Addis Ababa University

School of Commerce

MA in project Management

Assessment of Factors Affecting Virtual Project Teams' Success During COVID -19: The Case of Consortium of Christian Relief and Development Associations (CCRDA)

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Addis Ababa, Ethiopia

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Assessment of Factors Affecting Virtual Project Teams' Success During COVID -19: The Case of Consortium of Christian Relief and Development Associations (CCRDA)

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A Research Project work submitted to Addis Ababa University School of Commerce in Partial Fulfillment of the Requirement for Master of Arts in Project Management (MAPM)

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ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

This is to certify that the project work prepared by Oliyada Abera, entitled: **Assessment of Factors Affecting Virtual Project Teams' Success During COVID -19: The Case of Consortium of Christian Relief and Development Associations (CCRDA)**, submitted in partial requirement for the degree of Master of Arts in Project Management complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

APPROVED BY BOARD OF EXAMINERS

Research Advisor	Signature	Date
Internal Examiner	Signature	Date
External Examiner	Signature	Date

Declaration

I, Oliyada Abera, hereby declare that the project work conducted and presented under the title entitled "**Assessment of Factors Affecting Virtual Project Teams' Success During COVID - 19: The Case of Consortium of Christian Relief and Development Associations (CCRDA)**" is an original work of my own. It had not been presented for partial fulfillment for any educational qualification at this university or any other and in any projects by any means. All the local and international resource materials used for this project work have been properly paraphrased, appropriately cited, properly given credit to, and acknowledged to the best of my ability. Texts copied word for word have also followed the international rules to do so and are properly cited and quoted.

OLIYADA ABERA	**DATE**

Endorsement

This is to certify that this project work titled "**Assessment of Factors Affecting Virtual Project Teams' Success During COVID -19: The Case of Consortium of Christian Relief and Development Associations (CCRDA)** ", that was undertaken by Oliyada Abera for the partial fulfillment of the requirements of the degree of Masters of Art in Project Management at Addis Ababa University school of commerce, is to best of my knowledge, original work and have not been submitted earlier for any degree either at this University or any other University by any means.

FESSEHA AFEWORK (ASS. PROFESSOR)	**SIGNATURE & DATE**

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I thank and praise God for his constant provision and guidance. I would like to forward my deepest appreciation to Fesseha Afework (Ass. Prof) for the in-depth technical supervision and mentorship provided. Thank you very much sir. Furthermore, I would like to appreciate Mr. Melkamsera from CCRDA for the help and willingness to assist during data gathering. My heartfelt appreciation goes to my mother, S/r Genet Haile for her unconditional love. Finally, I would like to forward my sincere regards and appreciation to Eyerusalem Belay for being there and helping me out through this process and the bigger process called life. I hope to make you proud one day, hopefully soon.

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Acronyms/ Abbreviations

CSOs: Civil Society Organizations

NGOs: Non-governmental Organizations

VPM: Virtual Project Management

WHO: World Health Organization

ICT: Information Communications technologies

IPO: Input-Process-Output

DVCS: Desktop Videoconferencing Systems

CCRDA: Consortium of Christian Relief and Development Association

Abstract

This study aims to assess some selected factors that affect the success of virtual project teams during COVID-19. The assessment is done by taking an organization called the Consortium of Christian Relief and Development Associations (CCRDA) as a case study. The objective of the study is on assessing how 5 selected factors affect virtual project teams' success namely trust, communication, leadership, goal setting, and technology by taking the CSO and NGO organization as a case study. A quantitative, close-ended questionnaire with project professionals (project managers, leaders, coordinators, officers) was used to assess their experience concerning the topic in question. The data collected through the questionnaire was quantitatively evaluated using descriptive statistics such as frequency, percentage, mean, and standard deviation using SPSS version 26 software and Google Docs. The descriptive analysis result of 30 questionnaire responses showed the organization and its virtual project team members having somewhat trust amongst themselves and their leaders even though they had tough time building relationships. Furthermore, they have a well-established communication channel though they didn't always have guidelines of communication. Leaders of these groups were praised for following up with the members and encouraging but sometimes lack in managing virtual teams and building trust among members. The teams have well-established goals and objectives though most members don't always involve in goal setting. Technology wasn't always available and training wasn't always given but technology has enhanced their communication and feedback. This study provides quantitative results as to how the aforementioned variables affect the success of virtual project teams. The study recommends for the organization to focus on building trust amongst team members and enhance their technology tools for better utilization by virtual project teams.

***Keywords**:* Project, project management, virtual project management, virtual project teams, trust, leadership, communication, goal-setting, technology

Chapter 1: Introduction

1.1 Background of the study

1.1.1 Project and Project Management

At some point in their lives, everyone and everything on this globe are involved in a project. Minimal tasks such as planning a birthday party, traveling on a trip, or completing a marathon can all be characterized as projects, even if we aren't aware of it. A project is defined as a temporary undertaking committed to producing a one-of-a-kind commodity, activity, or outcome (PMI, 2013). It correlates to the execution of time-limited operations that allow the utilization of resources to affect a specific change. Projects differ from everyday routines in that they finish when their goals and objectives are fulfilled or when they are forced to terminate due to unforeseen circumstances (Schwalbe, 2015). By applying numerous comprehensive planning progressions, projects give the basis for accomplishing any desired objective. Projects have clear goals, quantitative and observable features, as well as funding and deadline, according to Snyder (2014). As a result of the predetermined deadline for finishing a project, they frequently have limited resources and scopes. When a project takes longer to finish, it is assumed to become more intricate, potentially raising the risk of failure. As a result, most initiatives have a defined duration. Individuals or organizations involved in projects must understand project management to deal with any challenges that occur.

The application of information, talents, instruments, and procedures to project activities to satisfy project requirements is what project management is all about (PMI, 2013). Project management, according to Heerkens (2014), can be an effective way of lowering stress if addressed with the right abilities and expertise. According to Seymour and Hussein (2014), mankind has already been working on projects for quite a long period. They discussed how, over history, several innovative architects and engineers have constructed numerous incredible projects, such as the Great Wall of China, the Great Pyramid of Giza, and the Coliseum. They further mandated that for the course of most of these projects, a specific individual had to be in command of resource planning, performance monitoring, and result delivery. This can be used to demonstrate that project management was employed in the past (Seymour and Hussein, 2014).

Mark Kazak-Holland (2011) also argues in his book that project management is not a fresh twentieth-century field of study, but that history can attest to the existence of several project activities with funders and work-groups who exercised project processes and had a basic knowledge of the relevant project management knowledge fields. And, amid all of history's great historical initiatives, there is a scarcity of documenting and preservation of older projects' historical records. This, according to Seymour and Hussein (2014), was due to a lack of consideration given to the procedure rather than the completed product, including the fact that the project individuals and managers involved in these initiatives were craftspeople who couldn't read or write.

According to PMI (2013), the use of systemic techniques and methods in the management of complex projects in a variety of businesses increased in the late 1950s. The US Navy was among the first organizations to make significant contributions to the development and documenting of contemporary project management methodologies and practices (Seymour& Hussein, 2014). During the 1960s, ambitious ventures such as landing a man on the moon contributed to the development and deployment of large-scale project management instruments. According to Seymour and Hussein (2014), the 1970s saw the introduction of project management tools and software, which aided in the mainstreaming of the project management field to a certain extent. Personal computers became more widely available in the 1980s, allowing small enterprises to employ technology for project management. In the 1990s, the development of well-known project management tools and software, such as PRINCE2 and CCPM, further expanded project management. As a result, project management has gained a lot of traction and appeal (Seymour& Hussein, 2014).

Today's project management entails a plethora of new tools and specialists. Every industry and country engages in some form of project management. Project management concepts, methods, instruments, and procedures are widely employed in a wide range of organizations and industries. Furthermore, with our world facing severe issues like internationalization, growing population, and resource depletion, project management has never been more vital in managing difficulties and ushering about significant improvements. The utilization of multidimensional and global organizational units has transformed the workplace, and the ease with which modern tech can be accessed has now become a crucial factor in most other businesses and industries (Schwalbe,

2015). Project management, according to Schwalbe (2015), is not just ubiquitous in the office, but it may also be effective in personal chores such as budgeting, wedding planning, and training.

1.1.2 Project teams then and now

Teams and teamwork are quite well-established concepts for decades, extending back to prehistoric times. These workgroups were not publicly acknowledged as an important instrument for enhancing organizational efficiency until the start of the twentieth century (Thamhain, 2007). One of the significant advancements in the field of project management throughout the 1970s was the increased deployment of distinct project teams for diverse hard assignments (PMI, 2013). Simply said, a project team is a gathering of persons that collaborate to accomplish and accomplish the project's aims and targets. It usually consists of project managers, project officers, and other team members that might or might not be actively engaged in the project's development and task fulfillment. Project managers as well as other operational personnel rapidly grasped the importance of a very well-kept project team in improving project management techniques and results. The vibrant, complex, and cutthroat nature of today's corporate environment has resulted in the recognition and utilization of teams in the workplace (Sandoff and Nilsson, 2016; Pina et al., 2008). The successful implementation of project teams has now become the essential difference maker and the critical factor in determining a project’s success or failure.

Businesses have traditionally used the "co-located team" model, in which a specialized team of people working within the same project shares the same office and workstation. Digital teams, on the other hand, are gaining popularity in a wide range of businesses these days (Horvath and Tobin 1999).

1.1.3 Virtual Project Management and Virtual Teams

As technology advances, working remotely and digitally has gotten quite simple, and it is steadily becoming a requirement (Aljabri and Khayyat, 2020). As a consequence, project management has altered as well. The concept of virtual project management is explored here. According to Horvath and Tobin, virtual teams are growing more common in many corporations (1999). In virtual project management, projects are managed by virtual teams or remote teams (Porquier, 2013). Professionals in charge of virtual project management are known as virtual project managers. Working with and directing virtual project teams is one of their main responsibilities.

A virtual team is a collection of individuals who collaborate on a project from several locations to achieve a shared goal (McMahon, 2000). Virtual project team members, according to Martins et al. (2004), employ various technologies to complete interrelated work tasks across multiple constraints such as geography, duration, and so on. A virtual team is also defined as a group of people who are not physically available but work to achieve a shared objective utilizing various communication channels (Jones, Oyung & Pace, 2005). Individual team members being in different time zones does not automatically imply that a project can't move forward or is doomed to fail. Forming virtual teams, allocating appropriate duties to team members, and ensuring that nothing goes wrong are the responsibilities of virtual project managers (Aljabri and Khayyat, 2020). The virtual project manager is also responsible for ensuring good stakeholder management because they are the "those who will affect or be influenced by the project" (Porquier, 2013).

Virtual Teams are used by roughly 66 percent of multinational enterprises, according to research (Society for Human Resource Management, 2012), and 80 percent of those companies expect the number to grow in the future (Perry, 2008). According to Saunders (2000), inter-organizational alliances, globalization, outsourcing, and alternative work arrangements such as job sharing and telecommuting all contribute to this phenomenon. Furthermore, the development of virtual project teams has been supported and expedited by decentralization and globalization of industry, as well as rapid expansion in the ICT sector (Arnison and Miller, 2002; Chen and Xu, 2003). Working remotely is growing increasingly widespread and is becoming a requirement for a multitude of reasons. It's become a crucial tool for securing the greatest personnel, regardless of where they're located. It allows a corporation to locate the greatest people without being limited by geography or local talent availability. Unexpected circumstances, such as a natural catastrophe, as seen from the current epidemic, may lead experts to seek out other solutions, such as virtual project teams (Virtual Project Management: Benefits, Challenges & Tools, 2020).

Diverse organizations that would not have worked together in the past may now execute and collaborate in a virtual world because of developments in communications technologies and the development of sophisticated project instruments, approaches, techniques, and procedures Shopee Dube, 2012). As a result of these new technical breakthroughs, many firms are fast implementing virtual project teams, also known as distributed, dispersed, or worldwide teams (Martins et al., 2004).

1.1.4 Virtual Project teams and Covid-19

The world is currently engaged in a never-before-seen battle against Coronavirus illness (COVID-19). Coronavirus, also known as Sars CoV-2 or 2019-nCoV, was detected for the first time in December 2019 in the Chinese city of Wuhan (Huang et al., 2020). WHO describes it as an infectious disorder caused by a newly identified coronavirus (2020). When transmitted orally, this disease is characterized by its proclivity for spreading exponentially. Even though there were only 86,604 COVID-19 instances on February 28th, 2020, there are now over 173 million cases worldwide as of June 7th, 2021 (Corona Virus update – Worldometer, 2021). COVID-19 has had an impact on 210 countries (Dubey and Tripathi, 2020).

According to WHO and the Federal Ministry of Health, the first case of coronavirus disease (COVID-19) in Addis Ababa was verified on March 13, 2020 ("FIRST CASE OF COVID-19 CONFIRMED IN ETHIOPIA," 2020). Over 250,000 confirmed cases have been reported in Ethiopia since then, with over 2,700 deaths (Corona Virus update - Worldometer, 2021).

The new coronavirus is transmitted by droplets released into the air when an infected person sneezes or coughs, according to researchers (What Is Coronavirus? 2019). Before the development of vaccines, the only method of prevention recommended by medical practitioners is to wear masks and remain as close to home as possible. Self-quarantine or isolation, according to the WHO, is one of several options for preventing the spread of COVID-19. China was the first to use this technique in the city of Wuhan. Following that, 15 other provinces deployed and embraced it after seeing promising results (Dubey and Tripathi, 2020).

Many governments, including India, France, and Italy, have implemented WHO-recommended preventative actions to maintain their entire country safe (Dubey and Tripathi, 2020). After the first incidence of Coronavirus was reported on March 13, Ethiopia joined the list of nations that have implemented multi-sectoral measures to combat the virus, including proclaiming a national state of emergency on April 8 for nearly five months (Zikargae, 2020). According to Zikargae (2020), the Ethiopian government has taken efforts such as dismantling all public meetings, including sectarian, political, and non-governmental assemblies. Different activities such as shaking for greetings and passenger mobility for most national and regional trips had also ended, according to him. He goes on to say that the administration had reduced its personnel and that

many institutions had shut down, that student and teacher meetings had been canceled, and that sporting events and recreational facilities had been halted or stopped.

Because the lockdown compelled individuals to stay at home, most businesses were obliged to adopt the Work-from-Home (WFH) model (Dubey and Tripathi, 2020). Many companies, enterprises, academic institutions, and sectors have gone online, according to Dubey and Tripathi (2020), and their employees are expected to work from home under various norms and restrictions that differ by company. COVID-19 has a long-term harmful influence on people's health, but it also has a significant influence on their employment opportunities (Fiona et al., 2020).

Local and international organizations in Ethiopia were pushed to adapt and test the work-from-home (WFH) paradigm. Digital project teams are becoming increasingly common, particularly among businesses that rely significantly on collaboration to complete tasks. As a result, businesses were forced to implement preventative measures and shift to virtual project teams. Virtual teams had grabbed the interest of several sectors long before the Covid-19 Epidemic, but the present pandemic has made them even more vital and vital components for project completion.

Virtual teams are a newer concept, and academics are still trying to figure out how they differ in terms of obstacles from traditional teams like co-located teams. Furthermore, research into the usefulness and success of virtual teams is still in its early phases. (de Guinea and coworkers, 2005) There is a lack of debate regarding local challenges, settings, performance, and practices, despite the constant increase in literature and growing interest in virtual project teams. As highlighted by Dennis et al. (2012), Schiller and Mandviwalla (2007), and Jarvenpaa and Keating (2012), many investigations on virtual teams have only looked at “developed” areas of the globe like America and Europe. According to the study's literature evaluation, there is a severe dearth of information on virtual project teams in developing nations, particularly Ethiopia.

This project work aimed at exploring and assessing the factors affecting the performance of virtual project teams during the outbreak of the Covid-19 pandemic taking one organization as a case study. It seeks to address contextual and knowledge gaps about virtual project teams. Additionally, it aimed at understanding what the factors are that affect virtual project teams in performing project-related tasks and success when teams are scattered and remote due to the pandemic.

Not just in the event of a pandemic, but also in the future, it is vital to solve and comprehend these issues. Although the literature review couldn't find any local data on how many jobs will go virtual shortly, a Gartner survey of US business leaders found that after the disease outbreak is over, at least 80% expect to enable people to work digitally at least some of the time, and 47% anticipate to offer unlimited virtual employment (Golden, 2020). Another study by John and Gratton (2013) supports this notion by forecasting that roughly 1.3 billion people will be employed shortly. According to the Society of Human Resource Management (2012), virtual teaming is used in some form by 46 percent of HR professionals from a variety of global firms. As a result, the research is crucial in shining light on the success elements that influence these teams' performance to assist in the successful transition to a virtual project team.

1.2 Background of the organization

1.2.1 Consortium of Christian Relief and Development Associations (CCRDA)

The Consortium of Christian Relief and Development Associations (CCRDA) is a non-profit umbrella organization made up of NGOs and Civil Society Organizations (CSOs) that work on issues like agricultural production, food security, environmental conservation, urban and rural development, HIV/AIDS prevention and control, and gender equality (Consortium of Christian Relief and Development Associations).

The initial part of the organization is made up of civil societies. According to a fairly broad definition, CSOs are any legal organization that is non-governmental, non-profit, not serving business interests, and advocating a common purpose in the interest of the public." According to Rainey, Wakunuma, and Carsten Stahl (2016), the existing definition of CSOs is too wide to be relevant. They said that, in addition to being overly vague, it prohibits private groups like social enterprises, which consider themselves non-governmental and may be legally established to pursue the public benefit.

According to Kumar (1993), civil society is something that unites and teaches individuals to participate in politics, and it is often located in between family and the government, or between the state and the individual. It can also refer to both formal non-governmental organizations and informal community-based organizations or movements, such as labor unions, churches, professional societies, and several others (Carothers and Barndt, 2000).

According to the “FDRE, Organizations of Civil Societies Proclamation No.1113/2019”, civil society organization means a “non-governmental, nonpartisan entity established at least by two or more persons voluntarily and registered to carry out any lawful purpose, and includes non-government organizations, professional associations, mass-based societies, and consortiums”. The literature review was able to uncover the existence of several types of CSOs as mentioned in the proclamation.

NGOs are non-governmental organizations that work to alleviate poverty, promote economic growth, provide basic social services, protect the environment, and advance the interests of marginalized people (World Bank, 1995). NGOs, as civil society groups, support individuals in collaborating to willingly nurture common ideas and civic aims by using local initiative and problem-solving methods. NGO's work in a range of sectors, including ecology, healthcare, alleviating poverty, culture, the arts, and literacy (Heintz, 2006). Non-governmental organizations (NGOs) take on and implement programs to promote the well-being of the communities in which they operate. They aim to solve a wide range of societal concerns and challenges. They also participate in several charitable events to raise funds for their purpose.

CCRDA is Ethiopia's first legally recognized association of non-governmental organizations (NGOs) and civil society organizations (CSOs), which was founded to help with relief operations during the famine of 1973/74. Since then, it has grown in size and scope, concentrating on growth and good governance rather than publicizing NGOs' relief work (Consortium of Christian Relief and Development Associations (CCRDA) | Devex, 2020). It had 336 member organizations as of 2010, with Ethiopians accounting for 73 percent (245) and foreigners accounting for 27 percent (91). The group addresses a variety of challenges, including food security, growth, HIV/AIDS, health, education, and others. Facilitation of access and mandatory resource management, program and administrative support, capacity building, and knowledge sharing are just a few of CCRDA's responsibilities as a support umbrella for NGOs/CSOs.

The explanation for this study's relatively narrow emphasis on this organization is that it meets the study's criteria for evaluating virtual project teams on organizations that rely heavily on project management, specifically project teams, to complete their tasks and are staffed with local human resources. Critical findings lead to the conclusion that organizations like CCRDA employ a local workforce and depend on project teams to complete their tasks successfully. Furthermore, when

the COVID-19 pandemic broke out, CCRDA was one of the first few organizations to attempt to go virtual.

1.3 Statement of the problem

In their article "Working Separately but Together: Appraising Virtual Project Team Challenges," Professor Edward Ochieng and Tarila Zuofa (2018) stated that organizations have shifted their attention away from traditional co-located team-based structures and toward a more virtual environment as a result of quick and noticeable improvements in ICT and globalization. Virtual project teams are more important than ever to a wide range of businesses and sectors. In most modern business situations, these teams are now considered as dominant forces (Greenberg et al., 2007; Gilson et al., 2014). As a result of the COVID 19 pandemic, businesses and organizations all around the world have gone virtual. The new normal is virtual work.

Several reasons have contributed to the rising interest in virtual teams. Ilgen et al., (2005) mention globalization, scattered talent, the requirement for fast product development, infrastructural innovation, and improvements in ICT. Virtual teams are mostly used by businesses to overcome geographical or temporal distances (Bahzad and Hashem, 2012). The removal of workplace expenditures, the absence of personal borders, the ability to make strong partnerships regardless of location, competency optimization, and project implementation performance are only a few of the advantages of digital project teams (Chinowaky and Rojas, 2003). Virtual teams, according to James and Julia (2017), have the added potential to collect and organize top-notch expert teams by involving geographically diverse experts, allowing constant productivity, lowering costs through lowered transportation and relocation, and sharing information across distinct organizational boundaries and units. Virtual teams also have a better level of creativity because they can bring together a diverse group of professionals with varied perspectives (Townsend et al. 1998).

While virtual project teams have numerous benefits, it's vital to remember that they come with their own set of problems and obstacles (Krumm et al., 2016). Confidence concerns, communication and collaboration challenges, reduced social change and social life compared to co-located teams, isolation, poorer team commitment, inadequate distribution of responsibilities, and difficulty overseeing and controlling are some of the challenges, according to James & Julia (2017). A lack of direct, forehead contact and human engagement among project members,

according to Bailey (2013), can contribute considerably to a lack of team spirit and morale. Furst et al. highlighted a lack of opportunities as a major obstacle, as well as team members' reluctance to participate in social or other non-work-related events (2004). Given the challenges they encounter, digital teams have increasingly become cohabitants in huge organizations (Martins et al., 2004).

The emergence of Covid-19 produced a new and unexpected working environment for most professionals. According to Dubey and Tripathi (2020), several significant organizations, enterprises, academic institutions, and sectors have gone online, with individuals required to work from home. The bulk of the workforce in a range of enterprises and sectors has been pushed to join a virtual project team as a result of these "Stay at home" and "Work from home" avoidance strategies. This is also what occurred to the bulk of Ethiopian enterprises, particularly those that rely significantly on teamwork to deliver content effectively. In rich countries, the concept of "virtual project teams" was well-known, but in poor countries, it was virtually unknown. Many organizations were caught off guard by the pandemic's commencement, as well as the W-F-H strategy, in terms of how to maintain their work efficiently. As a result, they had to venture into the new region of virtual project teams as a remedy. This effort to return to an unfamiliar virtual project team idea, according to Krumm et al. (2016), offered special problems to companies and team members who would ordinarily be co-located in the same office. Furthermore, the unpredictable aspect of remote project team effectiveness in comparison to co-located teams added to the difficulty of determining whether or not to become virtual.

While the literature review on the subject found many types of research on virtual project teams, it was unable to locate a comprehensive contextual study that looked into the Ethiopian context. Most virtual team research has so far focused on "developed countries" in Europe and America, as Dennis et al. (2012), Schiller and Mandviwalla (2007), and Jarvenpaa and Keating (2012) contend. The literature review also revealed that there is a lack of research and investigation into the factors that influence the performance of virtual project teams in developing countries like Ethiopia. As a result, the lack of contextual literature on the subject of factors influencing virtual project team performance necessitates this research. The report accomplishes this by revealing the perspective of one company as a case study. This research is especially important for the future of employment, as John and Gratton (2013) anticipated that around 1.3 billion people will be employed

remotely within the next few years. Virtual project teams will be one of the major components for the future of projects and project management in times like these, or as the general work progresses, so recognizing the success factors influencing these groups in a local and contextual setting will be influential in planning how to effectively use the teams and better prepare for possible ways to improve performance.

Thus, this research aims at assessing the factors affecting virtual project teams' success taking the specific period after the emergency of the Covid-19 outbreak in March of 2020 via taking one organization as a case study.

1.4 Purpose of the Study

For the vast majority of enterprises, virtual project management and virtual project teams are unquestionably the way of the future. According to John and Gratton (2013), 1.3 billion people will be working shortly. Globalization, scattered expertise, the demand for faster product expansion, infrastructural innovation, and ICT advancements are all factors in this (Ilgen et al., 2005). While the literature research on the subject found that virtual project teams had various benefits, it also highlighted that they have some disadvantages (Krumm et al., 2016). And, until now, the majority of virtual project team research has focused mostly on industrialized countries (Dennis et al., 2012; Schiller and Mandviwalla, 2007; Jarvenpaa and Keating, 2012). Furthermore, the literature review was able to uncover the lack of sufficient literature and study regarding the topic of success factors of virtual project teams in developing countries such as Ethiopia.

The study's purpose is to investigate possible factors that influence the performance of virtual project teams. Since virtual project teams combine two key factors, human and technological-related factors, it is necessary to investigate how issues arising from these factors will affect virtual project teams' performance in Ethiopia. The study would use one company as a case study and report on its findings. When it comes to selecting virtual project teams, this can be used as input for improved and knowledgeable practice. Furthermore, as descriptive research, it will contribute much-needed local and contextual literature towards the topic and enhance knowledge sharing as it is evident that the future or project teams are changing from co-location to virtual.

Additionally, the study seeks to inform organizations and industries of the factors that are critical for the success of virtual project teams contextually. This will significantly aid organizations and

industries in the decision of going virtual and what factors need to be assessed closely to guarantee the success of these groups to remain high.

1.5 Research questions

This research study seeks to answer five main questions:

1. How trust affects virtual project teams' success?
2. How communication affects virtual project teams' success?
3. How leadership affects virtual project teams' success?
4. How goals affect virtual project teams' success?
5. How technology affects virtual project teams' success?

1.6 Research Objectives

1.6.1 General objective

The general objective of this study is to assess the factors affecting virtual project teams' success during COVID-19 on an organization called the Consortium of Christian Relief and Development Associations (CCRDA).

1.6.2 Specific Objectives

The specific objectives of the research are:

1. To assess the effect of trust on the success of virtual project teams.
2. To assess the effect of communication on the success of virtual project teams.
3. To assess the effect of leadership on the success of virtual project teams.
4. To assess the effect of goals on the success of virtual project teams.
5. To assess the effect of technology on the success of virtual project teams.

1.7 Significance of the Study

An Intel corporation head, Andrew S. Grove once remarked: "You have no choice but to operate in a world shaped by globalization and the information revolution. There are two options: Adapt or die". Personal computers were able to revolutionize the workplace in the 1980s and 1990s. And, in the coming decade, recent advancements in globalization, paired with developments in ICT, are

on the verge of sparking a new transition (Towensend et al., 1998). The rise of a modern workplace, according to Townesen et al. (1998), is owing to a community of recent advanced technology such as desktop video conferencing systems and interactive software, among others. In their article, they also stated that this new virtual workplace will be free of time, organizational boundaries, and geographical factors. It will be a location where new heights and degrees of adaptability, production, and cooperation will be reached (Towensend et al., 1998).

Ethiopia's goal is to become a middle-income country by 2025. As a result, as part of its bigger growth aspirations, it has launched several national efforts to boost its ICT strategy (IST-Africa, 2020). One of the initiatives proposed in the IST-Africa (2020) study is for the country to enhance its ICT Research & Development by adopting daring and proactive initiatives, such as developing an upgraded broadband network to assist research partnerships and academic institutions. The outcomes of this study can be useful and important information for a variety of stakeholders.

- For *contextual and literature gaps on the topic*, it will serve to fill a small portion of the literature and contextual gaps identified regarding the topic.
- For *Virtual project teams*, it will help disclose potential local and applicable success factors that are crucial when professionals are assembled in a virtual project team.
- For *Virtual project managers*, it will be instrumental in knowing ways of dealing with the several success factors when leading a virtual project team. It will also be a key informant in knowing ways of improving the overall success rate of the team as well as to attain how team members perceive the virtual project team.
- For *organizations and industries*, it will be instrumental in knowing the potential success factors, and performance associated with virtual project teams and make an informed decision based on facts. It will also let them know what to look for in improving the success rate of these teams.
- For *government and policymakers*, it can be a significant input towards making better policy to eradicate infrastructural success challenges for virtual communication.
- For *other researchers*, the study serves as an input for those who want to conduct further study in the area of virtual project teams' success.

1.8 Scope of the Study

Several different groups can be categorized as Civil Society Organizations (CSOs), according to the literature assessment. According to Kumar (1993), civil societies are formed to organize and educate people in preparation for political involvement by serving as a cushion between citizens and the government. According to Carothers and Barndt (2000), CSOs can come in different forms, ranging from non-governmental associations and informal community-based institutions to movements such as trade unions.

Locally, the "FDRE, Organizations of Civil Societies Proclamation No.1113/2019" defines civil society organization as a "non-governmental, nonpartisan entity established at least by two or more persons voluntarily and registered to carry out any lawful purpose, and includes non-government organizations, professional associations, mass-based societies, and consortiums".

Non-governmental organizations (NGOs), according to the World Bank (1995), are private groups that proactively participate in activities such as reducing poverty, job prosperity, and fundamental social services, among other things.

This study only focused on one organization, a local, non-profit organization called Consortium of Christian Relief and Development Associations (CCRDA) which is an association formed by Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs). This organization is chosen due to its structural arrangement and work progression. Furthermore, they sufficed two of the main requirements set by the study to assess the topic in choosing organizations: staff should be local and there needs to be a dependency on project management functions and project teams to conduct their day-to-day activities.

The geographic scope of the study was limited to its head office located in Addis Ababa, the capital of Ethiopia.

1.9 Limitation of the Study

This research project work has some limitations that may have possibly jeopardized some portion of the research. Among the limitations:

- The project work only focused on one organization. As a result, generalization using this one project work for other organizations can not be applied. That has jeopardized the holistic nature of the project work.
- The data gathering was done via the internet and this may jeopardize the level of how the respondents understood and answered the questions on the research instrument as opposed to face-to-face administration of the data collection instrument.
- The project work did not show the experience of how other professionals besides project team members handled working virtually.

1.10 Organization of the Study

This research project work report is organized into five chapters. Chapter one is an **introduction** to the study. It's the portion of the study that discloses several fundamental topics about the research project and contains the background of the study, statement of the problem, research questions, research objectives, significance of the study, the scope of the study, limitations of the study, definition of terms and organization of the study. Chapter two is a **review of related literature**. It is dedicated to the reviewing of related literature to assess and inform the reader of what is already known about the topic in the research. Furthermore, it dives deep and discusses different concepts and definitions regarding the topic in question via using related works of literature from several international and local sources. It also presents all the findings to the readers in an easy-to-follow and coherent way. Chapter three discusses the **research design and methodology** employed in the study. The chapter discusses the research design, research approach, sample size, data source and collection method, procedure of data collection, and method of data analysis. The fourth chapter is all about **presenting, analyzing, and interpreting data**. It is the chapter in which the research's acquired data is presented, analyzed, and evaluated using the proposed instruments. Finally, chapter five deals with **general conclusions and recommendations**. It is where we see if the research questions have been answered and the objectives met. Additionally, it is where recommendations for future research based on observations and results from the study will be forwarded.

1.11 Definition of Key Terms

Project: is a "temporary endeavor undertaken to create a unique product, service or result" (PMI, 2013).

Project Management: is the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI, 2013).

Project team: "is an organized group of people who are involved in performing shared/individual tasks of the project as well as achieving shared/individual goals and objectives to accomplish the project and produce its results" ("Project Team Organization – Team Definition, Roles & Responsibilities, Organizational Chart," 2018)

Virtual Project Management is "the system by which virtual or remote teams collaborate to manage a project for a finite period towards a specific goal". (Porquier, 2013).

Virtual Project Team: teams whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task (Martins et al., 2004). A virtual project team is also defined as "a group of people who are not located in the same place, rather they make use of communication technologies to accomplish a specific goal" (Jones, Oyung & Pace, 2005)

Virtuality: The extent to which project members are dispersed geographically and on other dimensions and rely on information and communication technologies for carrying out team processes and achieving project goals (Zigurs et al., 2008)

COVID-19: is a disease caused by a new coronavirus that was first identified in December 2019. The newly identified coronavirus, SARS-CoV-2, has caused a worldwide pandemic of respiratory illness (What Is Coronavirus? 2019).

Civil Society Organizations (CSOs): are "non-governmental, nonpartisan entity established at least by two or more persons on a voluntary basis and registered to carry out any lawful purpose, and includes non-government organizations, professional associations, mass-based societies and consortiums" (FDRE Proclamation, No.1113/2019).

Non-governmental Organizations (NGOs): "an organization that tries to achieve social or political aims but is not controlled by a government" (Cambridge Dictionary, 2021).

Chapter 2: Review of Related Literature

2.1 Overview

This chapter deals with assessing and disclosing different works of literature associated with the main topic of the study. The different topics discussed in this chapter are based on previous scientific researches. Besides, virtual project management and virtual project teams-related works of literature are reviewed to analyze existing research and to clearly show the research gap to justify the significance of this study.

Aiming to understand the several theoretical backgrounds regarding virtual project teams, the researcher has attempted to retrieve various articles from different international and local sources. To give background information to the readers, the literature review follows a logical progression from the widest topic about project management towards the specific topic, virtual project teams. The articles were gathered from several search engines and platforms such as Google, Google Scholar, and Research Gate using various keywords such as but not limited to Project, Project management, Virtual Project management, and Virtual project teams.

2.2 Project and Project management

2.2.1 Project

A project is a temporary undertaking intended to generate a unique product, service, or result, according to the Project Management Institute (2013). The institution goes on to define a project as one that is short and has a defined start and end. Furthermore, a project, according to Heerkens (2002), is a one-of-a-kind, one-time endeavor that will almost definitely never be duplicated under the same circumstances, location, or group of experts. Projects are available in several sizes and shapes. Some are massive undertakings involving tens of thousands of people, while others are so little that only one person is engaged. They could also be tasks that may be done in a single day, while others could take years (Schwalbe, 2015). A project, according to Snyder (2014), has three main components: specified goals, measurable objectives, and a budget and timetable. Furthermore, having a deadline for finishing a project establishes the foundation for limited funds and objectives. The project is considered to have finished when one of the following three requirements has been met: the negotiated project objectives have been fulfilled, the project's

aims are unachievable under the given circumstances, or the project is no longer necessary (PMI, 2013). Projects and operations are distinguished by the fact that projects end when their objectives are satisfied or the project is completed, whereas operations continue indefinitely (Schwalbe, 2015).

Projects are growing more and more important all across the world. The United States of America spends over $2.3 trillion on multiple projects works annually, and over $10 trillion is invested internationally on other projects. As a result, project venture capital accounts for around one-fourth of the US and global gross domestic product (GDP) (Schwalbe, 2015).

A project is distinct from everyday work in that it is a temporary, unique attempt to change something in a unique way (Williams, 2008). Projects provide unique items, programs, or outcomes, which can be material or immaterial (PMI, 2013). Munk-Madsen (2010) strengthened this understanding of a project being unique by recognizing a project as a task that is often unique, particularly in the building of information systems. If that isn't the case, he contends, people should complete the assignment only once and then copy it for the remainder.

2.2.1.1 Project Attributes and Constraints

Several attributes and traits, according to Katy Schwalbe (2015), might help a project stand out even more: It is temporary because it must have a fixed and distinct start and conclusion; it is ambiguous at first and becomes more explicit as it grows; it requires resources such as people, equipment, technology, or other assets; it involves uncertainty since something about the project is unknown.

Nicholas (1990) went on to discuss some of the project's most important qualities and attributes. To name a few, they have definable aims and objectives with specified goals, they are a one-time specific activity, they are a transitory activity in nature, they have a budget, duration, and specific requirements, they have a separate process of phases/project life cycle, and so on.

When it comes to projects, there are three widely accepted constraints known as triple constraints (Schwalbe, 2015). The first is scope, which is concerned with the project's task. Alternatively, what distinctive product, service, or outcome does the customer or project sponsor anticipate from the initiative? The second is Time, which is concerned with how long the project should take to

finish. The third is cost, which answers the question of how much should the project cost to complete? What is the budget for the project?

Projects usually have a deadline. This is because it is widely considered that the longer a project takes to finish, the more complex it becomes and the greater the risk of failure. As a result, individuals or organizations involved in projects must comprehend and know how to resolve complicated difficulties through project management.

2.2.2 Project Management

Project management is defined by PMI (2013) as the application of knowledge, talents, methods, and procedures to project activities to achieve project requirements. Project management is a vocation that tries to oversee a project's activities using a variety of skills, assets, and techniques to meet project stakeholders' requirements and specifications (PMI, 2013). Project management, according to Heerkens (2014), can be an effective way of lowering stress if handled with the right abilities and expertise. More than merely achieving agreed-upon reach, cost, and time restrictions should be a priority for project managers. Humans have been working on projects for millennia (Seymour and Hussein, 2014). According to Seymour and Hussein (2014), various inventive architects and engineers have completed various outstanding projects across history, including The Great Wall of China, The Great Pyramid of Giza, and The Coliseum.

In her book "An Introduction to Project Management," Katy Schwalbe (2015) claims that project management has become increasingly popular among many people and businesses in recent decades. She believes that in previous, only a few industries, such as the army and manufacturers, employed project management to primarily focus on presenting planning and cost data to senior management. Project management today, on the other hand, encompasses much more, and specialists from every industry and country work on a variety of projects. Multinational and transdisciplinary work teams have profoundly altered the project work environment, and innovations have become the "IT" aspect in many enterprises. Project management, she says, is also an essential skill for personal achievement. It is not only common in the workplace, and aside from its industry-specific advantages, it can also be useful in completing various personal tasks such as budgeting, wedding planning, and training, to name a few.

PMI (2013) separates project management procedures into five primary activities and phases: initiating, planning, implementing, tracking and managing, and closing. It also states that to successfully carry out its task, the discipline needs to employ an extra 47 project management processes supplementary to the five listed earlier. Finding a precise balance between quality, scale, price, threats, time, and resources is among the most difficult and unpredictable parts of project management because if any of the above-mentioned factors changes, one or more of the other factors is likely to be impacted as well (PMI 2013).

The expanded use of numerous project teams for carrying out numerous difficult project tasks was one of the significant advancements in the field of project management throughout the 1970s. Project teams and collaboration have become more important than ever in project management.

2.3 Teams and Project Teams

2.3.1 Teams

A group of people is defined as a team (Robinson & Robinson, 1994; Thamhain, 1988), although not all groups qualify as teams. A community might be formed primarily for administrative purposes, to fulfill specific personal goals, or to bring people together socially. A team consists of individuals that collaborate to meet deadlines in an interdependent manner, are committed to attaining their common goals, and are enthusiastic to provide high-quality outcomes (Prabhakar, 2008). According to Verma (1997), a team strategy is a technique of working together to optimize team members' combined energy, talents, capabilities, and experience.

A small handful of people having complementary abilities who are devoted to a specified aim, performance targets, and shared methodology for which they hold themselves responsible and accountable, according to Katzenbach and Smith (1994) are called a team.

Katzenbach and Smith (1993) state unequivocally that not every group of people can be called a team. In the table below, they have outlined the main differences between working groups and teams:

Table 2.1: How to tell the difference between a team and a working group (Katzenbach and Smith, 1993)

Working Group	Team
Strong, clearly focused leader	Shared leadership roles
Individual accountability	Individual and mutual accountability
The group's purpose is the same as the broader organizational mission	Specific team purpose that the team itself delivers
Individual work-products	Collective work-products
Runs efficient meetings	Encourages open-ended discussion and active problem-solving meetings
Measures its effectiveness indirectly by its influence on others	Measures performance directly by assessing collective work-products
Discusses, decides, and delegates	Discusses, decides, and does real work together

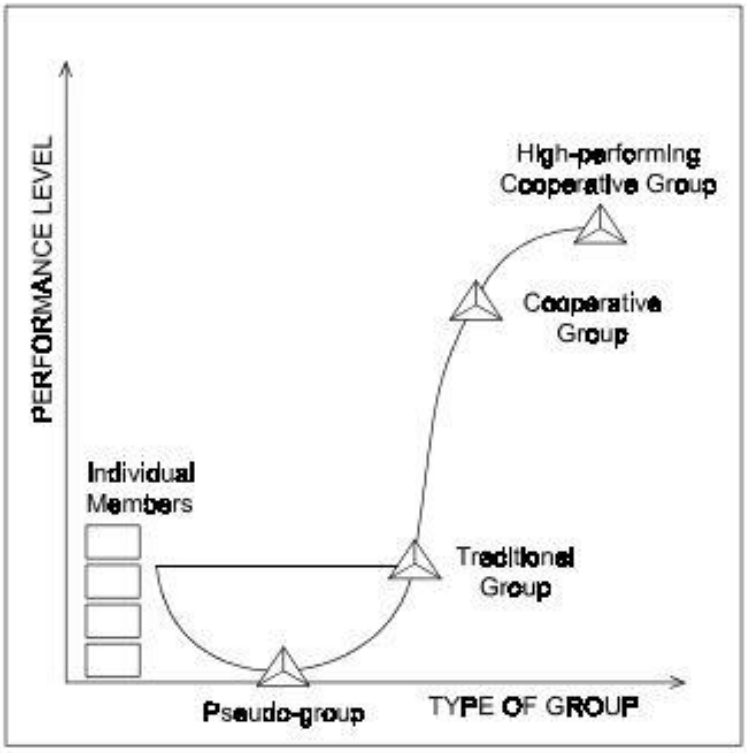
2.3.1.1 Types of Teams

Smith (1999) argued in his study that to employ collaboration effectively, one must first understand the difference between an effective group and one that is not. Understanding this, he maintained, is critical because, while some types of teams can improve people's lives and create success, others can hinder productive work and cause confusion and dissatisfaction. As a result, it's critical to grasp the various types of teams you're a part of. There are four different types of teams, according to Smith (1999):

1. **Pseudo Group**: Participants who do not want to be on a team are allocated to work together in this group. Although they appear to be cordial on the face, there is a continual underlying rivalry and competitiveness among team members. This team is a waste of time, and the individuals would have been better off working on their own.
2. **Traditional Group**: This is a group whose members realize that when they are given a task, they must work together. It features a structure that needs only limited quantities of joint work, and members cooperate mostly for assignment clarification and other activities on a need-to-do basis. They provide important knowledge to teammates but refuse to show them what they know. The outcome of this type of team is significantly stronger due to the individual efforts of select players.

3. **Cooperative Groups**: This is a scenario in which individuals are assigned to work in a group and value being assigned to a group because the roles they deal with are complex and entail a diversity of perspectives. It has a well-defined structure, and its members understand the value of collaboration in attaining success.
4. **High-Performance Cooperative Group:** This is a highly uncommon type of team that is of the greatest caliber, meeting all of the criteria for forming a cohesive learning community and exceeding all expectations. In terms of member loyalty to one another and group performance, it differs from a cooperative community. Because participants care about one other's personal development, high-performance cooperative organizations beat expectations.

Figure 2.1: Performance Vs Types of groups (Smith, 1999)



2.3.2 Project teams

Teamwork is a coordinated method that generates a significantly better result than the sum of individual successes (Prabhakar, 2008). A project team is a collection of individuals that work together to guarantee the successful execution and achievement of project objectives. A project

team is made up of professionals such as the project manager, project management managers, and others who may or may not be actively involved in the project's success. Thamhain (1988) claims that successful teams generate high-quality outcomes and flourish in the face of multiple hurdles and cultural or philosophical diversity.

According to Thamain (2004), a project manager's involvement in unifying the project team is critical, and the project team's operating environment has a direct influence on project performance. The Harvard Business Essentials (2004) adds to this idea by stating that project work quality is intrinsically tied to the individuals involved. As a result, proper management and a well-organized management structure are essential. The construction of an effective team is one of the most critical jobs a project manager must do. Team building is a technique for bringing together people with varied interests, backgrounds, and talents to form a cohesive and productive work unit (Prabhakar, 2008). To achieve a satisfying result, the project's right people must be on board, and they must understand exactly what they are expected to perform.

2.3.2.1 Characteristics of Effective Project Teams

People must contribute specific abilities that are advantageous to and demanded by a project, according to Prabhakar (2008). Aside from that, he noted that numerous characteristics are required for a project team to be branded productive and that they are used as components in team or project success. The list is as follows:

- Competence
- A clear, simple, and common objective
- Commitment to the common goal
- An atmosphere where everyone participates and profits
- Supportive framework

2.3.2.2 Criteria for Project Team Membership

Project team members are often picked depending on the aptitude requirements of the project's current phase, according to Flaatten et al. (1992). What responsibilities are required and how explicit the roles are specified will be determined by the project's scale, breadth, and difficulty. Small projects are frequently structured haphazardly, with any team member filling any of the roles. Medium-sized teams have a higher level of functional or technological specialization. On

the other hand, large projects necessitate both functional and technical segmentation around the same time. Furthermore, the type of work to be done and the responsibilities of project management team personnel are frequently defined by the type of work to be done and the talents required.

Team members must exhibit a specified skill set, according to Prabhakar (2008), to be regarded as significant for the project and classify as team members. According to Prabhakar (2008), the broad capabilities required as a criterion for team member selection can be divided into the following categories:

- Technical skills
- Problem-solving skill
- Interpersonal skill
- Organizational skill

2.4 Virtual Projects

A virtual project is a project in which team members are distributed physically and perhaps on other aspects, and are engaged with each other to complete a given goal under time and resource constraints, according to Zigurs et al. (2008). A virtual project is a cooperative process toward a certain objective or success that is based on ‘collective yet remote' productivity, according to Krill & Juell (1997). Organizations and companies have come to rely on computer-mediated technological developments to complete tasks due to the dispersal of teammates. Virtual projects are most typically employed in software development, but they're also gaining traction in research and development, marketing, and customer relationship management (Zigurs et al., 2008). Virtual projects are essential components of modern businesses that want to be adaptable and take advantage of distributed resources.

According to Zigurs et al. (2008), virtual project teams can be spread in a variety of ways, the most common being spatially, but also in schedule, organizational affiliation, society, and innovation. The more geographically dispersed the team is, the more virtual it gets (Katzy et al., 2000). Virtual management considers both the entity's qualities and the greater social context, which may include regulatory and environmental issues (Zigurs et al., 2008). Guss (1998) defines four types of teams based on a team's "virtualness" as a characteristic:

1. **Pure**: is where the team functions virtually, without control of anyone's organizational method.
2. **Transitional**: is where the team functions as a combination of hybrid and mono forms.
3. **Hybrid**: the where the team functions in a multi-organizational culture.
4. The team members all function in the same organization.

Zigurs et al. (2008) in their article called "The Practice and Promise of Virtual Project Management" identified three key process factors that are important to manage virtual projects successfully: communication, coordination, and control.

1. **Communication** is the process by which people exchange messages and data to complete project tasks and interact value.
2. **Coordination** can be defined as the processes by which people, equipment, and other assets are brought together to carry out the activities required to meet project objectives (Crowston, 1991).
3. **Control** is a technique for tracking and assessing project operations to anticipate and manage deviations from plans and objectives (PMI, 2004).

Virtual project management differs greatly from traditional or conventional project management. As a result, experts anticipate disparities in how virtual project managers handle collaboration, communication, and control.

2.5 Virtual Project Management

Working remotely and digitally has been easier as technology has advanced, and it is increasingly becoming a must (Aljabri and Khayyat, 2020). As a result of this expansion, project management has evolved, and we now have the concept of virtual project management. According to Horvath and Tobin, virtual teams are growing more common in many organizations (1999). The management of projects by virtual or remote teams is referred to as digital project management (Porquier, 2013). According to Nauman & Iqbal (2005), virtual project management is a strategy in which virtual teams collaborate for a set period on a specific goal that must be finished on time, on budget, and according to specifications. Regardless of time zones, job progress entails monitoring and managing work as well as other responsibilities. Technology facilitates the team's

usage of a "virtual workspace" to interact and cooperate. The persons in charge of the operation are virtual project managers. Virtual project management will be required by the company when different team members or the complete team are scattered across many time zones.

Virtual project management (VPM) is being preferred over the traditional concept of project management due to constant pressures to reduce costs and staffing, as well as the need to quickly resolve customer complaints, produce things, render goods, and tap into a more wide and varied pool of workers throughout the company (Nauman & Iqbal, 2005). The majority of the project life cycle and tasks are identical; the only variation is that not everyone on the project team is located in the same location. A virtual team's roles are nearly comparable to those of a traditional team. The key distinction is that the coworkers operate in different locations and rarely communicate with one another.

2.6 Virtual Project teams

Teams are a great method to connect people with a diversity of skills, talents, and experiences together to achieve commercial or other objectives (Ochieng and Zuofa, 2018). Teams have proven to be excellent techniques for addressing a variety of difficulties in businesses. As a result of increased internationalization and technical innovation, digital teams have become a significant business offering.

Virtual teams can be classified in several ways. Virtual teams, according to Gassmann and Zedtwitz (2003), are groupings of people and sub-teams who collaborate through linkages reinforced by data, communication, and technology advancement and interact through interdependent tasks directed by a single purpose. Virtual teams are small temporary groups of knowledge workers who are physically, geographically, organizationally, and/or time-distributed who coordinate their work primarily through electronic information and communication technologies to perform tasks (Ebraim et al., 2009). Martins et al. (2004) define virtual teams as groups in which members use technology to engage across physical, temporal, and relational constraints to execute interdependent tasks. According to Khoshnoodi (2018), a virtual team is a work structure in which a collection of people is responsible for achieving targets in the absence of face-to-face engagement. A virtual team is a group of people who work together for the same purpose while being physically separated, whether across the block or the globe (Khoshnoodi,

2018). As a result of technological advancements and globalization, virtual teams are transforming the way we think and work.

According to Townsend et al. (1996), virtual project teams can be structured in one of two ways. The first is a modular structure that can only be used for a single mission. The second focuses on a longer-term framework that can be utilized to address issues such as strategic planning. They also mentioned that membership in these virtual teams is frequently fluid, shifting as work demands change. Hashem Alnsour (2014) adds to this by stating that, unlike traditional project teams, authority is shared among team members, and virtual project teams are commonly described using a flatter and more flexible kind of leadership or management framework.

Traditional and virtual teams, according to Bell and Kozlowski (2002), have similar qualities. There are no significant distinctions in their responsibilities, priorities, or missions. The primary variations in characteristics include the lack of physical proximity, the way these jobs are accomplished, and the specific limits they confront.

2.6.1 Structure of Virtual Teams

The architecture of a virtual team should be socially diverse and well-organized (Hashem Alnsour, 2014). The division of labor is the most significant characteristic of a team structure, according to Hashem Alnsour (2014), because it has a direct impact on team performance as well as an indirect impact on productivity and cooperation. The second aspect is the hierarchy, which affects communication effectiveness since virtual leaders must submit a huge amount of data and have a major impact on the team. The final aspect is the work process, which is achieved by using technology to link team members across distance and time.

2.6.2 Types of virtual teams

While the majority of academics acknowledge the existence of many sorts of virtual teams, just a few have specific criteria for defining them (Ochieng and Zuofa, 2018). Cascio and Shurygailo (2003) used the number of sites and supervisors participating in virtual teams to differentiate virtual teams. They were able to distinguish virtual teams in the following ways:

- **Teleworkers**: involves teams with one manager in one location,
- **Remote team**: involves one manager with distributed Virtual teams,

- **Matrixed teleworkers**: is where the team involves multiple managers in one location,
- **Matrixed remote teams**: this is where the team involves multiple managers across multiple locations.

Khoshnoodi (2018) and Pangil and Chan (2018) have described several types of virtual teams (2014). All forms have one thing in common: members of the team must communicate and collaborate to fulfill tasks and/or generate a product. Virtual teams, on the other hand, must fulfill these tasks by communicating and interacting across duration, space, and/or barriers, utilizing technology to facilitate communication and cooperation (Duarte and Snyder, 2001). They classified virtual teams into the following groups depending on the type of work they accomplish, where they're used, and how they completed tasks:

1. **Networked virtual teams**: are used in consulting firms and technology businesses to react to inquiries by employing external or internal contacts and have elastic memberships.
2. **Parallel virtual teams:** These are multi-member groups tasked with analyzing operational performance and difficulties and making recommendations.
3. **Project/Product development virtual teams:** Participation is unique, with clearly stated aims and "real and measurable" outcomes. Rather than only making recommendations, they have the authority to make choices.
4. **Production virtual teams**: Teams that work continuously while telecommuting and are generally based in a single department or job.
5. **Service virtual teams**: These are groups in which one group works to resolve issues while another unit in a different part of the world continues where the first group left off.
6. **Management virtual teams:** These are teams of managers from the same company who are based in different cities or countries.
7. **Action virtual teams**: In the event of an event or an emergency, they are teams that can deploy quickly and give an urgent reaction.
8. **Offshore virtual teams**: These teams, which are commonly used for software development and outsourcing, are hired on a subcontract basis to work alongside onshore teams.

It may be claimed that the conception of virtual teams has remained a challenge due to the numerous contexts or disciplinary adaptations in which they have not been studied (Ochieng and

Zuofa, 2018). Dispersion, variety, and technical support seem to be the underlying qualities and convergent points when seeking to design virtual teams.

2.6.3 Benefits of Virtual Project teams

Bergiel et al. (2008) noted that businesses can profit from virtual teamwork in a variety of ways in their study "Nature of virtual teams: a summary of their advantages and downsides." Members of a geographically dispersed team can work on the same project without having to be physically present at the same location. Some of the benefits of such arrangements are as follows:

- The amount of time and money spent on travel is minimized. Because virtual teams communicate via technology, the significant costs of hotel, transportation, day-to-day expenses, and other money-intensive activities can be reduced or even eliminated (Bergiel et al., 2008). The level of confusion and chaos in the workplace is generally reduced when face-to-face meetings are eliminated (Opper and Fersko-weiss, 1992).
- Provides a varied pool of talented individuals that would otherwise be unavailable to the organization if just face-to-face interactions were required (Snyder, 2003). Virtual workers are far more adaptable and can work on multiple teams at once (Hertel et al., 2004).
- Virtual teams have increased efficiency, established a competitive advantage, and improved customer service (Ochieng and Zuofa, 2018). Because they are varied and diversified, virtual teams are far more important and flexible than traditional teams (Bergiel et al., 2008). Virtual teams may bring together a wide range of perspectives, allowing for more creativity (Townsend et al. 1998).
- By allowing physically challenged workers to access virtual offices rather than actual offices, virtual teams promote equality in the workplace.
- They also encourage exceptionally flexible work arrangements, as some technologies allow team members to work from home, making it easier to manage personal obligations (Ochieng and Zuofa, 2018). Virtual teams allow institutions to respond quickly to more complex business and client needs.
- When being physically present at work is not an option, they provide an alternative workspace for employees.
- Because expectations are primarily focused on performance and productivity rather than other personal attributes, they prevent age and race discrimination.

2.6.4 Challenges of Virtual Project Teams

In the commercial world, virtual teams that collaborate across boundaries are becoming more frequent (Goodbody, 2005). While virtual teams have numerous benefits, it's also vital to note that they have their own set of obstacles and disadvantages. Organizations confront many hurdles when implementing virtual teaming, according to Krumm et al. (2016). Some of the major disadvantages of virtual project teams are as follows:

- Often requires complex technological applications that all team members may not understand.
- Inadequate understanding and familiarity with virtual teaming-related technical applications, especially among senior managers, may stymie initiatives (Bergiel et al., 2008).
- Workers lack a broad understanding of higher-level technological applications, and the majority would benefit from more training in this area.
- Lack of physical touch, including verbal and nonverbal messages, as well as the synergies that typically surround face-to-face meetings, results in a loss of morale. According to Cascio (2000), a lack of physical contact fosters confidence issues. Bailey (2013) also examined and questioned how the lack of nonverbal, face-to-face communication in everyday life, as well as a lack of social connection, a loss of team spirit, a lack of trust, and cultural conflicts, were the main killers of working electronically.
- Members of the virtual team have a restricted number of opportunities to attend social or other non-work-related events (Furst et al., 2004).
- Due to psychological difficulties, some workers may be unable to function in a virtual environment. Some groups of workers are motivated to work because they communicate with other individuals, but they require the external organization to stay on track, according to Joinson (2002).

2.6.5 Factors in a Successful Virtual Project Teams

Virtual project teams, like traditional project teams, are made up of individuals who cooperate through independent tasks that are driven by a common aim (Lipnack and Stamps, 1997). Many of the basic capabilities that traditional teams have are shared by virtual teams. However, they also

collaborate across space-time and organizational boundaries, which are enhanced by technological advancements (Bergiel et al., 2008). Five factors stand out in the creation of effective virtual teams, according to Bergiel et al. (2008): trust, communication, leadership, goal setting, and technology.

1. **Trust**: Trust is the foundation of all good interactions in virtual teams, according to Bergiel et al., (2008). Members and leaders must deliberately and cautiously generate, facilitate, and cultivate these interactions, according to Coppola, Hiltz, and Rotter (2004). Trust can be created when team members realize they can count on one another to execute duties correctly and on time. Virtual teams require a high level of trust due to the lack of face-to-face interaction (Bergiel et al., 2008).
2. **Communication**: Both traditional and virtual teams require interaction, but the amount to which they require it differs greatly. By definition, virtual teams necessitate more interaction than conventional forms of meetings. Team members must be proactive in providing timely reporting on work deliverables and providing feedback on the contributions of other team members (Bergiel et al., 2008). Team members' willingness to exchange knowledge despite time and distance constraints is crucial to the team's success. As a result, leaders and members should have explicit knowledge-sharing procedures in place (Ojala, 2004).
3. **Leadership**: Leadership is another important aspect of virtual teams' success. Leaders should be proficient when it comes to seeking to combine work processes in virtual teams. They should be able to resolve issues as well (Snyder, 2003). Leaders should also be able to take into account the contributions of individual team members when delegating duties. They'll need to check in on how well the virtual team is working regularly, as well as establish techniques and metrics for detecting problems early and taking corrective action before they spiral out of control (Bergiel et al., 2008).
4. **Goals**: Goals serve as a powerful unifying factor for virtual teams, including the organization's goal, team members' priorities, and team members' needs (Cascio and Shurygailo, 2003). Members should take part in the goal-setting process for the project and be aware of the success measures and types of individual contributions required of them (Bergiel et al., 2008). If they lose sight of the goals, the team's and individuals' output will decrease.

5. **Technology**: Technology is one of the most significant elements for virtual teams' performance because they rely on it to fulfill the majority of their responsibilities. Without today's superior technical resources, virtual teams would not be viable. Any technology deployment that isn't given enough attention has the potential to fail (Zakaria et al, 2004). Leaders and members of digital teams must ensure that everyone involved has the necessary expertise, hardware, software, and computer skills to properly participate in the team's activities (Bergiel et al., 2008).

2.6.6 Success Measures of Teamwork

Tarricone and Luca (2002) propose various success measures for teams to be regarded as successful in explaining why some teams become successful while others are considered unsuccessful and what conditions and traits are required for designating a team as successful. These characteristics and requirements can also be used for virtual project teams, as the only difference between them and regular project teams is that they work via the internet. Based on a survey of the literature, their research describes a set of attributes that are deemed necessary for efficient teamwork. The following are five of the qualities they addressed.

1. **Commitment to goals and objectives** – A team is deemed successful, according to Tarricone and Luca (2002), when all members are committed to the team's advancement and the project's common goals. Successful teams are highly motivated, dedicated, and pursue excellence.
2. **Interdependence** - Members of the team must collaborate to create an environment in which they can give even more than they could separately. A positive, interdependent team environment brings out the best in everyone, allowing the team to achieve significantly more success (Johnson & Johnson, 1995,). Individuals motivate and assist their coworkers in achieving, benefiting, and growing.
3. **Interpersonal qualities** – Successful teams have the freedom to discuss problems with team members openly, to be honest, trustworthy, and compassionate, and to treat the team and its members with respect and loyalty. Fostering a compassionate work environment, as well as the ability to work collaboratively well with others, is critical.
4. **Communication and feedback** – A successful team is one in which members pay attention to one another's worries and desires, as well as value and share each other's contributions,

all of which contribute to a productive work environment. Members of the team ought to be able to provide and take suggestions as well as real feedback.

5. **Team composition** – Successful teams, according to Tarricone and Luca (2002), are made up of colleagues who are fully aware of their specific team position and what is expected of them in terms of dedication to the team and the project.

2.6.7 The Technology of Virtual Teams

Virtual teams are becoming more popular as a result of recent improvements in computer and telecommunications technology, which are partly dependant (Townsend et al., 1998). According to Townsend et al. (1998), all belong to one of three major categories of technology: desktop videoconferencing systems (DVCS), collaborative software systems, or Internet/Intranet systems. These three systems offer the virtual team a communication architecture as well as technical enablement for their activities (Osterlund, 1997).

1. **Desktop Videoconferencing Systems (DVCS)**

   DVCS is the basis on which the rest of the virtual team tools are built, according to Townsend et al. (1998). DVCS allowed Face-to-face interactions same as traditional teams to be re-created, allowing for more nuanced communication and collaboration. Although the DVCS videoconferencing technology is not new, it used to necessitate the use of specific conference rooms, which were both costly to set up and maintain. It is, however, now incredibly economical and simple to use. Because it combines price and operational simplicity, DVCS is an affordable corporate communications solution (Brookshaw, 1997).

2. **Collaborative Software Systems**

   According to Townsend et al. (1998), collaborative software systems constitute the second part of the virtual team technological infrastructure. Collaboration software is specially built to promote synergy operations, and these relationships need team members to function both cooperatively and independently. The most basic collaborative software application, as indicated in the article, entails just exchanging traditional software products via the DVCS, as most DVCS allows consumers to trade any program installed on any of their computer systems.

3. **The Internet and Intranets**

The Internet's great popularity is substantial evidence that a welcoming channel can transcend the technophobia of a significant number of people, and corporate organizations have not forgotten this lesson (Townsend et al., 1998). Intranets increased inter-employee cooperation and the dissemination of organizational information in organizations that used them. For virtual teams, the Internet and intranets are vital conversational and informational resources. They enable virtual teams to save written, graphical, audio, and numerical data in a user-friendly manner while also informing other employees of the business as well as significant external stakeholders such as suppliers and consumers.

2.6.8 Input-Process-Outputs (IPO) Framework of Virtual Teams

As with any Project Management tasks, the IPO provides a useful theoretical framework for defining essential inputs, procedures, and outputs linked to virtual team effectiveness. Team emergent states and process factors are thought to impact team results while emerging states and processes are thought to mediate the interaction between input factors and team results (Ilgen et al., 2005; PMI, 2013).

1. **Inputs**

   James and Julia (2017) identified three input types as critical deterministic criteria for virtual teams. To begin, there's the category of organizational-level causes. This comprises characteristics that indicate organizational behavior in the formation of virtual teams (i.e., sizing and structuring), the assignment of tasks, responsibilities, and aims, and the actual work settings in which virtual team members operate. They identified team leadership factors as the second input category. Virtual team leaders need specific virtual team skills and appropriate leader habits to cope with the lack of face-to-face interaction with team members, such as effective communication, deeper understanding of technological innovations, power to affect and inspire team member engagement, and so on. Third, team makeup reflects individual differences as well as surface-level and deep-level diversity. A team's composition is likely to have an impact on its operations and performance (Hoch & Dulebohn, 2013).

2. **Process**

   Team processes are the interconnected acts of team members that turn inputs into outcomes. To transform inputs into outputs, digital teams employ cognitive processes such

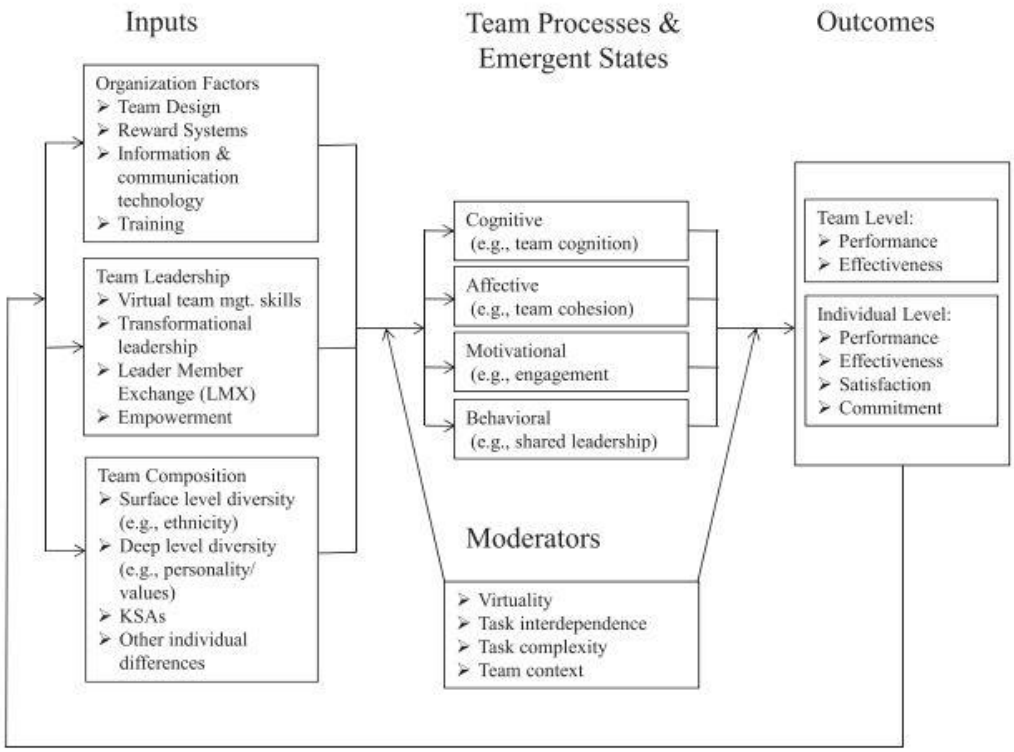
as team cognition and cognitive environment, motivational processes such as teamwork devotion, affective processes such as team cohesiveness, and behavioral processes such as leadership and communication (Kozlowski & Bell, 2003).

3. **Outputs**

   According to James and Julia (2017), outputs are the consequence of processes that transform team inputs into results that the organization values. They've separated the results into two groups. The first is team-level results, which demonstrate how successfully the team achieves its success goals and priorities as assessed by measures such as team performance and effectiveness. Individual team member outcomes, such as happiness and engagement, represent the success, efficiency, and mindsets of individual team members (James and Julia, 2017).

The following figure represents the summary of the IPO model for virtual teams forwarded by James H. Dulebohn, and Julia.E. Hoch (2017).

Fig 2.2: Input-Process-Output model for virtual teams



2.6.9 Delivering Projects with Virtual Teams

Project teams are formed to finish projects, which are temporary activities undertaken to generate distinctive goods, services, or results (PMI, 2008), (Ochieng and Zuofa, 2018). The majority of project teams are formed to achieve the project's specific objectives, and as firms increasingly execute projects outside of their immediate geographical locations, virtual project teams have become nearly unavoidable (Ochieng and Zuofa, 2018). There are a few obstacles to overcome while attempting to deliver projects using virtual teams. One difficulty is that project management becomes more difficult to complete when compared to project management inside co-located project teams (Karolak, 1999). Another issue is combining activities with increasingly dispersed organizational units in a way that allows individual items to contribute effectively to the total project goals while maintaining formal and informal management and communication systems (Carmel and Agarwal 2001; Ochieng and Zuofa, 2018).

Because managing virtual teams and projects necessitates a higher level of attention to detail, project personnel, particularly the project manager, must be culpable for both typical co-located and virtual project management activities. To date, most virtual project team research has been done in more advanced economies on the European and North American continents (Ochieng and Zuofa, 2018). With this in mind, the research's major goal is to identify success determinants and assess virtual project team performance in Ethiopia, utilizing one firm as a case study.

2.6.10 Virtual Teams in Ethiopia

Ethiopia, Africa's second-most populous country after Nigeria, and the region's fastest-growing economy, with a population of more than 112 million people. Ethiopia's second development and transformation plan (GTP II) prioritizes reform tools and enhancing the country's potential (MoFED, 2010). However, incorporating such change tools is impossible without first understanding the framework in which effective teams operate in organizations (Abdulnasir, 2018).

According to Gurung and Prater, (2006); Pornpitakpan, (2005), and other scholars, based on national or organizational cultural orientations, a variety of specialized ways of organizing and arranging tasks can arise within a workplace environment. As a result, professionals from varied national cultures and contexts might react to organizational strategies in a variety of ways (Ochieng

and Zuofa, 2018). The study looked into the Ethiopian experience with virtual project teams using this as a starting point. Despite the researcher's best attempts, he was unable to uncover relevant literature and past studies on the subject in Ethiopia.

Based on Hofstede's (1991) research, we may fairly infer that no two civilizations are alike. As a result, simply copying results from one context to another is a bad idea. Given the scarcity of literature and analysis on the problems and successes of virtual project teams, this research has been valuable in getting more insights into the subject by examining the obstacles of virtual project teams in Ethiopia utilizing local NGOs as a case study.

2.7 Empirical review

To strengthen the subject, some previous studies were researched and referred to. As a result, both local and international studies were looked in to focus this segment on the factors that affect the success of virtual project teams. Despite a diligent effort, the researcher couldn't locate any local empirical studies that deal with factors that are critical in the virtual teams' success. Consequentially, only international studies on the subject are disclosed below:

Ahuja (2016) in her study titled "**Modelling the Success Factors of Virtual Team"** sought to determine the essential performance variables for virtual teams and create a model based on the interrelationships between the variables. Based on a questionnaire sent out to 120 virtual team members and examined using MIC MAC analysis, the findings revealed that leadership, company culture, technology availability, and team goal have a substantial impact on team configuration. According to the analysis, the impact of these variables on successful HR policies and top management support was also observed. Technology readiness, communication, and trust-building are all influenced by good HR policy. Both of these variables have an impact on teamwork, conflict resolution, and job efficiency. Some factors were categorized as having a high driving capability, while others were categorized as having a high reliance.

Dube and Marnewick (2016) in their study titled "**A conceptual model to improve performance in virtual teams"** aimed to look at performance criteria and to come up with a conceptual model that can be used to help virtual project teams succeed. Leadership, trust, collaboration, team cooperation, efficiency, encouragement, comfort, and social contact were identified as essential success needs for virtual project teams through qualitative study and content analysis. These were used to construct the notion of their model. Individual studies should be done to investigate their effects on project performance and success, they said.

Hamersly and Land (2015) conducted their qualitative study under the title **"Building Productivity in Virtual Project Teams"** intending to discover best practices for incorporating virtual project teams through data analysis based on the experiences of active project personnel. By interviewing 22 top project managers, they hoped to learn about important business and project management principles that are critical to the administration of virtual project teams. The study's findings led to the discovery of ten emerging trends, which led to the formation of techniques for

selecting appropriate virtual project team coordination practices, including recognizing management, reliability, abilities, homogeneity, partnership, and composition, among other things, as critical for virtual project team success and enhanced integration into organizational culture. Finally, they stressed the importance of developing an integration strategy for the virtual team's success.

Beranek et al. (2005) in their study titled "**Management of Virtual Project Teams: Guidelines for Team Leaders"** forwarded several key guidelines on how to lead virtual project teams to success and how to properly manage them. They wanted to use these suggestions to guide how to deal with problems that emerge within the virtual project team's project life cycle, such as finding suitable team members, establishing laws and regulations, and developing mutual understanding. They provided 10 criteria for virtual project team leaders to follow to guide their teams to success after breaking the project lifecycle into pre-project, project initiation, mid-stream, and wrap-up phases. Establish and explain the project's goal, priority, and success criteria, which they argue is vital to ensure that everyone in the team is on the same page when it comes to project progress. Another success advice they provided is to choose team members carefully. They also recommended using a team member who is familiar with the job process, as this will boost the team's productivity. They gave the leaders these and additional instructions to use in leading the squad to success.

Nguyen's (2013) study titled **"Success Factors for Building and Managing High-Performance Global Virtual Teams"** was aimed at presenting and integrating the success characteristics widely acknowledged as critical in the establishment and administration of high-performance global virtual teams The research identified seven key areas where distinct success criteria for global virtual teams may develop. Structure, leadership, management, technology, the standard of excellence, and external support all played a role in GVT's success. The study found micro and quantitative success aspects such as members' competence, dedication, trust, communications, goals, and teamwork, leadership qualities and talents, development tools, and information communication technologies. According to the report, including these success characteristics in training programs can result in better knowledge and use of global virtual teams.

Cagiltay, Bichelmeyer, and Kaplan Akilli (2015) in their study article "**Working with multicultural virtual teams: critical factors for facilitation, satisfaction, and success"** sought

to talk about how global virtual teams create and grow collaborative work, how to encourage it, and what makes working in such a team pleasurable and effective. The study offered ways for addressing and maximizing the underlying similarities and variances among team members. Communication, language, media, cultural features, and conflict all have a substantial impact on multicultural teamwork, according to the study, and one or more of these elements frequently causes conflicts in multicultural teams. Accepting cultural differences, creating diverse motivation triggers, better communication administration, and enhanced facilitation and participation were some of the researchers' suggestions for improving virtual team effectiveness.

Kaul Bhat, Pande, and Ahuja's (2017) study titled "**Virtual Team Effectiveness: An Empirical Study Using SEM"** aimed at describing the importance of key elements such as trust, knowledge sharing, and collaboration in the creation of virtual teams' success. As per the author, virtual project teams are characterized by being transient, culturally diverse, geographically dispersed, and using electronic communication. They conducted their research by sending out questionnaires to 700 participants, 550 of whom responded, and 520 of whom were used in the study. As a result, they concluded that one of the most significant success requirements in virtual project teams is trust. The study also recognized communication and information exchange as important success factors. The study added to previous research by emphasizing the importance of traits that have a significant impact on the effectiveness of virtual project teams, with a focus on trust, knowledge sharing, and communication, especially in the IT area. They concluded by recommending that the study's findings be used by a variety of firms and experts to better virtual project team management.

Earnhardt's (2009) study titled "**Identifying the Key Factors in the Effectiveness and Failure of Virtual Teams**" aimed at exploring virtual teams and the contributing factors to the virtual team environment. In the analysis, three success characteristics emerged as the most essential. The first success factor addressed is clarifying objectives. According to the study, defining goals, objectives, and obligations, which are closely linked to management roles in team building, coordination, and communication, was a critical contributing factor. The second factor on the list is technology. While the study's technology did not contribute to the improvement of team performance, it did give a means of communication and increased the team's ability to complete the task. The development of a team was the study's last success criterion. According to the study,

picking team members should be done with caution. Aside from success criteria, the study looked into some of the factors that contribute to virtual team failure, including unclear objectives, inefficient team building, and technology.

Morley, Cormican, & Folan's (2015) study titled **"An Analysis of Virtual Team Characteristics: A Model for Virtual Project Managers"**, an exploratory review of works of literature and an empirical study of a virtual team, was conducted aiming to assess the use of virtual project team in an international medical manufacturer by looking at many factors that were important to the teams' performance and success. According to the study, clear engagement rules must be created during the formation of teams

for them to succeed. They also stressed the importance of establishing clear priorities and tasks to work efficiently. To help virtual project teams succeed, they also recommended that the team leader conduct ongoing performance assessments and that team members maintain continual communication.

Justyna Szewc's (2013) a researcher from Warsaw School of Economics in his study titled **"Selected success factors of virtual teams: literature review and suggestions for future research"** attempted to contribute to the expansion of the knowledge about virtual teams by disclosing the differences between traditional and virtual teams and defining some selected success factors. According to the author, traditional and virtual teams share many common traits. The most notable difference between traditional and virtual teams is that virtual teams are built up of geographically diverse groups who may be located in different countries or within the same nation. According to him, globalization, demanding clients, technological advancements, and the internet, among other considerations, all played a role in the birth of virtual teams. Furthermore, following a thorough analysis of existing concepts on success factors of virtual project teams, the researcher established four criteria that must be existent for a team to be successful: trust, leadership, communication, and team building, all of which were investigated in detail. The researcher continues by recommending further research into the success factors stated. The researcher also provided the summary table below, which highlights a series of studies into various recognized success determinants that have been submitted by other academics and professionals over the years.

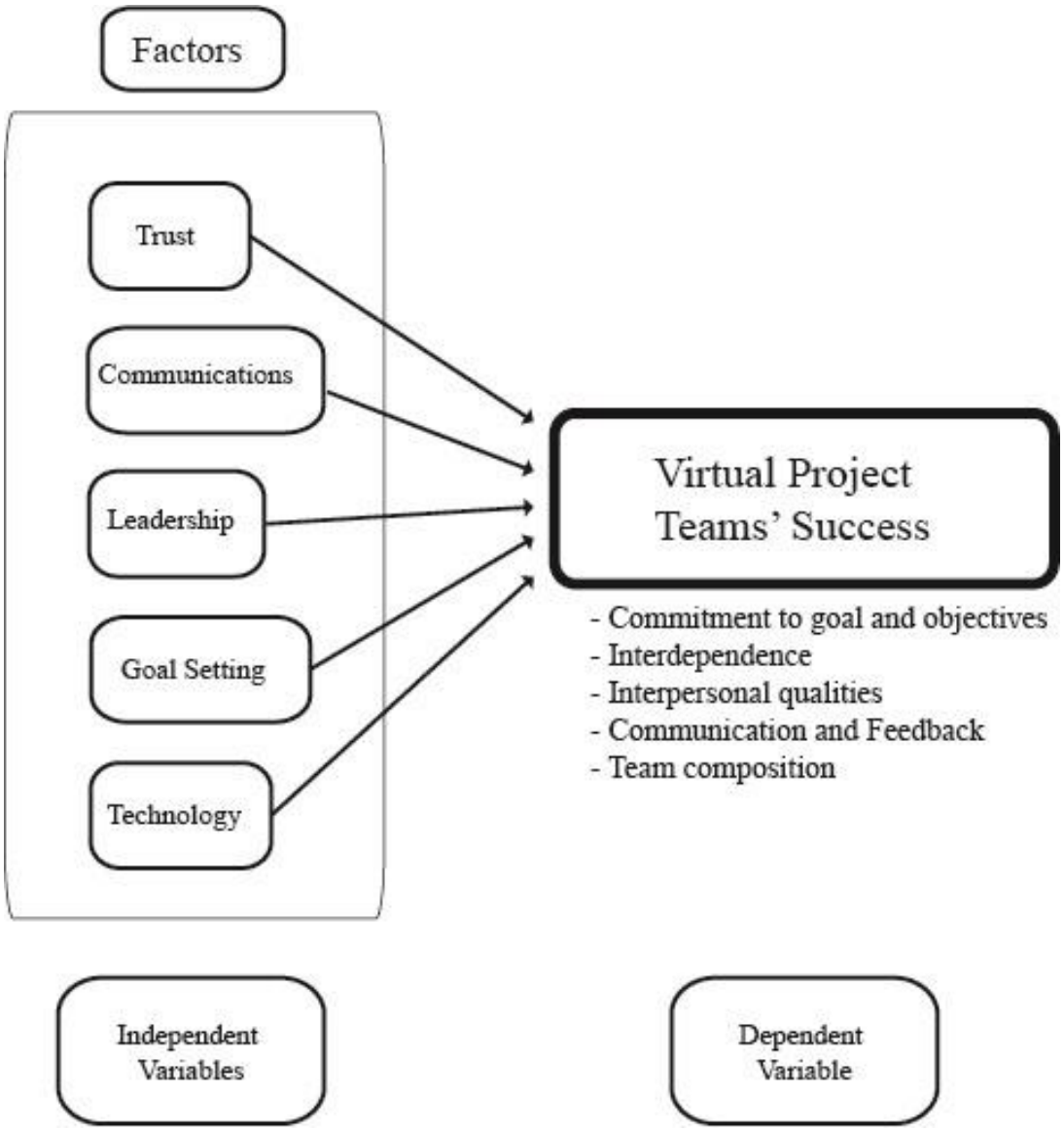
Table 2.2: Success factors of Virtual Teams (Szewc, 2013)

Authors	Factors
Borrelli, Cable and Higgs, 1995, p. 30	"team balance, leadership, team to team, overcoming hurdles, autonomy, shared understanding of goals, recognition, full circle feedback"
Brenowitz, 2004, p. 244-246	support from management, right definition of team's goals, operational framework for work, responsible, trusted and professional team members
Parkinson, 2002, p. 111-122	trust, awareness of: team's goal, tasks, available resources, measure of the result and the team's success definition, appropriate task division between team members
Prohl, 1997, p. 139	strong and compelling performance challenge, clear goals and objectives, participative leadership, good communication based on trust, honesty and respect for other, willingness to deal with conflict, good coordination, appropriate task division between team members, consensual decision making
Wszak in Natale et al., 1998, p. 178	clear mission, experts engagement, previous experience in "team working", the eagerness to become a team member, effectiveness of group processes, balanced level of used technology
Peckham, 1996, p. 26	clear objectives, motivation by objectives, competences of the team, common engagement, cooperation climate, appropriate support and resources, management
Morris amd Mountfort, 1997	interaction, philosophy, motivation, resources

2.8 Conceptual Framework

The conceptual framework for this study is adopted from Bergiel et al., (2008). As discussed in their study titled "Nature of virtual teams: a summary of their advantages and disadvantages", they mentioned five major factors that are raised alongside the success of virtual project teams. Adopting that, this study considered trust, communication, leadership, goal setting, and technology as independent variables while virtual project team success is considered as a dependent variable.

Figure 2.3: Conceptual Framework Adopted from Bergiel et al., (2008) and Tarricone and Luca (2002)



Chapter 3: Research Design and Methodology

3.1 Overview

This chapter deals mainly with the research design and methodology followed by the research in deciding crucial components of the study and addressing the research problem. It specifically addresses topics such as research approach, design, target population, sample size, data sources and types, data collection procedures, and so on.

3.2 Description of the Study Area

This research aims to investigate the local and contextual experience of professionals concerning virtual project teams. Specifically, it seeks to understand and give a small view regarding the factors that affect the success of virtual teams in light of an Ethiopian experience by taking one organization as a case study.

In deciding the specific study area, the researcher forwarded three major criteria of selection. The researcher believes that these criteria will be essential tools to narrow down the research to a specific study area to investigate the research topic.

1. The first is to study organizations that rely heavily on project management practices to do their day-to-day tasks. This will provide a focused look into organizations that most definitely possibly use project teams to fulfill the tasks.
2. The second requirement is that the organization's human resources be mainly, if not entirely, Ethiopians who live and work in Ethiopia. This will be necessary to comprehend and isolate the contextual issues as well as performances in the Ethiopian context, as Hofstede (1991) states that no two cultures are the same. As a result, merely transferring findings from one setting to another is not a good idea.
3. The last is that these organizations should have at least attempted to organize a virtual project team during COVID-19 and go virtual for their work progressions.

Through observation and critical examination and taking ease of access into consideration, the researcher was able to narrow the investigation down to an organization that fulfills the criteria more than others. As a result, the study area focuses on one organization called Consortium of

Christian Relief and Development Associations (CCRDA), a local NGO located in Addis Ababa, Ethiopia.

3.3 Research Design

A research design is a time-based strategy that guides the collecting of source materials and kinds of information (Cooper and Schindler, 2014). Based on the problem statement, research questions, and research objectives, a detailed research design will be necessary (Saunders et al., 2009). The study's goal, its location, the type of inquiry, the level of researcher involvement, the timescale, and the method of analysis are all key parts of research design (Sekaran and Bougie, 2010). It is frequently centered on the research question and serves as a foundation for establishing the relationship between study variables as well as outlining the methods for each research operation.

Based on the nature of the study, the research questions, and the objectives of the study, a **descriptive research design** has been identified as the most appropriate. According to Cooper and Schindler (2003), descriptive research is focused on ascertaining the what, where, and how of a phenomenon. Furthermore, descriptive research is an excellent choice when the goal of the study is to identify and classify traits, patterns, tendencies, and categories. When there isn't a lot of information about a subject or topic, it's helpful. Studies of a descriptive nature show how a phenomenon occurs in the present. A descriptive survey approach, according to Creswell and Plano Clark (2011), is an inquiry method that attempts to explain and examine what is already available in the form of conditions, practices, processes, routines, implications, attitudes, and beliefs. Descriptive research, according to Kothari (2004), involves a variety of surveys and fact-gathering inquiries, with the most significant purpose being the description of the existing state of affairs. Its goal is to explain key characteristics of the phenomenon under question (Sekaran, 2003).

The research explores the relatively new experiences of virtual project teams. More specifically, it examines and attempts to describe how selected factors affect the success of virtual project teams in the chosen case study.

3.4 Research Approach

Most virtual team studies to date have focused on developed countries in Europe and the Americas, as discussed by Dennis et al. (2012); Schiller and Mandviwalla (2007); Jarvenpaa and Keating

(2012). The study's literature survey reveals that there is a severe lack of literature on virtual project teams in developing countries, especially Ethiopia. According to de Guinea et al., (2005), much of the research on the efficacy and efficiency of virtual teams is still in its early stages, and researchers are still trying to understand the differences between virtual and conventional teams. While literature and growing interest in virtual project teams are abundant, there is, however, a lack of discussion regarding local contexts, and practices.

The study followed a **quantitative research approach**. Deductive reasoning or inference is used in quantitative research (Sekaran & Bougie, 2010). It investigates the relationship between variables to put objective hypotheses to the test. Instruments can then be used to calculate these variables, yielding numerical data that may be evaluated using statistical processes (Creswell, 2009). It aims to use a variety of quantitative analytical approaches to building statistical correlations between variables, ranging from simple descriptive statistics to advanced statistical modeling (Saunders et al., 2009). When a study tries to explain, understand, or foresee events, it is the research design of choice, as it uses probability sampling and larger sample sizes than qualitative research designs (Cooper & Schindler, 2003). Using specialized procedures and procedures, quantitative analysis analyzes interactions between distinct factors. Quantitative techniques are characterized by measurable facts that may be expressed in numbers or other quantities. This serves as a foundation for displaying frequency distributions, correlations, and other statistics (Lind et al., 2008).

This research approach is chosen as it provides a crucial step towards achieving the aim of the research entailed assessing factors that affect the success of virtual project teams in the selected area of study. It provides the best alternative to understand and describe how different factors affect the success of virtual project teams.

3.5 Definition of the Target Population

According to Hamed (2016), the first step in the sample selection is to determine the target demographic. Cooper and Schindler (2014) define a target population as the complete community of individuals or objects from which the research aims to extrapolate its findings A population, according to Nicholas W. (2011), is a communal term that involves the aggregate number of

examples of the kind that are the subject of the study. The population of the study, according to Kothari (2004), refers to the total number of things for which information was obtained.

The target population for this study is the project professionals involved in virtual project teams in a local not-for-profit organization named Consortium of Christian Relief and Development Associations (CCRDA). More specifically, it targets 33 **program and project officers, managers, and coordinators** that work in this organization that was a part of a virtual project team during COVID-19. These are the core professionals that are responsible for making the objectives of the project a reality. They serve in different positions and play a vital role in the day-to-day progress of the project.

3.6 Sampling Method

The process of selecting a portion of a population or the complete population from a sampling frame is known as sampling (Hamed, 2016). Sampling can be used to form conclusions about an existing hypothesis or to draw generalizations about a population. The two categories of sampling methods are probability and non-probability sampling methods. The most important purpose of quantitative research is generalization. In any quantitative study, the researcher is unlikely to be able to study the full population of interest. Researchers employ samples, which are subgroups of the population, to gather information and make inferences about the population of interest (Lind et al., 2008).

Based on the research objectives, design, approach, number of the target population, and kinds of research questions raised, the **non-probability sampling method** is considered appropriate for this research project. According to Hamed (2016), non-probability sampling is frequently associated with case study research design and qualitative research (2016). It is chosen to explore a real-life event rather than draw statistical assumptions about the overall population since it concentrates on small samples (Yin, 2003). Given the small population and the study being a case study, the non-probability sampling method is appropriate.

And among the several types of non-probability sampling methods, the **census** is chosen. A census is a survey of all observation items about the population under investigation. It is the overall count of a population or groups based on well-defined characteristics at a specific point in time. Given

the study's small population, a census will give the researchers a thorough picture of the occurrences in question.

3.7 Sample size

The process of selecting a portion of a population or the complete population from a sampling frame is known as sampling (Hamed, 2016). The most important purpose of quantitative research is to generalize. However, in most quantitative studies, the researcher is unlikely to be able to study the full population of interest. On the contrary given the small size of the population for this study, the whole population is going to be included in the sample group. As a result, all 33 project employees of the Consortium of Christian Relief and Development Associations (CCRDA) were included in the sample group.

3.8 Sources of Data

The researcher collected primary data from project officials and experts who have either been on a virtual project team or have led virtual project teams. They were used as primary data sources, and secondary data sources were also obtained through the analysis of papers, journals, books, and online tools.

3.9 Method and Instrument of Data Collection

A **questionnaire** is chosen as a primary data gathering method. The questionnaire is a versatile data gathering instrument with the advantages of using a standardized format, being straightforward and pleasant for subjects, and being cheap and quick to administer to a large range of cases covering a broad range of topics (Walliman, 2011). There is also no personal control from the researcher, so even the most embarrassing questions have a decent possibility of being answered honestly.

A standardized questionnaire was designed by the researcher and was used to collect responses and obtain primary data through census from the target population. The research questionnaire used the five-point Likert rating scale ranging from strongly disagree (1) to strongly agree (5).

3.10 Data collection Procedures

As the primary data gathering instrument, a questionnaire is chosen. Questionnaires, as noted by Walliman (2011), are well-known for being inexpensive and quick to administer to a wide range of cases spanning a wide range of topics. They're also a great way to get valuable primary information from participants regarding the subject.

Upon the completion of the drafting of the questionnaire's questions, the researcher administered the questions to the participants via the internet. This is due to the current state of the world with regards to the COVID-19 pandemic. As a result, the questionnaire was sent to a company official, who in turn shared it with all virtual team members and leaders that were employed at the organization at that time. The questionnaire was created in Google Docs and the link was sent to the respondents through the internet.

The questionnaire was created based on the objectives of the study. Furthermore, the questionnaire explained the aim and purpose of the study and provides close-ended questions that correspond to the specific research questions the study is assessing. Upon completion of the filling of the questionnaire, the Google Docs system forwarded the completed questionnaire to the researcher. The researcher then commenced translating and transcribing the data into SPSS for analysis. Most efforts were exerted towards transcribing unbiased and clear data from the respondents into the software.

3.11 Methods of Data Analysis and Presentation

It is required to convert raw data into useful information that is relevant to the study's goal. As a consequence, the data will be provided in a succinct way, complete with summaries and categories, as well as statistical judgments. For analyzing the raw data, a **descriptive analysis method** along with Statistical Package for Social Science (SPSS) software and Google Docs was used.

Depending on the nature of the questions addressed on the questionnaire, descriptive statistics research methodologies such as frequencies, mean, percentages, and standard deviation were used. The data was organized into a structure that could be easily modified and studied by coding, classifying, and categorizing it. The studied data is presented in the form of tables, graphs, and

charts using SPSS and Google Docs as data analysis software in such a way that the data is easily comprehended.

3.12 Validity and Reliability

3.12.1 Validity

According to Leung (2015), the accuracy of the instruments used, the procedures used, and the data acquired are all examples of validity in research. It refers to whether the research question is suitable for the intended goal, whether the scientific method selected is appropriate for answering the research question, whether the research design is appropriate for the methodology selected, whether the sampling process and data analysis are acceptable, and whether the findings, results and inferences are appropriate for the sample taken and background The degree to which a calculation checks what it promises to measure is known as validity, according to Bolarinwa (2015).

All attempts were made to make the data collection instruments as simple as possible for the respondents to understand so that the expected information could be obtained, hence increasing the trustworthiness of the final results. The validity of the questionnaire was also examined to see whether it fully addressed the concerns and problems raised in the research question. Based on the context of the organization, the questionnaire was modified and the validity was checked. Furthermore, before data collection, the data collection instrument was reviewed and evaluated by the research advisor to ensure that the instrument's content is relevant and ethical. Additionally, all reference materials used in this study are properly recognized with citations.

3.12.2 Reliability

To assess the reliability, the study used **Cronbach's alpha test of reliability**. Cronbach's alpha is a coefficient that is used to determine item measures of internal consistency. It demonstrates how closely items are related to one another and how unaffected by prejudice they are (Sekaran and Bougie, 2010). To determine how accurate the data instrument was during the analysis, it was calculated using IBM's SPSS 26 program. Cronbach's alpha > 0.7, according to Nunnally (1994), is the universally acknowledged degree of reliability. Reliability is assumed if the Cronbach's alpha value for all variables in the evaluation is more than 70% or 0.7. As a result, the researcher put all

of the factors to the test to see if they were dependable. Furthermore, the questionnaire was pre-tested with a small group of people to verify that it was straightforward and easy to understand.

The Cronbach's Alpha test was conducted individually for all five variables. Additionally, the virtual team success measure variable was also tested individually at the end. Finally, Crombach's Alpa value for all variables was calculated using the SPSS 26 software. The results of the reliability tests are provided below.

Table 3.1: Cronbach's Alpha Reliability Test

Cronbach's Alpha for **Trust**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.822	.824	8

Cronbach's Alpha for **Communication**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.740	.736	8

Cronbach's Alpha for **Leadership**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.823	.822	11

Cronbach's Alpha for **Goal Setting**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.886	.888	9

Cronbach's Alpha for **Technology**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.808	.812	6

Cronbach's Alpha for **V-Teams' success**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.938	.940	15

Cronbach's Alpha for **the whole variables**

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.959	.959	57

Source: Own source from SPSS V26

As it can be seen from Table 3.1, all variables of the study have proved to have a good internal consistency and can be labeled as being reliable measurement instruments. The table further shows that individual Cronbach's alpha test for trust, communications, leadership, goal setting, and technology resulted in the value of 0.82, 0.74, 0.82, 0.88, and 0.8 respectively. All are above the commonly accepted value of 0.7. Additionally, the virtual team success constructs were also able to result in the Cronbach's alpha value of 0.93 showing strong reliability. This was also deemed reliable as the value is above 0.7. Furthermore, the overall study's variables with the Cronbach's Alpha value of 0.95 have proved that the instrument and the constructs used to define the variables are very reliable.

3.13 Ethical Considerations

When approached for the first time, all questionnaire participants were made aware of the study's goal and objectives. When asking for their willingness to participate in the study, all respondents were treated with the utmost respect and dignity. When transcribing the data to the software and

converting the data to meaningful information, the researcher was as objective and impartial as possible. All information gathered was logged and kept private from the general public. Furthermore, when announcing the results of this study, the respondents' identities will be kept anonymous.

Chapter 4: Data Presentation, Analysis & Interpretation

4.1 Overview

This section aims to analyze and interpret the data obtained from the survey questionnaire. The Linkert scale was used to create the questionnaire, with 1 representing strongly disagree, 2 - Disagree, 3 - Neutral, 4 - Agree, and 5 - Strongly Agree. Statistical methods were used to compare the collected data to the objectives set for this study using SPSS version 26. Furthermore, to make it easier to understand, the responses to the questionnaire's measures are summarized and illustrated using tables, graphs, and diagrams by using SPSS version 26 software along with Google Docs.

4.2 Response Rate

Response rate discloses the information of how many respondents were able to fill and finish the questionnaires distributed on time. As stated earlier, this study used census as a sampling method, which requires the involvement of all members of the sample group. The target population for this assessment was all project-related professionals that were employed by CCRDA at the time of the study. The professionals were 33 in number. As a result, the questionnaire was attached and sent to all 33 project professionals at CCRDA and all were given 1 week to fill and finish all questionnaire questions given the deadline and the time-sensitivity of the project work.

Upon the conclusion of the assigned time, 30 professionals were able to fill and finish the questionnaire on time. In dealing with response rate, Mugenda & Mugenda (2003) claims that a return rate of 50% is enough for examining and delineating; 60% is considered good; 70% and above is excellent. The response rate for this study is 91%. Therefore, this response rate is more than sufficient for examining and reporting.

4.3 Demographic Characteristics of Respondents

The gender, age, highest educational level, virtual project team position, and years of experience in the virtual project team of the respondents that were asked on the survey questionnaire is stated and presented below.

Table 4.1: Demographic Characteristics of Respondents

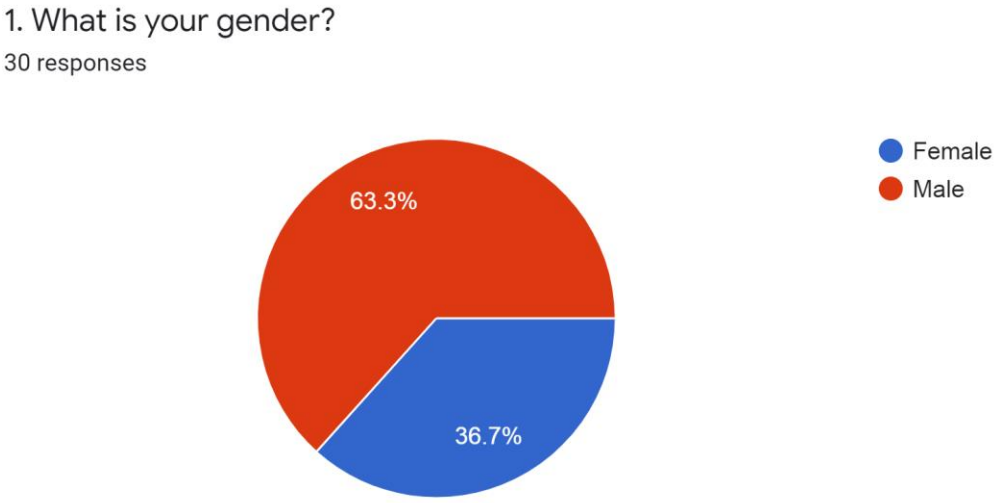
Gender		
	Frequency	**Percent**
Male	19	63.3
Female	11	36.7
Total	30	100.0
Age		
	Frequency	**Percent**
Below 25	8	26.7
26-30	16	53.3
31-35	4	13.3
36-40	1	3.3
Above 40	1	3.3
Total	30	100
Education Level		
	Frequency	**Percent**
Bachelor's Degree	18	60.0
Master's Degree	12	40.0
Total	30	100.0
Position on Virtual Teams		
	Frequency	**Percent**
Team leader (Manager)	9	30.0
Team Member	21	70.0
Total	30	100.0
Expericance in Virtual Teams		
0-2 years	18	60.0
2-4 years	7	23.3
4-6 years	4	13.3
8 +	1	3.3
Total	30	100.0

Source: Own data from SPSS V26

4.3.1 Gender

As can be seen from table 4.1, the gender makeup of the project staff in the organization is more comprised of male employees (n = 19, 63.3%) as opposed to female employees (n = 11, 36.7%). It shows that project male employees in the organization are almost twofold more than their female counterparts and comprise almost two-thirds of the number of project professionals in the organization. This shows that in comparison with male employees, there are fewer female employees in the organization. The pie chart below shows a graphical representation of the responses when asked about the gender makeup of the organization.

Figure 4.1: Gender



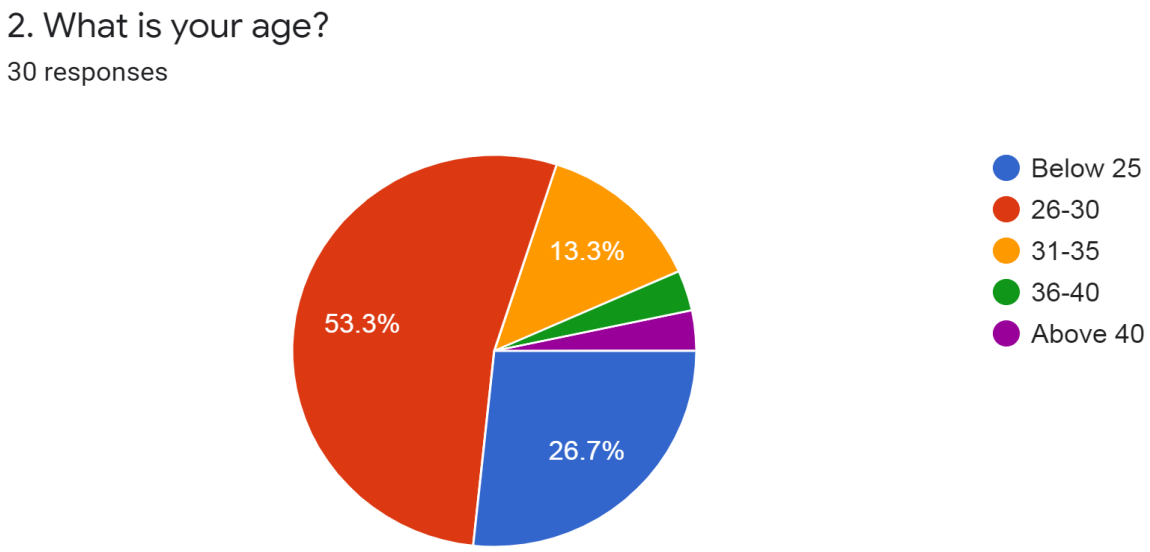
Source: Google Docs

4.3.2 Age

As seen from table 4.1, the majority of the respondents are between the ages of 26-30 (n = 16, 53.3%). It can be argued that most are in the middle phase of their careers when it comes to age and experience. It is closely followed by respondents who are below the age of 25 (n = 8, 26.7%). Though fewer than the 26-30 age group, the organization relatively hires professionals who are at the start of their careers. This is mainly due to the size of the organization and the different services it gives. Respondents in the age group 31-35 (n = 4, 13.3%) are fewer in number and are mainly

team leaders and managers. There were 1(3.3%) respondents for both 36-40 and above 40 age groups respectively. The following pie chart represents a graphical representation of the age facts.

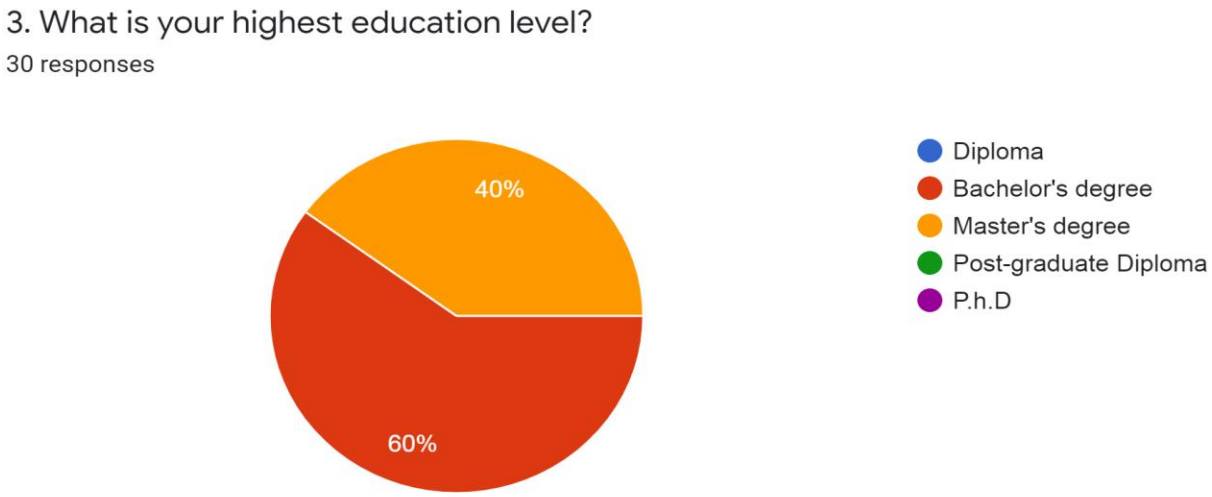
Figure 4.2: Age



4.3.3 Education Level

According to table 4.1, 18 respondents (60.0%) have a Bachelor's degree while 12 respondents (40.0%) have a Master's degree. This indicates that the bulk of the participants have completed a Bachelor's degree. Though other educational alternatives were presented for the respondents, none of the people who participated in this research project work have a higher education level above a master's degree. In terms of the respondents' educational backgrounds, it demonstrates that they are literate enough to understand and correctly address the research instruments and that respondents from various educational backgrounds are reflected in the sample. The pie chart below serves to represent the facts stated above.

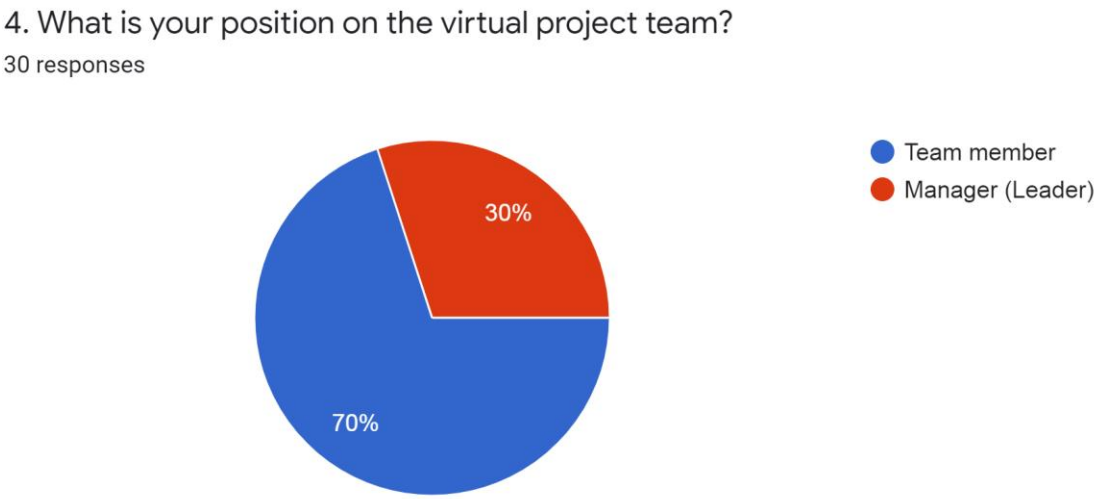
Figure 4.3: Education level



4.3.4 Position on Virtual Team

As depicted in table 4.1, most of the respondents (n = 21, 70%) said that they were team members in the virtual project team as opposed to team leaders (n = 9, 30%). More than two-thirds of the respondents have said that they were a part of a virtual project team and have served as being a vital team member. Less than one-third of the respondents served as virtual project team leaders or managers. The following pie chart further shows the graphic illustration of the facts.

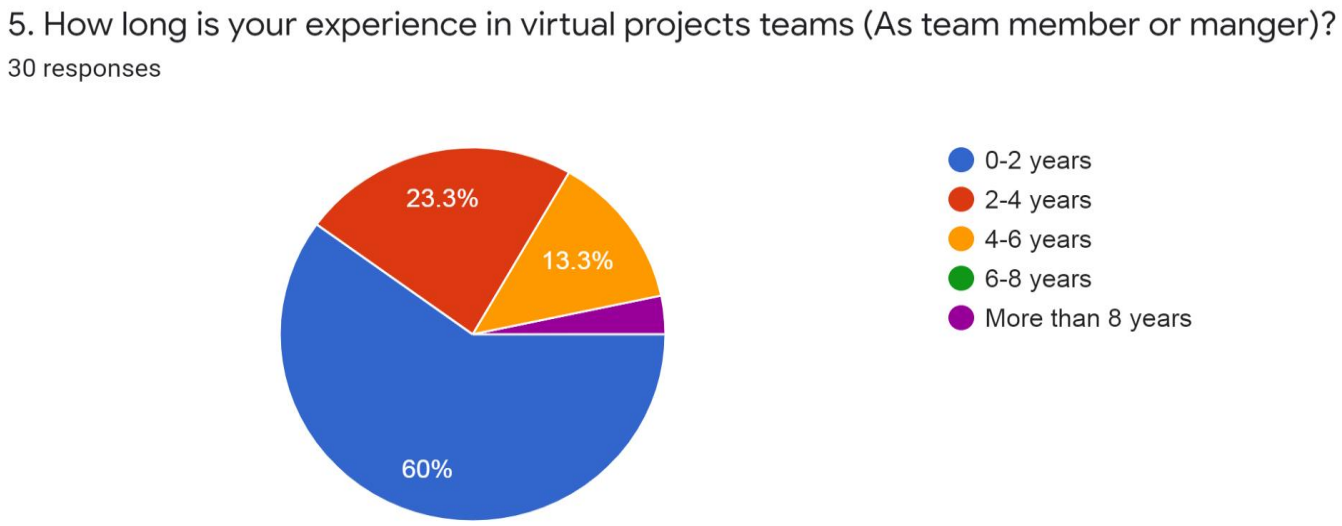
Figure 4.4: Position of Virtual Project Teams



4.3.5 Experience in Virtual Project Teams.

The final question in the demographics segment questioned respondents about their overall years of experience in virtual project teams as a member or as a leader. As depicted in Table 4.1 above, respondents that had 0-2 years experience of being a virtual project team member or leader were 18 (60%). This can be proof of the relative recentness of the virtual work environment and project teams. They are followed by respondents that had 2-4 years of experience who are 7 (23.3%). This involves members who have been working virtually with other professionals in and outside of the country even before COVID-19 emerged. Given that the organization has member CSOs that are foreign, some respondents have been involved with virtual project teams earlier than others. Respondents having 4-6 years of experience and 8+ years are 4 (13.3%) and 1 (3.3%) respectively.

Figure 4.5: Experience in VT



4.4 Descriptive Analysis

Table 4.1.1: Likert Scaling for research data analysis (Pimentel, J. 2010)

Remark	Mean Value Scaling
Strongly Disagree	1 – 1.80
Disagree	1.80 – 2.60
Neutral	2.60 – 3.40

Agree	3.40 – 4.20
Strongly Agree	4.20 – 5

In analyzing the Likert scale, Pimentel (2010) citing several different authors forwarded a way of analyzing and finding the best result that is free from bias. Keeping this in mind, he forwarded that the difference in the intervals between each value should be constant. As such he forwarded table 4.6. His analysis scale is deployed in this project work.

4.4.1 Trust

Table 4.2: Trust

Statements		Frequency	Percent	Mean	Standard Deviation
T1 - There is an intentional and carefully built relationship between team members.	Disagree	11	36.7		
	Neutral	5	16.7		
	Agree	7	23.3		
	Strongly Agree	7	23.3		
	Total	30	100.0	3.33	1.213
T2 - Team members have trust that all people in the team can be counted on to complete assigned tasks.	Strongly Disagree	1	3.3		
	Disagree	7	23.3		
	Neutral	6	20.0		
	Agree	13	43.3		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.33	1.061
T3 - Team members know the ability, skill, and knowledge of other team members.	Disagree	4	13.3		
	Neutral	11	36.7		
	Agree	11	36.7		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.50	.900
T4 - Team members are held accountable for their responsibilities and decisions	Disagree	4	13.3		
	Neutral	5	16.7		
	Agree	16	53.3		
	Strongly Agree	5	16.7		

	Total	30	100.0	3.73	.907
T5 - Team members have confidence in other members to act in the teams' best interest.	Disagree	6	20.0		
	Neutral	4	13.3		
	Agree	15	50.0		
	Strongly Agree	5	16.7		
	Total	30	100.0	3.63	.999
T6 - Team members have the chance to build an interpersonal connection with other team members.	Disagree	9	30.0		
	Neutral	12	40.0		
	Agree	5	16.7		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.13	1.008
T7 - Team members assist each other in completing assigned tasks.	Disagree	7	23.3		
	Neutral	8	26.7		
	Agree	9	30.0		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.47	1.074
T8 - Team members treat each other fairly and justly.	Disagree	1	3.3		
	Neutral	4	13.3		
	Agree	19	63.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	4.00	.695
				Mean	SD
Average				3.515	0.9821

Source: Own survey result from SPSS V26

Table 4.2 shows the overall replies from the respondents of this project work with regards to the effect of trust on the virtual project team's success. 8 individual questions were designed to assess the view and outlook of respondents of the organization towards the trust variable in a virtual project team.

As seen from the above table, regarding the first variable of trust (T1), 11 (36.7%) of the respondents said that they disagree that there is an intentionally and carefully built relationship between their fellow leaders and team members. 5 (16.7%) respondents said they feel neutral while

7 (23.3%) respondents each said they agree or strongly agree that there is an intentionally built relationship between members. The mean value for this statement is 3.33. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating shows that employees of the organization have a neutral opinion regarding the relations they have with their fellow members. This shows that members and organizations didn't spend enough time to build and foster relationships that would have ultimately increased trust.

Another important trust variable is the ability of team members to trust all members in their team to be counted on to complete assigned tasks. Regarding this variable (T2), 13 (43.3%) of the respondents agreed that their fellow team members can be counted on while 3 (10%) strongly agreed. 7 (23.3%) and 6 (20.0%) responded by disagreeing and having a neutral view respectively while 1 (3.3%) respondent said that they strongly disagree. This variable also has a mean value of 3.33 showing that team members majorly have a neutral stance when it comes to counting on people to do their tasks.

Knowing the skill, ability, and knowledge of other team members is also a major instrument in building trust between members. As shown in Table 4.2 regarding this variable of trust (T3), 11 (36.7%) respondents each agreed or had neutral views when it comes to their experience in the organization. 4 (11.3%) strongly agreed that they know the skills and abilities of other members while 4 (11.3%) disagreed. This statement had a mean value of 3.50 that can be interpreted as the respondents agree that they know the skill, ability, and knowledge level of their fellow members and leaders.

Another important variable in assessing trust is accountability. It refers to the degree of team members being held accountable for their actions and decisions. As shown in Table 4.2, 16 (53.3%) respondents agree that members are held accountable for their actions, while 5 (16.7%) strongly agreed. 5 (16.7%) respondents said that they are neutral and 4 (13.3%) disagreed on employees being held accountable. The mean value for this statement is 3.73. this can be interpreted as, generally speaking, employees agree that there are ways in place of making people accountable for their responsibilities and decisions.

It is important to understand that all team members need to think well of the team and act accordingly. Members that act outside of the team's best interest usually end up making other people lose trust in the team and other members. As seen in Table 4.2, 15 (50%) of the respondents

agree that members act in the team's best interest while 5 (16.7%) strongly agreed. On the contrary 6 (20%) respondents disagreed that members act in the best interest of the team while 4 (13.3%) neither disagreed nor agreed. The mean for this variable is 3.63 and can be interpreted as most of the employees agreeing that members act in the best interest and wellbeing of the team.

It is easy to understand that trust can be easily built between employees that have an interpersonal connection with each other. When asked if they had a chance to build an interpersonal connection with other team members (T6), the majority (n = 12, 40 %) responded neutrally. 9 (30%) respondents said that they disagree as to have the chance to foster some interpersonal connections. 5 (16.7%) agreed while 4 (13.3%) strongly agreed. The mean value for the trust variable is 3.13 and the rating can be interpreted as the majority of the professionals have a neutral stance when it comes to the chance of building interpersonal relations with other members.

As seen from Table 4.2, regarding members assisting others in doing tasks (T7), 9 (30%) of the respondents said that they agree that members assist other team members while 8 (26.7) chose to neither agree nor disagree with the statement. 7 (23.3%) respondents said they disagree while 6 (20.0%) respondents said they strongly agree that there is assistance between members. The mean value for this statement is 3.47. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating shows that employees of the organization agree regarding the availability of assistance with their fellow members.

The last variable on trust pertains to fair treatment of team members amongst themselves. When asked if team members treat each other fairly and justly (T8), the majority (n = 19, 63.3 %) responded that they agree. 1 (3.3%) respondents said that they disagree with claiming that fair treatment being the norm of the teams. 4 (13.3%) chose to neither agree nor disagree while 6 (20.0%) strongly agreed. The mean value for the trust variable is 4.00 and the rating can be interpreted as the majority of the professionals agree as to treating fellow team members fairly and justly. This in turn builds up trust within and amongst the members.

Table 4.2 shows that the mean rating of respondents' perceptions of trust range from 3.13 to 4.00 with a standard deviation ranging from 0.694 to 1.213. These findings suggest that respondents believe that trust items are very important. The average mean of the total trust variable items is 3.515, along with a standard deviation of 0.98, indicating that the majority of the participants agree that this factor is important when it comes to the success of virtual project teams. The respondent

agreed that there is somehow trust between members but it needs work in building an interpersonal connection with other members, members need to improve and have more trust in counting on others to successfully deliver assigned tasks and needs to intentionally build a productive relationship amongst themselves.

4.4.2 Communication

Table 4.3: Communication

Statements		Frequency	Percent	Mean	Standard Deviation
C1 - There is a provision of timely accounts of work deliverables, team progress updates, and feedback from team members.	Strongly Disagree	1	3.3		
	Disagree	5	16.7		
	Neutral	5	16.7		
	Agree	16	53.3		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.50	1.009
C2 - There is regular and frequent communication between leaders and team members.	Strongly Disagree	1	3.3		
	Disagree	3	10.0		
	Neutral	6	20.0		
	Agree	14	46.7		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.70	1.022
C3 - There is an appropriate, reliable, and up-to-date communication mechanism for all team members.	Strongly Disagree	1	3.3		
	Disagree	6	20.0		
	Neutral	6	20.0		
	Agree	12	40.0		
	Strongly Agree	5	16.7		
	Total	30	100.0	3.47	1.106
C4 - There is a guideline in place concerning ‘what’ and ‘when’ to communicate.	Strongly Disagree	3	10.0		
	Disagree	15	50.0		
	Neutral	4	13.3		
	Agree	4	13.3		
	Strongly Agree	4	13.3		
	Total	30	100.0	2.70	1.236

C5 - Communication within the team is transparent and smooth.	Disagree	4	13.3		
	Neutral	11	36.7		
	Agree	12	40.0		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.63	.860
C6 - It is easy to reach team members and team leaders when needed.	Strongly Disagree	1	3.3		
	Disagree	7	23.3		
	Neutral	5	16.7		
	Agree	11	36.7		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.47	1.167
C7 - Team members clearly understand information transferred.	Disagree	4	13.3		
	Neutral	10	33.3		
	Agree	12	40.0		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.53	.900
C8 - Team members in charge of data delivery are properly recorded and known.	Strongly Disagree	2	6.7		
	Disagree	5	16.7		
	Neutral	6	20.0		
	Agree	14	46.7		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.37	1.098
				Mean	SD
Average				3.401	1.04975

Source: Own survey result from SPSS V26

Table 4.3 above shows the overall replies from the respondents of this project work with regards to the assessment of the effect of communication on the virtual project team's success. 8 individual questions were designed to assess the view and outlook of respondents of the organization towards the communication variable in a virtual project team.

As seen from Table 4.3, participants were asked if there is a timely account of work deliverables, team progress updates, and feedback from team members (C1). 16 (53.3%) of the respondents said that they agree that there is a provision of timely accounts of work, team progress updates, and

feedback. 5 (16.7%) respondents said they disagree, 5 (16.7%) respondents said that they feel neutral and 3 (10%) said that they strongly agree that the team members provide timely updating and communication. The mean value for this statement is 3.50. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization agree that there is a provision of timely accounts of work deliverable, team progress updates, and feedback from team members. This shows that members do a good job of updating their progress and receive feedback.

Another important communication variable is the regularity and frequency of communication with team members and leaders. Regarding this variable (C2), 14 (46.7%) of the respondents agreed that there is regular and frequent communication while 6 (20%) strongly agreed. 3 (10.0%) and 6 (20.0%) responded by disagreeing and having a neutral view respectively while 1 (3.3%) respondent said that they strongly disagree on the existence of regular and frequent communication. This communication variable has a mean rating of 3.70 showing that team members majorly agree with the existence of regular and frequent communication between leaders and team members.

The availability of reliable and up-to-date communication mechanisms is also a major instrument in assessing communication between members. As shown in Table 4.3 regarding this variable of communication (C3), 12 (40.0%) respondents agreed that there is a reliable and up-to-date communication mechanism. 5 (16.7%) strongly agreed while 6 (20.0%) disagreed. 1(3.3%) respondents strongly disagreed and 6 (20.0%) respondents neither agreed nor disagreed. This statement had a mean rating of 3.47 that can be interpreted as the respondents somehow agree that there exists a reliable and up-to-date communication mechanism for all members.

Another important variable in assessing communication is assessing if there are guidelines set for when and what to communicate (C4). As shown in Table 4.3, 15 (50.0%) respondents disagree that there are guidelines set for what and when to communicate, while 3 (10.0%) strongly disagreed. 4 (13.3%) respondents said that they are neutral and another 4 (13.3%) agreed on the existence of communications guidelines. The mean rating for this statement is 2.70. This can be interpreted as somewhat employees have a neutral stance when it comes to the existence of guidelines in place concerning what and when to communicate.

It is important to understand that the transparency and smoothness of communications between members is a critical factor in assessing communication. As seen in Table 4.3, 12 (40%) of the respondents agree that there is smooth and transparent communication while 3 (10.0%) strongly agreed. On the contrary 4 (13.3%) respondents disagreed that there is smoothness and transparency in their team's communication while 11 (36.7%) neither disagreed nor agreed. The mean rating for this variable is 3.63 and can be interpreted as most of the employees somewhat agree that communications are smooth and transparent in their respective teams.

When respondents were asked if they can communicate with other team members and leaders with ease (C6), the majority (n = 11, 36.7 %) agreed. 7 (23.3%) respondents said that they disagree as to find it easy to communicate with other members and leaders. 6 (20.0%) respondents strongly agreed while 1 (3.3%) strongly disagreed. 5 (16.7%) respondents neither agreed nor disagreed. The mean rating for this communication variable is 3.47 and the rating can be interpreted as the majority of the professionals somewhat agree that it is easy to reach other members and leaders.

As seen from Table 4.3, regarding members being able to understand clearly the different information communicated (C7), 12 (40.0%) of the respondents said that they agree that members find it easy to understand information transferred while 10 (33.3%) chose to neither agree nor disagree with the statement. 4 (13.3%) respondents said they disagree while 4 (13.3%) respondents said they strongly agree to team members being able to clearly understand information transferred. The mean rating for this statement is 3.53. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating shows that employees of the organization somewhat agree that team members can clearly understand information communicated.

The last variable on communication pertains to the identification of team members that are in charge of communication delivery. When asked if team members know and properly record who is in charge of information data delivery (C8), the majority (n = 14, 46.7 %) responded that they agree. 5 (16.7%) respondents said that they disagree that it is known who is in charge of data delivery in the team. 6 (20.0%) chose to neither agree nor disagree while 3 (10.0%) and 2 (6.7%) strongly agreed and strongly disagreed respectively. The mean rating for this communication variable is 3.37 and the rating can be interpreted as the majority of the professionals neither agrees nor disagrees with knowing clearly and recording who is in charge of data delivery.

Table 4.3 shows that the mean rating of respondents' perceptions of communications ranges from 2.70 to 3.70 with a standard deviation ranging from 0.860 to 1.236. These findings suggest that respondents believe that communication items are important. The average mean of the total communication variable items is 3.401, along with a standard deviation of 1.04, indicating that the majority of the participants somewhat agree that this factor is important when it comes to the success of virtual project teams. The respondent agreed that there is regular and frequent communication between leaders and team members, there is a provision of timely accounts of work deliverables, team progress updates, and feedback from team members and that communications are transparent and smooth. They on the contrary they neither agreed nor disagreed when it comes to knowing what to communicate and when.

4.4.3 Leadership

Table 4.4 Leadership

Statements		Frequency	Percent	Mean	Standard Deviation
L1 - Leaders have expertise in managing virtual teams' performance and building and maintaining trust between team members.	Strongly Disagree	2	6.7		
	Disagree	5	16.7		
	Neutral	5	16.7		
	Agree	16	53.3		
	Strongly Agree	2	6.7		
	Total	30	100.0	3.37	1.066
L2 - Leaders periodically examine how well the team is functioning.	Strongly Disagree	1	3.3		
	Disagree	6	20.0		
	Neutral	10	33.3		
	Agree	10	33.3		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.27	1.015
L3 - Leaders check if members possess the appropriate skills and knowledge to participate in the team's activities.	Disagree	6	20.0		
	Neutral	6	20.0		
	Agree	13	43.3		
	Strongly Agree	5	16.7		
	Total	30	100.0	3.57	1.006
	Disagree	5	16.7		

L4 - Leaders make reasonable and sound judgments depending on reasonable assumptions and facts.	Neutral	6	20.0		
	Agree	14	46.7		
	Strongly Agree	5	16.7		
	Total	30	100.0	3.63	.964
L5 - Leaders recognize and award individual contributions of team members.	Strongly Disagree	1	13.3		
	Disagree	13	43.3		
	Neutral	4	13.3		
	Agree	12	40.0		
	Total	30	100.0	2.90	.995
L6 - Leaders select appropriate electronic collaboration and communication technologies for team members.	Neutral	8	26.7		
	Agree	16	53.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.93	.693
L7 - Leaders encourage team members to take initiative and participate in important decisions.	Strongly Disagree	1	3.3		
	Disagree	4	13.3		
	Neutral	8	26.7		
	Agree	14	46.7		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.47	.973
L8 - Leaders have fresh ideas and methods for accomplishing activities more effectively.	Strongly Disagree	1	3.3		
	Disagree	5	16.7		
	Neutral	8	26.7		
	Agree	14	46.7		
	Strongly Agree	2	6.7		
	Total	30	100.0	3.37	.964
L9 - Leaders are seen as helpful and encouraging by team members.	Strongly Disagree	1	3.3		
	Disagree	1	3.3		
	Neutral	7	23.3		
	Agree	16	53.3		
	Strongly Agree	5	16.7		
	Total	30	100.0	3.77	.898

L10 - Leaders exhibit tolerance, empathy, and care for team members.	Disagree	5	16.7		
	Neutral	7	23.3		
	Agree	11	36.7		
	Strongly Agree	7	23.3		
	Total	30	100.0	3.67	1.028
L11 - Leaders regularly check if every team member contributes their fair share.	Disagree	5	16.7		
	Neutral	5	16.7		
	Agree	14	46.7		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.70	.988
				Mean	SD
Average				3.513	0.9625

Source: Own survey result from SPSS V26

Table 4.4 above shows the overall replies from the respondents of this project work with regards to the assessment of the effect of leadership on the virtual project team's success. 11 individual questions were designed to assess the view and outlook of respondents of the organization towards the leadership variable in a virtual project team.

As seen from Table 4.4, participants were asked if their leaders have expertise in managing virtual teams' performance and building and maintaining trust between team members (L1). 16 (53.3%) of the respondents said that they agree that their leaders possess expertise in managing virtual teams' performance and building trust. 5 (16.7%) respondents said they disagree, 5 (16.7%) respondents said that they feel neutral, 2 (6.7%) said that they strongly agree and 2 (6.7%) said that they strongly disagree that their leaders have expertise in managing the virtual teams. The mean rating for this statement is 3.37. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization neither agree nor disagree that their leaders have expertise in managing virtual teams' performance and building and maintaining trust between team members.

Another important leadership variable is the regular and periodical checking of how well the team is performing by leaders. Regarding this variable (L2), 10 (33.3%) of the respondents agreed that there is regular and periodic checking of how well the team is performing by leaders while 3 (10%) strongly agreed. 6 (20.0%) and 10 (33.3%) responded by disagreeing and having a neutral view

respectively while 1 (3.3%) respondent said that they strongly disagree with leaders checking periodically on how well the team is functioning. This Leadership variable has a mean rating of 3.27 showing that team members majorly don't agree or disagree and hold a neutral stance with leaders being able to periodically examine how well the team is functioning.

The checking of members if they possess the right skills and knowledge for different team activities is also a major instrument in assessing the competency of leaders. As shown in Table 4.4 regarding this variable of leadership (L3), 13 (43.3%) respondents agreed that leaders check if members possess the appropriate skills and knowledge to participate in the team's activities. 5 (16.7%) strongly agreed while 6 (20.0%) disagreed. 6 (20.0%) respondents neither agreed nor disagreed with the statement. This statement had a mean rating of 3.57 that can be interpreted as the respondents somehow agree that leaders check if members possess the appropriate skills and knowledge to participate in the team's activities.

Another important variable in assessing leadership is assessing if leaders can make reasonable and sound judgments depending on reasonable assumptions and facts (L4). As shown in Table 4.4, 5 (16.7%) respondents disagree that their leaders make reasonable and sound judgments, while 14 (46.7%) agreed. 6 (20.0%) respondents said that they are neutral and the other 5 (16.7%) strongly agreed on leaders being able to make a sound judgment. The mean rating for this statement is 3.63. This can be interpreted as somewhat employees agree that leaders can make reasonable and sound judgments depending on reasonable assumptions and facts.

It is important to understand that team members respond positively to recognitions and awards from leaders and is also a critical factor in assessing the competency of leadership and how it affects the success of virtual teams. As seen in Table 4.4, 13 (43.3%) of the respondents disagree that their leaders recognize and award individual contributions of team members while 1 (3.3%) strongly disagreed. On the contrary, 12 (40.0%) respondents agreed that their leaders recognize and award them. 4 (13.3%) neither disagreed nor agreed. The mean rating for this variable is 2.90 and can be interpreted as most of the employees somewhat don't agree or disagree that their leaders recognize and award individual contributions of team members.

When respondents were asked if their leaders were able to select appropriate electronic collaboration and communication technologies for team members (L6), the majority (n = 16, 53.3 %) agreed. None of the respondents said that they disagreed or they strongly disagreed that leaders

were able to select appropriate communication technologies. 6 (20.0%) respondents strongly agreed while 8 (26.7%) respondents neither agreed nor disagreed. The mean rating for this leadership variable is 3.93 and the rating can be interpreted as the majority of the professionals somewhat agree that leaders can select appropriate electronic collaboration and communication technologies for team members.

As seen from Table 4.4, regarding leaders being able to encourage team members to take initiative and participate in important decisions (L7), 14 (46.7%) of the respondents said that they agree that leaders are encouraging while 8 (26.7%) chose to neither agree nor disagree with the statement. 4 (13.3%) respondents said they disagree while 3 (10.0%) respondents said they strongly agree to leaders being encouraging to team members to take initiative and participate in important decisions. The mean rating for this statement is 3.47. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating shows that employees of the organization somewhat agree that leaders encourage team members to take initiative and participate in important decisions.

When respondents were asked if their leaders have fresh ideas and methods for accomplishing activities more effectively (L8), the majority (n = 14, 46.7 %) agreed. 2 (6.7%) respondents strongly agreed while 8 (26.7%) respondents neither agreed nor disagreed. 5 (16.7%) respondents said that they disagree and 1 (3.3%) strongly disagreed with leaders having new ideas to do things more effectively. The mean rating for this leadership variable is 3.37 and the rating can be interpreted as the majority of the professionals somewhat neither agreeing nor disagreeing that leaders can have fresh ideas and methods for accomplishing activities more effectively in the organization.

Another important variable in assessing leadership is assessing if leaders are encouraging and helpful to their colleagues and team members (L9). As shown in Table 4.4, 16 (53.3%) respondents agreed that their leaders are very helpful and encouraging to team members, while 5 (16.7 %) strongly agreed. 7 (23.3%) respondents said that they are neutral, 1 (3.3%) disagreed on leaders being helpful and encouraging while another 1 (3.3%) said they strongly disagree. The mean rating for this statement is 3.77. This can be interpreted as somewhat employees agree that leaders are seen as encouraging and helpful by other team members.

The ability of leaders to exhibit tolerance, empathy, and care for other team members is also a major instrument in assessing the competency of leaders and its effect on virtual project teams'

success. As shown in Table 4.4 regarding this variable of leadership (L10), 11 (36.7%) respondents agreed that leaders show tolerance, empathy, and care for other team members and 7 (23.3 %) strongly agreed. 5 (16.7%) disagreed while 7 (23.3%) respondents neither agreed nor disagreed with the statement. This statement had a mean rating of 3.67 that can be interpreted as the respondents agree that leaders exhibit tolerance, empathy, and care for team members.

The last variable on leadership pertains to the ability of leaders to assess if every team member is contributing their fair share. When asked if leaders regularly check whether every team member contributes their fair share (L11), the majority (n = 14, 46.7 %) responded that they agree. 5 (16.7%) respondents said that they disagree that leaders check if every team member is contributing their fair share. 6 (20.0%) strongly agreed while and 5 (16.7 %) disagreed. The mean rating for this leadership variable is 3.70 and the rating can be interpreted as the majority of the professionals agree that leaders regularly check if every team member contributes their fair share.

Table 4.4 shows that the mean rating of respondents' perceptions of leadership ranges from 2.90 to 3.93 with a standard deviation ranging from 0.691 to 1.066. These findings suggest that respondents believe those leadership items are important. The average mean of the total leadership variable items is 3.513, along with a standard deviation of 0.9625, indicating that the majority of the participants somewhat agree that this factor is important when it comes to the success of virtual project teams. The respondent agreed that leaders regularly check if every team member contributes their fair share, show tolerance, empathy, and care for team members, are encouraging and helpful. On the contrary, they neither agreed nor disagreed on leaders having fresh ideas to increase effectiveness and that they recognize and award individual contributions to the team.

4.4.4 Goal Setting

Table 4.5: Goal Setting

Statements		Frequency	Percent	Mean	Standard Deviation
GS1 - There is a clear goal as to why the team is formed and what to achieve.	Strongly Disagree	1	3.3		
	Disagree	4	13.3		
	Agree	13	43.3		
	Strongly Agree	12	40.0		
	Total	30	100.0	4.03	1.129

GS2 - Team members participate in goal setting phase of a project.	Strongly Disagree	4	13.3		
	Disagree	8	26.7		
	Neutral	5	16.7		
	Agree	7	23.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.10	1.373
GS3 - Team members actively participate in ensuring clarity on the goals that exist on all levels within the team.	Strongly Disagree	2	6.7		
	Disagree	6	20.0		
	Neutral	14	46.7		
	Agree	2	6.7		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.13	1.167
GS4 - Team members' roles and responsibilities are clearly defined and made known.	Disagree	6	20.0		
	Neutral	7	23.3		
	Agree	10	33.3		
	Strongly Agree	7	23.3		
	Total	30	100.0	3.60	1.070
GS5 - Team members make sure that their work helps the organization achieve its goals.	Strongly Disagree	1	3.3		
	Disagree	4	13.3		
	Neutral	6	20.0		
	Agree	16	53.3		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.53	.973
GS6 - Goals incorporate the objectives and needs of team members.	Disagree	8	26.7		
	Neutral	6	20.		
	Agree	10	33.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.47	1.106
GS7 - The team is effective in reaching its goals.	Disagree	5	16.7		
	Neutral	8	26.7		
	Agree	14	46.7		
	Strongly Agree	3	10.0		
	Total	30	100.0	3.50	.900

GS8 - The teams' goals align with the overall organizations' goals.	Strongly Disagree	2	6.7		
	Disagree	7	23.3		
	Neutral	4	13.3		
	Agree	11	36.7		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.40	1.248
GS9 - The teams' objectives are measurable and attainable.	Strongly Disagree	3	10.0		
	Disagree	5	16.7		
	Neutral	3	10.0		
	Agree	12	40.0		
	Strongly Agree	7	23.3		
	Total	30	100.0	3.50	1.306
				Mean	SD
Average				3.473	1.141

Source: Own survey result from SPSS V26

Table 4.5 above shows the overall replies from the respondents of this project work with regards to the assessment of the effect of goal setting on the virtual project team's success. 9 individual questions were designed to assess the view and outlook of respondents of the organization towards the goal-setting variable in a virtual project team.

As seen from Table 4.5, participants were asked if there is a clear goal as to why the team is formed and what to achieve (GS1). 13 (43.3%) of the respondents said that they strongly agree that there is a clear goal as to why the team is formed and what to achieve. Additionally, 12 (40.0%) respondents said that they agree with that statement. 4 (13.3%) respondents said that they disagree while 1 (3.3%) said that they strongly disagree that there is a clear goal as to why the team is formed and what to achieve. The mean rating for this statement is 4.03. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization agree that there is a clear goal as to why the team is formed and what to achieve.

Another important goal-setting variable is the participation of team members in the goal-setting phase of a project. Regarding this variable (GS2), 7 (23.3%) of the respondents agreed that team members participated in the goal-setting phase of a project. Furthermore, 6 (20.0%) strongly agreed with that statement. 8 (26.7%) and 5 (16.7%) responded by disagreeing and having a neutral

view respectively while 4 (13.3%) respondents said that they strongly disagree with members participating in goal setting. This goal-setting variable has a mean rating of 3.10 showing that team members majorly didn't agree or disagree and hold a neutral stance with team members being able to participate in the goal-setting stage of a project.

Team members participate in ensuring clarity of goals exists on all levels within a team is also a major instrument in assessing the goal-setting variable. As shown in Table 4.5 regarding this variable of goal setting (GS3), 14 (46.7%) respondents had a neutral stance when asked if team members participate in ensuring clarity exists. 2 (6.7%) agreed and 6 (20.0%) strongly agreed. Additionally, 6 (20.0%) and 2 (6.7) respondents disagreed and strongly disagreed with the statement respectively. This statement had a mean rating of 3.13 and can be interpreted as the respondents neither agrees nor disagrees when asked if team members actively participate in ensuring clarity exists on the goals on all levels of the team.

Another important variable in assessing goal setting is assessing if team members' roles and responsibilities are clearly defined and made known (GS4). As shown in Table 4.5, 10 (33.3%) respondents agree that roles and responsibilities are known and defined, while 7 (23.3%) strongly agreed. 7 (23.3%) respondents said that they neither agree nor disagree and the other 6 (20.0%) disagreed on members knowing their roles and responsibilities. The mean rating for this statement is 3.60. This can be interpreted as employees of the organization agree that team members' roles and responsibilities are clearly defined and made known.

As seen in Table 4.5, when asked if team members make sure that their work helps the organization achieve its goals, 16 (63.3%) of the respondents agree that members make sure that whatever they are doing helps the organization achieve its goals while 3 (10.0%) strongly agreed. On the contrary, 4 (13.3%) respondents disagreed that members keep the organizations' goals in mind when doing their tasks while 1 (3.3%) strongly disagreed. 6 (20.0%) neither disagreed nor agreed. The mean rating for this variable is 3.53 and can be interpreted as most of the employees agree that the team members make sure that their work helps the organization achieve its goals. This shows that the teams' objectives and goals align with that of the organizations.

When respondents were asked if the goals of the team incorporate the objectives and needs of the team members (GS6), the majority (n = 10, 33.3 %) agreed. None of the respondents said that they strongly disagreed that the goals of the team incorporate the objectives and needs of the team

members. 6 (20.0%) respondents strongly agreed while 8 (26.7%) respondents disagreed. 6 (20.0%) respondents neither agreed nor disagreed. The mean rating for this goal-setting variable is 3.47 and the rating can be interpreted as the majority of the professionals agree that the goals of the team incorporate the objectives and needs of the team members.

As seen from Table 4.5, regarding the team is effective in reaching its goals (GS7), 14 (46.7%) of the respondents said that they agree that the virtual team they are a part of was effective in reaching its goals while 3 (26.7%) strongly agreed. 8 (26.7%) chose to neither agree nor disagree with the statement and 5 (16.7%) respondents said they disagree that their team being effective in reaching its goals. The mean rating for this statement is 3.50. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating shows that employees of the organization somewhat agree with their team being able to be effective in reaching its goals.

When respondents were asked if their teams' goals align with the overall organizations' goals (GS8), the majority (n = 11, 36.7 %) agreed. 6 (20.0%) respondents strongly agreed while 4 (13.3%) respondents neither agreed nor disagreed. 7 (23.3%) respondents said that they disagree and 2 (6.7%) strongly disagreed with the team's goals being aligned with the organizations. The mean rating for this goal-setting variable is 3.40 and the rating can be interpreted as the majority of the professionals somewhat are on the border of agreeing and having a neutral stance as to the statement that the team's goals align with the overall organization's goals.

The last variable on goal setting pertains to the level of the team's goals being measurable and attainable. When asked if the teams' objectives are measurable and attainable (GS9), the majority (n = 12, 40.0 %) responded that they agree. 5 (16.7%) respondents said that they disagree that the goals are measurable and attainable. 7 (23.3%) strongly agreed while 3 (16.7 %) strongly disagreed. 3 (10.0%) respondents neither agreed nor disagreed with the statement. The mean rating for this goal-setting variable is 3.50 and the rating can be interpreted as the majority of the professionals agree that the teams' objectives are measurable and attainable.

Table 4.5 shows that the mean rating of respondents' perceptions of goal-setting ranges from 3.10 to 4.03 with a standard deviation ranging from 0.900 to 1.373. These findings suggest that respondents believe that the goal-setting items are important. The average mean of the total goal-setting variable items is 3.473, along with a standard deviation of 1.141, indicating that the majority of the participants somewhat agree that this factor is important and agree that it affects

the success of virtual project teams in their organization. The respondent agreed that there is a clear goal as to why the team is formed, members know their roles and responsibilities, and that the team is effective in reaching its goals. On the contrary, they neither agreed nor disagreed on team members participating in the goal-setting phase of a project and ensuring that clarity exists on all levels within the team.

4.4.5 Technology

Table 4.6: Technology

Statements		Frequency	Percent	Mean	Standard Deviation
T1 - Team members have advanced technological tools available at their disposal.	Strongly Disagree	2	6.7		
	Disagree	10	33.3		
	Agree	7	23.3		
	Strongly Agree	10	33.3		
	Total	1	100.0	2.93	1.048
T2 - Team members have received proper training on advanced technological tools.	Disagree	15	50.0		
	Neutral	10	33.3		
	Agree	4	13.3		
	Strongly Agree	1	3.3		
	Total	30	100.0	2.70	0.837
T3 - Team members use up-to-date, reliable, and strong hardware and software technologies.	Strongly Disagree	3	10.0		
	Disagree	10	33.3		
	Neutral	7	23.3		
	Agree	8	26.7		
	Strongly Agree	2	6.7		
	Total	30	100.0	2.87	1.137
T4 - Team members have fundamental working knowledge on how to use advanced technological tools effectively and efficiently.	Disagree	6	20.0		
	Neutral	8	26.7		
	Agree	12	40.0		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.47	.973
T5 - There exists a safe and secured working	Disagree	8	26.7		
	Neutral	11	36.7		

environment using advanced technological tools.	Agree	11	36.7		
	Total	30	100.0	3.10	.803
T6 - Technological tools have helped improve the teams 'communication and feedback.	Disagree	4	13.3		
	Neutral	5	16.7		
	Agree	14	46.7		
	Strongly Agree	7	23.3		
	Total	30	100.0	3.80	.961
				Mean	SD
Average				3.145	0.959

Source: Own survey result from SPSS V26

Table 4.6 above shows the overall replies from the respondents of this project work with regards to the assessment of the effect of technology on the virtual project team's success. 6 individual questions were designed to assess the view and outlook of respondents of the organization towards the technology variable in a virtual project team.

As seen from Table 4.6, participants were first asked if all team members have advanced technological tools available at their disposal (T1). 10 (33.3%) of the respondents said that they disagree that there are advanced technological tools available at their disposal. Additionally, 2 (6.7%) respondents said that they strongly disagree with that statement. On the contrary, 10 (33.3%) respondents said that they strongly agree and 7 (23.3%) said that they agree that members have advanced technological tools at their disposal. The mean rating for this statement is 2.93. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization neither agree nor disagree all members have advanced technological tools available at their disposal.

Another important technology variable is the assessment of whether team members received proper training on advanced technological tools. Regarding this variable (T2), 15 (50.0%) of the respondents disagreed that they have received any type of training. On the contrary, 4 (13.3%) agreed with that statement while 1 (3.3%) strongly agreed. 10 (33.3%) responded by having a neutral view with members receiving proper training on advanced technological tools. This technology variable has a mean rating of 2.70 showing that team members majorly didn't agree or

disagree and hold a neutral stance with team members receiving proper training on advanced technological tools.

The reliability and strength of the technology the team uses is also a major instrument in assessing the technology variable. As shown in Table 4.6 regarding this variable of technology (T3), 10 (33.3%) respondents disagreed when asked if team members use up-to-date, reliable, and strong technological tools. Furthermore, 3 (10.0%) strongly disagreed. On the contrary, 8 (26.7%) respondents agreed and 2 (6.7%) strongly agreed. 7 (23.3%) respondents neither agreed nor disagreed. This statement had a mean rating of 2.87 and can be interpreted as the respondents neither agrees nor disagrees when asked if team members use strong, reliable, and up-to-date technological tools.

Another important variable in assessing technology is assessing if team members have a fundamental knowledge of how to access and use these technological tools (T4). As shown in Table 4.6, 12 (40.0%) respondents agree that members have a working knowledge of using these technological tools, while 4 (13.3%) strongly agreed. 8 (26.7%) respondents said that they neither agree nor disagree and the other 6 (20.0%) disagreed on members having the working knowledge of using these tools. The mean rating for this statement is 3.47. This can be interpreted as employees of the organization agree that the team has a fundamental working knowledge on how to use advanced technological tools effectively and efficiently.

When respondents were asked if there exists a safe and secured working environment using advanced technological tools (T5), 11 (36.7 %) agreed and 11 (36.7%) held a neutral stance. None of the respondents said that they strongly disagreed or strongly agreed that it is safe and secure to use technological tools. 8 (26.7%) respondents disagreed. The mean rating for this goal-setting variable is 3.10 and the rating can be interpreted as the majority of the professionals neither agrees nor disagrees that there is a safe and secured working environment when accessing technological tools.

The last variable on technology pertains to the level of improvement attained on communication and feedback by using technology. When asked if technological tools have helped improve the teams ‘communication and feedback (T6), the majority (n = 14, 46.7 %) responded that they agree while 7 (23.3) said that they strongly agree. 4 (13.3%) respondents said that they disagree that communication and feedback have been enhanced due to technology. 4 (13.3%) respondents

neither agreed nor disagreed with the statement. The mean rating for this goal-setting variable is 3.80 and the rating can be interpreted as the majority of the professionals agree that the technological tools have improved the team's communication and feedback.

Table 4.6 shows that the mean rating of respondents' perceptions of technology ranges from 2.70 to 3.80 with a standard deviation ranging from 0.803 to 1.137. These findings suggest that respondents believe that the goal-setting items are important. The average mean of the total technology variable items is 3.145, along with a standard deviation of 0.959, indicating that the majority of the participants neither agree nor disagree that this factor is important and that it affects the success of virtual project teams in their organization. The respondent agreed that technology has improved their communication and feedback, they have a fundamental knowledge of how to use these tools. On the contrary, they neither agreed nor disagreed on whether all team members have access to advanced technological tools, there exists a safe environment to use these technologies, or that all members have received proper training on these technological tools.

4.4.6 Virtual Team's Success Measures

Table 4.7 Virtual team's success measures

Statements		Frequency	Percent	Mean	Standard Deviation
VTS1 - There is a strong team commitment towards the goals and the team's success.	Disagree	7	23.3		
	Neutral	4	13.3		
	Agree	15	50.0		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.53	1.008
VTS2 - The team has a strong commitment to delivering quality outputs on time.	Strongly Disagree	1	3.3		
	Disagree	4	13.3		
	Neutral	4	13.3		
	Agree	16	53.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.80	.925
VTS3 - Team members share common strong goals and objectives.	Disagree	8	26.7		
	Neutral	5	16.7		
	Agree	12	40.0		

	Strongly Agree	5	16.7		
	Total	30	100.0	3.47	1.074
VTS4 - Team members effectively work together to deliver tasks.	Disagree	5	16.7		
	Neutral	6	20.0		
	Agree	11	36.7		
	Strongly Agree	8	26.7		
	Total	30	100.0	3.73	1.048
VTS5 - Team members understand that the success of the project is based on each member's contribution.	Disagree	3	10.0		
	Neutral	6	20.0		
	Agree	11	36.7		
	Strongly Agree	10	33.3		
	Total	30	100.0	3.93	.980
VTS6 - Team members feel responsible for other members.	Strongly Disagree	1	3.3		
	Disagree	6	20.0		
	Neutral	12	40.0		
	Agree	9	30.0		
	Strongly Agree	2	6.7		
	Total	30	100.0	3.17	.950
VTS7 - Team members understand that different members have different personalities.	Strongly Disagree	1	3.3		
	Disagree	3	10.0		
	Neutral	3	10.0		
	Agree	15	50.0		
	Strongly Agree	8	26.7		
	Total	30	100.0	3.87	1.042
VTS8 - Team members show respect towards other team members.	Disagree	1	3.3		
	Neutral	6	20.0		
	Agree	13	43.3		
	Strongly Agree	10	33.3		
	Total	30	100.0	4.07	.828
VTS9 - Team members support others during difficulties.	Disagree	2	6.7		
	Neutral	8	26.7		
	Agree	14	46.7		
	Strongly Agree	6	20.0		

	Total	30	100.0	3.80	.847
VTS10 - Team members openly discuss problems or difficulties with other members.	Strongly Disagree	3	10.0		
	Disagree	5	16.7		
	Neutral	6	20.0		
	Agree	10	33.3		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.37	1.273
VTS11 - Team members receive constructive help and criticism in dealing with difficulties.	Strongly Disagree	1	3.3		
	Disagree	4	13.3		
	Neutral	10	33.3		
	Agree	11	36.7		
	Strongly Agree	4	13.3		
	Total	30	100.0	3.43	1.006
VTS12 - Team members strongly value open dialogue and communication.	Disagree	7	23.3		
	Neutral	6	20.0		
	Agree	12	40.0		
	Strongly Agree	5	16.7		
	Total	30	1100.0	3.50	1.042
VTS13 - The team was proactive in selecting its team members.	Strongly Disagree	2	6.7		
	Disagree	8	26.7		
	Neutral	5	16.7		
	Agree	9	30.0		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.30	1.264
VTS14 - 14. Leaders have considered the skill and personality of team members in selection.	Disagree	6	20.0		
	Neutral	6	20.0		
	Agree	12	40.0		
	Strongly Agree	6	20.0		
	Total	30	100.0	3.60	1.037
VTS15 - Team members fully understand their purpose and knows how to do their tasks in the team.	Disagree	4	13.3		
	Neutral	4	13.3		
	Agree	17	56.7		
	Strongly Agree	5	16.7		

	Total	30	100.0	3.77	.898

Source: Own survey result from SPSS V26

Table 4.7 above shows the overall replies from the respondents of this project work with regards to 5 different constructs that were believed to represent the virtual project team's success and are essential in the measurement of the success. These team success constructs were adopted from Tarricone and Luca (2002). These researchers put forth certain success measures for teams for them to be considered successful, in which 5 were adopted for these project work. The 5 measurement constructs of success of virtual teams are **committed to goals and objectives, interdependence, interpersonal qualities, communication and feedback** and, **team composition**. 3 individual items were designed to assess each construct and capture the view and outlook of respondents of the organization towards the measurement of success in virtual project teams.

As seen from Table 4.7, items VTS1, VTS2 and VTS3 are designed to assess commitment. Participants were first asked if there is a strong team commitment towards the goals and the team's success (VTS1). 15 (50.0%) or half of the respondents said that they agree that there is a strong team commitment towards the goals and the team's success. Additionally, 4 (13.3%) respondents said that they strongly agree with that statement. On the contrary, 7 (23.3%) respondents said that they disagree and 4 (13.3%) said that they neither agree nor disagree with members having strong team commitment towards the goals and the team's success. The mean rating for this statement is 3.53. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization agree that members have a strong team commitment towards the goals and the team's success.

Another important commitment construct variable is whether members are also committed to quality deliverance along with on-time deliverance. Regarding this item (VTS2), 16 (53.3%) of the respondents agreed that the team has a strong commitment towards delivering quality outputs on time and 6 (20.0%) respondents strongly agreed. On the contrary, 4 (13.3%) disagreed with that statement and 1 (3.3%) strongly disagreed. 4 (13.3%) responded by having a neutral view of the team having a strong commitment towards delivering quality outputs on time. This item has a

mean rating of 3.80 showing that team members majorly agreed with the team having a strong commitment towards delivering quality outputs on time.

The last item in assessing the commitment construct of the team is team members being able to share common goals and objectives. As shown in Table 4.7 regarding this variable of commitment (VTS3), 12 (40.0%) respondents agreed when asked if team members share common goals and objectives. Furthermore, 5 (16.7%) strongly agreed. On the contrary, 8 (26.7%) respondents disagreed. 5 (23.3%) respondents neither agreed nor disagreed. This statement has a mean rating of 3.47 and can be interpreted as the respondents agree when asked if team members share common goals and objectives.

The commitment construct of the measurement of virtual teams' success has an overall mean rating of 3.6. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as the team members of the organization agree that members have a strong commitment towards the goals and objectives of the team.

As shown in Table 4.7, items VTS4, VTS5 and VTS6 are designed to assess interdependence. Participants were first asked if team members effectively work together to deliver tasks (VTS4). 11 (36.7%) respondents said that they agree that team members work effectively together to deliver tasks. Additionally, 8 (26.7%) respondents said that they strongly agree with that statement. On the contrary, 5 (16.7%) respondents said that they disagree and 6 (20.0%) said that they neither agree nor disagree with members effectively working together to deliver tasks. The mean rating for this statement is 3.73. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization agree that members effectively work together to deliver tasks.

Another important interdependence construct variable is whether all members understand that the success of the project is based on each member's contribution. Regarding this item (VTS5), 11 (36.7%) of the respondents agreed that members understand that the success of the project is based on each member's contribution. Additionally, 10 (33.3%) respondents strongly agreed with this statement. On the contrary, 3 (10.0%) disagreed with that statement. 6 (20.0%) responded by having a neutral view of the team members understanding that the success of the project is based on each member's contribution. This item has a mean rating of 3.93 showing that team members

majorly agreed with members understanding that the success of the project is based on each member's contribution.

The last item in assessing the interdependence construct of the team is assessing if team members feel a strong responsibility for other members. As shown in Table 4.7 regarding this variable of interdependence (VTS6), 12 (40.0%) respondents neither agreed nor disagreed when asked if team members feel responsible for other members. 9 (30.0%) agreed, and 2 (6.7%) strongly agreed. On the contrary, 6 (20.0%) respondents disagreed and 1 (3.3%) respondent strongly disagreed. This statement had a mean rating of 3.17 and can be interpreted as the respondents neither agreeing nor disagreeing or having a neutral stance when asked if team members feel responsible for other members.

The interdependence construct of the measurement of virtual teams' success has an overall mean rating of 3.61. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as the team members of the organization agree that members show interdependence with other team members in doing their tasks.

As seen from Table 4.7, items VTS7, VTS8 and VTS9 are designed to assess interpersonal qualities. Participants were first asked if they understand that different members have different personalities (VTS7). 15 (50.0%) or half of the respondents said that they agree that they understand that different members have different personalities. Additionally, 8 (26.7%) respondents said that they strongly agree with that statement. On the contrary, 3 (10.0%) respondents said that they disagree and 1 (3.3%) said that they strongly disagree. 3 (10.0%) said that they neither agree nor disagree with members understanding that different members have different personalities. The mean rating for this statement is 3.87. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization agree that members understand that different members have different personalities.

Another important interpersonal quality construct variable is whether members show respect towards other team members. Regarding this item (VTS8), 13 (43.3%) of the respondents agreed that the team members showing respect towards other members, and 10 (33.3%) respondents strongly agreed. On the contrary, only 1 (3.3%) disagreed with that statement. 6 (20.0%) responded by having a neutral view of the team members showing respect to other members. This item has a

mean rating of 4.07 showing that team members majorly agreed with the team members respecting and showing respect to other team members.

The last item in assessing the interpersonal qualities construct of the team is team members being able to support each other during difficulties. As shown in Table 4.7 regarding this variable of commitment (VTS9), 14 (46.7%) respondents agreed when asked if team members support each other during difficulties. Furthermore, 6 (20.0%) strongly agreed. On the contrary, 2 (6.7%) respondents disagreed. 8 (26.7%) respondents neither agreed nor disagreed. This statement has a mean rating of 3.80 and can be interpreted as the respondents agree when asked if team members support each other during difficulties.

The intrapersonal qualities construct of the measurement of virtual teams' success has an overall mean rating of 3.91. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as the team members of the organization agree that members have strong interpersonal qualities.

As depicted in Table 4.7, items VTS10, VTS11 and VTS12 are designed to assess communication and feedback. Participants were first asked if members openly discuss problems or difficulties with other members (VTS10). 10 (33.3%) respondents said that they agree that team members openly discuss problems or difficulties with other members. Additionally, 6 (20.0%) respondents said that they strongly agree with that statement. On the contrary, 5 (16.7%) respondents said that they disagree and 3 (10.0%) strongly disagreed. 6 (20.0%) respondents said that they neither agree nor disagree with team members openly discuss problems or difficulties with other members. The mean rating for this statement is 3.37. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization neither agree nor disagree that members openly discuss problems or difficulties with other members.

Another important communication construct variable is whether members of the team receive constructive help and criticism in dealing with difficulties. Regarding this item (VTS11), 11 (36.7%) of the respondents agreed with team members receiving constructive help and criticism in dealing with difficulties and 4 (13.3%) respondents strongly agreed. On the contrary, 4 (13.3%) disagreed with that statement, and 1 (3.3%) strongly disagreed. 10 (33.3%) responded by having a neutral view of the team members receiving constructive help and criticism in dealing with

difficulties. This item has a mean rating of 3.43 showing that team members somewhat agreed with the team members receiving constructive help and criticism in dealing with difficulties.

The last item in assessing the communication and feedback construct of the team is assessing if team members strongly value open dialogue and communication. As shown in Table 4.7 regarding this variable of commitment (VTS12), 12 (40.0%) respondents agreed when asked if team members strongly value open dialogue and communication. Furthermore, 5 (16.7%) strongly agreed. On the contrary, 7 (23.3%) respondents disagreed. 6 (20.0%) respondents neither agreed nor disagreed. This statement has a mean rating of 3.50 and can be interpreted as respondents agree when asked if team members strongly value open dialogue and communication.

The communication and feedback construct of the measurement of virtual teams' success has an overall mean rating of 3.43. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as the team members of the organization somewhat agree that have a strong communication and feedback system in place.

The last construct from measuring virtual project teams' success is team composition. As seen from Table 4.7, items VTS13, VTS14 and VTS15 are designed to assess team composition. Participants were first asked if the team was proactive in selecting its team members (VTS13). 9 (30.0%) respondents said that they agree that the team is proactive in selecting its team members. Additionally, 6 (20.0%) respondents said that they strongly agree with that statement. On the contrary, 8 (26.7%) respondents said that they disagree and 2 (6.7%) strongly disagreed. 5 (16.7%) said that they neither agree nor disagree with the team being proactive in selecting its team members. The mean rating for this statement is 3.30. Using Pimentel's (2010) way of analyzing the Likert scale, the mean rating can be interpreted as project employees of the organization neither agree nor disagree that the team was proactive in selecting its team members.

Another important team composition construct variable is whether leaders considered the skill and personality of team members in selection. Regarding this item (VTS14), 12 (40.0%) of the respondents agreed that the leaders have considered the skill and personality of team members in the selection, and 6 (20.0%) respondents strongly agreed. On the contrary, 6 (20.0%) disagreed with that statement. 6 (20.0%) responded by having a neutral view with regards to leaders considering the skill and personality of team members in selection. This item has a mean rating of

3.60 showing that team members majorly agree with leaders considering the skill and personality of team members in selection.

The last item in assessing the team composition construct of the team is assessing if team members fully understand their purpose and know how to do their tasks in the team. As shown in Table 4.7 regarding this variable of team composition (VTS15), 17 (56.7%) respondents agreed when asked if team members fully understand their purpose and know how to do their tasks in the team. Furthermore, 5 (16.7%) strongly agreed. On the contrary, 4 (13.3%) respondents disagreed. 4 (13.3%) respondents neither agreed nor disagreed. This statement has a mean rating of 3.77 and can be interpreted as the respondents agree when asked if team members fully understand their purpose and know how to do their tasks in the team.

The team composition construct of the measurement of virtual teams' success has an overall mean rating of 3.55. Using Pimentel’s (2010) way of analyzing the Likert scale, the mean rating can be interpreted as the team members of the organization agree that team composition was analyzed well before assembling the virtual team.

Chapter 5: Summary, Conclusion, and Recommendation

5.1 Overview

This chapter is dedicated to summarising the main points that have been discussed in this project work, concluding of facts will be made based on the findings of the project work and recommendations will be put forth by the research for future researchers and other concerned stakeholders.

5.2 Summary

This project work was started with the main objective of assessing factors affecting virtual project teams' success during COVID-19. The project work took one, relatively large organization named Consortium of Christian Relief and Development Associations (CCRDA) as a case study. This organization was chosen as it was among one of the forefront organizations to attempt to work virtually during the emergency of COVID-19. Furthermore, the organization has a lot of foreign CSOs under its association, it has been experiencing working virtually way before COVID-19. The study targeted a total of 33 project professionals currently employed at the NGO. However, only 30 respondents were able to respond to the questionnaire within the given timeframe by the researcher, which was one week. This amounts to a response rate of 91%. Different participants from different gender, ages, education levels, position in virtual teams, and years of experience in these teams are represented in the data collected.

The results of the background information of the respondents indicate that a major percentage of the total respondents (19, 63.3%) are male, while the remaining 11 (36.7) percent are female. In terms of age, 93.3 percent (28) of respondents are under the age of 35, which may be considered an advantage for the company as the young workforce are thought to be easily adaptable to change and have a high willingness to face new challenges. Virtual project teams are full of challenges that require swift change and these combined with the uncertainty of project by nature poses additional challenges in which the young workforce are believed to relatively quickly navigate through them.

With a total of 30 employees in the sample group, first degree (BA/BSC(holders made up the majority of the employee sample group, accounting for 60.0 percent (18) of the total employee

participants in this study. In addition, 40.0 (12) percent of respondents had a master's degree. 70 percent (21) of the overall population were virtual project team members while the rest 30 percent (9) were virtual project team leaders. With regards to experience, 60 percent (18) of the respondents have 0-2 years of experience in leading or being a part of a virtual project team. 23.3 percent (7), 13.3 percent (4), and 3.3 percent (1) said that they have 2-4, 4-6, and 8+ years of experience respectively.

The project work aimed at addressing 5 objectives regarding assessing factors that affect virtual project teams' success. To do so, the researcher adopted 5 success factors from the literature review and assessed to see if these factors apply in the organization that was selected as a case study. The findings are summarized below:

- The first objective of this study was to assess how **trust** affects virtual project teams' success. Trust is an important factor as members of a virtual team don't see each other and are not co-located. As a result, they need to have trust in their fellow team members to do what they need to do on time and according to the agreed-upon quality. 8 individual items were forwarded to respondents to assess how trust affects virtual project teams' success. Regarding having an intentionally and carefully built relationship between their fellow leaders and team members, 11 (36.7%) of respondents disagreed. With a mean score of 3.33, members were found to have a neutral stance regarding this issue. Despite 13 (43.3%) of the respondents agreeing that all members could be counted on to complete assigned tasks, overall members of the organization also were neutral when it comes to it (mean = 3.33). With 11 (36.7%) respondents agreeing and a mean rating of 3.50, team members of the organization agree that they know the skill, ability, and knowledge level of their fellow members and leaders. Another way of assessing trust in measuring whether members are being held accountable for their actions and decisions. 16 (53.3%) respondents agree that members are held accountable for their actions and with a mean rating of 3.73, team members also agree that there are ways in place of making people accountable for their responsibilities and decisions. 15 (50%) of the respondents agree that members act in the team's best interest and with a mean rating of 3.63 most of the employees of the organization agree that members act in the best interest and wellbeing of the team. When assessing if members had a chance to build an interpersonal connection with other team

members, 12 (40 %) responded neutrally as overall team members (mean = 3.13) while 9 (30%) respondents said that they disagree. With the mean rating of 3.47 employees of the organization agrees regarding the availability of assistance with their fellow members and with a mean of 4.00, team members agree to treat fellow team members fairly and justly.

- The second objective of the project work was to assess how **communication** affects virtual project teams' success. 16 (53.3%) of the respondents said that they agree that there is a provision of timely accounts of work, team progress updates, and feedback. With the mean rating of 3.50, project employees of the organization also agree. Regarding the regularity and frequency of communication, 14 (46.7%) of the respondents agreed that there is regular and frequent communication. Overall team members also agree as inferred from the mean value of 3.70. 12 (40.0%) respondents agreed that there is a reliable and up-to-date communication mechanism and with a mean of 3.47, so do overall team members. When assessing if there is a guideline set for communication, 15 (50.0%) respondents disagree that there are guidelines set for what and when to communicate. With a mean rating of 2.70, overall employees have a neutral stance. 12 (40%) of the respondents agree that there is smooth and transparent communication between members and leaders. Overall respondents also agree as shown with a mean value of 3.63. When assessing if members can communicate with other team members and leaders with ease, 11, (36.7 %) agreed. With the mean value of 3.47, overall team members also agree. 12 (40.0%) of the respondents said that they agree that members find it easy to understand information transferred and with a mean value of 3.53, overall employees also agree. When assessing if team members know and properly record who is in charge of information data delivery, 14 (46.7 %) responded that they agree. With a mean rating of 3.37, overall employees have a neutral stance.

- The third objective of the project work was to assess how **leadership** affects virtual project teams' success. 16 (53.3%) of the respondents said that they agree that their leaders possess expertise in managing virtual teams' performance and building trust but overall had a neutral stance (M=3.37). 10 (33.3%) of the respondents agreed that there is regular and periodic checking of how well the team is performing by leaders but overall had a neutral

stance as well (M=3.27). 13 (43.3%) respondents agreed that leaders check if members possess the appropriate skills and knowledge to participate in the team's activities. Overall members also agree (M=3.57). 14 (46.7%) agreed that their leaders make reasonable and sound judgments. Overall members agree as well (M = 3.63). 13 (43.3%) of the respondents disagree that their leaders recognize and award individual contributions of team members. Overall employees have a neutral stance on the matter (M = 2.90). 16 (53.3 %) agreed that leaders were able to select appropriate communication technologies. And with a mean value of 3.47, overall members also agree. 14 (46.7 %) respondents agreed with leaders having new ideas to do things more effectively but overall employees were neutral (M = 3.37). 16 (53.3%) respondents and overall members (M = 3.77) agreed that their leaders are very helpful and encouraging to team members. 11 (36.7%) respondents and overall employees (M = 3.67) agreed that leaders show tolerance, empathy, and care for other team members. 14 (46.7 %) respondents and overall members (M = 3.70) said that they agree that leaders check if every team member is contributing their fair share.

- The fourth objective of this project work was to assess how **goal setting** affects virtual project teams' success. 13 (43.3%) of the respondents said that they strongly agree and overall employees (M = 4.03) agree, that there is a clear goal as to why the team is formed and what to achieve. Team members didn't agree or disagree and hold a neutral stance (M = 3.10) with team members being able to participate in the goal-setting stage of a project. 14 (46.7%) respondents and overall members (M = 3.13) had a neutral stance when asked if team members participate in ensuring clarity exists within the teams' goals and objectives. 10 (33.3%) respondents and overall members (M = 3.60) agree that roles and responsibilities are known and defined. 16 (63.3%) of the respondents and overall members (M = 3.53) agree that members make sure that whatever they are doing helps the organization achieve its goals. 10 (33.3 %) and overall members (M = 3.47) agreed the goals of the team incorporate the objectives and needs of the team members. 14 (46.7%) of the respondents and overall members (M = 3.50) said that they agree that the virtual team they were a part of was effective in reaching its goals. When assessing if their teams' goals align with the overall organizations' goals, 11 (36.7 %) agreed. With a mean value of 3.40 majority of the professionals somewhat are on the border of agreeing and having a

neutral stance. 12 (40.0 %) and overall members (M = 3.50) agreed that the teams' objectives are measurable and attainable.

- The last objective of the project work was to assess how **technology** affects virtual project teams' success. Assessing availability, 10 (33.3%) of the respondents said that they disagree that there are advanced technological tools available at their disposal. With a mean rating of 2.93, employees neither agree nor disagree with the availability of Technology. In assessing training, 15 (50.0%) of the respondents disagreed that they have received any type of training. With a mean rating of 2.70, respondents hold a neutral stance with regards to receiving training. 10 (33.3%) respondents disagreed when asked if team members use up-to-date, reliable, and strong technological tools. They also hold a neutral stance (M = 2.87). 12 (40.0%) respondents and overall employees (M = 3.47) agree that members have a working knowledge of using these technological tools. 11 (36.7 %) agreed and 11 (36.7%) held a neutral stance as overall employees did (M = 3.10) when asked if the technological tools were safe and secure. 14 (46.7 %) and overall members agreed (M = 3.8) when asked if technological tools have helped improve the teams 'communication and feedback.

With regards to virtual project teams' success measures, 5 team success constructs were adopted from Tarricone and Luca (2002). The 5 measurement constructs of success of virtual teams assessed in these project work are **committed to goals and objectives, interdependence, interpersonal qualities, communication and feedback** and, **team composition**. The commitment construct of the measurement of virtual teams' success with a total mean rating of 3.6 can be interpreted as the team members of the organization agree that members have a strong commitment towards the goals and objectives of the team. The interdependence construct with an overall mean rating of 3.61, showed that team members of the organization agree that members show interdependence with other team members in doing their tasks. Coming to the interpersonal qualities construct with a mean rating of 3.91., it showed that team members of the organization agree that members have strong interpersonal qualities. The communication and feedback construct had an overall mean rating of 3.43. showing that the team members of the organization somewhat agree that have a strong communication and feedback system in place. Finally, the team

composition construct had an overall mean rating of 3.55., showing that the team members of the organization agree that team composition was analyzed well before assembling the virtual team.

As a result, virtual project success was calculated as the average of the above five criteria and success measures, with the result indicating a moderate level of agreement on overall virtual project teams' success.

5.3 Conclusion

Upon the conduction of the project work, the researcher was able to conclude the following:

- With an overall cumulative mean rating of 3.51, the study was able to conclude that trust affects the success of virtual project teams in CCRDA. The study was able to conclude that the organizations' employees know the skill, ability, and knowledge level of their fellow members and leaders, have ways of holding members accountable for their action and decisions, act in the best interest of the organization, make assistance avail for their fellow members and treat members fairly and justly. The study also noted that there are some difficulties when members attempt to build interpersonal connections with other members, have an intentionally built relationship between members, and being counted up on to finish their assigned tasks.
- The study was able to conclude that communication affects the success of virtual project teams in CCRDA. The study concludes that there is a provision of timely accounts of work, team progress update, and feedback in the organization. Furthermore, the study was able to establish that there is regular and frequent communication between members and leaders. There is also a reliable and up-to-date communication mechanism in the organization. Additionally, the organization has smooth and transparent communication, communication with team members and leaders is easy and messages are easily understood by members. On the contrary, there is still some work to be done in setting up a guideline to decide what is to be communicated and when. Furthermore, the person who is in charge of information delivery needs to be properly known and recorded.
- The study was able to conclude that leadership affects the success of virtual project teams in CCRDA. The study was able to note that leaders check whether members possess the appropriate skills and knowledge, make reasonable and sound judgments, they select

appropriate communication technologies, are very helpful and encouraging to team members, and show tolerance, empathy, and care for other members. Furthermore, they check if every team member is contributing their fair share in the teams. The study was also able to note that leaders didn't always have satisfactory expertise when it comes to managing virtual teams' performance and building trust. Additionally, leaders didn't always check how well the team is performing. They also didn't always recognize and award individual contributions and didn't always have new ideas to do things more effectively.

- The study was able to conclude that goal setting affects the success of virtual project teams in CCRDA. The study was able to note that there is a clear goal as to why the team is formed and what to achieve. Furthermore, the roles and responsibilities of team members were clearly defined and known, members made sure the work they do benefit the organization's goals. The goals of the organization took into account the individual objectives and needs of team members and the team were effective at reaching its goals. Additionally, the team's objectives were measurable and attainable. The study was also able to understand that team members weren't always involved in the goal-setting phase of a project and they didn't always involve in ensuring clarity exists regarding the goals and objectives.
- The study was able to conclude that technology has improved CCRDA's communication and feedback. Furthermore, team members have a fundamental knowledge of how to use these tools. The study was also able to conclude that technology isn't always available to the employees of CCRDA. Furthermore, team members didn't always receive training on how to use advanced technological tools. They also didn't receive up-to-date and reliable technological tools. Additionally, they didn't always have safe and secure technological tools and working environments.

5.4 Recommendations

The researcher suggests the following suggestions for future initiatives of a similar nature to improve upon while keeping in mind the individuality of each project:

5.4.1 Recommendation for the Organization

- The researchers recommend the organization take these factors into their hearts whenever they think of assembling any kinds of virtual project teams.
- The organization needs to focus on building trust by nurturing interpersonal relations and by performing team bonding activities among their virtual teams as it is the most important success factor next to team composition.
- The organization needs to work on building and adopting advanced, up-to-date, reliable, safe, and secure technological tools for not only virtual teams but also for their day-to-day activity as the world is moving fast towards a more technologically advanced world day by day.
- The researcher further recommends the organization and team leaders found within the organization better involve team members in goal setting phase of projects.
- Team leaders need to be well equipped with how to lead and manage virtual project team by receiving on site or off site training and management courses to perform more towards creating harmony and trust between team members.

5.4.2 Recommendation for Future Researchers

- Future studies and project works should qualitatively assess the same variables to see the human experience of team members.
- Future researchers can assess other virtual success factors that were forwarded by different scholars as shown in the empirical findings of this research.
- The researcher suggests the investigation of further virtual project success constructs and measures in light of the aforementioned variables in this project work.

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ANNEX

Annex 1: Questionnaire

ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
MA IN PROJECT MANAGEMENT
SURVEY QUESTIONNAIRE

Greetings,

You are kindly invited to engage in a research study as part of a master's degree requirements in project management under the title **"Assessment of Factors Affecting Virtual Project Teams' Success During COVID -19: The Case Consortium of Christian Relief and Development Associations (CCRDA)"**. The study aims to describe and assess factors that affect virtual project teams' success. As a result, this questionnaire is prepared to gather virtual project team members' perspectives on the topic, and your honest answer is critical to the research's success. As a result, I respectfully request that you answer all of the questions mentioned below after carefully reading the instructions given. Please bear in mind that all of your responses will be used solely for academic exercise and purposes and will be kept strictly confidential. You are not required to specify your name at any point in the questionnaire.

If you have any issues with the questionnaire, please feel free to contact me at +251-9-20659845 or send me an email at oliyada9845@gmail.com

Thank you for taking your time to fill this questionnaire.

Part 1: Respondent's demographic information

Instruction: Please put a check mark (√) in the provided box correlating to the choice that most represents you.

1. Gender: Male ☐ Female ☐

2. Age: Below 25 ☐ 26-30 ☐ 31-35 ☐
36-40 ☐ Above 40 ☐

3. Education Level: Diploma ☐ Bachelor Degree ☐
Master's Degree ☐ Postgraduate Diploma ☐
P.h.D ☐

4. Position on the virtual projects team
Virtual team member ☐ Virtual manager ☐

5. Experience in virtual projects teams (As team member or manger)

0 to 2 years ◯ 2 to 4 years ◯ 4 to 6 years ◯

6 to 8 years ◯ More than 8 years ◯

Part 2: Factors affecting virtual project teams' success

Instruction: Please read the following sentences carefully and place a check mark (√) in the box that best explains how the following statements represent your virtual project team experience based on the provided scale below.

1 - Strongly disagree, 2 - Disagree, 3 - Neutral, 4 – Agree, 5 - Strongly Agree

	1. Trust	1	2	3	4	5
1.1	There is an intentional and carefully built relationship between team members.					
1.2	Team members have trust that all people in the team can be counted on to complete assigned tasks.					
1.3	Team members know the ability, skill, and knowledge of other team members.					
1.4	Team members are held accountable for their responsibilities and decisions					
1.5	Team members have confidence in other members to act in the teams' best interest.					
1.6	Team members have the chance to build an interpersonal connections with other team members.					
1.7	Team members assist each other in completing assigned tasks.					
1.8	Team members treat each other fairly and justly.					
	2. Communications	**1**	**2**	**3**	**4**	**5**
1.1	There is provision of timely accounts of work deliverable, team progress updates, and feedback from team members.					
1.2	There is regular and frequent communication between leaders and team members.					

		1	2	3	4	5
1.3	There is an appropriate, reliable and up-to-date communication mechanism for all team members.					
1.4	There is a guideline in place concerning 'what' and 'when' to communicate.					
1.5	Communication with in the team is transparent and smooth.					
1.6	It is easy to reach team members and team leaders when needed.					
1.7	Team members clearly understand information transferred					
1.8	Team members in charge of data delivery are properly recorded and known.					
	3. Leadership	**1**	**2**	**3**	**4**	**5**
1.1	Leaders have expertise in managing virtual teams' performance and building and maintaining trust between team members.					
1.2	Leaders periodically examines how well the team is functioning.					
1.3	Leaders check if members possess the appropriate skills and knowledge to participate in team's activities.					
1.4	Leaders make reasonable and sound judgements depending on reasonable assumptions and facts.					
1.5	Leaders recognize and award individual contributions of team members.					
1.6	Leaders select appropriate electronic collaboration and communication technologies for team members.					
1.7	Leaders encourage team members to take initiative and participate in important decisions.					
1.8	Leaders have fresh ideas and methods for accomplishing activities more effectively.					
1.9	Leaders are seen as helpful and encouraging by team members.					
1.10	Leaders exhibit tolerance, empathy and care for team members.					
1.11	Leaders regularly check if every team members contributes their fair share.					

	4. Goal Setting	1	2	3	4	5
1.1	There is a clear goal to why the team is formed and what to achieve.					
1.2	Team members participate in goal setting phase of a project.					
1.3	Team members actively participate in ensuring clarity on the goals exists on all levels with in the team.					
1.4	Team members' roles and responsibilities are clearly defined and made known.					
1.5	Team members make sure that their work helps the organization achieve its goals.					
1.6	Goals incorporate the objectives and needs of team members.					
1.7	The team is effective in reaching its goals.					
1.8	The teams' goals align with the overall organizations' goals.					
1.9	The teams' objectives are measurable and attainable.					
	5. Technology	1	2	3	4	5
1.1	Team members have advanced technological tools available at their disposal.					
1.2	Team members have received proper training on advanced technological tools.					
1.3	Team members use up-to-date, reliable and strong hardware and software technologies.					
1.4	Team members have fundamental working knowledge on how to use advanced technological tools effectively and efficiently.					
1.5	There exists a safe and secured working environment using advanced technological tools.					
1.6	Technological tools have helped improve the teams' communication and feedback.					

	6. Virtual Project Team Success measures	1	2	3	4	5
1.1	There is a strong team commitment towards the goals and the team's success.					
1.2	The team has a strong commitment towards delivering quality outputs on time.					
1.3	Team members share common strong goals and objectives.					
1.4	Team members effectively work together to deliver tasks.					
1.5	Team members understand that success of the project is based on each members contribution.					
1.6	Team members feel responsible for other members					
1.7	Team members understand that different members have different personalities.					
1.8	Team members show respect towards other team members.					
1.9	Team members support others during difficulties.					
1.10	Team members openly discuss problems or difficulties with other members.					
1.11	Team members receive constructive help and criticism in dealing with difficulties.					
1.12	Team members strongly value open dialogue and communication.					
1.13	The team was proactive in selecting its team members					
1.14	Leaders have considered the skill and personality of team members in selection.					
1.15	Team members fully understands their purpose and knows how to do their tasks in the team.					

Thank you for taking the time to complete this questionnaire.

Annex 2: Support Letter

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ADDIS ABABA UNIVERSITY
College of Business and Economics (CoBE)
SCHOOL OF COMMERCE

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ADDIS ABABA, ETHIOPIA

ቁጥር Our Ref. BAIS/H/29/21
ቀን Date 18//05/2021

To: Consortium of Christian Relief and Development Associations (CCRDA)
Addis Ababa

The Addis Ababa University School of Commerce currently runs five Masters level programs and one Doctoral Program: Human Resource Management (MA), Project Management (MA), Marketing Management (MA), Supply Chain and Logistics Management (MA), Business Leadership (MA, PhD) In addition to this, the School is also Preparing itself to launch some more expedient Programs very soon.

As an immediate and direct stakeholder to this socioeconomically pragmatic move, we would like you to cooperate with us by way of assisting our students to conduct academic researches and case analyses in your organization. As such, we kindly request your esteemed organization to provide student **Oliyada Abera** ID.No GSR/8777/12 with information pertaining to **Assessment of Factors Affecting Virtual project Teams' Success Oaring COVID-19: The Case of Consortium of Christian Relief and Development Associations (CCRDA).** A copy of the paper produced may be provided to you if so demanded.

Thanking you for your earnest Cooperation, we remain

Sincerely Yours,

Dr. Tilahun Mulugeta
BAIS Department Head