Dublin Business School

‘Communication Management within Virtual Teams in Global Projects’

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Declaration

I, Aneta Bilczynska – Wojcik, declare that this dissertation is a presentation of my own original research work. It is being submitted in partial fulfilment of the requirements of the MBA in Project Management Degree at Dublin Business School, in conjunction with Liverpool John Moores University. Regarding contributions from others, working in this field: every effort has been made to reference their ideas and scholarship, and acknowledge collaborative research and discussion, within the main body of this dissertation and in the bibliography.

The research was done under the guidance of Mr Paul Taaffe, at Dublin Business School.

Signed: Aneta Bilczynska – Wojcik

Dublin, May 2014

Table of Contents

Table of Figures

Table of Tables

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Furthermore, I would like to thank my family for their love and support.

Dedication

I would like to dedicate this dissertation to my husband and thank him for his encouragement and support during the entire period of my MBA course.

Abstract

The increasing global nature of IT projects and the virtual nature of project teams create numerous challenges for managers to effectively manage communication, and place a risk on project execution. But what exactly are these challenges? And how do Project Managers from IT organisation respond to these challenges? The aim of this dissertation will be to address these questions. In providing answers to these questions, we can then see to what extent current project management is effective in overcoming these challenges and to suggest recommendations for the cases in which management fails. This thesis includes qualitative research by providing a case-study of an Irish IT organisation that has a globally distributed work-force. The research focuses on the insights of Project Managers who each have a wealth of experience in dealing with the issues at hand. As a counterbalance, this study therefore includes observational research to objectively evaluate the day to day reality of virtual teams in global projects. However, even though a lot of communication management challenges are recognised by Project Managers, it seems that a clearly explicated communication plan is often lacking. To address this problem, this research attempts to synthesise the main strategies into a unified strategy. The major contribution from this research is to provide an in-depth theory about communication management within virtual teams in global projects.

Chapter 1 Introduction

This paper starts with an introductory chapter. The researcher's goal is to introduce the reader to the background of this thesis, clarify the relevance of the research problem and explain the benefits and importance of this study. This chapter will also outline the research problem, research questions and research objectives. The researcher's suitability to carry out this study is verified, and the dissertation is outlined. The target audience for, and limitations of, this study are also addressed.

1.1 Research Background and Rationale

In recent times, the business environment has strongly urged organizations to lower costs in order to gain a competitive advantage. This resulted in many mergers, acquisitions, alliances, joint ventures and new projects being launched globally. Many companies decided to change their strategy and outsource projects to remote locations in order to keep costs down and increase their competitiveness. As stated by Filev (2013, p. 1), today, as many as 83 percent of workers in organizations from Small and Medium Businesses to Fortune 500 corporations regularly experience remote collaboration. Organisations in the twenty-first century are becoming increasingly global.

Moreover, the way we complete projects has been changing at a very fast pace, especially in the last two decades. Project teams are no longer exclusively located in the same building or even in the same country (Plazas 2013, p. 1). Global virtual projects are now vital components of modern organizations that seek to be flexible and take advantage of distributed resources. A global virtual project is a project in which team members are dispersed geographically (potentially in different time zones), and work together to accomplish a specific task under various time and resource constraints (Zigurs et al., 2006, p. 1). According to Raisinghani et al. (2010, p.1), the field of virtual project management is not likely to see a decline in the coming years. In addition, it is likely that today's global marketplace, coupled with the increased costs of travel, tight schedules, and high expectations for project deliverables, will support an explosion of global virtual project management. This is why there is a need for more research into this area.

The most common approach when collaborating remotely in projects is to establish virtual teams. Virtual teams are interchangeably termed 'Distributed Teams' (Duarte & Snyder

(2006); ‘Geographically Dispersed Teams’ (GDT) (Kotlarsky et al., 2007); or ‘Global Virtual Teams’ (Binder, 2007). A virtual team is a group of people who are working on the same business or business issue, but are located at different geographic sites and rely mainly on some form of communications technology to facilitate their work.

Virtual project teams offer various opportunities for organisations, but they also present many risks (Ingason et al., 2010, p. 34). Some of the issues which virtual teams face are the same as in collocated (traditional, face-to-face) teams. However, because of the distance that separates team members geographically, virtual project teams need special organisational and management attention.

As shown by Khazanchi and Zigurs (2006, p. 1), and Dow and Taylor et al. (2008, p. 55), project management is a challenging activity in the best of circumstances, and it has become even more so in the virtual world. Managers must deal with many challenges while working with virtual teams: such as cultural diversity, different time zones, technology, lack of trust in a team and, most of all, the lack of face-to-face communication. Although some of these challenges have always existed for traditional projects managers, as observed by Osman (2011, p. 2), they are amplified several times over for virtual Project Managers. A substantial number of virtual projects fail due to the complex nature of such a remote collaboration which exacerbates communication breakdown.

According to Osman, the most critical challenge faced by Project Manager working within virtual teams is the element of communication. A project’s success often hinges on how effectively cross-team communication is conducted. Achieving effective communication is difficult, and it is even more difficult in virtual settings when teams are spread across different locations (Osman, 2011, p. 1). Hence, managers, project management practitioners and project management students would benefit from this research by acquiring practical insights into, as well as knowledge-related theories about, managing communication within virtual teams.

Moreover, as noticed by Kisielnicki (2011, p. 351), most research projects are focused on the analysis of communication between the project team and the outside world. Communication within the project team seems to take second place. Also, as pointed out by Willis (2010, p. 4), internal team communication does not feature largely in communication management planning. PMI in PMBOK (2008) does not make any reference to internal communication between team members, but only describes the communication management plan as detailing

the communication approach between the Project Manager and the project stakeholders. While it is noted that members of the project team are also considered to be stakeholders, no specific reference to communication management within the project team is made. Finally, as highlighted by Kuruppuarachichi, 2009, while the PMBOK (2008) recognises the significance of communication planning if a virtual team is to enjoy success, no details are provided.

As there is very little literature dedicated to the processes of communication within virtual project teams in global projects, this dissertation could fill the gap in the literature by providing a deeper understanding of practices for managing communication within virtual project teams in global projects.

1.2 Research Problem

It is widely recognised (Dow and Taylor, 2008), Kerzner (2009), PMBOK (2008), that poor team communication is one of the main factors contributing to a project's failure. Therefore, effective communication management within virtual project teams is of paramount importance and a fundamental competency that, if properly executed, connects every member of a project team so that they can work together to achieve the project's objectives. If communication is not managed effectively and fully understood by Project Managers, project outcomes may be at risk.

For this reason, it is necessary to inquire into how Project Managers are managing communication within virtual teams in global projects and how to build upon and improve their practices. In keeping those focal points central to the research, this dissertation aims to achieve the following objectives.

1.3 Research Objectives

According to Saunders et al (2009), research objectives are clear, specific statements that identify what the researcher wishes to accomplish as a result of doing the research. Based on the extensive literature review the main objectives for this research are:

1. ***To identify and describe the key challenges which Project Managers face while managing communication within virtual teams in global projects.***

2. ***To develop a deeper understanding of communication management within virtual teams in global projects.***

Using a combination of theoretical solutions and practical approaches, a deeper understanding of the management of communication of virtual teams in global projects will be achieved. In order to ensure a focus, the researcher limited the scope of the study to the management of the internal communication between the Project Managers and their teams. In thus seeking to establish the inner workings of this process, the primary research concerned itself with the views of various Project Managers, regarding internal communication management within virtual project teams in a global project.

1.4 Research Questions

In order to achieve the above research objectives, the following research questions were formulated:

1. ***What are the key challenges encountered by Project Managers while managing communication within virtual teams in global projects?***

The main purpose of this question is to evaluate a general framework of fundamental challenges which Project Managers encounter when managing communication within virtual teams in global projects. The answer to this question will be delivered through a literature review, semi-structured interviews with Project Managers, and non-participant observations and documentation analysis at Dublin based head office of the global IT organisation Optimus Ireland (name of the company has been changed for confidentiality reasons).

2. ***How are Project Managers managing communication within virtual teams in global projects?***

To obtain the answer to this question, a literature review and observations of communication activities at Optimus Ireland were carried out. In addition, semi-structured interviews were held with Project Managers to obtain expert opinions about managing communication within virtual project teams in global project situations. These interviews provoked deep discussions which uncovered specific aspects and problem areas. The information generated and gathered has been used to ascertain how managing communication within virtual teams in global projects is experienced by Project Managers – what they felt improved and hindered the communication. This study focuses on understanding the conditions of effective communication and the causes of ineffective communication.

1.5 Suitability of the Researcher and Interest in the Topic

According to Blumberg et al. (2005, p. 52), two elements are critical in individuals involved in a research project:

1. Professional research competence (relevant research experience, the highest academic degree held and membership in business and technical societies)
2. Relevant management experience

The rationale for this research choice is also based on the researcher's background and interests. The researcher has several years of work experience in a global virtual project team, collaborating between Ireland and the USA. This experience led the researcher to investigate communication management within virtual teams in global projects. Conducting this dissertation has encouraged a practical application of the findings in the researcher's current job and also may be relevant to their future career. As stated by Burns and Burns (2008, p. 46), topic choice must be very personal so that it engenders a deep interest or considerable curiosity. In addition, completing all the modules for an MBA in Project Management programme, has given the researcher the required knowledge and skills to undertake this study.

1.6 Outline of the Dissertation

The dissertation is divided into seven chapters that are organized into paragraphs, a bibliography and appendices to ensure logical consistency.

Chapter one. This dissertation starts with an introductory chapter, which outlines the background and approach to the research question and the overall objectives of the thesis.

Chapter two. The relevant literature review is performed in the second chapter which presents the theoretical framework of this thesis. In this chapter, the researcher discusses what information was known prior to research and narrows down the selected literature to pinpoint the main focus areas of this study.

Chapter three. In the third chapter, the researcher addresses the topic in relation to the case company Optimus, who operates in Ireland. All names are pseudonyms to maintain confidentiality. No other information has been disguised.

Chapter four. The fourth chapter identifies the most appropriate research methodology, detailing its design and strategy for data collection and analysis, that the researcher used in order to answer the research questions.

Chapter five. The fifth chapter discusses and illustrates data collection, analysis and findings. Themes that emerged from each of the interview, observations and documentation review, that address the aims and objectives of this research are presented, accompanied by quotes from interviewees.

Chapter six. The main findings are summarised in chapter six. The researcher identifies salient conclusions by summarising the main findings and discussing the results of the study.

The researcher explains the implications for theory and practice, the strengths and limitations of the study, and the conclusions and recommendations for further research.

Chapter seven. The last chapter consists of a self-reflective section on the researcher's own learning, which considers the learning outcomes that have occurred throughout this dissertation process and the MBA programme.

The final sections of this thesis paper include the bibliography and appendices.

1.7 Recipients of this Research

The main recipient for this dissertation is Dublin Business School in conjunction with John Moores University.

Also, the organisation where this study was carried out, in particular the participants interviewed, may benefit from this work. Furthermore, the research can be of interest to anyone who is involved in managing virtual teams as the topic is current and relevant for many industries. Finally, it is hoped that this dissertation will provide an academic understanding of challenges and communication management practices within virtual teams in global projects.

1.8 Limitations of this Research

Like all case-study research, this particular research has a number of limitations which affect generalisation of research findings. While it is believed that this study creates in-depth understanding of the communication within virtual teams in global projects, because of time limitations and the small non-probability sample, findings cannot be generalized and are not representative for the whole population. The researcher focuses on the management of internal communication between the Project Managers and virtual project team members, therefore external communication is not analysed in this research. These limits may question the validity and reliability of the research; however, the main purpose of this study is not to generalize but rather to seek an initial understanding of the topic.

1.9 Benefits of this Research

The researcher hopes that the result of this study will benefit the managers of virtual project teams, project management students and practitioners, through providing greater insight into the challenges and practices of managing communication within virtual project teams in global projects..

Chapter 2 Literature Review

In the following chapter, the researcher discusses the prior scholarship in this field and sifts the selected literature to pinpoint the main focus area of this study. As highlighted by Saunders et al. (2009, p. 61), critically reviewing literature provides the foundation on which research is built. Thus, in the following chapter, the researcher discusses, compares and contrasts the prior scholarship in the field and sifts the selected literature to pinpoint the main focus area of this study.

2.1 Project, Project Management, Project Life Cycle and Project Types

2.1.1 Projects and Project Management

In recent years, project management has gained a solid reputation and the need for it is becoming an increasing priority. As highlighted on PMI's website, 'in today's complex global environment, the organizations that thrive are the ones that value project management' (www.pmi.org, 2013). Today, project management is one of the fastest growing disciplines. This is illustrated by the changes in the membership figures of the Project Management Institute, which have grown from 259,172 members in January 2008 to more than 500,000 last year (PMI, 2013). Project management, as both a profession and an area of research, continues to expand and develop.

Advances in technology over the past decades have greatly changed the fundamentals of project management. Firstly, advancements in communication technology enable collaboration in a distributed mode. New technologies like groupware and videoconferencing are widely available for organisations to use. Secondly, globalization and competition has forced corporations to integrate their global managerial and business processes. As demonstrated by Eberlein (2008), globalization impacts upon project management approaches, and provokes the need for project teams to cope with the challenges resulting from an ever more dynamic environment composed of international projects (Eberlin, 2008, p. 29).

According to the Project Management Institute (PMBOK, 2008), a *project* is a temporary endeavour undertaken to create a unique product, service or result. This temporary nature of project work indicates a well-defined beginning and end. The end is reached when: the

project's objectives have been achieved; when the project is terminated because its objectives cannot be met; or when the need for the project no longer exists (PMBOK, 2008, p. 5). The more unique a project's objectives and deliverables are, the higher is the associated risk in fulfilling them. In addition, according to PMBOK, projects are undertaken across all organisational levels. A project can involve a single person, a single organisational unit, or multiple organisational units (PMBOK, 2008, p. 5). Successful project management, according to Kerzner (2009, p. 3), is defined as having achieved the project objectives within time, within cost, and at the desired performance/technology level, while utilizing the assigned resources effectively and efficiently and in a way acceptable for the customer. Kerzner also points out that project management is the planning, organising, directing and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives (Kerzner, 2009, p. 4).

A project life cycle is a collection of sequential and sometimes overlapping project phases such as project initiation, planning, execution, control and closure. Regardless of size and complexity, all projects can be mapped to generic life cycle structure, as illustrated in figure 1 below, which involves: starting the project, organizing and preparing; carrying out the project work; and finally closing the project (PMBOK, 2008, p. 16).

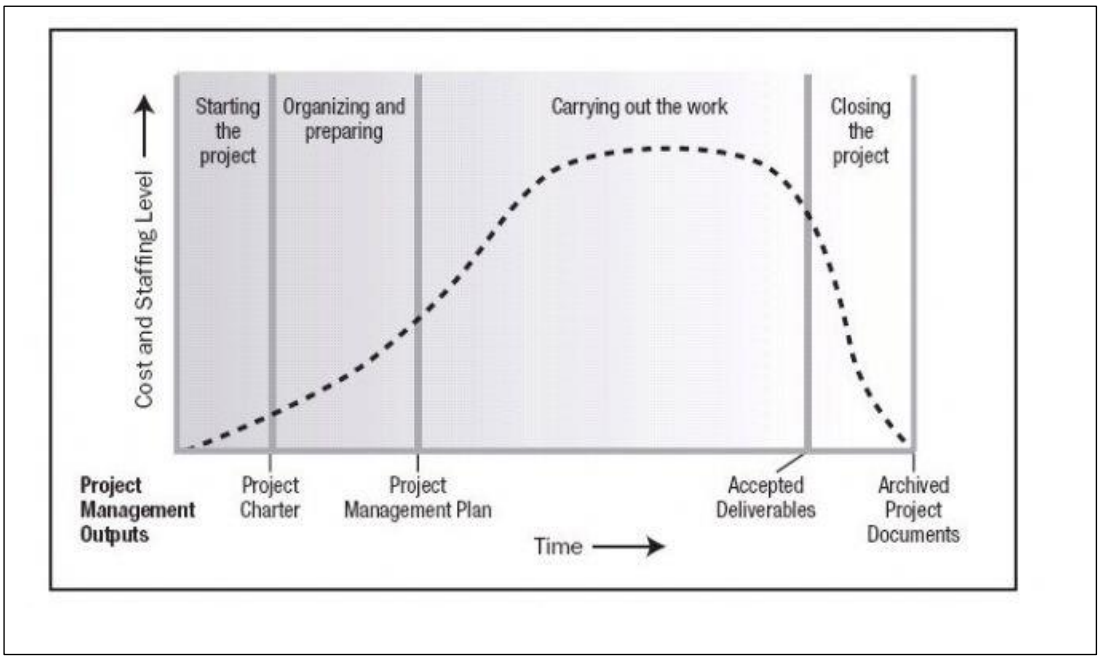

Figure 1 - Typical Cost and Staffing Level Across the Project Life Cycle – (PMBOK, 2008, p. 16)

Projects exist to produce deliverables. As explained by Kerzner, deliverables are outputs or the end result of either the completion of the project or the end of a life-cycle phase of the project (Kerzner, 2009, p. 5). A project phase is a collection of logically related project activities that result with the completion of one, or more, deliverables. A phase may emphasize processes from a particular project management process group, but it is likely that most or all processes will be executed in some form in each phase. The project phase including all the process groups is illustrated by figure 2.

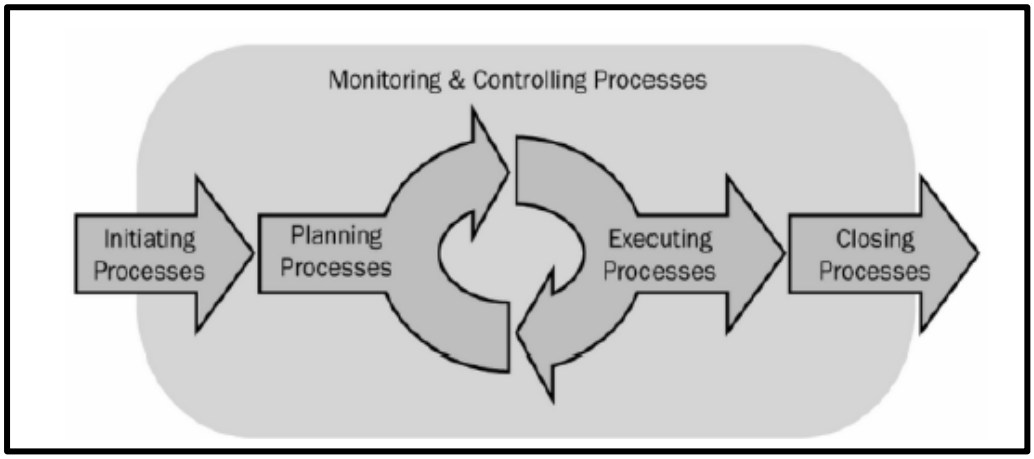

Figure 2 – Example of a single-phase project - PMBOK (2008, p. 19)

According to the Project Management Institute the phase structure allows the project to be segmented into logical subsets for ease of management, planning and control. Each phase is formally initiated to indicate what is allowed and expected for that phase. The number of phases, the need for them and the degree of control applied depend on the size, complexity and potential impact of the project (PMBOK, 2008, p. 18). The project phase is generally concluded and formally closed with a review of the deliverables to determine completeness and acceptance (PMBOK, 2008).

As suggested by Willis (2010, p. 1) Project Communication Management is the area which is considered to be the most affected by a virtual team structure, as the communication must now overcome geographical and temporal distance. There are different types of projects which are explained in the project management literature. As examined by Larson (2011, p. 533), projects can be classified as domestic, overseas, foreign or global:

- A *domestic project* - is one performed in its native country for a resident firm.
- An *overseas project* - is one executed in a foreign country for a native firm.
- A *foreign project* - is executed in a foreign country for a foreign firm.
- A *global project* - consists of teams formed from professionals spanning multiple countries, continents, and cultures with their work integrated for the entire enterprise (Larson, 2011, p. 533).

In addition, there is a *virtual project* type which according to Binder (2007, p. 1) is composed of team members dispersed geographically and working in different organisations. Virtual and global projects are performed in a virtual environment as teams are distributed across space and time and organizational boundaries. Although these virtual environments greatly reduce costs and help address skills shortages, they do however gives rise to many challenges and pose genuine risks to the success of a project. But before examining this trade-off more deeply, we first must ask what are the characteristics of global projects and what do they entail exactly?

2.1.2 The Global Project

Having outlined a rather general analysis of what projects are and what they entail, we will now look at the particular case of global projects. As defined by the GPMF (Global Project Management Forum), *global projects* are a subset of virtual projects in which team members and stakeholders are spread across countries from various cultures, speaking different languages, working in different time zones and belonging to different organizations (Project Perspectives, 2010, p. 4). In recent times, businesses and companies are increasingly expanding across borders and time zones. Projects with team members from various cultures speaking different languages are becoming an ever more increasing phenomena: it 'is the world of global projects', as stated by Kahkonen, to which he adds: 'global projects are practically creeping into the life of companies of all sizes from small enterprises to the biggest leading players' (Project Perspectives, 2010, p. 1).

John Binder defined global projects as a combination of virtual and international projects, which includes people from different organisations working in various countries across the globe (Binder J, 2007, p. 2). He also defines five characteristics of global projects that distinguish them from other types of projects as shown in table 1 below:

CHARACTERISTICS	COLLOCATED PROJECTS	VIRTUAL PROJECTS	GLOBAL PROJECT
LOCALISATION	One	Many, in the same country	Many, in different countries
NATIVE LANGUAGES	Usually one	Usually one or few	Usually many
TIME ZONES	One	Skewed working hours	Skewed or asynchronous Working hours
CULTURAL DIFFERENCES	None or low	Medium	High
ORGANISATIONS	One to many	One to many	Many

Table 1 - Characteristics of Global Projects (Binder et al., 2009, p. 2)

According to Binder (2009, p. 1) global projects involve team members from various *cultures* and *organisations***,** spread in locations *across countries* and *time zones,* and speaking different native *languages*.

Brito et al. (2009, p. 171) point out how differences appear not only in regards the project scope, but also they necessarily appear in regards to the process of management itself. If managing project teams is already challenging enough at the local level, Dow and Taylor (2008, p. 56) show that when introducing this virtual component the task becomes much more challenging. There are many challenges facing virtual teams: including struggles with communications (language barriers or time zone differences), resource management, cultural differences, technical problems, and so on. Unlike on-site teams where the Project Manager is readily available and can resolve issues as they arise, with virtual teams these issues could go on for days before being resolved. As explained, projects are constantly becoming more complex and pose new challenges for Project Managers. To effectively influence virtual teams, PMs must be able to recognize these new challenges and develop new skills and approaches to overcome them (Lipnack and Stamps, 1999; Plazas, 2013).

2.2 Teams, Project Teams and Virtual Teams

2.2.1 Teams and Project Teams

Teams and their constituents are clearly one of the critical success factors in a project (Prabhakar, 2008, p. 1). According to the IPMA's competence baseline of 2006, a team is defined as "a group of people who work together to realize specific objectives". A project team is comprised of the Project Manager, project management team, and other team members who carry out the work but who are not necessarily involved with the management of the project itself (PMBOK, 2008, p. 26). The Tuckman model (Tuckman, 1965) on team development has been quite seminal within project management. Tuckman divides the team life cycle into four stages: forming; storming; norming; and performing. However, despite its successful reception, its limitations have been recognised. According to Johnson (2002) the Tuckman model while describing virtual teams quite well, does so only with regards to three of its stages: forming, norming and performing, and fails to adequately justify the storming stage (Ingason et al., 2010, p. 34).

2.2.2 Virtual Teams

Virtual teams are very common in today's business environment. As noticed by Kerzner (2009, p. 352) historically, project management was a face-to-face environment where team meetings involved all players convening together in one room. Today, because of the size and complexity of projects, it's almost impossible to find all team members located under the same roof. Virtual team members may be located in different geographies and time zones and depend upon electronic communication. As explained by Martins et al. (2004) virtual teams differ from other teams in that their members communicate with one another across geographical distances using computer-mediated technology (Martins et al. 2004). The development of the internet and communication technology allowed for the emergence of virtual teams in various types of projects such as product development, design and software development, engineering and construction along with many others (Duarte and Snyder, 2001).

The first virtual teams were used in the USA as early as the 1980s; the widespread use of teams began in the Total Quality Management movement in the 1980s. In the late 1980s and early 1990s, many companies implemented policies of self-managing and empowering work

teams. To cut bureaucracy, reduce the cycle time and improve the service line e-level employees took on decision-making and problem-solving responsibilities traditionally reserved for management (Elbrahim et al., 2009). In this sense organisational change seems to emerge through the necessity of the imposed structural changes that globalisation has brought about.

In the last twenty years there has been substantial literature which focused on global virtual teams and how they differed from collocated (traditional, face-to-face) teams. As highlighted by many previous studies (Prasad and Akhilesh, 2002, Badrinarayanan and Arnett, 2008, Elbrahim et al., 2009), research on virtual teams is still in its nascent stages (Prasad and Akhilesh, 2002, Badrinarayanan and Arnett, 2008, Elbrahim et al., 2009) and because of the relatively recent emergence of virtual teams, many areas of research have not yet been examined.

Yet, there exists much controversy in the literature about what exactly constitutes a virtual team. The last twenty years have not produced any agreed definition. However, a closer look at the various definitions of virtual teams shows considerable overlap in how they are defined with differences not seeming so important. Martins et al. (2004), in their review of the literature about virtual teams, conclude that all organizational teams at the moment are virtual to some extent. We have moved away from working with people who are in our visual proximity to working with people around the globe (Johnson et al., 2001).

The majority of authors define distributed teams as ‘teams where the bulk of communication is done with the aid of information technology’ (Johanson et al., 2011). Elbrahim et al. (2009) added two key characteristics to the description of virtual teams: 'small temporary groups of geographically, organizationally and/or time dispersed knowledge workers who coordinate their work predominantly with electronic information and communication technologies’. Similarly, PMBOK defines virtual teams as a group of people with a shared goal who fulfil their roles with little or no time spent meeting face to face” (PMBOK, 2008, p.228). Duarte and Snyder (1999, p. 4) added that virtual teams operate without the physical limitations of distance, time, and organizational boundaries. Finally, virtual teams’ heavy reliance on computer–mediated communication technology allows members separated by time and space to engage in collaborative work.

Virtual project teams are part of business today (Cestari de Brito et al., 2009) and the increasingly popular use of virtual teams for dispersed projects has resulted in new challenges

for both research and practice (Khazanchi, 2006, p. 25). As indicated above, there are several different definitions of virtual teams, but what these definitions have in common is that virtual team members are physically separated (by time and/or space) and that virtual team members primarily interact electronically (Elbrahim et al.,2009; Powell, 2004, Nader 2009). In simple terms, then:

virtual teams = teams + electronic links + groupware (Nader, 2009)

For the purpose of this paper, the following definition of the virtual team will be used: a virtual team is a group of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks (Jarvenpaa and Leidner, 1999, Hunsaker, 2008, Elbrahim et al., 2009).

2.3 Benefits and Challenges of Managing Virtual Teams

2.3.1 General Benefits and Challenges

From the organization's perspective, the benefits are plenty and amongst them include: the opportunity to hire talented workers regardless of geography; a "round-the-clock" workday; reduced costs; and increased speed to market (Filev, 2013). Correctly designed and implemented virtual teams improve productivity, and improve customer service (Akkirman and Harris, 2005). In the literature, the benefits to virtual workers are widely recognized, but there is very little research which concentrates on the challenges of managing those teams. However, a lot of research indicates that Project Managers, when working with virtual teams, must overcome a number of barriers, such as: lack of face to face communication; cultural issues, geographical and temporal distances; trust issues; different communication styles; and technology challenges. As a consequence, managing virtual teams is different and more complex than managing traditional teams. Effective management of virtual teams requires the knowledge and understanding of the fundamental principles of team dynamics regardless of the time, space, and communication differences between virtual and face-to-face environments (Berry, 2011).

According to the study of Binder (2007) managers experience many challenges while working in global projects and some of them are:

1. Amount of Distance Locations – In global projects, team members are separated and often working in different time zones. In such circumstances, use of ICT communication by Project Managers and teams is essential to achieve a high level of communication effectiveness.
2. Number of different organisations – Project team members can work for a single department in a company, for more than one department or even for multiple companies. Therefore, Project Managers must adapt team and leadership skills to cater for the multiple policies, procedures and organizational cultures.
3. Country Cultures – different cultures of team members participating in projects can sometimes be the source of conflict and misunderstanding and Project Managers must apply some basic rules and practices to take advantage of the cross-cultural communication.
4. Different Languages – international organizations usually establish a common language for their communication, however, the way people communicate is highly dependent on their own native language.

In addition, Elbrahim (2009, p. 5) shows that the managers of virtual teams should manage conflict, and overcome the cultural and functional diversity in virtual teams which can lead to mistrust among the team members. The number of challenges continues to expand, as researchers identify new problems faced when managing virtual project teams. According to the research of Zofi (2011) managers face the following challenges when leading project teams: the challenge of building virtual relationships; and the challenge of observing, evaluating, measuring and assessing the work being done, together with each virtual team member's skills development.

2.3.2 Communication

As stressed by Lee (2013), in the virtual environment a large element of communication is nonverbal; that is why communication becomes a major issue for successful virtual project management. She described that in the traditional project environment Project Managers have the opportunity to communicate and implement projects with team members situated in the same physical and geographical location using face-to-face meetings as the primary method of communication. But in the case of virtual management these traditional methods of

communication are often absent. As described by Plazas (2012, p. 2) members of the project team do not have the possibility of reading the body language of their Project Managers and peers unless a videoconference takes place. They also have limited access to hearing the tone of voice when e-mail, text and Instant Messaging are the main ways of communication. In other words, the wrong emotions and messages can be easily allocated when there is no face behind the words. This has increased the curiosity to find out how Project Managers manage communication within virtual teams. Organizations and project management practitioners should know, only too well, not to underestimate the challenges associated with managing global virtual teams, yet, identifying these challenges may not always be apparent to them.

2.3.3 Cultural Differences in Virtual Teams

According to Stolovitsky (2012), the biggest challenge that Project Managers face in managing global teams is the cultural diversity of team members and stakeholders who are working in multiple locations. Virtual teams in global projects consist of people from different cultural backgrounds, and this produces challenges that management might have had little experience in dealing with. Cultural differences appear to lead to coordination difficulties, and create obstacles to effective communication (Powell et al., 2004). Cultural and language differences are common in global virtual project teams. The negative effect of cultural differences may be mitigated by an effort to actively understand and accept the differences (Robey et al., 2000, Powell et al, 2004), although McDonough et al., (2001) found project management challenges such as setting goals, budgets, schedules, resources, and identifying needs were more related to distance between team members rather than the cultural differences (Powell et al., 2004, p. 9).

2.3.4 Trust in Virtual Teams

Trust is a topic that comes up repeatedly in the literature. Problems regarding trust in virtual teams are typically associated with the beginning of the project. Given that it takes time to build trust, many research papers have shown that people start to trust those whom they meet regularly in person sooner than in an environment where communication is mainly through electronic technology. If language difficulties and diverse backgrounds are added, it becomes even more difficult (Duarte and Snyder, 2001). Rosen et al. (2007) explained that at the core of nearly every model of knowledge dissemination within virtual teams is trust in other

members. But while efforts are made to establish trust in virtual teams, others take a more sceptical approach and claim that face-to-face communication is necessary to foster trust (Oertig and Buergi, 2006).

2.3.5 Time Zones Differences

As examined by Lee-Kelley and Sankey (2008, p. 53), time may be an issue when team members are dispersed over a wide range of time zones. The use of asynchronous technologies can overcome different daylight working but still leaves a gap between query and answer and, for critical projects this delay can be stressful and inefficient. As stressed by Piecewicz (2010), although communication technology can bring virtual team members together virtually at the same time, it cannot completely mitigate the impact of time zones. Virtual teams and managers need to identify 'time zone' factors as a major dependency from the onset of the project initiative.

2.4 Communication Management

2.4.1 Communication in a project and Communication in virtual project teams

In the project environment, a Project Manager may spend 90 percent or more of his or her time communicating. Effective project communications ensure that we get the right information to the right person at the right time and in a cost-effective manner. Proper communication is vital to the success of a project (Kerzner, 2009, p. 233). As stated by Dow and Taylor (2008), communication is the key to keeping team members, managers, and stakeholders informed and on track to pursue the project objectives. Communication is also the key to identifying issues, risks, misunderstandings, and all other challenges to project completion.

Executives and Project Managers around the world agree that poor communication contributes to project failure. The Forbes Insights 2010 Strategic Initiatives Study *"Adapting Corporate Strategy to the Changing Economy,"* found that nine out of ten CEOs believe that communication is critical to the success of their strategic initiatives, and nearly half of respondents cite communications as an integral and active component of their strategic planning and execution process (PMI, 2013). Project managers recognise similar points from their side. According to PMI's Pulse research, 55 percent of Project Managers agree that

effective communication with all stakeholders is the most critical success factor in project management.

Effective team communication is the key to a project's success and as stated by Kezsbom et al. (2006, p. 3), communication is the single largest factor when determining the quality, efficiency, satisfaction and productivity of a project team. As simply explained by Dow and Taylor (2008), the only way to solve the project's problems is by communicating and there is no other way. To ensure the success of the project, clear information such as expectations, needs, goals and reports have to be communicated on a regular basis. It is critical for managers to transfer information to the team members clearly and to relay the correct message. One of the Project Manager's top priorities is to ensure that she or he has a handle on all project communications. It is critical that he or she controls every 'major' message flowing in and out of the project (Dow, PMBOK, Taylor, p. 21).

According to Anderson, one of the key challenges for effective virtual teams is ensuring good communication amongst all members of the distributed teams (Anderson et al., 2007). Face-to-face interaction in a virtual team environment is severely reduced and this causes misunderstandings due to communication restrictions which cause major problems in a project (Clark et al., 2010). There is general agreement in the literature that the communication process is crucial for virtual teams and that some level of face-to-face contact is necessary.

The literature also discusses the importance of selecting the right technology and creating a team of good communicators. The virtual environment creates considerable challenges to effective communication including time delays in sending feedback, lack of a common frame of reference for all members, differences in salience and interpretation of written text, and assurance from participation from remote team members (Crampton, 2001, Powell et.al., 2004). As explained in PMBOK (2008, p. 228), communication planning becomes increasingly important in a virtual team environment. Additional time may be needed: to set clear expectations; facilitate communication; develop protocols for resolving conflict; including people in decision-making; and to share credit in success.

Hunsaker and Hunsaker (2008) proposed guidelines for Project Managers who manages virtual projects:

- Pre-project: Establish and communicate project mission, priority and success criteria, select team members, define roles, and define technology requirements.
- Project Initiation: Establish and manage team boundaries, develop shared mental model, create and maintain awareness, and manage communication processes.
- Midstream: Steps taken in initiation continue through managing team boundaries and establishing working conventions and norms.
- Wrap-up: Go over lessons learned and annotated success.

Given the evidence that effective communication is a critical element of team effectiveness, both in traditional and virtual teams (Pitts et al., 2012, p. 22; Furst, Blackburn and Rosen, 1999; Mathieu, Maynard, Rapp and Gilson, 2008; Jarvenpaa and Leidner, 1999), understanding the drivers behind quality communication in virtual teams is of great importance for twenty-first-century organizations. Thus, additional exploration of the mechanisms that drive effective communication and subsequent team effectiveness is required.

2.4.2 A Communication Model

To gain a more conceptual understanding of how communication works, PMBOK, provide a simple yet insightful communication model (see fig. 3) which articulates the mechanism which has to be taken into account when trying to understand how communication functioning.

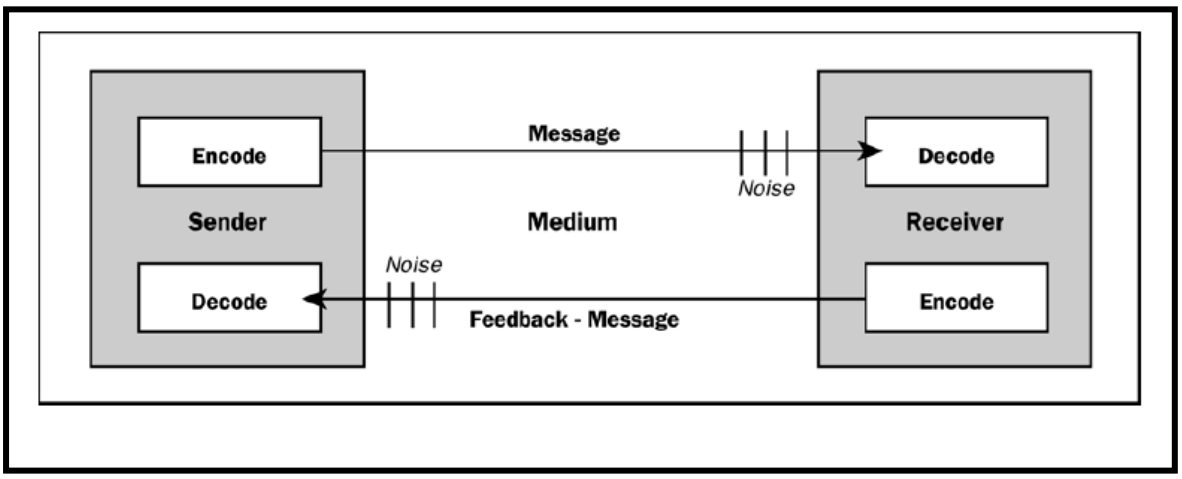

Figure 3 – Basic Communication Model. PMBOK (2008, p.255)

The model illustrates how messages are transferred and that they consist of:

- Encode – which translates thoughts and ideas into a language that is understood by others
- Message and feedback message -– the output of encoding
- Medium – the method of transferring information
- Noise – everything which causes failures in transferring and understanding the message

During the communication process, the sender is responsible for making the information clear and complete so that the receiver can obtain the message correctly. Then the receiver has the task of ensuring that the information is understood and confirming the reception of the message and that it is understood. Virtual teams communicate through technology which imposes restrictions and limitations on the communication process. In traditional teams, people communicate face-to-face and speakers can get feedback straight away and it becomes clear that the message has been delivered. In virtual teams on the other hand, messages are transmitted by communication technology, they may be lost while transmitted, or may not be delivered. Consequently, communication in virtual teams is often infrequent and unclear which makes communication more problematic. The above components of the communication process should be carefully considered during the sending and receiving of messages at any point of the project, as any breakdown in communication may negatively impact upon the project.

2.5 Communication Management

2.5.1 Communication Methods

The Project Manager decides, based on the communication requirements, what, how, and when communication methods are to be used in the project (Culo and Skendrovic, 2010, p. 230).

The three main methods of communication according to PMI (PMBOK, 2008) are:

1. *Interactive communication* which occurs between two or more people performing a multi-directional exchange of information. According to PMBOK (2008) this is the most efficient way to ensure common understanding by all participants on specific topics, and includes: meetings; phone calls; video conferencing; etc.
2. *Push communication* is sent to specific recipients who need to know the information. This ensures that information is distributed but does not certify that it actually reached or was understood by the intended audience. Push communication includes letters, memos, reports, emails, faxes, voice mails, press releases etc.
3. *Pull communication* is used for very large volumes of information, or very large audiences. These methods include intranet sites, e-learning, and knowledge repositories. (PMBOK, 2008, p. 256)

2.5.2 Project Communication Management

Communication management means providing the right information to the right people at the right time (Dow and Taylor, 2009). According to PMBOK (2008, p. 243), project communication management includes the processes required to ensure timely and appropriate generation, collection, distribution, and ultimate disposition of project information. Project Managers spend the most of their time communicating with team members and other project stakeholders, whether they are internal (at all organisation levels) or external to the organisation. Effective communication creates a bridge between diverse stakeholders involved in a project, bridging various cultural and organisational backgrounds, different levels of expertise, various perspectives and interests in the project execution or outcome. Communication management includes all aspects of managing the communication of the project (Dow and Taylor, 2008).

According to PMI global standards (PMBOK, 2008, p. 243), process communications management includes the following:

1. *Identify stakeholders* – which is the process of identifying all people or organisations impacted by the project, and documenting relevant information regarding their interests, and impact on the project's success.

2. *Plan communications* – the process of determining the project stakeholder's information needs and defining a communication approach.
3. *Distribute information* – the process of making relevant information available to project stakeholders as planned.
4. *Manage stakeholder expectations* – the process of communicating and working with stakeholders to meet their needs and address issues as they occur.
5. *Report performance* – the process of collecting and distributing performance information, including status reports, progress measurement, and forecasts.

The key benefit of this process is that it enables an efficient and effective communications flow between project stakeholders. On the other hand, literature emphasizes that fast changes and the dynamic, turbulent environment of today forces communication structure to be more flexible.

2.5.3 Virtual Project Manager Role

In the past, Project Managers managed teams which were in close proximity to them, which allowed them to communicate with team members face-to-face. Recently, however, as noticed by Osman (2011, p. 1), the role of the Project Manager has shifted, because of the increase in telecommuting practices and the need for more collaboration among dispersed teams. As such, the virtual Project Manager faces several challenges in managing his or her team. A Project Manager working with virtual teams in global projects must be an experienced leader and a team player with strong communication and collaboration skills and the ability to effectively manage a demanding workload in the execution of multiple concurrent projects across geographic and organizational boundaries. In addition, according to Nuells (2013, p. 2), the Project Manager will have to determine the best method to build collaboration and trust as well as produce deliverables. According to Nuells (2013) the primary role of the Project Manager is to ensure effective communication, quality teamwork and knowledge sharing in virtual teams.

2.6 Communication Management Plan and Managing Communication within Virtual Teams

There is general agreement that Project Manager should establish clear communication plan. Although this might seem obvious, according to Osman (2011, p. 2) it is the most overlooked by Project Managers working with virtual teams. A communication plan should define the rules of engagement and the frequency of communication. It should include repository of contact information for all virtual team members. According to Osman (2011, p. 2) Information needs to be generated, collected, distributed, stored and retrieved. To ensure this is performed adequately, a communication planning process is required to ensure efficient and effective communication between the manager and stakeholders. The communications management plan should be prepared as early as possible in the project and reviewed regularly during the project. According to Nuells (2013, p. 2) the two key factors to managing the successful virtual project team are: effective communication and quality teamwork/knowledge sharing. She stressed that it is primary role of the Project Manager to ensure that these two characteristics accounted for throughout the entire project from planning to closure.

Communication is essential for project success in virtual teams and according to Kuruppuarachchi (2010, p.23) it's important to have a well-organized plan for success. As highlighted by Nuels (2013, p. 2), today Project Managers have to understand how to approach a new project with team members from various regions, countries and time zones. She describes that work schedules and meeting times have to be considered more than with face-to-face project teams and to reduce the impact of space and time, the project team members need effective communication and appropriate use of the communication tools throughout the project from planning to closure. In addition to the above, Anantatmula and Thomas (2010, p. 61) stressed that the communication plan for virtual teams should have three practical outcomes to improve trust in the project team: creating an environment where team members are comfortable with openly discussing conflicts, avoiding rigid structures that are not adaptable, and using communication tools.

2.7 Communication Technology and Tools for Virtual Teams

Virtual project teams are formed to work together across space, time and even organisational boundaries. This is possible due to different technological developments that support virtual teams. These developments consist of, among others, video conferencing, groupware, and mobile technologies. Information exchange and effective communication are crucial for virtual teams and a successful project. Thus, as explained by Lee and Sankey, organisations should not plan to implement virtual teams without effective communication management. This means, that the prior setting up of a virtual project team, infra-structure and tools for data exchange must be set and validated. Also, construction of information systems requires software and hardware to be available for every member wherever he or she is located. A low network connection or incompatibles software can sink any tentative or remote work (Lee and Sankey, 2008).

These tools and technologies are necessary for virtual teams to carry out projects (Lipnack and Stamps, 1997). Using technology is essential to mediate communication of virtual teams. Collaborative technology can be classified according to four main dimensions as proposed by Davis and Wise (cited by Weimann et al., 2010):

1. same time/same place (e.g. network computer in a laboratory)
2. same time/different place (e.g. phone, chat, skype, phone conference)
3. different time/same place (e.g. bulletin boards)
4. different time/different place (e.g. email, text message, web-based project management tools).

Successful virtual teams have to be ready to use diverse ways of real-time (synchronous) and delayed time (asynchronous) communication through technology such as e-mails, chat rooms, data meetings and other technical communication modes to achieve success (Pauleen and Corbitt, 2003, Ingason, 2010).

In classifying and selecting communication technology and tools for virtual teams, one theory that is the most common in literature is the Media Richness Theory sometimes also referred to as the Information Richness Theory introduced by Richard L. Daft and Robert H. Lengel.. Media Richness Theory can be used to describe the ability of communication media to transfer information. They suggested that media vary in the levels of richness they provide. Although media might differ in the number of cues (e.g. timely feedback, body language,

facial expression etc.) they are not able to convey, the timeliness of feedback, and the capacity for natural expression. Therefore, face-to-face communication can be considered as the richest medium. The level of richness of some of the mediums is set in the table below:

Medium	Timely feedback	Body language	Facial expression	Tone of voice	Convey emotion	Convey message	Equivocality
Face-to-face	×	×	×	×	×	×	Equivocal
Video conferencing	×		×	×	×	×	Equivocal
Phone	×			×	×	×	Equivocal
Chat	×				×	×	Equivocal
Email						×	Unequivocal
Text messaging						×	Unequivocal
Written documents						×	Unequivocal

Table 2 - Level of Richness of communication media (Weimann et al., 2010, p. 190)

2.8 Conclusion

From the literature, the researcher has identified an area of research which can be built upon. Project management performed by virtual teams, distributed in different geographical locations and time zones, is becoming more and more a common practice in many organizations today. The reviewed literature reflected the significance of considering communication management as a critical project management competency when managing virtual teams. Kirkman et al. (2002) suggested that by identifying challenges, difficulties and learning from past experiences, the Project Manager professional will be better prepared to develop a global virtual project team. From this point, a theory about the communication management within virtual project teams in global projects shall be developed using a mixture of theoretical solutions and practical approaches.

Chapter 3 The case company: Optimus Ireland - IT industry

In this chapter, the researcher will address the research in relation to the case company and the IT industry.

Over the past thirty years, Ireland has built an international reputation as a centre of IT excellence. Growing companies of scale requires a range of skills that extends beyond the purely technical realm. These companies require the development of high-level skills across a broad range of managerial disciplines (Enterprise Ireland, 2013). As organisations are increasingly implementing global projects and using virtual teams it is urgent to understand how managers in the IT industry handle such teams. Thus, the purpose of this research is to add an important contribution to project management discipline, while assisting Project Managers and project management students in the area of managing communication within virtual teams from a theoretical standpoint and, more importantly, from a practical one.

Optimus Ireland is a leading global vendor of legislative and regulatory software. The organisation is spread over a few continents. The company hires a world-class team of software architects, Project Managers and developers, business analysts and consultants who have been working within virtual teams for several years and who have a deep understanding of problems faced by virtual teams. By adopting an Agile development methodology these industry experts ensure that users accept the procedures each step of the way, by insisting on a rich client involvement during all stages of the development process. This results in quality, user-tested systems. The Agile methodology caters for joint development where clients can actively participate in building the solution. Optimus's virtual teams are cross-functional and are based in Europe, America and Asia. Optimus works closely with its clients and team members throughout a project's lifespan. They offer a range of joint developer programmes in order to involve the client deeply in their projects. Effective virtual team communication at Optimus Ireland is crucial for the delivery of successful projects as teams are highly interdependent. Employees in Optimus Ireland are each part of a team; some of those teams are collocated, some are entirely virtual.

Chapter 4 Research Methodology

4.1 Introduction to Methodology Chapter

This chapter outlines the research methodology used. It justifies the strategy and outlines the design chosen, so that the researcher could answer the research questions while ensuring the quality of the final results. As explained by Bowen G.A. (2005, p. 216), the researcher should spell out the methodology in detail to make the process as transparent as possible. This chapter discusses the philosophy, approach, strategy, research choice, time horizons, techniques and data collection procedures chosen by the researcher and justifies them in the context of the research questions and objective of this dissertation. The scope of this thesis is provided, together with ethical considerations and the sampling techniques used.

4.2 Research Objectives and Research Questions

4.2.1 Research Objectives

According to Saunders et al (2009), research objectives are clear, specific statements that identify what the researcher wishes to accomplish as a result of doing the research. Based on the extensive literature review the main objectives for this research are:

1. ***To identify and describe the key challenges which Project Managers face while managing communication within virtual teams in global projects.***

2. ***To develop a deeper understanding of communication management within virtual teams in global projects.***

4.2.2 Research Questions

In order to achieve the above research objectives, the following research questions were formulated:

1. ***What are the key challenges encountered by Project Managers while managing communication within virtual teams in global projects?***
2. ***How are Project Managers managing communication within virtual teams in global projects?***

4.3 General Theories of Methodology

4.3.1 Introduction

Saunders et al, (2009, p. 5) define research as something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge. 'Systematic' suggests that research is based on logical relationships and not just beliefs. Saunders, Lewis, and Thornhill (2009) use an onion as a metaphor to describe the different means available for a researcher when undertaking research. When building up a methodology for this thesis, the 'research onion model' constructed by Saunders et al. (2009) was used (Fig 4).

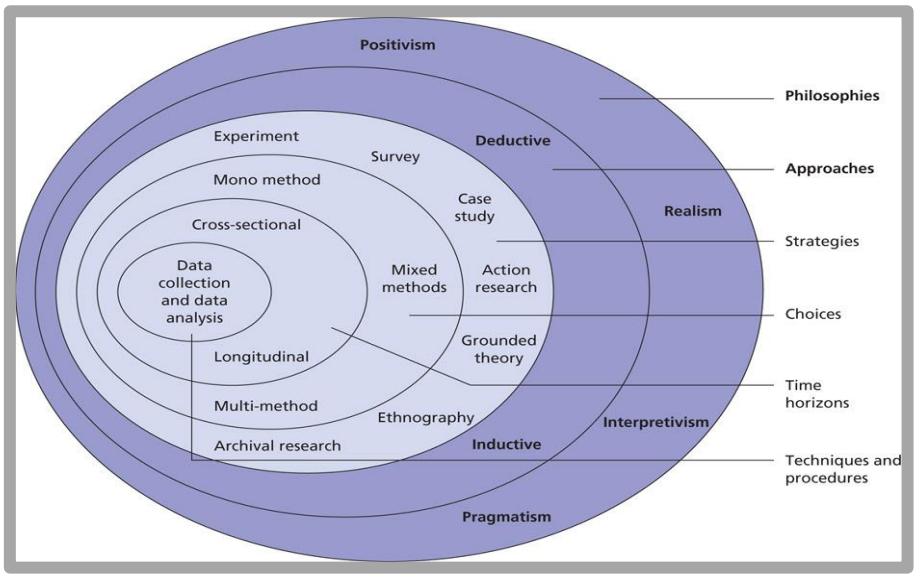

Figure 4 – Research Onion (Source: Saunders et al., 2009, p. 108)

The above 'Research onion' illustrates the different layers and approaches that are available to a researcher. Each of the five layers is integral to conducting successful research (Saunders et al., 2009, p. 106). Below (Figure 5) represents the process of data generation used in the research to investigate the research questions.

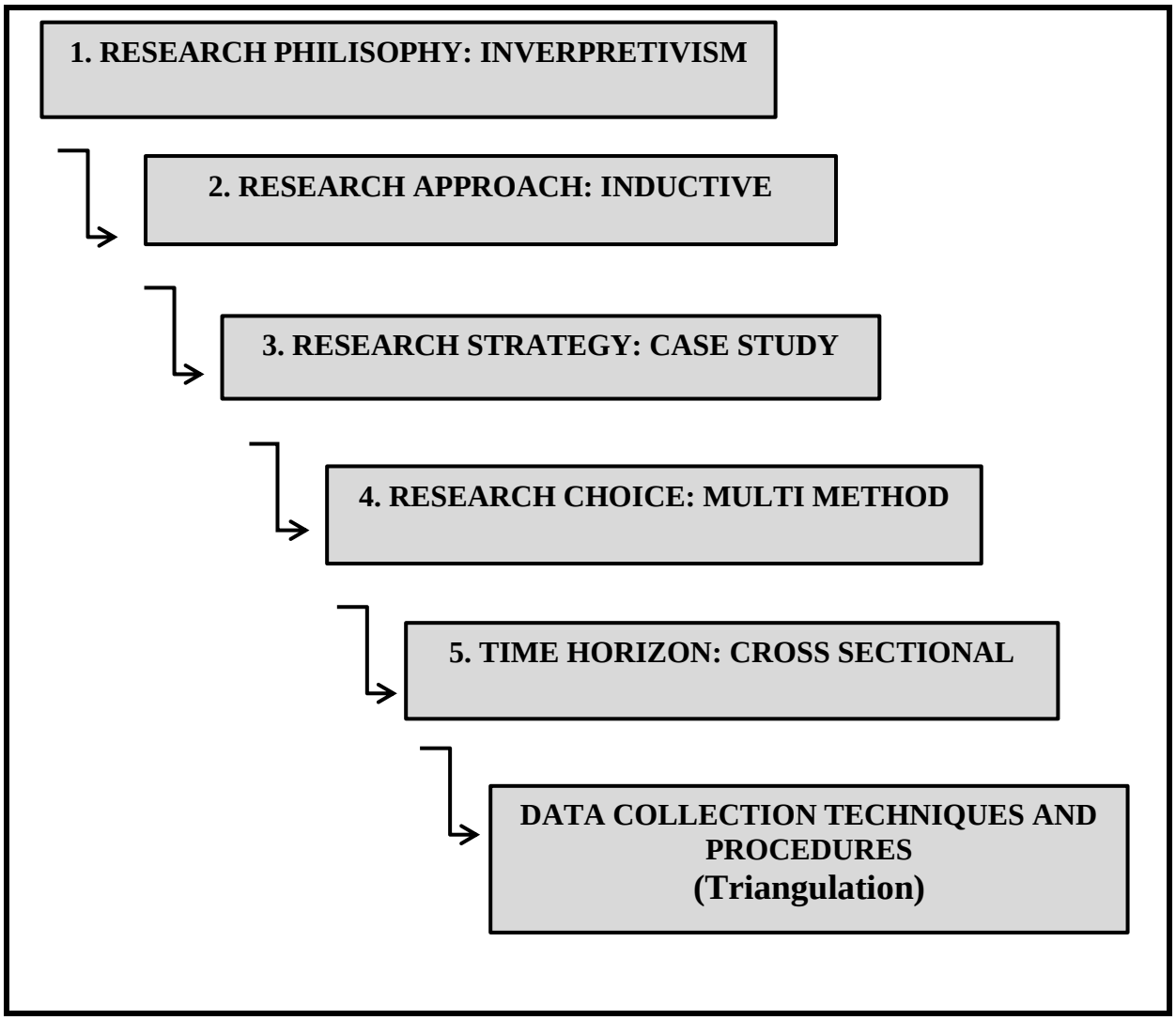

Figure 5 - An illustrative example of the researchers methodology based on Saunder's 2009 theory (Source: own interpretation)

4.3.2 Research Philosophy

Saunders et al. (2009, p. 109) explained that one research philosophy does not necessarily have to be better than another. According to Saunders et al. (2009, p. 109), the research philosophy which the researcher will adopt contains important assumptions about the way in which the researcher views the world. Positivism, realism and interpretivism are the three main types of processes used by academic researchers (Saunders et al., 2009, p. 113). The

positivist approach demands that the role of the researcher is to test theories and to provide materials for the development of laws (Bryman and Bell, 2008, p. 16). Saunders et al., (2009, p. 114) claim that realism can take the form of direct realism or critical realism. Direct realism supports the idea that what we experience through our senses depicts the world as it actually is. On the other hand, critical realism supports the notion that what we see and live are only sensations. They are representations of the real world. The basic assumption of the interpretive approach is that the world is socially constructed and subjective (Burns and Burns, 2008, p. 18). Knowledge is developed and theories are built through developing ideas inducted from the observed and interpreted social constructions. For the purposes of this study it has been identified that the research goal is best suited within the framework of the interpretive approach. The researcher is not trying to make any claims about how reality is, or what is the essence of things, whether in a strict formal approach or a less stringent one, rather the researcher wants to engage in an understanding which can answer questions such as why and how.

4.3.3 Research approach

The interpretive approach obviously implies then that the reasoning will be of an inductive nature. While deductive approaches are very useful in other domains, they remain too strict and implausible for capturing the type of phenomena the researcher is after. With the inductive approach, as described by Saunders, the ‘data is collected and the theory is developed as a result of the data analysis‘(Saunders et al., 2009, p. 129). As advocated by Saunders et al. (2009, p. 126), research using an inductive approach is likely to be particularly concerned with the context in which such events took place. The inductive approach is a bottom-top approach where data is analysed, collected and used as a source for developing a theory.

4.3.4 Research Choices

This layer of the research onion highlights, according to Saunders (2009), a basic, but important choice that all researchers face when designing their research: whether to use a quantitative method or methods, a qualitative method or methods or a mixture of both. Fig 6 below illustrates the research choices available to the researcher:

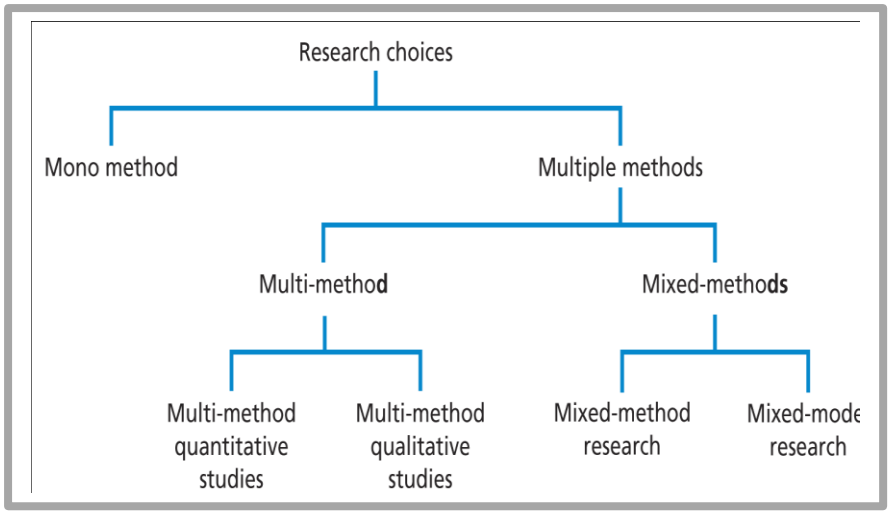

Figure 6 - Research choices (Saunders et al., 2009, p. 152)

As explained by Saunders (2009), in multi-method quantitative designs the researcher uses more than one quantitative data collection technique with associated statistical analysis procedures. For multi-method qualitative designs she or he uses more than one qualitative data collection technique. For example, semi-structured interviews and observations are used with associated analysis procedures. A mixed methods design combines both qualitative and quantitative data collection techniques and analysis procedures (Saunders et al., 2009, p. 152). As described by Burns and Burns (2008, p. 18), qualitative research enables researchers to gather and analyse information conveyed through language and behaviour exhibited in natural settings. It captures expressive information not conveyed in quantitative data about perceptions, values, needs, feelings, and motivations that underline behaviours at an individual level.

4.4 Research Strategy

4.4.1 The Approach

Saunders et al. (2009, p. 141) stated that the research strategy should be guided by the research question(s) and objective(s), in relation to the extent of the existing knowledge, amount of time, resources available and also by the researcher's philosophy. In addition, Saunders et al. (2009, p. 114), identified several research strategies that can be used: experiments, surveys, case study, action research, grounded theory, ethnography and archival

research (Saunders et al., 2009, p 141). The above research strategies were taken into consideration prior to deciding on the most suitable one for this research.

In this research multi – methods qualitative design have been used. This research design has been more suitable because it allowed the collection of in-depth, detailed and valuable information. The quantitative research relies on statistical relationships and predominant categories, while the qualitative research gives the opportunity to identify themes and patterns. Furthermore, as stated by Burns and Burns (2008, p. 18), qualitative methods are used to learn directly from employees what is important to them, to provide the context necessary to understand quantitative findings, and to identify variables important for future quantitative studies and that is why qualitative methods align with this research. Rudestam and Newton (2007, p. 105) stresses however that "too often students view the relatively unstructured nature of qualitative research designs as license to omit clarity and specificity in the method chapter of their dissertations. Qualitative studies should not be considered as opportunities to ignore the planning process in research."

4.4.2 Case Study

The following section describes the case study strategy and justifies the preference for it as opposed to other strategies. Robson (2002, p. 178), as citied by Saunders et al. (2009, p. 145), defines a case study as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence". The research was performed at Optimus Ireland using multiple data sources from semi-structured interviews with Project Managers, non-participant observations and secondary data. The primary advantage of interviews is that they provide much more detailed information than what would be available through other data collection methods, such as surveys. According to Yin (2003), a case study design should be considered when the focus of the study is to answer 'how' and 'why' questions, and the researcher wants to cover contextual conditions which they believe are relevant to the phenomena under investigation (cited by Baxter and Jack, (2008, p. 545)).

4.4.3 Sampling

As stated by Saunders et al. (2009, p. 232), for all non-probability techniques, other than the quota samples, the issue of sample size is ambiguous as unlike probability sampling there are

no rules. Rather, the logical relationship between the sample selection technique and the purpose and focus of the research is most important as the generalization is being made according to theory rather than population**.** Bailey (1992, p. 30) emphasises the above by claiming "that there is no attempt to claim an ability to generalize to a specific population, but instead, the findings are relevant from the perspective of the user of the findings."

In light of this, purposive sampling was adopted. This study focused on a small non-probability sample, which provided rich-information to gain theoretical insights into the research phenomena. The selection of interview candidates was based on the experience experts have with managing communication within virtual teams in global projects in the IT industry. Those experts are physically based in Ireland, while team members of their projects are spread around the world. Those Project Managers were not interviewed to get an average opinion of the entire project management profession. Instead they were invited to participate in this research and interviewed because of their special experience and competences with regards to managing communication within virtual teams in global project in IT industry. This research focused on the communication management practices of Project Managers that had to meet the following criteria:

- Project Managers who have been working in the IT industry,
- Project Managers who had at least five years' work experience in managing global projects and virtual project teams in global projects

4.4.4 Time horizon

According to Saunders et al. (2009) there are two study options available for the researcher: cross-sectional or longitudinal studies**.** The cross-sectional study is a 'snapshot' taken at a particular time and the longitudinal study is a series of snapshots (Saunders, 2009, p. 155).The main strength of longitudinal research is the capacity that it has to study change and development. However, cross-sectional studies are not as resource intensive in time and cost, as noticed by Burns and Burns (2008). The time horizon for this research will be cross-sectional rather than longitudinal as the objective of this dissertation is to discover the perceptions of Project Managers on communication management within virtual teams at a particular point in time and provides a snapshot of the current situation. In contrast, longitudinal study requires long-time observations and analyses change over time. The

primary data collection for this research was during a short period of time - one week from 7th of October to the 11th of October 2013.

4.5 Data Collection Procedures

4.5.1 Introduction

The process of data analysis in this research does not start when data collection ends. It is considered as a continuous task in the research process throughout the entire study (Daymon and Holloway, 2002). Preliminary analysis takes place when new ideas emerge. Since the qualitative design is a flexible method for research, it does not restrict the research from exploring areas that were not originally intended to be studied. The data analysis process that was utilized in this research is flexible and exploratory. As defined by Saunders, qualitative data refers to all non-numeric data or data that has not been quantified and can be a product of all research strategies (Saunders et al., 2009). There are two sources of data: secondary and primary. In this research, primary data sources are the semi-structured interviews with experts and non-participant observations at the case study organisation. Secondary data was collected from multiple sources.

4.5.2 Primary Data - Interviews

The principal source of data was the textual analysis of semi-structured interviews with Project Managers managing virtual teams in global projects. An interview guide was constructed (Appendix number 3) with a list of themes and open-ended questions built upon the research questions and the literature review. The primary data was triangulated with the various forms of data that were collected in this study. To collect a detailed document of the Project Managers' perspectives on managing communication within virtual teams in global projects, three non-standardised, individual, semi-structured interviews were conducted: each lasting about 1 hour. Structured interviews have been considered in this research, but not used because they are rather deterministic. Furthermore, regarding interview techniques, the establishment of contact and prolonged engagement is crucial, thus the researcher spent ten working days in the case company where the research was done. This time was long enough to observe a range of communication activities and to gain trust from the participants for this research.

4.5.3 Primary Data - Observations

According to Saunders et al. (2009), observation involves: the systematic observation, recording, description, analysis and interpretation of people's behaviour. There are two types of observations according to Saunders. Structured observation is quantitative and is more concerned with the frequency of actions. In contrast, participant observation is qualitative and its emphasis is on discovering the meanings that people attach to their actions. In this study the researcher adopted the role of 'participant as observer'. Observation protocol was prepared (Appendix number 5). Reflections and notes during and after observation were taken, then transcribed in word format and stored on the researcher's password protected computer and analysed.

4.5.4 Transcriptions

Interviews were transcribed and verified by the participants. All documents related to the research, including recordings, transcripts and analysis, were securely stored. All electronic files were stored on a password-protected computer. This was performed by transcribing and coding the interview transcripts and notes from observations, summarising and simplifying, noticing common patterns, clustering and categorizing results, comparing and contrasting data and highlighting relations between common patterns. Data analysis and interpretations were triangulated against the documentary evidence.

The data analysed consisted of the transcriptions from the interviews and notes taken during, or just after, the interview as well as all field notes taken during observations. To ensure that the transcripts represented the written text, the interviews were transcribed into an MS Word document format and saved on the researcher's password protected laptop. The researcher checked the transcriptions twice against the tape-recorded material, and made changes if this was necessary. Furthermore, all interviews were transcribed following the first two days after the interview took place so that it was easier to remember the context in which the statements have been made. Importantly, precautions have been taken during transcription and final presentation to prevent the respondents being recognized. All information that could be used to identify a specific person was left out of the transcripts. Participants had the option to review transcripts of interviews. Once the interviews were transcribed they were sent individually by e-mail to each participant. This member checking technique was adopted to maintain acceptable standards of scientific inquiry.

4.5.6 Secondary data

Saunders et al. (2009), suggested that secondary data sources should be exhausted prior to primary research conducted, in order to help the researcher to develop a good understanding and insight into previous studies and emerging trends relevant to the area of research. Therefore for the purpose, the researcher of this study has reviewed in detail the existing literature to explore all relevant materials for this project.

4.5.7 Ethics

As suggested by Bryman, (2007, p. 177) all possible precautions should be undertaken in order to ensure that neither informants nor respondents are affected by the research. The ethical issues were considered in this research according to Dublin Business School Ethical Approval. The required confidentiality agreement for the case company was prepared and signed by the company (appendix no 4). In order to promote honest and open responses and to maintain respondent confidentiality, the researcher has decided to give the interviewees the option to keep their answers anonymous. Participants of this research were assured of the confidentiality of the information given prior to and after the interview process. Assurance of confidentiality allows for sincere responses from the participants. In order to do that a confidentiality agreement and consent form was prepared (Appendix no 1 and appendix no 2) and signed by respondents. To comply with all the required ethical rules, the researcher codified the records of each respondent's interviews to make them completely anonymous. Each participant was assigned a number and no personal information was collected other than age, gender, education level, the amount of years the individual has been employed by the organisation, and the amount of years the respondent has been leading virtual teams.

4.6 Verification and Validity

4.6.1 The Problem

Rudestam (2007, p. 112) claims that while concepts such as validity do not hold the same importance in qualitative research as they do in quantitative research, "nonetheless, all research carries the responsibility of convincing oneself and one's audience that the findings are based on critical investigation." Bowen G. A. highlighted the importance of providing checks and balances to maintain acceptable standards of scientific inquiry in qualitative dissertations (Bowen G. A., p. 215, 2005). In effect, the need for rigorous data collection and analytic methods had to be addressed in this research. The researcher applied every reasonable precaution to ensure the quality of both the validity and trustworthiness of the data acquired throughout this study.

Bowen G. (2005, p. 215) claims that qualitative researchers, who frame their studies in an interpretive paradigm, think in terms of trustworthiness as opposed to the conventional, positivistic criteria of internal and external validity, reliability, and objectivity. Denzin and Lincoln (1994, citied by Bowen G., 2008) suggest four concepts to replace those found in the natural sciences.

- credibility (in preference to internal validity);
- transferability (in preference to external validity/generalizability);
- dependability (in preference to reliability); and
- confirmability (in preference to objectivity) (Bowen G., 2005, p. 215).

Transferability means that other researchers can apply the findings of the study to their own. To address issues of transferability, this study presented findings with rich descriptions of the phenomena. Also the scope and limitations of this study has to be highlighted. The results of qualitative study must be understood within the context of the particular characteristics of the case study organisation. Generalizability is often referred to as external validity (Saunders, 2008, p. 160). In this research the purpose of using a single case study is not to produce a theory that is generalizable to all populations. The purpose in this study was simply to try to explain what is going on in this particular research setting.

Dependability refers to the stability of the findings over time and the internal coherence of the data in relation to the findings, interpretations, and recommendations (Denzin and

Lincoln, 1994, citied by Bowen G. 2005, p. 216). To address this issue of dependability, an in-depth methodological description was included in the methodology chapter to allow this study to be repeated.

Credibility refers to ensuring that the study measures or tests what is actually intended and according to Bowen (2005) this can be established by various methods.

4.6.2 The role of the researcher

The initial step included the identification of a meaningful topic, extensive literature review, formulating research questions and objectives and creating a research plan. An issue with qualitative research in general is the central role of the researcher and it is now generally accepted that all stages of the research are to some extent influenced by the researcher. Thus it is important for the researcher to be conscious of any biases that may influence the study, yet eliminating all bias is often not possible, but being aware of how it may affect the analysis can reduce its impact.

4.6.3 Validity and Verification Strategy

Construct validity (Yin, 2009), which examines the methodological integrity of the study, was addressed by the following steps. Step one maintained a chain of evidence of data as described in the methodology chapter. Step two applied triangulation, with multiple sources of evidence so that findings may be *cross-checked*. Padgett (1998, as citied by Bowen G. A., 2005, p. 125) enumerates and elaborates on six strategies for enhancing the rigor of the research: prolonged engagement, triangulation, peer debriefing and support, member checking, negative case analysis, auditing.

The following strategy based on most of the latter was adopted.

Member checking is a process of verifying information within a target group. Member checking is adding validity to the research. In this research, transcripts were sent by e-mail to each interviewee and they had a chance to correct errors and wrong interpretations.

Prolonged engagement provides an opportunity to establish good rapport and trust with participants, allowing the researcher to overcome the effects of misinformation or presented fronts (Chapman R, Coll R. 2000, p. 4). With this in mind, the researcher engaged

in an enquiry process and established a good relationship with the participants of this research.

Peer briefing and support. This research was supervised.

Persistent observation. According to Bowen, (2005) persistent observation 'allowed the researcher to identify characteristics and elements in the inquiry that are most relevant to the issue of virtual team's communication management'.

Triangulation was used in this study to bring together different sources of information to converge or conform to one interpretation. As defined by Saunders et al. (2009 p. 146), triangulation refers to the use of different data collection techniques within one study in order to ensure that the different data 'are telling you what you think they are telling you'. Triangulation is a powerful technique that facilitates validation of data through cross verification from a few sources. In this study, the researcher utilised triangulation to validate data from semi-structured interviews, non–participant observations and secondary data. See Fig 7 below.

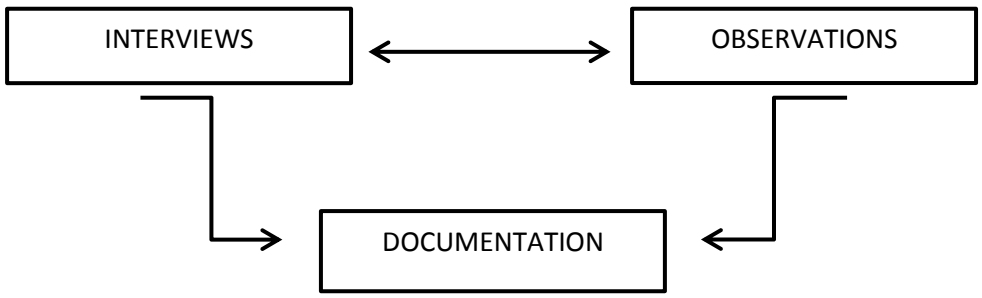

Figure 7 - Triangulation by method (Bowen G.A., 2005, p. 215)

Summary of the research validation strategies used in this research illustrate table in appendix no 6.

4.7 Research Timetable Plan and Resources

Due to the complexity of this dissertation, time management was vital. A time allocation research plan was prepared (appendix no 7) and the resources for the research have been budgeted in advance (appendix no 8).

Chapter 5 Data Analysis and Findings

In this chapter the results of the data analysis are presented. The data analysis phase was an ongoing process, given the richness of data. The data was collected, reduced, displayed and then processed in response to the problems posed in the first chapter of this dissertation.

5.1 Data analysis and findings

The primary research was performed at Optimus Ireland using multiple data sources from semi-structured interviews with Project Managers, non-participant observations and documentation review.

The manner in which this was done was by transcribing and coding the interview transcripts and notes from observations, summarising and simplifying, noticing common patterns, clustering and categorizing results, comparing and contrasting data and highlighting relations between common patterns. The interviews conducted were transcribed and verified by the participants.

Apart from interviews and in order to gain additional insight into the company, the researcher conducted non-participant observation of communication practices and the various communication technologies at the case company for an hour each day over a one week period. Observation protocol was used to take notes during and just after observations (appendix no 5). Research also collected existing documentation. Documents collected included: organizational charts, project status reports and status meetings, project plans, policy manuals and industry data.

The information that has been gathered and generated has been used to see how managing communication within virtual teams in global projects is experienced by Project Managers and what they felt, in their opinion, improved and hindered the communication. This study has been focused on understanding conditions of effective communication management and causes of ineffective communication management. The use of various data collections methods provided a complete picture under investigation and the final report is presented throughout this chapter.

Background on participants:

Participants were selected from a global IT organisation, Optimus, whose head office is based in Ireland. All experts chosen had extensive understanding and experience in managing virtual project teams. The sample consists of Project Managers who managed separate projects, with similar roles in the company, different levels of business experience and different educational backgrounds. A synopsis on each participant is detailed briefly below and a synopsis is provided in Table 3.

Participant A:

Participant A has been a Project Manager since 2003, and has been working with virtual teams since 2006 between Ireland and USA. Prior to joining Optimus, he worked in an e-learning software company as a developer and then team leader for three years. He is also the engineering manager and he manages staff in both their European and US offices. His current project team is composed of staff based in Indiana, Dublin, Kansas and London. The client team is integrated with his project team as they do joint development to assist in the knowledge transfer between themselves and the client. The development teams are mainly based in Dublin and Kansas.

Participant B:

Participant B is working as a Project Manager on virtual teams for the past five years. In his current project there are twenty people, they are based in UK and US and are across three different time zones. He also manages an onsite team that has four business analysts, himself (PM) and one onsite domain administrator.

Participant C:

Participant C is a Project Manager with five years' experience working with virtual teams. Currently, he is involved with two significant projects. The first project consists of a team of developers who are currently situated in Lawrence, Kansas, business analysts in Indianapolis, and interface designers in Dublin. Another project includes a team of developers located in Delhi, and a designer in Dublin.

EXPERTS:	Participant A	Participant B	Participant C
POSITION	Project Manager	Project Manager	Project Manager
VIRTUAL WORK EXPERIENCE	Seven years' experience managing virtual teams	Seven years' experience leading virtual teams	Managing virtual teams for the last five years
EDUCATION	Computer Science Master Degree	Bachelors of Science of Business Administration with an emphasis on Management Information Systems	Computer Science Master Degree

Table 3 - Summarised expert's characteristics.

5.2 Research Question 1

What are the key challenges encountered by Project Managers while managing communication within virtual teams in global projects?

The interviews started by seeking to identify the key challenges which managers face while managing communication within virtual teams in global projects. The objective behind this part of the data collection was to identify and describe what kind of challenges Project Managers encounter while managing communication within virtual teams in global projects. Project Managers in having to avoid potential problems and to reduce the risk of project failure, are thus ideal participants in identifying these challenges.

According to Project Managers from this study, communication within virtual teams and information sharing is the key to successful completion of IT projects. And in conforming to the literature they identify the main challenges which they encounter when managing communication within virtual teams: distance and lack of face to face communication; difficulties with building trust and relationships; time zone differences; cultural differences and lack of common rules; lack of urgency when sending a message and non-instant messaging.

CHALLENGE ONE: Distance and lack of face-to-face communication

All respondents emphasised the challenge of long distance when communicating, which results in a lack of face-to-face contact with team members. Expert A described that in a global project, when team members are situated in different time zones and continents, the opportunity for direct communication is limited. The ideal face-to-face meetings, due to expensive transportation costs, are not always possible. Face-to-face meetings are rare and usually reserved for Project Managers only, and not for project team members. As a result Project Managers do not always have the opportunity to meet in person with project team members or meet on site to discuss projects or problems encountered. Expert B explained that it is very difficult to communicate when team members are geographically separated because as he experienced: *'in virtual teams it is very difficult to know if written information which has been sent has been delivered and understood correctly. That's why we use technology tools that can inform the sender that the information was received'*. He also explained that it's very important to follow-up sent information and to communicate more precisely and frequently to make sure that team members understands their tasks. Respondent C elaborated on this: '*With teams not sitting next to each other, information is lost between virtual teams that would be normally shared with a quick conversation. This gets amplified when there are three virtual teams that are trying to communicate to each other but inevitably leaves one party out'*. According to him videoconference tools helps to overcome this, but *'it's still not the same as having people in the same room'*.

CHALLENGE TWO: Difficulties with building trust and relationships

Building trust and social relationships is an important challenge to effective communication management in virtual teams, as expert A highlights: '*Relationships are difficult to build among team members that have never met. I have seen this quite a bit and it means that people are more reluctant to trust or find it difficult to align their vision when their experience and environment are completely different'*. Expert B described that in virtual teams there is *'no casual flow of information, also known as 'water cooler talk'. Informal communication does not happen in virtual teams as naturally as between face to face teams*'. In collocated teams a lot of information is dispersed through non-organized office discussions, but this does not happen in virtual teams.

According to participant C communication management within virtual teams is affected by the *'absence of social interactions'*. He thinks that it's easier to manage communication of collocated teams compared to virtual teams because the latter's communication is usually focussed on the task on which team members are working on only, while the former, who are working and sitting in the same office have more personal interactions: '*they have a chance to get to know each other and share their experience'*. Virtual team members exchange information only about work and very rarely about their social life. That's why according to this Project Manager it is important to use collaborative technology or internal chat to stimulate open communication and building personal relationships within the team.

CHALLENGE THREE: Time zone differences

Time zone differences have also been recognised by all experts as one of the main challenges of managing communication in virtual teams. Participant A explained that coordinating a meeting while working with teams in different time zones can be difficult: '*Coordination of meetings is not easy when there are 5 or 6 hours in time difference'.* In his projects, work on a project does not stop when one team member logs out from the system in the Dublin office, because another team member in the U.S. has just logged in, and then after him someone else takes over his duties. He adds that without software you would need to monitor projects constantly 'around the clock'. Respondent B expanded on this : *'One of the teams is five hours ahead so by the time the onsite team was ready to really start work, the Dublin team was starting to finish for the day. This left only a few hours of team work that could be accomplished. Partner that up with communication issues and virtual teams become more of a hindrance then a help'*. He concludes: '*Time zone differences cause communication ineffectiveness and often delays in projects'.* Respondent C added that time zone differences are a very important challenge which impacts communication because they cause delays of information exchange. As pointed out by this expert time is also a challenge while working with virtual teams because communication usually takes more time to be fully understood. *'Getting the same picture of a product in everyone's mind is hard enough with co-located teams, and becomes especially challenging with geographically diverse teams'.* He explained that virtual meeting may help in some cases, however, as he said: '*I think it's evident that conversations don't happen because of the overhead that would have been involved in setting it up'*. He also added that Project Managers must deal with time zone differences through

being flexible with day to day planning, using tools and communications which suits the task the best and scheduling face to face meetings in advance.

CHALLENGE FOUR: Cultural differences and lack of common rules

Difficulties in understanding teammates and misunderstandings due to cultural differences, such as, different meanings for the same words, were common communication management challenges reported by all respondents. Respondent A pointed out that cultural differences and lack of common rules may have a negative effect on communication and lead to conflict in virtual teams: *'There is often conflict in a virtual team and this normally occurs due to lack of awareness about the other team members working environment. For example, a team member working in the US could be involved in client communication that is not common in the Dublin team. These client communications may take priority and the team member involved would not be available to answer questions by team members in Dublin. Until people are made aware of the environments on both sides, it can be noticed that people are not following the same set of rules'.* He pointed out that while working globally one has to deal with and understand people from different countries and continents who may need awareness and time to adapt to doing things differently. Another problem observed is that of the cultural diversity of team members and stakeholders who are working in different geographical locations.

CHALLENGE SIX: Misinterpretation of written text

Expert A highlighted the challenge of misinterpretation of written communication. When communicating virtually, there seems to be a lot more '*misinterpretations of written text'*. Respondent B experienced the problem that team members very often '*do not take the time to revise written information which they are sending which can cause a misinterpretation of information by the member who receive this message*'. Expert C added that compared to face-to-face communication you do not get instant feedback so it can be a challenge to know if written information send to someone is received or understood. Project Manager B said that sometimes it may be challenging to understand the meaning of an email or text message. As a result, the sharing of timely and accurate information can be difficult.

CHALLENGE SEVEN: Ignoring communication and lack of communication expectations

Project Managers also reported that in virtual teams, a lack of urgency and ignoring messages are common, and therefore stressed the importance in following up communication. Project manager A said: *'When not having to interact with a person physically, it is easier to avoid the communication with people you don't want to talk/work with. That's why it is very important to follow up all your communications and requests'.* According to respondent B, a *'lack of urgency is not something that communicates very well over virtual teams*.' He explained that often you wait for a response from a team member and after that find out that he has never received your message or it has been has misunderstood. That's why he said information sent must be clear to be fully understood and that often you need to follow-up to receive feedback.

Project manager C said that '*some team members are frustrated that they are not being able to receive a response from team members as soon as they like*'. In addition, '*sometimes you may send a question and the answer never comes back*'. He also explained that team members are not always clear about whom to include in the written communication. Sometimes team members may send a message to everyone in the team causing mailbox overload. On the other hand team members may leave out certain team members when sending an important message, which may lead to a situation where the critical communication was not received in a timely manner. For him, it is crucial to establish expectations of communication up front.

Project Managers highlighted that communication within virtual teams seems to be more formal and task oriented than in face-to-face teams, which reduces building relationships within the team. Project Managers indicated that informal communication does not happen in virtual teams as naturally as between collocated teams. In collocated teams a lot of information is dispersed through non-organized office discussions, but this does not happen in virtual teams.

Other challenges recognised by Project Managers are particularly associated with lack of project team visibility and limited face-to-face interactions due to distance between project team members. According to this study the ideal face-to-face communication is lacking within the team, and project team members usually do not have the opportunity to travel and

meet other team members. Rare face-to-face on site meetings, are usually reserved for managers for special purposes only; hence Project Managers and teams are highly dependent on technology to communicate.

Project Managers, from this research, recognised that trust is important for effective communication, however it's difficult to build trust in virtual teams due to the lack of face-to-face interactions. According to Project Managers, virtual team members depend on information from team members who are in different locations and who they may never meet. In situations like this, it can be very difficult to develop effective communication and trust.

Project Managers also recognised that time zone differences are a challenge to effective communication and coordination. The time differences often cause delays in sending feedback which consequently may lead to misunderstandings. Clearly, the number of overlapping hours during the working day is reduced and team members have to be flexible with their working hours in order to overlap with virtual project members in different geographical locations. In addition, according to Project Managers, it can be difficult to schedule and coordinate meetings with teams spread across broad geographical locations.

Difficulties in understanding written communication, misunderstandings and misinterpretations, most likely caused by language and cultural differences, were mentioned a few times by Project Managers. They pointed out that cultural differences and lack of common rules may have a negative effect on communication and lead to conflict in virtual teams, at the same time they recognised the benefits of cultural diversity of team members.

Observations

In addition, it was observed that clients in the U.S. team had unfair expectations about communication times, regarding project team members in Dublin. Conference calls often kept Dublin staff in the office after 10pm Dublin time. But if clarification was needed from U.S. staff, the Dublin based team had to wait until 4pm each day, Dublin time, before they could contact anybody in the U.S. There were no formal and clear communication policies in the company.

5.3 Research Question 2

How are Project Managers managing communication within virtual teams in global projects?

5.3.1 Context

Because virtual teams in global projects are separated geographically around the world, they rely heavily on the information which they receive, in order to be able to effectively communicate and interact to achieve project objectives. If communication is not effective the project team is not going to work effectively. Virtual project teams also depend on timely communication. Any delays in receiving information on time may cause misunderstandings, hinge communication and as a result negatively impact the project.

All PMs agreed that communication in virtual teams is much more complex in comparison to communication within collocated teams. As well as that, it usually takes more time to explain the tasks in a virtual environment. As described by respondent A: '*Getting the same picture of a product in everyone's mind is hard enough with collocated teams, and becomes especially challenging with geographically diverse teams'*. According to this respondent it's easier to explain tasks when communicating face-to-face, but even more importantly physical proximity enhances shared vision. All interviewees shared the opinion that communication within collocated teams is more efficient than in virtual teams because of the constant exchange of information face-to-face.

During observations, it was seen that communicating responsibilities usually demand that Project Managers prepare long, descriptive specifics of what tasks to include in order for team members to understand what is asked of them and to reduce confusion. It was also noticed that all virtual meetings had to be planned/pre-booked in advance. Respondent A explained that because of time zone differences, managing communication in virtual teams compared to managing on-site team communication requires more time, effort and planning. He explained that in virtual project teams someone somewhere is working on a project. Because of that, Project Managers and virtual team members must often start their days early, finish late, or work from home in the evenings. Respondent B elaborated further on this as follows: *'we have a bull-pin style office, where everyone locally is in light of sight of each other. Starting a conversation can be as simple as saying "Hey Mark..." and the entire conversation might last 2-3 minutes. To have similar discussions with geographically diverse*

teams, you need to communicate the need for a discussion, then both sides need to find a place they can have the conversation without distracting others, and getting a call set up might take 2-3 minutes on top of the 2-3 minute discussion'.

5.3.2 Face to face meetings in Virtual Teams

Despite the fact that the respondents are communicating with their virtual team members 'very often' or 'several times daily' they are meeting them hardly ever. All respondents confirmed that face-to-face physical meetings with virtual project team members are very important, however, because of distance and travel costs they do not happen very often. According to them, video conferencing tools are crucial for working in virtual teams. Interviewee 'A' stated: *'Regular team meetings are key to the success of the projects along with the video conferencing tool (GoToMeeting or similar) used to host the meeting'*. Respondent C added: *'in some cases, I think it's evident that conversations don't happen because of the overhead that would have been involved in setting it up'*. That's why it's very important that all members of the virtual team are aware that they have to regularly interact with other team members. In table 4, summarised responses are given about virtual and face to face meetings with project teams.

RESPONDENTS	**On average, how often do you communicate with your virtual team members?**	**How often do you meet (face-to-face) with virtual project team members?**
EXPERT A	Many times a day	Face-to-Face when project staring, but on-line daily
EXPERT B	Several times a day	Once or twice a year for critical remote team members, but there are people I've worked with virtually for years and only met once if ever
EXPERT C	Often, several times daily	In person, very rarely, over video chat, usually daily

Table 4 - Interviewer's responses about communication in virtual teams

However, all Project Managers explained that they meet their teams as often as possible "face-to-face" through video conferencing tools. All Project Managers recommended an initial face-to-face meeting when starting a project with virtual teams to allow team members to meet and socialize. If on site meeting is not Project Managers recommended to introduce project team members by video conferencing technology. According to them periodical face-to-face meetings throughout the project life cycle improve are ideal because they build relationships and trust and in result effective communication within a team. The company utilizes Scrum as development technique. Usually their projects are divided into two weeks sprints. At the end of each Sprint whole virtual project team meet to discuss what goals have been achieved in the current Sprint and plan work for the next sprint. End of Sprint meeting takes about one hour. In addition, every morning, Project Managers initiate fifteen to thirty minutes scrum meetings (also called virtual war rooms), all project team members join the meeting with GoToMeeting software. During the Scrum meeting the Project Manager asks team members: what each of them is working on that day; which tasks have they achieved for the previous day; and check if they had any difficulties with their tasks. As explained by one of the participants of this study: '*the goal of those meetings is to keep the team up-to-date and check the progress of the project as well as discuss problems encountered by team members. After that we prepare daily, weekly and monthly reports on project progress.'* The main goal of these meetings is to provide up to date progress on the project, assign accountability for each task and discuss encountered difficulties.

5.3.3 Managing Technology

All participants of this study agreed that technology is crucial for communication in virtual teams. Advances in technology have made it easier to organize and manage virtual project teams. However, while technology solves certain communication problems, it does not solve them all, as identified by the respondents that it's not easy to build relationships using technology. All experts agreed that it's very important to create a shared space for a virtual team like a website, internal messenger or software where teams can exchange information easily at any time.

As explained by expert A: *'technology helps, but it is really easy to ignore an email or an IM* (Instant messaging - is a type of online chat which offers real-time text transmission over the Internet) *or even a phone call.'* Another challenge, according to this respondent, is that you

need to keep all communication in written format so that everyone in a project has access to project information. Respondent B mentioned that while using technology for communication it is sometimes difficult to know whether information has been delivered and understood properly or not. While communicating verbally you can observe the reaction of the person and receive feedback straight away, which usually do not happen when using communication technology. That is why it is important to use video conferencing tools when working with virtual teams which allow them to communicate face-to-face and receive feedback straight away. Respondent C explained that in virtual teams communication is more often written, and it lacks the emotions that are evident when people meet in person. He elaborated on this: *'with the use of GoToMeeting and Google Hangouts, we are able to communicate better across the teams but it still isn't the same as having people in the same room'*.

The organisation provided numerous technologies to individuals working in the office and remotely. According to observations, teams from this research were heavy users of communication technology. Instant messenger, desktop video conferencing, groupware tools, and project tracking software were used. Teams based in the office used scheduled Scrum meetings as ways to disseminate project information and share updates with one another.

5.3.4 Communication Technology

Since IT is a competitive industry expert B stressed that organisations need to be innovative and continually improve new technology to improve virtual communication. All participants recognised the importance of storing all project communication and information. It must be available for everyone to access at any moment from anywhere on some cloud platform or data-storage. Everything updated on the project must be communicated and available to view for every team member. As explained by participant C '*project information needs to be stored and visible for all project team members at one designed place such as a wiki type of web page, google drive or other system that shows a snapshot of daily tasks status. In our company we created our own 'knowledge centre' where we can find information about all projects performed by our organisation'*.

This practice helps project team members to share knowledge and project information.

5.3.5 Asynchronous and Synchronous Communication

It is clear then that in many ways the question of spatial distance while still problematic is greatly aided by technology. But such technological advancements must also be manipulated within the correct strategies. And while technology in many ways reduces spatial distance it poses challenges regarding the time aspect**.** There are two different strategies of communication in virtual teams: asynchronous and synchronous communication. Asynchronous communication and activities involve a delay between sender and recipient. The main advantage of asynchronous collaboration tools is that they enable flexibility because team members can receive the information when it's most convenient for them. There is also less pressure to respond to it immediately. In contrast, synchronous (also called real-time) communication takes place like a conversation. Synchronous communication activities may include for example chat sessions or whiteboard drawings. Successful distributed teams have to be ready to use diverse ways of real-time (synchronous) and delayed time (asynchronous) communication through technology such as e-mail, chat rooms, data meetings and other technical communication modes, to achieve success (Pauleen and Corbitt, 2003).

Table 5 shows the main communication tools used by our experts to communicate with virtual team members.

RESPONDENTS	**COMMUNICATION CHANNELS USED IN GLOBAL VIRTUAL PROJECT TEAMS**			
RESPONDENT A	Skype	GoToMeeting	Google Hangouts/Apple FaceTime	E-mails
RESPONDENT B	E-mail	Instant messaging	GoToMeeting	Google Hangouts
RESPONDENT C	Internal IM	GoToMeetings	E-mail	Google Hangouts

Table 5 - Main channels of communication which experts use to communicate in virtual teams

Participants occasionally used Apple FaceTime, and direct phone calls for 1 to 1s. The company also adopted an Agile development methodology to ensure that users accept the procedures step-by-step, this ensures client involvement during all stages of the development

process. The Agile methodology caters for joint development where clients can actively participate.

But the distinction between these two aspects of communication means that project teams need to understand the correct protocol. While no one needs to have the importance of e-mail exchange explained, it is important to stress its correct usage, and to warn against incorrect usage. As respondent A points out: *'E-mail is critical for things that are not time sensitive, or for reaching out to people who are working in drastically different time zones'*. In addition, it is much easier for non-native English speakers in a team to express themselves clearly, as they can take more time. Expert C states, it's more difficult to ignore e-mail, than other forms of messaging in virtual teams, this also contributes to its importance.

However, such forms of communication have their drawbacks, and it is important to know when to use asynchronous and synchronous communication. For example, in the case of conflict, expert A mentions that '*conflict is something that has to be handled in person not so much over IM or email. If there is a conflict we try to do a video chat option to resolve the issue, and to be sure we get line managers involved to ensure the communication is being received'*. Regarding managing difficult situations, he adds: *'video chatting is absolutely necessary to convey at times the seriousness of the situation'*.

Understanding this distinction well is also important to determine the degree of innovation and collaboration a Project Manager wishes to foster. According to the experts, synchronous communication tools are best used when the collaboration needs to be immediate and spontaneous. While e-mail is great for sending asynchronous communication, it's not good for the type of spontaneous discussions that collaborative work needs. In addition, since workers have become separated by distance and it's a lot more difficult to track them down, in this case IM is very useful because it automatically alerts to who is available and who is not at a particular time. IM makes it easy to connect with virtual team members, which, according to Project Managers, enables better collaboration and a tighter sense of community. Through IM, Project Managers can teach an entire team and give them real-time feedback. Using real-time chat (like IM) and Google Hangouts is very useful according to experts.

Teleconferencing can be a great way to connect virtual teams from around the world. Experts A, B and C recommended Google Hangouts and GoToMeeting teleconferencing: *'Google Hangouts are good for quick discussions between two team members'* according to respondent A. *'With the use of GoToMeeting and Google Hangouts, we are able to*

communicate better across the teams' added participant B. However*: 'it still isn't the same as having people in the same room'* concluded expert C.

5.3.6 Building Trust and Relationships

To help build relationships and trust between members, Project Managers encouraged their team to share their feelings and chat informally whenever they could. No one liked to feel that their message was just ignored. To counter this, Project Managers use basic rules of principles such as acknowledging a request for information within a particular time e.g. 'please get back to me in the next 24H'. This according to the PMs ensures that the request will be addressed. Since virtual teams are reluctant to share their feelings and chat informally via communication medium, Project Managers try to engage in on-line conversations with project team members whenever convenient. PMs were chatting on-line with project team members not just about their day-to-day duties, but beyond that they also asked general queries e.g. about how team members feel. One of the PMs explained that team members may feel isolated when working virtually and for this reason '*you cannot make team members feel that you are absent'.* PMs must be in regular contact and try to interact with virtual team members.

5.3.7 Lack of Communication Plan

Project Managers at the case company, lacked an explicit communication management plan. Furthermore, all interviewees admitted that they do not use any official communication plan while working with virtual teams. As well as depending on software programmes, they also verbally establish expectations of communication up front to all project team members. Some of the responses about questions regarding a communication plan were concerning. During interviews expert C confirmed: '*Our company does not have a communication strategy plan to implement' (Interviewer B)'. 'Sometimes, other than Ccing everyone for an email, there is no sure path to make sure communication is effective'.* Expert A added: *'We have values we ask staff to adhere to, such as reply as soon as convenient'.*

5.3 Making Virtual Communication Work

5.3.1 The Problem

The problematic context of communication in virtual project teams in global virtual project raises the following questions. How can Project Managers go about overcoming the challenges they face due to the complexity of leading a virtual team's communication? What does it take to make communication management in global project work effectively? The importance of supporting Project Managers in such a way that they will be able to overcome the communication management constraints in global projects is crucial. During the interview process the researcher had a chance to ask the experts: 'What strategies do you use to make sure that communication management within a virtual team is effective? Can you describe them?' 'In your opinion, 'which tools and strategies are important for effective communication in virtual teams?' The challenge now is to try and synthesise all their different insights.

5.3.2 Action Plan

Managing communication

Project Managers from this research acknowledge that to make sure that communication management within virtual teams is effective clear lines and responsibilities must be established within the team up front. Participant A highlighted that: *'It's important that all team members understand clearly tasks and goals of the project.'*

Regular face-to-face meetings with team members are still crucial

As explained by expert B *'having reoccurring meetings set at the same time each day, means the team will meet and continue to share information'*. Because face-to-face communication is still the most effective way to build trust and relationships, getting the team together is essential. If a Project Manager cannot get the team together physically, the Project Manager should schedule video conference meetings as often as possible. *'Regular team meetings are key to the success of the projects along with the video conferencing tools (GoToMeeting or similar) used to host the meeting*' confirmed expert A.

Knowledge Sharing and Access to Information

With the high volume of project information it's important to maintain the information required by virtual project team members. That's why Project Managers also recommended using a project information centre such as an internal knowledge centre or Virtual Teams Wiki page which helps them to manage the project. Information should allow all members to know the current status of the project, what is missing, and what they need to do. Creating a shared virtual space for the team (e.g. cloud, website, internal knowledge centre) will ensure that the team has easy access to project information. This shared space for virtual teams can store project updates, project deadlines, team members' data and so on.

Using the Correct Medium of Communication for the Task at Hand

'*The role of the Project Manager is to find which communication method(s) work best for each project and each team member*' claims participant number A. Participant C reports: '*Managers have to understand how to best communicate with team members on an individual basis. Some virtual team members will respond well to e-mail; others better to video conferencing. Some people require detailed explanations; others can extrapolate from a sparse summary. Identifying what is necessary to convey an idea to each individual is a critical skill for managers*'. Project Managers from this research suggested that a virtual team's manager need to match technology to the task, project stage, individual team member and that different technology can supports different tasks.

Virtual Water Cooler to share informal communication

All Project Managers from this research recommended using the water cooler to give team members an opportunity to discuss casual topics. Virtual teams obviously lack this possibility of casual personal water cooler talks. Using a virtual water cooler contributes to forming a friendly and productive environment which nurtures the sharing of important casual information. Even if people are situated in different geographical locations, they eventually get to know each other better.

Communication time schedule

Time zone difference may affect communication because coordination in a team is more difficult due to dispersion. That's why according to experts from this case study, it is important to schedule all project activities. As described by the experts: *'Given the large time*

gap between the US and Ireland, in Ireland we try to keep afternoons clear for direct communication with the US. In the mornings, we try to make sure that all the issues and tasks assigned on the previous day have been addressed'.

Monitoring Communication, Follow-up and Feedback

As recommended by experts: '*A Project Manager should be able to control the meetings. He should be able to manage people who are not following the agreed protocols or asking people for more information when they are not supplying the information the team requires'*. The information flow needs to be controlled, if you get too little information, team members will not understand the changes that are about to be implemented and if there is an information overload, the messages do not reach the receiver.

Build Trust

As indicated by the participants of this study good communication strategies are focused on establishing and maintaining strong working relationships within virtual project teams. According to Project Managers from this research, it's important to establish trust early in the project and ensure that project team members spend some time together and establish relationships. However, because of the cost of travel this is not always possible. PMs from this research recommended setting up face-to-face meeting as often as possible and if this is not possible they suggested that Project Managers should engage with project team members via videoconference.

Chapter 6 Conclusions and recommendations

In this chapter, the conclusions drawn from the data analysis and the implications of the research are respectively summarized and presented. Also, the author will discuss and propose suggestions for further study.

Research questions number 1: What are the key challenges encountered by Project Managers while managing communication within virtual teams in global projects?

The objective for this question was: To identify and describe the key challenges which Project Managers face while managing communication within virtual teams in global projects.

The fast advancement of communication technology coupled with globalisation have greatly increased the process of moving from the traditional, collocated model of project work towards virtual and global project models. With the recent increase in the utilization of virtual teams in organizations, it has become imperative to understand how to manage those teams. This study provides several contributions to the research into communication management within virtual teams in global projects. By examining the fundamental challenges which managers face when managing communication within virtual teams, as well as evaluating the opportunities to improve communication in virtual teams, this study has produced insights which should be relevant not only to the organisation under observation, but, it is hoped, should also broaden an academic understanding of the practicalities of managing virtual teams communication.

In summation, the findings gave rich evidence in identifying what challenges IT Project Managers encounter when managing communication within virtual project teams in global projects. According to Project Managers from this study, communication within virtual teams and information sharing is the key to the successful completion of IT projects. Their responses conform to the literature on the topic, in identifying the main challenges which they encounter when managing communication within virtual teams: distance and lack of face to face communication; difficulties with building trust and relationships; time zone differences; cultural differences and lack of common rules; misinterpretation of written text, ignoring communication and lack of communication expectations.

Communication in virtual teams is more challenging and complex than in collocated teams because of the lack of physical interactions, lack of social context and visual cues that can be transmitted by face-to-face teams. As suggested by Powell et al. (2004) the absence of non-verbal cues and tacit knowledge transfer makes communication difficult. These deficiencies eliminate social presence and hinder relationship formation, cohesion and trust. This was a problem that all the interviewees mentioned. The respondents identified a lack of unplanned and informal social exchanges in virtual teams. This problem of not being able to share information casually is a real inefficiency regarding the flow of information and building trust.

The research shows that time zone differences are a challenge to effective communication and coordination. Clearly, number of overlapping hours during the working day is reduced and team members have to be flexible with working hours to overlap with virtual project members in different geographical locations. In addition, according to Project Managers, it can be difficult to schedule and coordinate meetings with teams spread across broad geographical locations.

According to Crampton (2001) the virtual project environment presents considerable challenges to effective communication including time delays in sending feedback, lack of a common frame of reference for all members, differences in salience and interpretation of written text, and assurance of participation from remote team members. Similarly, the results of this study indicated that distance in interaction has led to miscommunication, misinterpretations of written text and delays in responding.

The results of this study reveal that there were also many references to the role of cultural differences. Stolovitsky (2012) highlighted that probably the biggest challenge Project Managers face in managing a global team is the cultural diversity of team members and stakeholders who are working in multiple locations. He also pointed out that it is not uncommon for remote teams to have irregular contact with their Project Managers. To complicate issue further, language and cultural barriers can create unclear expectations for all stakeholders involved. Some of the respondents highlighted how this made it hard at times to establish a clear set of rules that can be generalizable to the whole virtual team, in addition to making it difficult to create a shared vision.

Research questions number 2: How are Project Managers managing communication within virtual teams in global projects?

The objective for this question was: To develop a deeper understanding of communication management within virtual teams in global projects.

Data that has been gathered and generated, in the course of this study, has been used to see how managing communication within virtual teams in global projects is experienced by Project Managers. It uncovered what they felt improved and hindered the communication management within virtual teams. This study focused on understanding the conditions of effective communication and the causes of ineffective communication.

The research shows that building trust early in the project plays a significant role in establishing effective communication within virtual team. To achieve that, PMs recommended setting up face-to-face meeting as often as possible and if this is not possible they suggested that Project Managers engage with project team members via videoconference regularly. They also suggested that having reoccurring meetings set at the same time each day, helps to build relationships within a team. Also, the role of the Project Manager is to find which communication method(s) work best for each project and each team member. Identifying, early in the project, what is necessary to convey an idea to each individual is a critical skill for managers.

Virtual project teams depend on timely communication. Any delays in receiving information on time may cause misunderstandings, frustration, conflict, hinge communication and as a result negatively impact the project. Direct communication within virtual team is not always possible because of team members living in different time zones. To overcome this issue, the research shows importance of creating a virtual team's 'knowledge centre', which guarantees asynchronous communication and collaboration where all project team members can upload and download project documents and resources. The virtual team's easy access to information is critical. In global projects, virtual teams do not have an opportunity to meet in the office and ask question as in collocated teams. As a result, a strategy of documenting project information, lessons learnt, issue logs and providing the 24 hours access to information is crucial.

PMI (PMBOK, 2008, p. 243) emphasizes that communication planning becomes increasingly important in a virtual team environment and highlights that additional time may be needed to

set clear expectations, facilitate communications, develop protocols for resolving conflict, including people in decision-making, and share credit in successes.

However, according to this study project communication in a case organization usually flows around the project planning and execution phases and Project Managers do not pay attention to formal communication planning. Problems of communication management are observed mainly based on lack of communication management planning. The methods of communication management seem to be task-specific and created by trial and error.

The first step an organization should take to address this issue is to establish a formal communication strategy to be able to support Project Managers and minimize barriers in sharing information critical to a project's execution and success. On the other hand, Project Managers should take the time to identify the communications' requirements specific to their company.

The inability to manage communication, because of the challenges of working virtually and moving towards a global project structure, places a huge risk on project performance. Project Managers have to pay attention to virtual communications which require planning and assessment of interactions. They need to consider how communication in a team can be improved. Project Managers should strive to build trust and relationships within the team and connect as often as possible with team members.

Limitations and recommendation for further study

It must be highlighted that this research work was carried out in an IT organisation from the point of view of Project Managers based in Ireland. This study focused on a small non-probability sample, which provided rich-information to gain theoretical insights into the research phenomena.

While it is believed that this study gives a good understanding of the communication management within virtual teams in global projects, further studies are recommended to formulate theories that can be applied to a wider population.

Throughout this study, the researcher also looked into some of the solutions for making the communication management process within virtual teams easier and more effective. Nevertheless, solutions for challenges which Project Managers face while managing communication within virtual teams still need to be addressed. Thus, further studies are

required to be undertaken to formulate solutions for the communication management challenges encountered by Project Managers within virtual teams in global projects.

Chapter 7 Self-Reflection on Own Learning and Performance

This chapter is concerned with the personal reflection of the researcher's learning experience and the researcher's own development as a result of conducting this research. This section also records personal reflection on how the MBA programme and dissertation writing has added value to the researcher and her further career.

7.1 Introduction

The researcher's enrolment into the MBA programme was motivated by a genuine interest in business administration and project management science, and was viewed as an important complement to her existing management experience. Given her career aspiration of managing her own organisation, participation in the MBA programme, so as to further deepen her understanding of international management theories and best practices, was seen as a logical step in order to progress professionally. While the researcher admits that the programme has been very demanding, it has been a highly rewarding experience.

7.2 Reflection on learning process

As recognised by Hedberg (2009, p. 10) reflection is a natural, and essential, part of the learning process. When we reflect, we give our learning a space to be processed, understood, and more likely integrated into future thoughts and actions. Through reflection, our practical experience becomes meaningful. Kolb, drawing from the work of twentieth-century scholars, developed his Experimental Learning Theory (ELT) which defined learning as the process whereby knowledge is created through the transformation of experience (2005, p. 194). Kolb suggested four phases in the learning process: concrete experience, abstract conceptualization, reflective observation and then active experimentation (Kolb and Kolb, 2005, p. 194) as illustrated in fig 8.

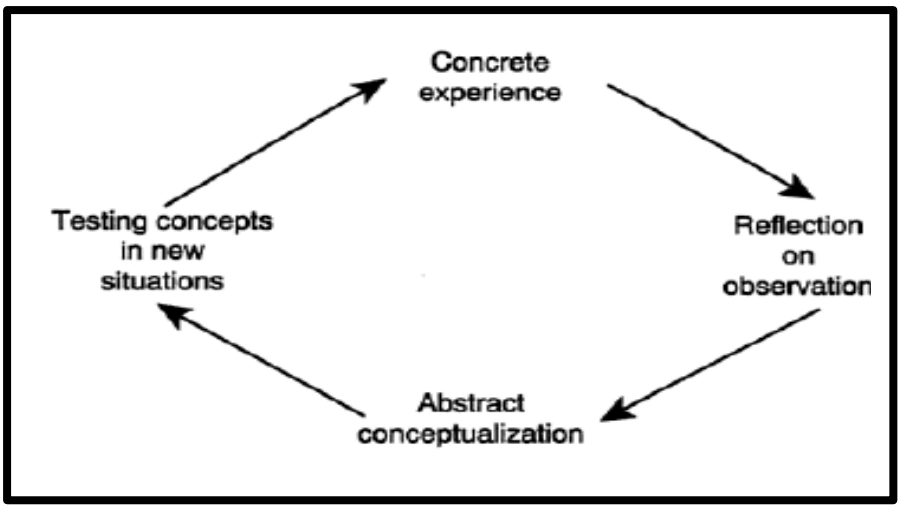

Figure 8 - The Experimental Learning Cycle (Kolb) (Source: Honey and Mumford, 2007, p. 137)

Kolb and Kolb (2005, p. 194) also suggested that all four stages are necessary in order for learning to take place, see fog 6.1 below. A new experience is encountered, reflection takes place upon the new experience and this reflection may give rise to a new idea which the learners then apply to the world around them. In developing the work of Kolb, the learning process can be illustrated through Honey and Mumford's learning cycle displayed, fig 9 below. According to Honey and Mumford, we learn mostly by doing things and then thinking about how we have done them (Mumford 1995).

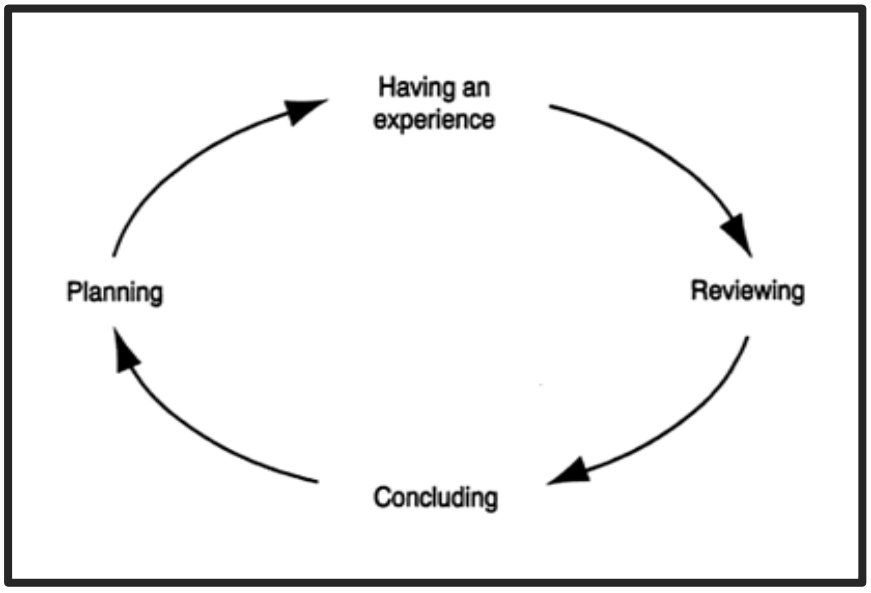

Figure 9 - The Honey and Mumford Learning Cycle (Source: Honey and Mumford, 2007, p. 122)

According to Honey and Mumford (2007), each stage of the learning cycle feeds into the next, ensuring that learning can start from any point.

7.3 Reflection on the dissertation writing process

Obligations such as the personal development portfolio, dissertation topic selection, dissertation proposal and writing the actual thesis have all been important elements and unique steps in stimulating self-reflection. Honey and Mumford's learning cycle is certainly applicable to the learning experience which took place during the development of this dissertation. In the case of this thesis the learning cycle started with planning. The research skills module showed the importance of thoughtful planning and structure in academic work, and thus encouraged a step-by-step theory-based approach that aimed for a logically developed final product.

Once a plan was in place, the task of identifying, sorting, coding and organising articles began, together with identifying themes and key common points between the articles. The researcher was motivated in finding any gaps in the literature so as to identify the important issues that needed to be addressed, and thus ensure her own contribution. A plan was developed (appendix number 7) for sourcing primary and secondary data, including the time frames for achieving goals and all the stages that needed to be completed in order to achieve objectives. The researcher, having more academic experience in quantitative research recognised, after analysing the literature, the suitability and value of conducting qualitative research instead. The process of transferring the research into words involved a review of the learning cycle. After that, the findings and conclusions came together in order to demonstrate how the research aims have been achieved and what consequences they have uncovered. Instructions from Dr Nicole Gross and Mr Paul Taaffe, supervisor and lecturer at Dublin Business School provided support to the researcher and discussions based on the final output of this research project.

The continuous need for deep reflection during this dissertation writing process resulted in a more focused research and accurate analysis. Working through the process of designing a qualitative dissertation, conducting the interviews and observations, analysing the data for findings and describing those findings has been far more challenging than the researcher had anticipated and involved a considerable learning curve. Finally, analysis of all the steps that led towards the completion of this dissertation generated a plan detailing how to carry forward and employ these new skills that were learnt during this experience, so as to assist professional development.

The main value of the research process has been the learning experience itself, it enabled the researcher to develop and demonstrate research, analytical, judgment, problem-solving, presentation and communication skills. This dissertation process provided the researcher with an experimental learning experience as a direct result of the researcher's active participation in the process and post self-reflection as described by Honey and Mumford.

7.4 Reflection on own Learning Style

The concept of learning styles is based on recognition that some individuals prefer learning in one way as compared with another (Mumford, 1997, p. 123). Kolb's learning theory sets out four distinct learning styles which are linked to the four-stage learning cycle. The researcher is mostly able to associate with a 'diverging' learning style. The researcher is a "why?" person who explores through logical learning and discovering, and who also, to some degree, approaches a 'converging' style of learning regarding 'doing and thinking'. In addition, abstract conceptualization and active experimentation have been identified as the researcher's dominant learning capabilities. People with converging styles of learning solve problems and use their learning to find solutions to practical problems. They like to ask "how?", and want to know how things work. Honey and Mumford (1986), in extending Kolb's learning styles, divided learners into four categories: activist, reflector, theorist and pragmatist as listed in Fig 10.

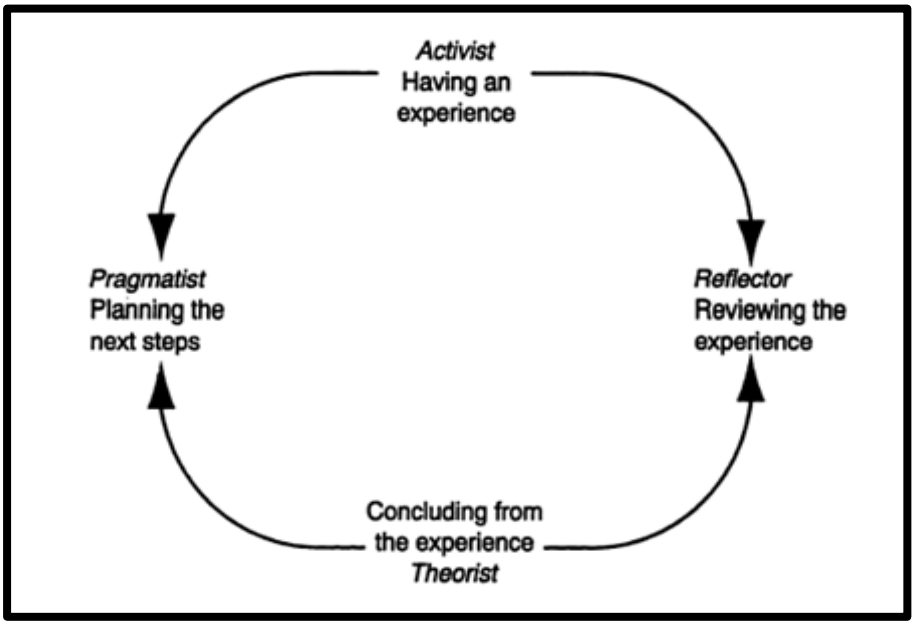

Figure 10 - The Honey and Mumford Learning Styles and the Learning Cycle (Mumford, 2007, p. 124)

Through reflecting on Honey and Mumford's test, it was found that the researcher is close to the learning style of a reflector and theorist. Whereas the theorist is analytical and logical, the reflector stands back and observes, collecting and analysing any data from experience and events and is cautious to reach conclusions preferring to maintain a bigger picture perspective. The above described learning styles were present in the way the researcher planned the dissertation and synthesized the information, especially in the findings and conclusion stages. However, having reflected on the overall MBA experience, the researcher believes that there is some evidence of different learning styles developing as a result of participation in this programme.

7.5 Reflection on Sources

The relevancy and authority of this dissertation, and its contribution to the on-going research into communication management within virtual teams in global projects, is evident in its up-to-date bibliography. The journals, articles and textbooks used during the process of dissertation writing are accredited referenced texts published between years 2007 and 2013. The selection and collection of valid sources of reference for this research involved a three step process. The first step included establishing an initial set of search terms and phrases that apply to this study. The next step was to review sources from project management and project communication management. The third step was to review and analyse all available data which might help to answer the research questions in this study.

7.6 Reflection on dissertation formulation

The key challenge was the very first stage of the process, namely, choosing a fresh and new research topic, which added value to the industry, academia, and the researcher. Given the researcher's professional background in virtual teams, identifying a thesis in this field was a priority. The process started by drawing a literature map and identifying the main themes related to global teams, global projects and communication management, and acquiring relevant journals databases. For the secondary research, researcher mainly used Athen's database and read more than 100 articles. In fact, I was surprised about the lack of project management resources available in this context, given the importance of this topic. This experience had helped me improve my research skills and improve my analytical skills.

7.7 Self-assessment of learning and Skills Acquisition and Future Skills Development

The researcher has noticed that since the start of the MBA her self-confidence and willingness to learn are tremendously enhanced. Following reflection, the researcher believes that she developed the following skills: cognitive learning; research; analytical; and decision making. In addition, valuable interviewing skills were acquired for the first time. The MBA in Project Management programme provided the researcher with heightened cognitive learning skills in many business critical areas such as a strategic management, project management and finance. The Project Management stream provided the researcher with cutting-edge knowledge of the management of work and projects. The researcher also gained strong financial management knowledge as well as analytical skills and solid business acumen so that she is more effective in her professional career and she feels more confident to open her own business. Another important cognitive acquisition worth mentioning is the research topic itself. The deep knowledge gained while researching communication management within virtual teams in global projects was incredibly valuable for the researcher's current job.

The research skills of the researcher have improved significantly during the MBA programme and especially during the writing of this dissertation. For example, in completing the literature review the researcher has developed skills in numerous areas such as collection and analysing relevant information, planning, decision making and logical thinking. The MBA programme has also contributed to the development of the researcher's decision making skills. Through wide analyses of case studies, group work, discussions and finally working on the dissertation the researcher learned how to make timely and considered decisions.

Furthermore, collaborating with a diverse range of students gave the researcher the opportunity to stretch her analytical skills and thinking process. There was always more than one side to a conflict because everyone was looking at the issue from different industry perspectives and cultural backgrounds. Just after a few months of the programme I learned how to use the right communication tools and persuasion strategies to fit the situation and person. This was hugely helpful for my personal and professional development and complemented the more intellectual aspects of the course through greatly enhancing practical processes such as successful negotiating with internal and external clients at my work.

The exceptional teachers I met in the MBA programme helped the researcher to discover new ways of critical thinking and a wide variety of challenging and exciting business topics gave her the opportunity to find new research questions and build her skills as an independent problem-solver, which will be easily applied in any further job. Probably the most important lesson from these dialogues was the recognition to improve the researcher's level of critical thinking; while efforts have been made to address this the researcher recognises improvements can still be made.

7.8 Future Application of Learning and skills development

New knowledge and skills acquired added a substantial value and allowed the researcher to progress professionally and personally. The researcher developed problem solving, critical thinking and the ability to synthesize and analyse data which are the key skills necessary in any type of job today. Secondly, the researcher gained cognitive skills in many business and project management areas, which will help her to conduct successful projects in the future. One of the most valuable assets the MBA programme has given the researcher was the possibility of learning about herself, her learning styles as well as strengths and weaknesses. The researcher enhanced her motivation to start her career as a professional individual ready to overcome challenges she may face in the future.

7.9 Conclusions

The MBA programme has added value to the researcher's knowledge and learning base and developed and provided new skills. Working on this dissertation was an unpredictable journey as it involved many uncertainties, however, the personal reward and added value from those experiences has been significant.

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Appendix 1: Confidentiality agreement

CONFIDENTIALITY AGREEMENT

Topic of the research project:

'Communication management within virtual teams in global project'.

Name of the researcher:

Aneta Bilczynsksa -Wojcik, final year student of Master of Business Administration in Project Management

I, _____, agree to be interviewed for the research project which is being produced by Aneta Bilczynska-Wojcik, student of Master of Business Administration at Dublin Business School.

I certify that I have been told of the confidentiality of information collected for this project and the anonymity of my participation. I confirm that I have been given satisfactory answers to my queries concerning project procedures and other matters, and that I have been advised that I am free to withdraw my consent and to discontinue participation from this research at any time without prejudice. I agree to participate in one or more electronically recorded interviews for this project. I understand that such interviews and related materials will be kept completely anonymous, and that the results of this study may be published in an academic journal or book. I agree that any information obtained from this research may be used in any way thought best for this study. I understand that disguised extracts from my interview may be quoted in the thesis and any subsequent publications if I give permission below (Please tick the box below):

☐ I agree to quotation/publication of extracts from my interview

☐ I do not agree to quotation/publication of extracts from my interview

Printed name of Participant: _____

_____ Date _____

Signature of Interviewee

Appendix 2: Consent form

PARTICIPANTS CONSENT FORMS FOR A RESEARCH PROJECT
*****ORAL DATA COLLECTION PROTOCAL *****

Title of the study:

'Communication Management within virtual teams in global projects'.

Research Supervisor:
Mr Paul Taaffe

Researcher:
My name is Aneta Bilczynska-Wojcik and I'm a post graduate student of Master of Business Administration with Project Management specialisation at Dublin Business School.

Purpose of the study and interview guidance:

As part of a Master Degree in Project Management, I'm currently conducting research about managing virtual project team's communication in global project.

For the purpose of this study virtual teams are defined as 'a groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks' (Elbrahim et al., 2009). If you agree to participate in this research, you will be interviewed and asked a few questions about your perceptions on managing communication within virtual teams in global projects. I will be recording the session because I don't want to miss any of your comments.
Although I will be taking some notes during the session, I can't possibly write fast enough to get it all down. Because we're recording, please be sure to speak up so that we don't miss your comments.

Benefits of this research:
The researcher hope that the result of this study will benefit the managers of virtual project teams, project management students and practitioners through providing greater insight and valuable information about managing communication within virtual teams in global projects.

I would like to ask you to answer for the questions as openly as possible and please feel free to ask questions if you have any. The interview will be recorded and transcribed in written format.

The interview is broken up into four sections:

Demographic questions
This section seeks general information on your location of work, industry and working experience

Challenges of managing communication within virtual teams in global projects

The purpose of the questions in this section is to collect information about your opinion about challenges while managing virtual teams communication.

Virtual Project Team Communication
The intention of this section is to collect information about your views related to managing communication within virtual teams.

Effective communication in virtual teams
In this part of the interview I will ask you about your perception on the key factors which need to be considered and address to develop effective communication within virtual teams in global projects.

Your collaboration will be welcome.

Confidentiality:
For the purposes of this research project your comments will be anonymous.
Every effort will be made by the researcher to preserve your confidentiality. Coded name/numbers will be assigned to participants and will be used on all researcher notes and documents. Recordings and notes and interview transcriptions and any other identifying participant information will be kept in a password protected file on a computer which will be in the personal possession of the researcher. When no longer necessary for research, all materials will be destroyed. Information from this research will be used solely for the purpose of this study.
You may stop the interview at any time, or withdraw your participation.
You may refuse to answer any question throughout the interview without prejudice.

The interview will take approximately 1 hour and you can take breaks if needed.
Your participation in this study is much appreciated.

Risks:
There are no known risks associated with participation in the study.

Cost Compensation:
Participation in this study will involve no costs or payments to you.

Thank you very much for your time.

If you have any further questions please contact me at anetabilcz@hotmail.com

Appendix 3: Interview guide

Bryman and Bell, (2007, p. 474) explained a semi-structured interview during which the researcher has a list of questions on fairly specific topics to be covered, often referred to as interview guide**,** but the interviewee has a great deal of leeway in how to reply. Questions may not follow on exactly in the way outlined in the schedule. Questions that are not included in the guide may be asked as the interviewer picks up on things said by interviewees.

Demographic data

First part of questions is collecting demographic data. The goal of this part of questions was to obtain the data about expert's professional experience, structure of projects on which he is working and teams characteristics which he manage.

Themes

The themes from the literature provided the key topics for the interviews.

For analysis purpose, data from the interviews have been coded under three distinct categories: (1) issues and challenges of communication (2) managing communication (3) effective communication practices/solutions

The purpose of the questions in this section was to collect PM's opinion about the challenges of managing communication within virtual teams.

The aim of second part of questions is to get rich data to be able to describe how managers are handling virtual team's communication in global projects.

The last part of interview is concerned with gaining PM's view on recommended communication practices. The findings from this part of interviews should produce recommendations of suggestions how communication within virtual teams can be managed effectively.

To ensure research followed ethical research standards the researcher developed an interview protocol with the rules that guide the administration and implementation of interviews and interview consent form (attached in appendixes number 1 and 2)

INTERVIEW GUIDE:

1. How many years of experience working in global projects do you have?
2. How long have you been working with virtual teams?
3. What is your education background?
4. Can you please tell me briefly about your project management experience?
5. Can you please tell me something about your current project and its structure?
6. Where are team members of your project based?
7. Please describe the key challenges (if any) you are encountered while managing communication within virtual teams in global projects? Please provide a justification for your response
8. Do you have any concerns when it comes to communication with virtual teams?
9. On average, how often do you communicate face-to-face with your virtual project team members?
10. How often do you meet (face-to-face) with your team members?
11. What communication tools do you use to communicate with your virtual team?
12. Which communication tools in your opinion are the most useful?
13. What kind of communication guidelines do you have within the team?
14. Do you use communication management plan? And if yes, what does it include?
15. What are the challenges of using technology to communicate with a team (if, any)?
16. How are differences in culture and language approached within your team?
17. How do you distribute information to your team?
18. What strategies do you use to make sure that communication within virtual team is effective? Can you describe them?
19. In your opinion, which tools and strategies are important for effective communication in virtual teams?
20. Is there anything else you would like to add?

    Thank you very much for your time and for participating in my research.

Appendix 4: Confidentiality agreement for case company

Dublin Business School
Company Security Clearance

Name: Aneta Bilczynska-Wojcik

Student Number: 1691002

Dissertation Title: 'Communication management within virtual teams in global projects'.

Company Security Clearance

Please initial as appropriate

☐ We agree that the student may undertake a dissertation of the nature indicated above and that she will be given access to appropriate information sources within our organization.

☐ We agree that copies of the finished project will be made available for assessment by staff of Dublin Business School, Liverpool John Moores University and External examiners.

Company Name: _____

Signed: _____

Position: _____

Date: _____

Appendix 5: Observation Protocol

COMMUNICATION MANAGEMENT WITHIN VIRTUAL TEAMS IN GLOBAL PROJECTS	
OBSERVATION DETAILS:	**REFLECTION RECORDED:**
DATE AND TIME: _____ NAME OF THE PROJECT:	
DATE AND TIME: _____ NAME OF THE PROJECT:	

Appendix 6: Research validation strategies used in this research

VALIDATION STRATEGIES	ADOPTION OF THE STRATEGY USED IN THIS RESEARCH
Triangulation	The researcher used multiply methods of data collection in this research to include: interviews, observations and documentation reviewing to provide rich data for this research project.
Prolonged engagement	The researcher spend one week between in the site where the research was done. This time was long enough to observe range of communication activities and to gain trust from the participants of this research.
Persistent observation	The researcher explored in details the research phenomena to a deep level to be able to recognize more accurately essential information for the research and to be able to decide what is important and what is irrelevant and focus on the most relevant aspects.
Member checking	Participants had option to reviewed transcripts of interviews. Transcribed interviews were sent to all participants of interviews by e-mail. They had the option to review transcribed data.
Peer briefing and support	This research was supervised by Dr Nicole Gross and Mr Paul Taaffe who were supporting the researcher during writing this dissertation.

Appendix 7: Time allocation research plan

Below is illustrated time allocation research plan for this study: Due to the complexity of this dissertation, time management was vital. However, due to personal uncertainties deviation from the first time allocation research plan did occur.

ACTIVITY DESCRIPTION	START DATE	FINISHED DATE
Planning dissertation Research process	February 2013	February 2013
Literature review, identify research area	March, April, May 2013	May 2013
Creating data collection instrument	May 2013	May 2013
Writing the research proposal	May 2013	June 2013
Submitting the proposal draft	3rd July 2013	3rd July 2013
Arranging provisional interviews and observations dates	1 July 2013	1 July 2013
Confirming interviews and observations dates ,	1 September 2013	1st September 2013
Receive Feedback on Proposal, Contact Supervisor	23th October 2013	23th October 2013
Analysing supervisor comments on proposal draft	30th September 2013	30th September 2013
Revision on draft	1st of October 2013	7th October 2013
Carrying out interviews, observations, documentation review	7th October 2013	11th October 2013
Transcribe Interviews and sending for review	12th October 2013	18th October 2013
Code data and Analysing primary data	18th of October	24th of October 2013
Write Conclusions, Recommendations	24th October 2013	1st December 2014
Consult Dissertation Supervisor for Review	2nd December 2013	8th of December 2013
Writing Summary, conclusions, Introduction and Abstract	3rd December 2013	January 2014
Write self-reflection	January 2014	January 2014

Finalise dissertation	31st January 2014	31st January 2014
Printing, binding and submitting	May 2014	May 2014
Dissertation Due Date	20 May 2014	20th May 2014

Appendix 8: Budget for this research

The following table is an outline of expenses that will be required while undertaking this study:

EXPENSES FOR THE RESEARCH	COSTS IN EUROS
Dictaphone, batteries	**80**
Travel costs (petrol)	**100**
Photocopying and binding	**100**
Stationary	**50**
Computer/printing/ink	**100**
Miscellaneous	**100**
TOTAL	**530**