves without involving the minority members into the discussion. Usually, the majority is collocated and can possess similar cultural backgrounds. The issue has less chance of rising in global alliance teams where all the members are distributed.

As already mentioned earlier, personality can have an influence on the satisfaction of virtual team work. While there is no definitive research on the correlation between various personality metrics and working virtually, it can be theorized that individuals who do not enjoy traditional teamwork due to the social contact might better enjoy working virtually. It could even be a way of helping socially alienated employees. A target of possible future research could be studying if there is any correlation between for example MBTI personality groups and virtual team enjoyment.

3.2.3 Summary

At the outset, virtual teams usually require significant initial investment in the form of both technology and training. This is especially true for an organization that does not utilize electronic communication to a significant degree. These costs are significantly higher than when creating traditional F2F teams. Furthermore, virtual teams require significant upkeep, again both in technology and training. This also leads to the risk of seeing virtual teams as an inherently technological process, instead of as a team process. Companies can end up

trying to fix problems just by investing in better technology even though the problem would be human-related.

Synergy is also a significant challenge in a virtual team. Internal synergy will be discussed in the following section, but virtual teams also face challenges with organizational synergy. The team does not exist purely in one geographical or social location and, as a result, it can become distant from the rest of the organization. One of the big benefits of virtual teams is that they cross organizational boundaries and reduce structural distance, but if the organization does not actively support the team it can end up structurally separate from it; the organization would not know what the team is doing and vice versa. This has also individual synergy and trust effects.

The new and different medium of communication can lead to some individual challenges in being a member of a virtual team. This applies to both members and leaders. Since communication is different, different styles of leadership must also be applied than with F2F teams. Transformative leadership is one that is shown to be more effective. Furthermore, leaders will have to contend with more cultural diversity and thus have a better grasp of cross-cultural leadership.

The issue of trust is more important in virtual teams because members cannot see each other and do not share the same social environment. Therefore, lack of empathy and trust easily develops. The problem is exaggerated by the fact that the leader cannot physically communicate easily with anybody, so the members cannot even trust that the team leader makes sure everybody does their share. Studies show that once this trust is lost within a team, it is very hard to regain.

3.3 Summary of benefits and challenges

Table 3: Benefits and challenges summarized

Benefits	Challenges
- Cost savings - Faster decision-making - Dynamic membership - Time efficiency - Asynchronous work - Global work pool - Diversity - Better life/work balance - Local implementation and representation - Task-oriented communication	- Require continuous upkeep - High initial investment - Us vs. Them - Harder trust creation - Higher structural distance - Cultural issues - Conflict management - Different type of leadership required - Harder to identify deceit - Less social

Table 3 summarizes the main benefits and challenges as found by the literary review of contemporary theory. Each statement is supported by a relevant study and has been further discussed in previous sections. Some of the statements have received more research attention than others. For example, virtual team leadership and cultural challenges have been the focus of a number of researchers, whereas the ROI of virtual teams has received less attention. This means that the field of virtual team research has an imbalance in the topics it focuses on.

4. METHODOLOGY

While the theoretical review of past studies and theory builds a solid foundation for research, it is the actual research design used by the researcher that creates new value. The design and methods of this study were briefly described in the Introduction, but this Methodology section will be used to thoroughly explain the design and methods and to state the reasons for their choosing. This will include discussing data collection, data analysis, the sample and the reliability and validity of this study.

The chosen research design has to reflect and support the objectives of the research, the aim. The aim of this study was to **investigate the opinions of current top business management personnel on virtual teams and their benefits and challenges,** and to compare the findings with contemporary theory. This aim influenced the choice of methods for data collection and analysis.

4.1 Data Collection

Since the aim of this study was to explore top management viewpoints, it was decided that the best form of data collection would be through a semi-structured interview (Saunders 2012: 374) with a thematic emphasis on virtual teams. These interviews were conducted one-to-one and face to face, except for one interview. A standard set of questions (See **Appendix A**) was prepared for all interviews, with questions regarding management experience, type of organization and current roles. Each interviewee was also asked for their definition of a virtual team. For questions regarding benefits and challenges, a more unstructured approach (Saunders 2012: 375) was used, but with initial questions standardized. All except one of the interviews were conducted in English (the one exception was conducted in Finnish). The interviews were recorded audio-only and were transcribed afterwards. The Finnish interview was translated into English by the researcher and checked by a professional translator for factual mistakes.

The sampling method used was *purposive sampling* (Silverman 2000: 104). The method was chosen due to a restriction of resources and the small size of the chosen population. Top management only usually form a small percentage of the work force of an organization, and the researcher wanted to investigate multiple organizations to avoid bias in the results. A decision was also made to focus on MNCs because of there being a higher probability of them using global virtual teams (Lipnack & Stamps 2000: 62). The researcher was restricted geographically to the western coastal area of Finland, thus limiting the population even more. While purposive sampling can lead to some bias, it helps in maximizing limited resources.

The choice of the semi-structured interview method is closely related to the discussion between qualitative and quantitative research. This study was identified as a *descripto-explanatory study* (Saunders 2012: 171) because it seeks to test existing theoretical perspectives and is a deductive study. Such studies tend to benefit most from structured or semi-structured interviews (Saunders 2012: 377) which are a form of qualitative research. Other areas of interest in this study were opinions and meaning; i.e. data that is hard to numerically represent. These opinions concerning benefits and challenges influence a top manager's decision on whether to use virtual teams or not. Since the data that the research is trying to determine is hard to quantify, it is justifiable to use qualitative methods.

In quantitative research, sample size has a larger impact than in qualitative research in order to ensure the generalizability and, as a result, the validity of the data. Usually, a sample size of 50 is quoted as the limit. Due to the aforementioned limits on population size, it would not have been within the study's resources to gain access to 50+ top management personnel, even only for a questionnaire. Such a questionnaire could also not produce the desired type of data. Instead, it was decided to conduct deeper interviews which could produce interesting data.

4.2 Data Sample

Fifteen different top management members from various companies were contacted via e-mail. The e-mail introduced the researcher, described the study and requested an interview. The fact that all answers would be dealt with confidentially and anonymously was emphasized. Strong focus was also placed on not defining virtual teams in any way in order not to give answers beforehand. Out of 15 contacts, six responded affirmatively and five were interviewed. The high refusal percentage can be explained by the difficulty of contacting top management personnel and getting an interview due to the high demand on their time.

Table 4: Data sample demographics

ID #	Position	Management experience	Organizational size (current)
1	CEO, retired	+30 years	Large MNC
2	Regional Chief of Procurement	15 years	Large MNC
3	CEO	25 years	Small MNC
4	Head of HR	33 years	Large MNC
5	Chief Services Manager	30 years	Large MNC

In the sample:

- All of the interviewees were male and over 40 years old.
- All had significant international experience, either within Europe or globally.
- 80% of the organizations were large MNCs.
- 80% of the organizations were manufacturing companies, 20% financial.
- In average, the interviewees had 25 years of managerial experience.
- All of the companies had significant international cooperation on an internal level and used virtual teamwork in some form.

4.3 Analysis methods

All of the interviews were transcribed electronically by the interviewer following the guidelines set by Saunders (2012: 550). The interviews were transcribed within two weeks of the interview. All unassociated sounds were removed, and names and other statements that could be used to identify the interviewee where replaced by generic titles. The interviews were also coded to preserve the anonymity of the interviewees. During the interviews, notes were made by the interviewer for contextual data (Saunders 2012: 553). The focus was on first-hand impressions and situational analysis of what was said.

A conscious decision was made to omit some contextual information from the transcriptions, such as notes on tone, pauses and other behavioral markers. This was done due to the subjectivity of such information. While the interviewer might associate a pause in speech to hesitancy, another person might see it just as a moment to collect your thoughts. Such behavioral markers also vary quite strongly from person to person in their meaning. A person might talk fast if he or she is excited, whereas for another person it is merely his or her normal way of speaking. Analysis on such data would be too subjective to be of significant use to the research.

After each transcription, a transcript summary was written for each interview (Saunders 2012: 554). The summary followed the basic structure as outlined in **Appendix B.** This was done in order to easily summarize each interview and allow for quick comparisons. For this summary and a later categorization, the transcripts were color-coded highlighting data related to key terms (such as challenges, benefits and definitions). The highlighting also aids in visual analysis.
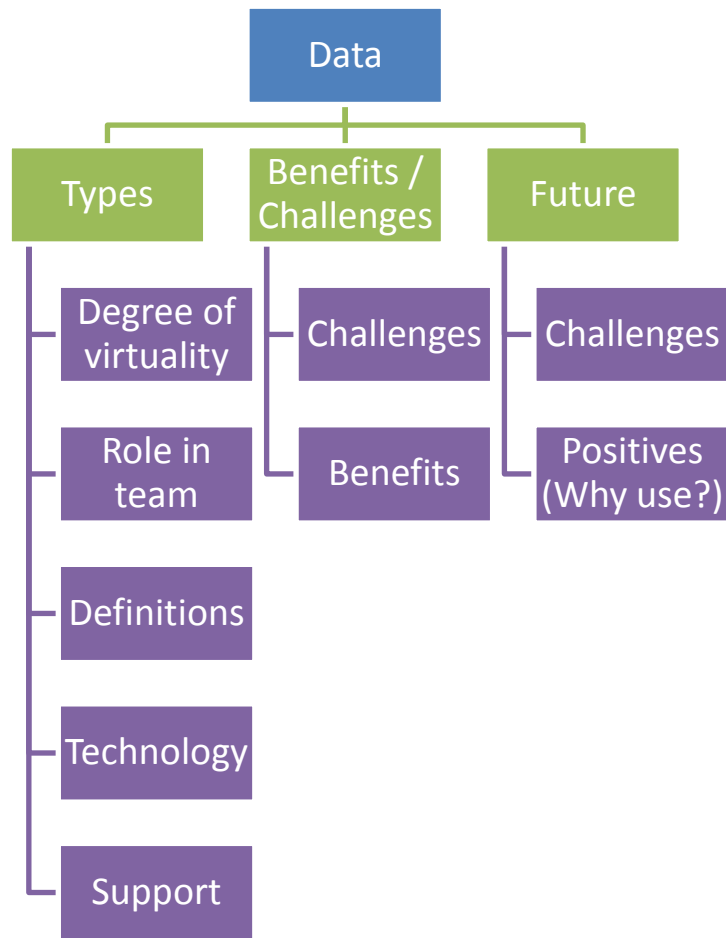
Figure 2: *The categorization of data*

After data-mining and color-coding the transcriptions, the data units were categorized according to Figure 2. The categories were chosen to reflect the focus of this research, namely the benefits and challenges of virtual teams. The main result of this study is to explore what are commonly thought of as the benefits and challenges of virtual teams by top management, but studying their experiences with different types of virtual teams and comparing those with the stated opinions can lead to some interesting conclusions. Furthermore, all the interviewees were asked on how they viewed the future of virtual teams. These questions are of secondary importance, but they can nevertheless give some interesting insight.

The **Types** category is for concrete data units. What type of virtual teams the interviewees have been a part of, what roles they played and how were they supported, both in technology and training. These categories provide context for the primary data units, namely statements and experiences about **benefits/challenges**. Finally, the third category group, **Future**, can give insight on how the interviewees experienced virtual team potential, and it can also provide topics for future research.

4.4 Validity, reliability and ethical conduct

Validity is defined as *"the extent to which data collection method(s)… accurately measure what they were intended to measure"* (Saunders 2012: 684). A research needs to be valid in order to be able to draw conclusions from the research data and answer the research questions. There are three types of validity: *construct*, *internal* and *external* validity. From these three, construct validity and external validity are more important in this study. Internal validity is important in causal or explanatory studies (Saunders 2012: 193), but not in an exploratory or descriptive study such as this because it does not attempt to establish relationships between variables.

Construct validity focuses on data collection methods and is the most quoted form of validity. In this research, the focus point of construct validity is the questionnaire because it is the main form of data collection. Because this is a qualitative research using semi-structured interviews, the questionnaire questions were usually accompanied with other questions that were not planned beforehand, and answers to these questions were often expanded upon with further questions. Due to this, assessing the construct validity of the research is difficult because construct validity is primarily a quantitative research term. As such, we can only state qualitatively that the focus of the interviews was on the benefits and challenges of virtual teams, with numerous different questions to the interviewee about virtual teams from different viewpoints.

Finally, external validity focuses on the generalizability of the research findings (Saunders 2012: 194). This is crucial in order for the research to have any credibility. Some of the limitations in sampling were discussed earlier, and those influence the external validity negatively. Purposive sampling is a valid form of sampling but, nevertheless, it does not lead to the sample being representative of the whole population. Accordingly, the results of this study cannot be generalized to the whole population. However, it can be argued that the sample is representative of Finnish top management. While the sample size is not representative from a quantitative standpoint, participants in the sample had experience from the largest Finnish-based MNCs that are also most likely to use virtual teams to a significant extent. The population of large Finnish MNCs is so small that the sample could be considered representative. The results also seem to be very consistent with each other, thus making the study externally valid at least in a Finnish context.

Reliability measures essentially the impact of the researcher on the results. Would another researcher, if given the same design and data, make the same conclusions? It is important that the research design and process are transparent and lack researcher and participant bias. While the methodological standards are less strict in qualitative studies from a statistical point of view, care was taken in this research to be as coherent as possible. All interviews were held in private rooms and performed anonymously in order to reduce possible participant bias. One source of possible participant error was the language used. English was used in all interviews except for one and it was to all participants a secondary language, not their mother tongue. This could lead to participant error because the participants used a language that they might not be as comfortable with, but none of this was detected during the interviews by the researcher.

Ethical conduct is always an important part of a study, and this study has followed the ethical guidelines as set by the University of Vaasa. Focus was placed on respecting the interviewees and their privacy. All participants gave their informed consent before the interview via e-mail, before which they were told the topic and aim of the study and how their responses would be used. All data gathered from the interviews was coded and edited

for anonymity and confidentiality. The original interviews were digitally deleted after they had been transcribed and checked. Each participant will receive a summary of the study and its results after analysis via email, and they have the opportunity to ask any questions or voice any concerns.

5. RESULTS

The data produced by the study will be shown in this section. Five in-depth interviews were conducted, transcribed and mined for data. This section concentrates purely on the presentation of results; the analysis and conclusions drawn from the data will be discussed in the next chapter. The data has been categorized according to Figure 2, and the results can be seen in Figure 3. In the figure, the amount of data for each category is counted. The categories are based on the data found, therefore no empty categories exist unless the lack of data in the category is significant from an analytical point of view. The subcategories are based on the data obtained and while a number of the challenges for example might share the same cause, they differ from each other in emphasis and result. The subcategories were also chosen with the theory in mind to make comparison easier. The bolded number in each category signifies the amount of data hits in that category.
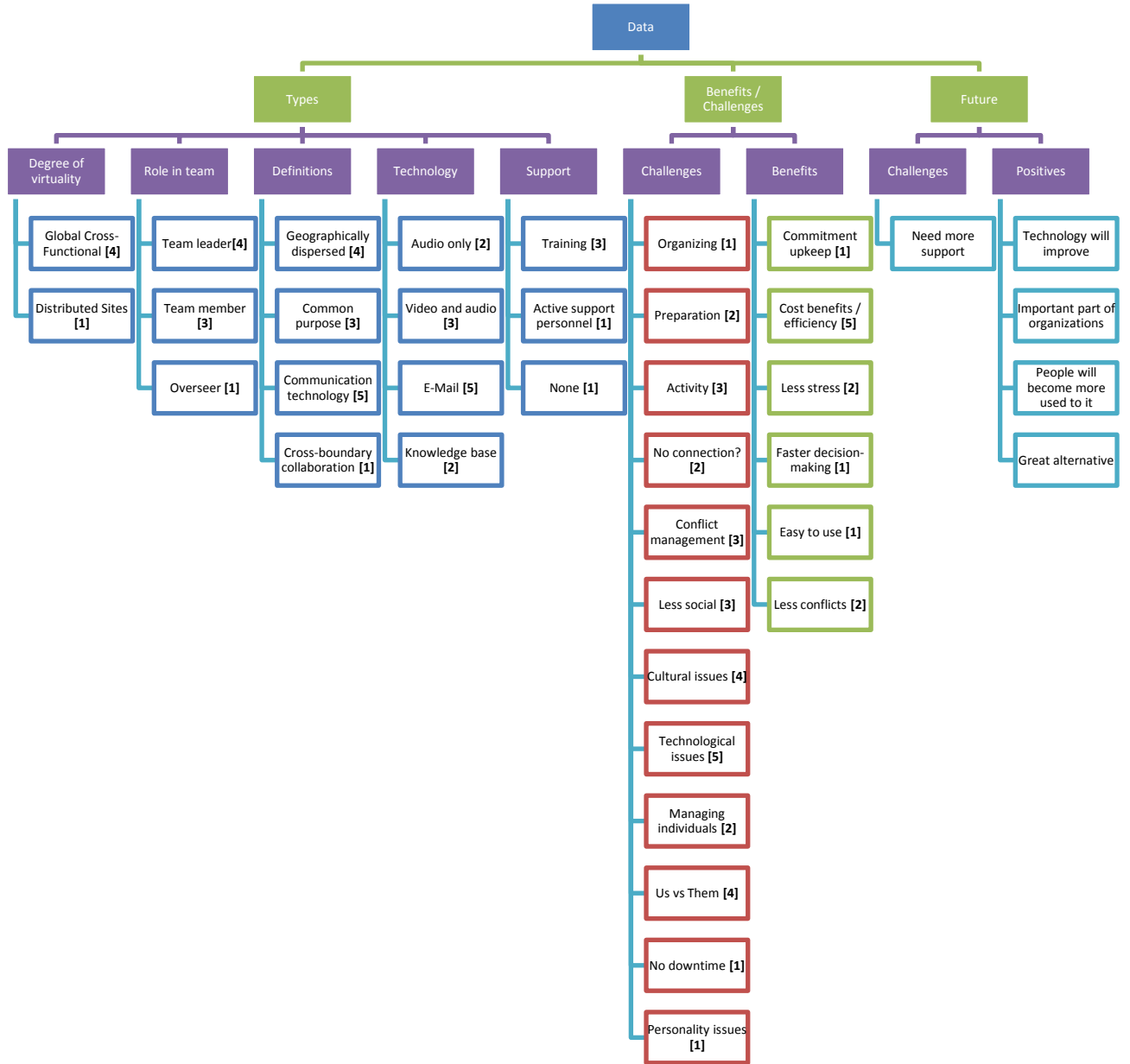
Figure 3: The data of the study categorized

As can be seen in Figure 3, almost all of the interviewees had experience in global cross-functional teams. The interviewees had experience in different types of virtual teams, but instead of listing all of them, only the ones with the highest degree of virtuality were chosen. For example, everyone who had experience in global cross-functional teams had also worked with global sites teams, but in order to keep the analysis simple only the highest degree of virtuality was recognized. All the teams used monthly to bi-yearly face-to-face meetings to support the team. Because of that, none of the interviewees worked in purely virtual teams.

The roles of the interviewees in their respective virtual teams were mostly managerial. This was to be expected because all belonged to top management. Four had worked as team leaders, and one of the interviewees had experience only as a team leader. The three others worked as team members. One of the interviewees had only functioned as an overseer to virtual teams. In other words, the person did not directly work as a team leader, but instead a number of teams reported directly to him.

The definitions used by the interviewees varied. The categories are based on the primary characteristics of virtual teams as identified by Ebrahim (2009: 1579). The secondary characteristics were ignored due to lack of data and small analytical significance. Here is an example of a transcribed definition

> *" Well to my mind comes that it's teams working in different parts of the world and to cooperate and to work with a team, create some technologies, well not to create but it uses some technologies that allow to be in contact when necessary or when needed."*

All of the interviewees mentioned communication technology in some form or another in their definitions. All except one also mentioned that virtual teams are geographically dispersed. These are the essential characteristics of virtual teams from an empirical point of view. 60% remarked on the mutual purpose a team must have to be a team, while only one recognized the cross-boundary characteristic of virtual teams in their definition. This is not

significant, since the cross-boundary characteristic refers to both state boundaries like borders, organizational boundaries and cultural boundaries, which are also implied in the geographically dispersed characteristic.

Almost all of the virtual teams the interviewees were a part of used video technology. The trend seemed to be that important meetings were performed via video connection, whereas smaller reports and daily updates were done using audio-only meetings. All of the teams also used e-mail, although it was stated numerous times that e-mail only works for sharing information, not discussing. Two of the interviewees had been part of teams where only audio was used. One of these was in the 90's when video technology was not that common. Only two members had gained experience of advanced knowledge base technologies in their virtual teams.

The interviewees noted that there was a distinct lack of support in the virtual teams. All teams received some kind of technical support in the form of courses or training, but only one interviewee had participated in courses where the cross-cultural issues of working in virtual teams were discussed. One interviewee had not received technical training.
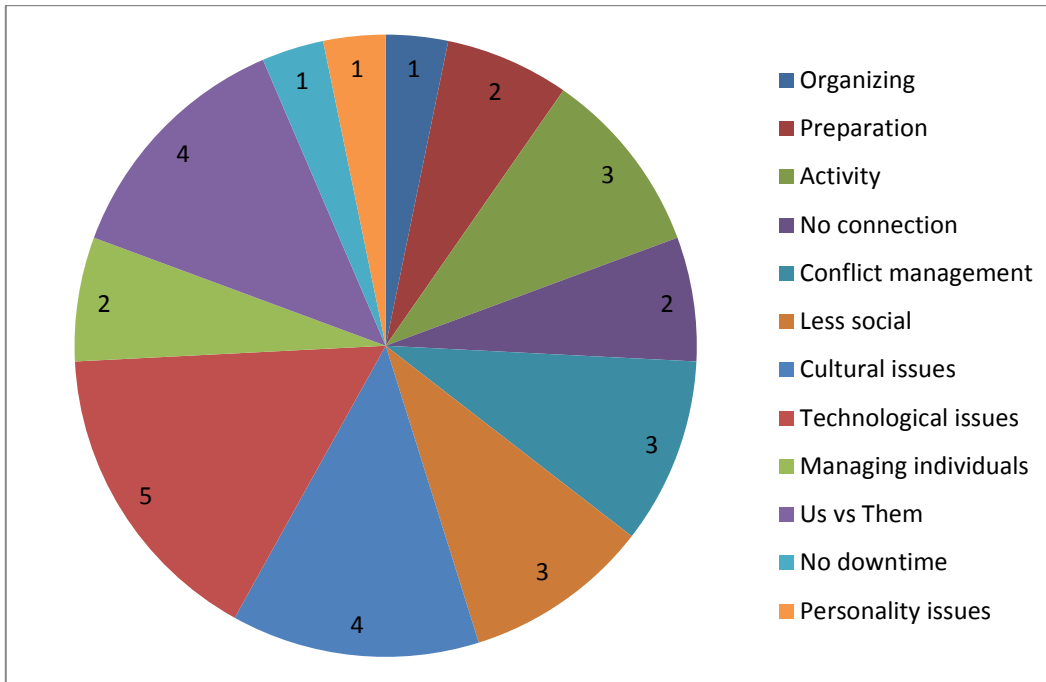
5.1 Challenges

Figure 4: The distribution of challenges

Figure 4 opens the challenges section of Figure 3. In the figure, we see the distribution of answers in different types of challenge categories. The numbers refer to the amount of mentions or referrals found within the interviews. The first two, **organizing** and **preparation**, refer to similar issues. Organizing relates to generally organizing a team's activities and communicating them to the team members. It was seen by one interviewee as significantly more difficult than with traditional teams. Preparation, in turn, refers to the preparation for virtual meetings, and 40% of the interviewees felt that virtual meetings required more and better preparation.

Activity refers to member activity. At some point, three of the interviewees expressed the opinion that it was harder to keep a level of activity and be active in virtual teams than in traditional teams. The lack of activity was most apparent in team meetings where, in a worst case scenario, the meeting could turn into a one-person monologue while the others

focused on their own things. The lack of activity was also manifested by not hearing from team members for a long period of time. **No connection** refers to a managerial issue but can be extended to something also the team members can experience. Essentially, it means that people involved in virtual teams feel like they cannot form a connection to other members of the team. It is especially hard for managers to try to form connections to their own employees. One interviewee remarked that *he would find it impossible to have a direct employee whom he could never meet.* Development discussions were stated as an example of a tough situation.

Three out of five referred to **conflict management** as being harder in virtual teams. While it was generally implied that conflict did not arise as easily, dealing with the said conflicts was perceived as more difficult. Especially conflicts regarding individuals and situations where one would have to give negative feedback to employees were seen as harder. All except one stated that they would rather deal with conflicts face to face. Three persons also felt that virtual teams were **less social** than face-to-face teams, especially due to less social discussion during the meetings.

Four interviewees mentioned **cultural issues** as being a major challenge in virtual teams. Cultural issues surfaced often when discussing communication and how it is harder to communicate using voice or video with a person from an unfamiliar culture, and how cultures seem to vary strongly in the way they communicate virtually, especially compared to how they communicate face to face. All of the interviewees had experienced **technological issues** (e.g. poor and unreliable connections) when using virtual teams.

Managing individuals is similar to **no connection**, but deserves its own mention. Two of the team leaders highlighted that individual management is harder in virtual teams. Due to similar reasons as in conflict management, the interviewees felt that it was tougher to have meaningful and productive discussions with individuals via video and/or audio. **Us vs. Them** refers to the phenomenon when distributed teams form sub-groups inside themselves

for example along majority/minority lines or based on geographical location, and then base their actions according to these sub-groups. Four of the interviewees had experienced this.

Finally, one interviewee mentioned the **lack of downtime** when working heavily with virtual teams. Usually when travelling it is possible to rest during the travel time, but the stay at one location while participating in multiple different teams means that there is no time to reflect and relax, unless one specifically schedules time for it. Another interviewee highlighted the **personality issues**, namely that not everybody seems to function well in a virtual environment. Especially people lacking in social skills were stated to be harder to communicate with in virtual teams.
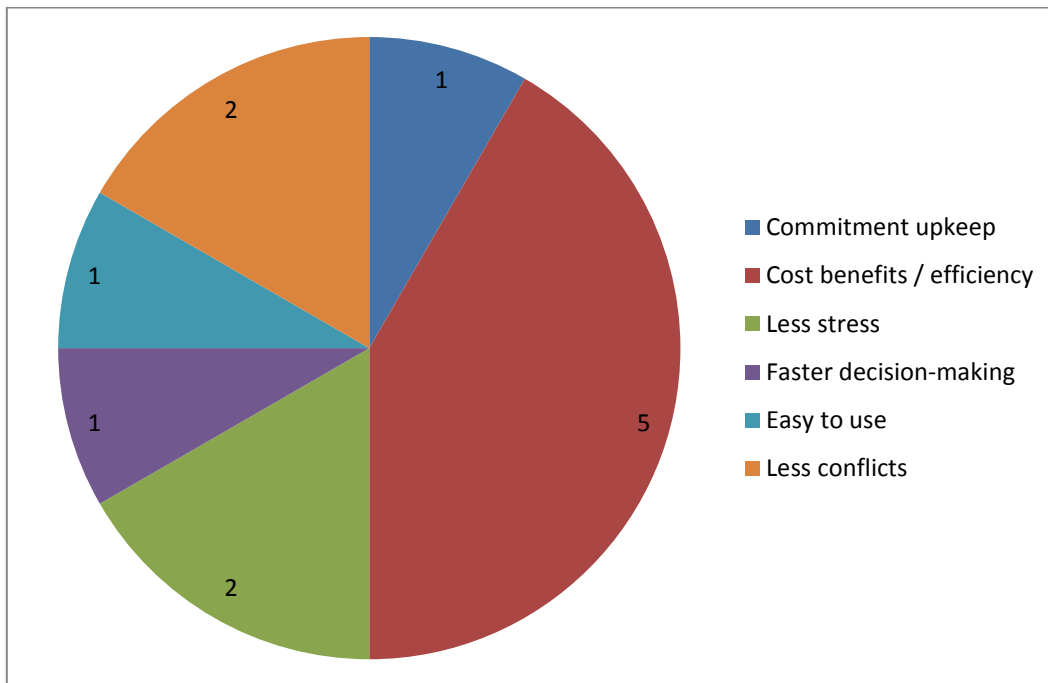
5.2 Benefits

Figure 5: The distribution of benefits

The results regarding virtual team benefits are interesting, as can be seen in Figure 5. The numbers again represent the amount of mentions in each category. There are not that many different categories mentioned and, overall, benefits also received less mentions than challenges. Even though not as many benefits were stated, all interviewees emphasized strongly the **cost benefits/efficiency** of virtual teams, stating that they saved time and money. There was a spread of different types of efficiency benefits from asynchronous to less travel, but they were all categorized under the same category.

Commitment upkeep refers to the ability to keep employees engaged to the organization's processes despite them being distributed. One interviewee mentioned it as a benefit especially on a strategic, top management level. The ability to upkeep employee commitment and to follow their performance despite a long spacetime distance is valuable. Two interviewees also emphasized that they experienced virtual teams as being a **less stressful** form of teamwork. The lack of travel and the fact that one does not continuously need to acclimatize to new surroundings helps in sustaining work satisfaction and health.

Two interviewees stated that they felt that virtual teams experienced **less conflict** in meetings and team processes. The interviewees both stated that virtual teams make decisions faster and are easier to use than traditional teams. The faster decision-making refers to both the time it takes to collect all the members together and how fast the discussion proceeds.

All interviewees were asked for their opinion on what kind of a future virtual teams have, and the main points of the responses are collected in Figure 3. All of the interviewees agreed that, in the future, virtual team working will become more common due to both technological development and people becoming more used to them. One interviewee felt that technological development had reached its plateau and would provide no more benefits; instead, the focus should be on the human component. Only one interviewee mentioned a future challenge in virtual teams requiring more support to function properly.

6. DISCUSSION

The study produced a great deal of valuable data that gives new insight into the current relationship between virtual team research and the top management's point of view. Virtual teams are a contemporary topic that interests both top management and researchers. This interest was also apparent in the interviews, after which a number of the interviewees asked their own questions about virtual teams. The results of this study provided sum possible targets of future research. These will be further expanded upon later.

The objective was to summarize the benefits and challenges of using virtual teams per contemporary research, to make conclusions concerning their usefulness, and to contrast this summary through empirical study with various top management views. The first two questions were answered in the theoretical section of this paper, and the summary can be found in section **3.3** and in table 5. Questions 3 and 4 will be answered in this section. Table 5 summarizes the benefits and challenges as found via the theoretical study and via the empirical study. They are color-coded for overlap.

Table 5: *Summary of virtual team benefits, challenges and research findings*

Found in both Found only in one	Benefits	Challenges
Theory	• Cost savings • Faster decision-making • Dynamic membership • Time efficiency • Asynchronous work • Global work pool • Diversity • Better life/work balance • Local implementation and representation	• Require continuous upkeep • High initial investment • Us vs. Them • Harder to create trust • Higher structural distance • Cultural issues • Conflict management • Different type of leadership required • Harder to identify deceit • Less social

	• Task-oriented communication	
Empirical study	• Commitment upkeep • Efficiency • Cost effective • Less conflicts • Faster decision-making • Less stress • Easy to use	• Harder to organize • Requires more preparation • Less activity • Harder to connect • Conflict management • Less social • Cultural issues • Technological issues • Managing individuals • Us vs. Them • No downtime • Personality issues

From a purely theoretical point of view, virtual teams have a lot of business potential. Eliminating the financial, time and effort costs associated with travelling – and still gaining the synergy benefits of teamwork – is an alluring proposal. This supports a lot of the previous studies done on virtual teams and their cost benefits. Combined with the additional benefits that come from global teamwork and its diversity it is easy to understand why a number of organizations are adding a virtual component to their team processes. Nonetheless, already research shows that there are a number of pitfalls regarding virtual teamwork.

Virtual teams rely on communication technology to operate. This leads to a medium of communication that most people are unfamiliar with. People communicate best in a face-to-face situation where it is possible to use all the senses. The virtual medium eliminates body language, touch, smell and sometimes even vision, thus forcing people to communicate only via text or sound. While technological improvements, like video conferencing, allow

the use of some senses to certain extent, virtual communication is still an unfamiliar language to most people. This is the cause of a number of problems with virtual teams.

It has been suggested that virtual teams can at best operate even better than traditional teams. However, that requires the right people in the right place at the right time. A successful virtual team requires support before the project, during the project and possibly even after the project. It also requires a team that is at least willing to try to communicate virtually and is willing to trust a person they might not ever meet. Successful virtual teams require a team leader who has a different type of skillset from traditional leaders. Some forms of leadership, like transformative leadership, function better in virtual teams, whereas other forms are less successful. It is always considered a benefit if the virtual team can meet face to face before or during the project, because that brings a valuable social component. It also helps to create trust, which is possibly the most important aspect of virtual teaming.

6.1 Regarding benefits

When comparing the benefits found via the theoretical study and found via the interviews, there is significant overlap. All of the interviewees referred in one way or another to cost efficiency in the form of less travelling. Cost efficiency is also one of the significant benefits highlighted by contemporary studies. This suggests that it is the most common benefit associated to virtual teams by top management, and one of the core reasons why they choose to use virtual teams. While there are studies that suggest that the decision to use virtual teams only as a cost-saving measure have a negative influence on organizational morale, most organizations are profit-oriented and naturally focus on the cost benefits of virtualization.

Efficiency is another obvious benefit found in both categories. Virtual teams lead to less wasted time which, in turn, leads to a more efficient use of time. This result was confirmed by Robertson et al. (2003) also. This is another attractive proposition to profit-oriented

organizations. A more interesting finding was that in the interviews, two interviewees mentioned how working with virtual teams is less stressful as suggested by the following quote

> *"In our case we have a lot of lead time, because you do not have to travel and you can concentrate on the work. And maybe that people kind of are as I said more free and more relaxed, more showing their real opinions because they're sitting at home. They're not anxious about the flight back home, they're not anxious because they're sitting at home."*

This benefit can be associated with the better work/life balance that is found in theory. While in theory this is associated more with working from home, the interviewees stated that the lack of stress came from the lack of travelling. Consequently, this benefit can possibly be gained even if a member does not work from home but works instead from an office. One interviewee stated that when travelling it is always stressful to adapt to a new culture, but with virtual teams one does not have to leave one's own cultural surroundings as strongly.

More interestingly, there are two benefits that were not mentioned in the interviews despite them being rather essential to virtual teams. The first is the ability to work asynchronously, and the second is the diversity of the teams. Both came up in discussion but with negative connotations. Asynchronous work is made possible by time zones, but time zones were mentioned as a difficulty in planning virtual team meetings. The diversity of teams, from a cultural and organizational standpoint, was also only mentioned negatively, as can be seen in the amount of times cultural issues were discussed as a challenge. This would suggest that while top management has recognized the existence of these characteristics, their potential has not yet been explored.

Another interesting finding on the benefits was the issue of commitment upkeep. Despite all of the interviewees working with top management in some form and thus being a part of executive teams, only one mentioned the benefit of commitment upkeep. This refers to

keeping important members of the organization committed and *in the loop* despite being located far away from headquarters. The benefit is closely associated to some benefits described in the theoretical section, namely with local implementation and representation. Keeping distant managers closely integrated to the core processes of the HQ allows for better implementation of those processes at distant locations. It is surprising that this benefit has not been more widely recognized.

6.2 Regarding challenges

The distribution of answers regarding challenges was very different from those regarding benefits. While most of the discussion regarding benefits focused on the cost savings and effectiveness that came from the reduced need for travelling, there was a wide variety of answers regarding challenges. This suggests that while the benefits of virtual teams are stable and repeatable from team to team, the challenges can be very team specific.

Every interviewee mentioned technological challenges like which, surprisingly, are missing from the previous theoretical studies due to the difference of viewpoints. When considering studies regarding virtual teams, it is always assumed that the tools (like video conferencing) work as intended, because otherwise they would be a non-controllable variable. It is a necessary simplification. The interviewees instead have gained their experiences from the daily work where technological problems can sometimes be ubiquitous. It was stated by one interviewee that especially when connecting to countries with poor internet infrastructure, technological problems could take up a lot of time. Technological issues can also be caused by a lack of support. But technological issues should be considered, since the results suggest they can have a clear influence on team behavior and morale as is suggested by the following quote.

> *"Researcher (1): What general feedback did you get from the different members, about using the technology?*

Interviewee (2): Well I'm not quite sure, I got the feeling that for example the telephone conference meetings, they felt they were not that good, so at least perhaps more negative than positive criticism.
1: What do you think is the reason for this?
2: It was partly because they were not used to it and the technology was not the best possible, I can not remember, there were certain problems from time to time, problems to get it working or suddenly someone dropped off. So technological problems to a certain extent and definitely in experience and if you look at it afterwards, it would have been important to give more training and preparation."

A great deal of the challenges mentioned are leadership challenges, which is expected with this sample. Cultural issues, conflict management and specifically the Us vs. Them effect were common themes found in the interviews. A number of managers also said that they had to be more active in virtual meetings and teams in general. An example of this that was given in the interview was that they had to ask team members for their opinions more than in traditional teams. This can be linked to the theoretical idea that virtual teams require different type of leadership to function effectively. All in all, the abundance of leadership challenges suggests that there is still some potential research that can be made in that area, despite it being the most studied aspect of virtual teams.

There are also some other interesting conclusions that can be drawn from the data. The interviewees had gained their experiences at different times and thus at different points of technological development. Three had experience in virtual teams from the 90's when most of the communication technology was audio-only and the infrastructure was not as stable. When comparing the challenges brought up by these interviewees with those who used virtual teams between the years 2000 and 2013, differences appear. Those with the older experiences emphasized technological challenges and the difficulties of being connected and following the performance of individual members. The interviewees with more recent experiences, in turn, emphasized more human issues, such as cultural and organizing matters. This would suggest that as technology develops, the virtual communication medium becomes less strange to us and does not have as strong of a negative influence. When its effect dissipates, the traditional challenges of working with diverse teams are

emphasized more. There was no noticeable difference in the stated benefits between interviewees from different times.

Virtual teams are not merely normal teams where, instead of talking face to face, the communication takes place over the phone. The same tools and ideas that work well with traditional teams might not be as successful with virtual teams. Organizations notice this when team managers who might have been highly successful with traditional teams flounder with virtual teams. The same can be said for team members. Virtual teams require their own type of support and their own criteria for success. When properly supported and performed, they can reduce costs and improve efficiency. They can bring an organization into the modern age. However, virtual teams can also be a sinkhole of costs, create negative morale and completely destroy organizational synergy.

The prevalent opinion among top management seems to be that virtual teams provide fewer costs at increased efficiency, although they are perceived as more difficult to work with. There was a strong variance in challenges found between different interviewees, while benefits were rather uniform with some slight variance concerning singular benefits. This suggests that virtual teams can provide a constant benefit, but the factors that can go wrong are numerous and random. It will take a skilled manager to recognize the challenges that their teams will most likely face. However, if executed properly, virtual teams can provide a significant competitive advantage.

6.3 Limitations

The aim of this study was not to produce any new information or findings. As such, any conclusions made based on the data found should be considered more as possible targets of future research instead of as new findings. The purpose of this study was to review the validity of previous findings through comparing them with the current opinions held by top management, since they are the ones who decide when and how to use virtual teams. While

the study did produce interesting information, there are a number of limitations that have to be considered.

The sample is limited in some regards and may contain bias. Not everyone interviewed had experience in virtual teams with high degrees of virtuality. As such, it cannot be expected that they can make informed decisions regarding completely virtual teams that are usually the focus of research studies. Even though the development of virtual teams has been rapid, few top managers have such extensive experience because purely virtual teams are still rare. Accordingly, while the sample is limited in its experience, it is representative of the population.

From a theoretical point of view, virtual meetings are just one aspect of virtual teams and only one way of communication often used. While virtual meetings might be the most concrete part of virtual cooperation and the most common type found today, they are not the only aspect. Due to their ubiquity, it is possible that parts of the sample have gained most or all of their virtual team experiences from purely virtual meetings. This would for example eliminate the effects of a virtual knowledge base completely.

Finally, as discussed already in the methodology section, due to purposive sampling there can be a cultural bias found in the sample, which can in turn influence the results. Although all of the interviewees had significant experience in working and thinking globally – which reduces cultural bias – such bias is inherent and has been accounted for in the conclusions.

6.4 Further research

With the virtual team research field still being young, and virtual teams not yet being ubiquitous, there are a number of possible topics for future research. Some have already been mentioned earlier in this text but will now be further explored.

An interesting statement that surfaced often during the interviews was the role of a person's personality in virtual team success. It is logical to assume that people who are hesitant or frightful of communicating face to face could perform better in the less social communication medium of virtual teams. However, a number of interviewees suggested that (based on their own experiences) people who are bad at communicating face to face are even worse in a virtual context, at least when using audio-visual technology.

This suggests that there is a gap in current knowledge. A study on the compatibility of various personalities with working in virtual teams could provide concrete benefits for organizations, especially those that for example already utilize personality tests in their recruitment. The MBTI personality theory could provide a good framework for such a study.

Another topic of future research focuses on the cultural issues found with virtual teams. Such issues are common in normal, culturally diverse teams or within any project that requires cross-cultural cooperation. But does the virtual environment reduce or increase the effect of culture? The communication is less information-rich due to the lack of body language which makes it harder for individuals not familiar with a specific culture to communicate with members of that culture. In addition, this would lead to a prevalence of stereotypes which also came across in the interviews numerous times. However, because virtual teams have more fact-based communication which, in turn, leads to less conflict, they should consequently experience less cultural conflict. There is plenty to study with regard to culture in virtual teams and communication.

Another cultural focus for a future study could be organizational culture and its effect on virtual team trust formation. In earlier studies, the formation of trust has been noted as being essential to virtual team success. One of the challenges with this is that virtual teams are usually diverse, both culturally and organizationally. Team members might not have many things in common, thus making it harder for them to trust each other. Even so, if all the members work within the same MNC they might share a similar organizational culture.

It could be interesting to study the effect of this culture on the formation of trust within a team.

Furthermore, as was noted in the conclusions, technological challenges have not yet received any research attention despite their apparent propensity on the basis of this study. While it was noted that the issues and their effects can be hard to study, it would seem that they should at least receive some form of research attention.

Finally, the concept of stress from virtual work has not been explored. Virtual teams allow members to work more efficiently, resulting in less downtime. This was also mentioned by one of the interviewees. While travelling is usually considered stressful, it does provide individuals a chance to rest and reflect. An individual can be a member of numerous virtual teams, thus being occupied nearly constantly. This might not be physically stressful because there is no element of travel and, in the best case, people can work from their homes, but the chance of mental fatigue is real. Currently, virtual teams are thought to allow better life/work balance, but can there also be a human cost to this?

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8. APPENDIX

Appendix A: *Interview questions*

Interview Questions   **Date:**

1. How many years of experience as a manager? (In how many different organizations?)

2. What is your definition of virtual teams?

3. Have you been a part of a virtual team and, if so, in what types of roles?

4. What kinds of benefits would you see virtual teams and virtualization as having to an organization?

5. What kinds of challenges would you see virtual teams and virtualization as having to an organization?

6. What kind of future do you see for virtual teams and virtualization, based on your experience?

Appendix B: *Summary outline*

Summary
Managerial experience:
Role in virtual teams:
Time of virtual experiences:
Type of virtual team:
Technology used:
Major benefits mentioned:
Major challenges mentioned:
Support used:
Definition used:
Other notes: