ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

The Effect of Technology, E-Leader Competencies, and Virtuality of Teams on E-leadership Implementation: In the case of Atlas Computing Technologies

A research project submitted to Addis Ababa University, School of Commerce in partial fulfillment of the requirements for the Degree of Master of Arts in Business Leadership

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THE EFFECT OF TECHNOLOGY, E-LEADER COMPETENCIES AND VIRTUALITY OF TEAMS ON E-LEADERSHIP IMPLEMENTATION: IN THE CASE OF ATLAS COMPUTING TECHNOLOGIES

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DECLARATION

I, Romahay Amaha, declare that this project entitled **"The Effect of Technology, E-Leader Competencies, and Virtuality of Teams on E-leadership Implementation: In the Case of Atlas Computing Technologies"** submitted for partial fulfillment for my Masters of Arts Degree in Business Leadership is my own work and has not been copied from other materials submitted to another University.

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I want to thank God, first, for making this attainable for me.

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ABSTRACT

The purpose of the study was to examine the effect of technology, e-leader competencies, and virtuality of teams on e-leadership implementation in the case of Atlas Computing Technologies. The qualitative data was found from previous researches and literatures while the quantitative data was collected from the respondents through a Likert scale questionnaire distributed through a Google Docs link. Stratified sampling was used by taking the departments as strata and randomly sampling respondents from that strata. The data was then analyzed by SPSS. Descriptive analysis was used to show the distribution of data, Pearson Correlation was used to examine the relationship between the variables and regression analysis was used to examine the effect of the technology, e-leader competencies, and virtuality of teams on e-leadership implementation. It was found, from the research, that technology, leader competencies and virtuality of teams have positive relationships to e-leadership implementation. Although positively related, virtuality of teams was seen to be insignificant in judging the level of e-leadership implementation. The study also found that Atlas Computing Technologies have high technological usage and that their leaders are competent. This is a great opportunity for Atlas. But, it was seen that there is a medium level of virtuality of teams. This shows that technology is not being used to create this virtuality, which is seen as a challenge. This also creates a difficulty in Atlas Computing Technologies' ability to operate globally.

Keywords: Technology, Leader Competencies, Virtuality of Teams, E-leadership, E-leadership Implementation

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CHAPTER ONE

INTRODUCTION

This chapter provides an overview on the background of the study and the organization; it provides the statement of the problem along with the research questions and objectives. It also explains the significance, limitation and organization of the paper.

1.1. BACKGROUND OF THE STUDY

As we move from the industrial era to an increasingly networked environment, there is a large amount of instability and churning in the work that requires organizations to move from a mechanical viewpoint, with focus on massive business strategy and tight limitations, to an ecological viewpoint, where the organization's limitations are relaxed and permeable to create temporary associations to exploit market opportunities. This coupled with the digitation of information is changing how we work, how we organize work and how we create value. (Brown and Duguid, 2000; Kanter 2001; US Department of Commerce, 2000).

In this new era, power and information are informal and hyperlinked as opposed to information being filtered through hierarchical structures and formal authority in the industrial economy. (Pulley et al., 2000)

This change poses threats to the validity of some leadership assumptions which brings about the argument that organizations must evolve. Leaders are increasingly faced with challenges that are new, which, they have no idea how to solve. This is because they are dealing with an e-leadership issue which they try to solve with old organizational thinking. (Pohlmann et al., 2001; Pulley et al., forthcoming)

Today's organizational leader comes in contact with two interconnected factors: the increasing global diffusion of divisions and customers, stakeholders, and suppliers of the organization; and the exponential burst in communication technology that has led to larger incidence of day to day interactions with colleagues, coworkers, subordinates and bosses dispersed geographically Zaccaro and Bader (2003). To react to these changes, organizational experts have began taking about the concept of e-leadership.

As written in Pohlmann and Pulley's (2001) research in relation to better understanding the challenges of business leaders due to technology, it was uncovered that technology was intensifying a number of paradoxes that force the leader to stretch their capacities.

E-leadership is a communal influence process mediated by Advanced Information Technology to yield attitudinal change, behavioral change, change in feelings and thinking, and performance change in individuals, groups, and/or organizations (Avolio, Kahai, and Dodge, 2000).

Some identifying attributes of e-leadership include cognitive skills and education; quick adaptability to change; flexibility; ability to work for more than one boss; the ability to keep ones' heads in the midst of disorder and ambiguity; experience in several different fields and the ability to transfer ideas from one to the other; individuality; and entrepreneurialism. (Kissler)

It is mandatory to distinguish e-leadership from e-business-which is a company whose internet-based activities are the primary source of its revenues and profits (Walker, 2000).

E-leadership takes shape in the virtual context-this is where collaboration and leader-follower interaction are facilitated by ICTs. The aim of e-leadership is to generate and distribute the

organizational vision, pull corporations or individuals together, and direct and supervise the execution of the plans (Avolio & Kahai).

One similarity between traditional face-to-face leadership and e-leadership is that both can be motivational by communication via e-mail or other electronic means. As Avolio, Walumbwa, and Weber (2009) perceived, leading virtually includes not only to leading people from various divisions of one‘s own company, but at times those from a competitor company.

The impact of digital technology on leadership is a complex challenge. Pulley and Sessa (2001) have identified five key paradoxes to this end: swift and mindful; individual and community; top-down and grass-roots; details and big picture; and flexible and steady.

The rise of e-leadership will require guidance at the industry level, experience sharing from leaders to followers, and, a regular setting where those involved or interested can exchange ideas Shulman (2001).

1.2. BACKGROUND OF THE COMPANY

Atlas Computing Technologies is an ICT services and solutions provider. They work with clients to establish and manage an efficient, cost effective, secured and robust ICT infrastructure. Based in Addis Ababa, they design and implement effective information systems, and management tools and processes.

Out of the five departments, the company has three major departments: engineering services, training center and R&D which are under the supervision of their technical manager. This technical manager, along with finance administration and business development report to the managing director.

These departments are guided by their values: do what they say they will, respond to communications in a timely manner, take ownership of customer issues, not respond to problems by assigning blame, and believe in what they do.

Their unique product offerings are hybrid environment, managed environment, cost effective call center and network management. They have worked with GIZ Ethiopia, Ethiopian Conformity Assessment Enterprise, National Meteorology Institute of Ethiopia, Ethiopian National Accreditation Office, Abay Bank S.C., Bunna International Bank S.C., Enat Bank S.C., Oromia International Bank, Wegagen Bank S.C., Dashen Bank S.C., Central Statistics Agency, Agricultural Transformation Agency, and Ethiopian Airlines, to mention a few.

1.3. STATEMENT OF THE PROBLEM

Currently, many organizations are having difficulty in catching up to applying technology because companies don't have the organizational infrastructure or processes to integrate it. Trying to adapt traditional skills to a technologically mediated environment is creating a complexity that hasn't existed before.

One leadership view is that leadership is no longer being accomplished by a single person. The leadership acts of setting direction, facing challenges and maintaining commitment are instead occurring either by the leader alone or by the leader as influenced by others. Leaders and followers' common understanding of goals and direction are what binds them. This is made possible through the Net, where individuals are linked together into a web of information, relations, and interactions that is more than any single individual can provide.

E-leadership can be seen as a complex challenge and set of paradoxes that require development of some larger framework for understanding what leadership means. As Kegan (1982) and McCauley et al., (1998) put it, this e-leadership can be done by first examining your own emotions, drives, strengths and limitations, and their effect on others. Then the idea needs psychological support. People need to feel safe in order to develop.

People will also need to run up against the limitations of their beliefs in order to have a reason to develop. This generally involves a sense of loss and anxiety until a larger framework is created that encompasses the contradiction. The final requirement is continuity. People need to weave experiences and knowledge from their past into a new and more inclusive way of understanding the challenges they are facing.

E-leadership gives many fresh opportunities, such as, the capability to quickly communicate one-on-one with subordinates, consumers, and suppliers; the ability to use talent even from a distant location; the chance to increase organizational performance by using better multi-functional teams, increase customer satisfaction; reduce; and, scope for better knowledge management. All of these have positive impact on an organization's competitive advantage.

E-leaders will also face challenges, such as, how to link the physical distance from followers; how to effectively communicate with distant team members; how to express interest and inspire followers electronically; how to build trust with someone followers know virtually only; and so on.

Avolio et al. (2000: 615) stated that earlier researches on leadership didn't attempt to focus on issues confronting leadership as mediated by Advanced Information Technology. Perhaps it is too early to draw any broad conclusions about e-leadership, however, this has led to e-leadership being

stuck at the infancy stage of its practice. In recent years advances in AIT and its appropriation at all levels of organization has outpaced the practice and science of leadership (Avolio et al. 2014: 106).

As an outstanding ICT company in Addis Ababa, Atlas Computing Technologies should be closer to implementing e-leadership in its inner workings. This is because they have the need to organize and effectively manage distant team members and have the vision to go global and deliver product and services across borders. In order to do this, Atlas Computing Technologies should be able to effectively implement e-leadership. This study will, therefore, be an explanatory study to uncover the effect of technology, leader competencies, and virtuality of teams on the e-leadership implementation efforts of Atlas Computing Technologies.

1.4. RESEARCH QUESTIONS

The questions for this research were:

- What is the effect of technology on e-leadership implementation in Atlas Computing Technologies?
- What is the effect of leader competencies on e-leadership implementation in Atlas Computing Technologies?
- What is the effect of virtuality of teams on e-leadership implementation in Atlas Computing Technologies?
- What are the opportunities and challenges faced by Atlas Computing Technologies in their attempt to implement e-leadership?
- What e-leader behavioral competencies do the leaders in Atlas Computing Technologies possess?

- What is the current e-leadership practice of Atlas Computing Technologies?
- What are the challenges in becoming an e-leader in Atlas Computing Technologies?

1.5. OBJECTIVES OF THE STUDY

1.5.1. GENERAL OBJECTIVE

The general objective of this study was to examine the effects of technology, leader competencies, and virtuality of teams on implementing e-leadership in the case of Atlas Computing Technologies.

1.5.2. SPECIFIC OBJECTIVES

The specific objectives of the study were:

- To understand the e-leader behavioral competencies the leaders in Atlas Computing Technologies possess.
- To understand the current e-leadership practice of Atlas Computing Technologies.
- To understand the challenges Atlas Computing Technologies' leaders face in becoming an e-leader.

1.6. SIGNIFICANCE OF THE STUDY

This study will help leaders understand the opportunities e-leadership can provide them in alleviating organizational problems. It will also hint them into what aspects of their business operations that can be aided by technology, creating effectiveness, and improving performance and profit in their company. It will also support them in recognizing what issues they should get rid of to increase their chances of having a successful e-leadership implementation.

1.7. SCOPE OF THE STUDY

This study is conducted on Atlas Computing Technologies only. Other companies are not included due to budget and time restrictions. The study also focuses only on identifying the opportunities and challenges of implementing e-leadership. It does not give a step by step guide of how to alleviate the problem but only seeks to bring to leaders and employers the awareness of the system.

1.8. LIMITATION OF THE STUDY

The research was conducted on a single organization due to the lack of budget and time. Further research on other organizations is required to supplement this research and its findings. Since the subject matter is at an infant stage in practice, there is scarcity in the availability of research material and literature that clearly outlines the tests and prospects of its implementation.

1.9. OPERATIONAL DEFINITIONS AND TERMS

- **E-leadership:** is a communal influence process arbitrated by Advanced Information Technology) to produce a attitudinal changes, behavioral changes, change in feelings, thinking, and performance changes for the individuals, groups, and/or organizations
- **Paradox:** The conception of two alternatives as mutually exclusive, while there seems to be a need for both concepts to be true.
- **E-business network:** is the business network that utilize Internet to communicate or perform e-commerce activities.
- **E-business:** is a company whose internet-based activities are the primary source of its revenues and profits

1.10. ORGANIZATION OF THE PAPER

This research paper is divided into five chapters. The first chapter gives the overview to the topic and the organization. It shows the research objectives and questions, scope, significance, as well as, limitation of the study.

Chapter Two explains about e-leadership in a deeper level. Chapter Three is about the research methodology and includes items such as sampling design, research approach, data collection sources and method of data analysis. Chapter Four is about the data presentation, analysis and interpretation and the last chapter, Chapter Five, summarizes the major findings and provides recommendations.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

The below literature review provides a summary from literatures, and previous studies conducted on related topics. It assesses major concepts in relation to the research topic. It is meant to add knowledge on the topic of e-leadership.

2.1. THEORETICAL REVIEW

2.1.1. DEFINING E-LEADERSHIP

Avolio, Kahai, and Dodge (2000) were the first ones to reach a broad understanding of what e-leadership institutes in organizations. They defined it as a communal influence process arbitrated by Advanced Information Technology) to produce a attitudinal changes, behavioral changes, change in feelings, thinking, and performance changes for the individuals, groups, and/or organizations" They observed that this can happen at any hierarchy present within a company. This might be both on one-on-one connections and / or one to many connections, if they happen over electronic media.

E-leadership is simply not an extension of traditional leadership. It is an ultimate change in the relationship of leaders and followers with each other, within the organization and between organizations, of course, some fundamentals of leadership apply to e-leadership as well (Avolio and Kahai, 2003).

The objectives of leadership remain the same, but a new medium for implementing the goals has risen. The goals of leadership continue to address vision, direction, motivation, inspiration, trust, etc... (Chen, Liou, Wang, and Chi, 2007). E-leadership is simply a new leadership model that requires the leader to achieve the day to day leadership objectives through computer mediation. This means utilizing virtual teams dispersed over space and time, and with the major communication medium between leaders and followers being electronic media. This may mean that the e-leader may never meet one or more followers in person.

The "quiet revolution" is what gave rise to e-leadership, where many important human interactions are being mediated by information technology. The relationships expected between people who work for an establishment is delineated by well-defined organizational structures. Nowadays, these structures are implemented electronically, by information and communication technology, across space and time. Here, not only is the communication between leader and follower conducted through information technology, the collection and distribution of information required to support organizational work is also done through electronic media (Avolio & Kahai).

E-leadership presents a new challenge to the leadership. Because of adherence to the traditional face-to-face leadership, there are some complications in relationship building, trust, resolving conflict, dealing with sensitive issues in remote leadership because these issues are best done face to face (Zigurs, 2003).

Organizations are transitioning from hierarchical tree structures to flatter web-like structures that better facilitate the flow of knowledge. Firms create networks of customers, vendors, partners and business associates and "tap into complementary knowledge sources." (Jarvenpaa and Tanriverdi, 2003).

These changes in organizational structure, size, complexity, and work arrangements make leaders more responsible for managing followers who are at a distance (Howell, Neufeld, and Avolio, 2005). There are two major challenges in the new workplace that is evolving both globally and virtually poses two major challenges: isolation and confusion (Terence, 2006). The author put forward ten practical guidelines for a successful e-leadership. The guidelines encompassed suggestions for proactive thinking, cultural intelligence application, staying person-centric, predictability establishment, and driving for precise communications. Terence presented a chance for traditional leaders to equip themselves with skills for e-leadership.

There are seven distinguishing e-leadership factors as identified by Annunzio (2001). These include responsiveness, honesty, a sense of adventure, vigilance, willingness to learn and re-learn, altruism, and vision. He proposed the need for inter-generational cooperation and out-of-the-box leadership advice, such as to ask unaskable questions, speak unspeakable truths, make loud statements, communicate irreverently, etc... to make e-leadership work effectively.

E-leadership has been brought about by evolution of the nature of workplace exchanges, which are more strongly centered on tasks than on relationships (De Rosa et al ., 2004); mobilization of specific competences in order to master technologies (Pulley et al ., 2000); need for face -to-face exchanges in order to maintain " remote " confidence (Pulley and Sessa, 2001).

2.1.2. E-LEADERSHIP AND TECHNOLOGY

Avolio et al, (2000) studied how technology impacts leadership and is itself altered by leadership. Their basing theory was that human action is guided by structures-these are the rules and resources that serve as templates for planning and accomplishing tasks. Their research indicated that technology gives rise to organization structures of which leadership is, at the same time, a part,

and the result of the impact of leadership and technology. Leadership and technology, therefore, have a recursive association. This means each affect, and at the same time, are affected by each other; each transforming and being transformed by the other.

Kissler (2001) notes that the past, from a business leadership perspective, can prologue to the future. Walker (2000) noted that, in this internet economy, there is intense pressure on capable leaders who seek to establish successful e-leadership practices as building successful enterprises today requires leadership to effectively manage the rapid business change. Many "old economy" enterprises are changing their old businesses in order to accelerate e-business.

Nowadays, it is possible for leaders to interact with their followers, and lead entire projects from a distance. E-leadership seeks to create and distribute organizational vision, bring corporations or individuals together, as well as, direct and oversee the implementation of the plans. The major characteristics of an AIT-enabled organization are real-time information availability, greater knowledge sharing, and the use of this information and knowledge to build customized relationships. (Avolio et al., 2000).

E-leadership can be inspiring by communications through e-mail or other electronic means by priding people in their accomplishments, reinforcing periodic stories that can be shared throughout the organization. Today, leaders and followers have the same access to information which pressures leadership to be ready with all the latest facts to justify their position at any time. It is advised to balance e-leadership with traditional leadership to openly communicate intent and fully utilize technology. (Avolio & Kahai)

E-leadership is about combining technologies and traditional communication, as well as, using more ICT-mediated communication. In a world dominated by computer-mediated communication,

the practices of problem solving, conflict management, motivation, communication and listening are more important than ever (Walvoord, Redden, Elliott, and Coovert, 2008).

The major leadership challenge is “transformation in the face of resistance” (Walker, 2000). E-business is becoming part and parcel of every business in existence, whether it be building from scratch, or transforming an established business-and e-leadership is the critical factor to achieve this. How to optimally integrate human and information technology in an organization to fully leverage AIT remains one of the main challenges leaders face. Related studies suggest that spirit or intent can characterize the leadership system in an organization. This is to mean that the stability between the leadership's spirit and AIT's spirit is mandatory for faithful assumptions and will predict how successful or unsuccessful the introduction of new technology will be in an organization.

Communication technology, in terms of media richness, influences media choice. The right media will provide enhanced performance of virtual groups. Media richness was categorized in terms of rapid feedback, language variety, personalization, and multiple cues. The more the ability of a medium is in providing for those features, the richer the medium is. Conveyance, the exchange of information and understanding its meaning with reference to symbol variety, parallelism, feedback, rehearsability, and reprocessability, and, convergence, which is the development of shared understanding on the meaning of the information exchanged (Zigurs, 2003).

2.1.3. E-TEAMS

E-leadership is commonly about the need to lead geographically dispersed teams-these are called virtual teams. Zaccaro and Bader (2003) examined the trend toward establishing virtual teams. Virtual teams, also known as e-teams, can span distances and times to take on challenges that most local and global organizations must address. Their study focused primarily on the commonalities and disparities between physical teams and virtual teams, with particular reference to team effectiveness.

Zigurs (2003) defined a virtual team as an assortment of individuals that are physically and/or organizationally dispersed and who cooperate through communication and information technologies to achieve a specific goal.

The term "virtual" is misleading because it proposes a sense of unreality. However, these e-teams are real teams with real people. The challenges, characteristics and demands are the same as with physical teams except, (a) team members either work in the same space and different times or have geographically separated work places, (b) there might be a fair amount of physical interaction but major work is done over electronic media.

Hertel, Geister, and Konradt (2005) considered all teams, whether physical or virtual, on a virtual continuum—i.e., all of them have varying degrees of virtuality.

Virtual teams are superior to traditional teams in because of their two critical and exceptional features. When employed successfully, they can provide competitive advantage to an organization. The first feature that gives e-teams the upper hand is that they are less limited by geographic constraints than face-to-face teams. This helps them to have greater possibility to acquire the

necessary human capital or skills, knowledge, and capacities required to complete projects (Zaccaro and Bader, 2003).

The second feature is that they have greater potential for generating social capital- the quality of relationships and networks that leaders and team members form in their operating environment. They also stated that e-leadership can contribute to the development of e-teams by reducing process losses and enhancing team member trust.

A study conducted by Malhotra, Majchrzak and Rosen (2007) examined e-teams to identify the best leadership practices of effective e-leaders. They found out that great e-leaders can (a) generate and sustain trust through the utilization of ICT; (b) make sure that distributed diversity is both clearly understood as well as well appreciated; (c) effectively monitor and manage the life cycles of virtual work; (d) use technology to monitor and manage the virtual team's progress; (e) extend the visibility of virtual members both within the team as well as outside the company; and (f) help ensure that individual team members benefit from the team.

Virtual leadership is the management of dispersed work teams whose members predominantly communicate and coordinate their work through the electronic media. This makes virtual leaders "boundary managers" who motivate people from a distance (Kerfoot, 2010).

Today's global and regional businesses require virtual teams if they want to grow and expand, especially when operations and employees with special talents are unwilling to relocate. Conventionally experts with technical skills or senior managers were required to lead operations in a foreign location and were relocated with the company extension and change (Colfax, Santos and Diego, 2009). E-leaders need to build technical and human support systems that are able to sustain the synergy of the team (Shriberg, 2009). Virtual leadership is a complex task that demands

a lot from the e-leader; s/he might need to lead people from different countries, have different time zones, and speak different languages.

E-working arrangements can take many forms, such as, telecommuting, teleconferencing, and video-conferencing from geographically dispersed sites. As various studies indicate, technology enables virtual work arrangement, but, leadership is the critical factor. In contrast to traditional leadership, the e-leaders ability to emphasize trust is even more critical here. The authors decided that the key challenges for e-leaders of virtual teams are: (a) difficulty of keeping tight controls on intermediate growth toward goals; (b) endorsing close collaboration amongst teams members; (c) recognizing and encouraging budding leaders; (d) knowledge management; (e) creating and following to norms and procedures; and (f) creating proper home and work boundaries (Cascio and Shurygailo, 2003).

Because e-teams are computer-mediated, e-leadership must investigate and resolve the incorporation and redefinition of traditional roles of leaders, expressions of roles across distance and time, the role of facilitators in virtual teams, and the critical factors for effective virtual teams.

The virtual team has emerged as a new form of organizational structure. It is advantageous in several ways: one can maximize organizational expertise without having to physically relocate individuals, there is the ability to unify the varying perspectives of different cultures and business customs, cost reduction, and improved decision-making and problem solving skills. The future source of human achievement may be extraordinary combinations of people, not extraordinary individuals. Of course, this is not without its complexities. There can be difficulty in managing communication effectively, varying time zones, technology disparity, differences in technology proficiency amongst virtual team members., delayed communication, misunderstandings arising

out of lack of response, lack of a shared context within which to interpret messages, and the inability to monitor team members. (Kayworth and Leidner, 2000)

To overcome the challenge of e-leadership, people in the organization should make sense of the challenges facing them together and participate at each leadership level. One challenge of e-leadership is getting individuals to work collectively to create the culture that allows all leadership voices to be heard (Pulley and Sessa, 2001).

2.1.4. E-LEADERS

It is the duty of an e-leader to create the necessary social climate through constant communication. The e-leaders should also convey exemplary interpersonal skills through the associated technology (Gurr, 2004). As a study conducted by Ryssen and Godar (2000) revealed, the effectiveness of virtual teams depended the e-leaders of the project. Those who were successful in assisting students overcome the barriers to intercultural communication had more successful results.

Managers must be able to build stronger relationships among e-team members as it has a massive impact on performance and satisfaction. Relationship building, cohesion and trust are crucial for the effectiveness of e-teams (Chad, Craig, and Ying, 2001).

The behavioral competencies of the e-leader also plays a role in the ease of e-leadership implementation. While not many researches have not been done on e-leader behavioral competencies, researchers such as Chad, Craig, and Ying (2001) and Kerfoot (2010) have shed a light that the competencies required from e-leaders and non e-leaders are somewhat similar. While soft skills and emotional intelligence have proved to be the most important leadership qualities, previous researches have shown that behavioral competencies of strong leaders surround five major themes, which include, provision of a safe environment and high ethical standards,

empowerment of others, enhancing employees' feeling of connection and belongingness, open mindedness in accepting new ideas, and commitment to employee development. (Sunnie, 2016). She also states that while these are really straight forward, leaders have trouble mastering them because it would require them to act against their nature-relinquishing control and being open to small failures.

2.2. EMPIRICAL REVIEW

2.2.1. OPPORTUNITIES AND CHALLENGES OF E-LEADERSHIP IMPLEMENTATION

Previous researches conducted in e-leadership implementation have identified certain opportunities and challenges. Snellman Carits (2014), in her study entitled "Opportunities and Challenges for E-leaders", has uncovered that the existence of trust, proper communication, actions of helping other in remote distances with their needs, team building activities, and tolerance of diversity in virtual teams enables a smooth implementation of e-leadership.

Schweitzer and Duxbury, (2010) conducted a study on virtual teams in relation to the relationship between member virtuality, distance virtuality and the team time worked virtualy. They found no interconnected between the three. Their study, however, showed that the higher levels of virtuality that are linked with perceived decreases in the quality of team connections and performance. This was due to the adherence of people's psyche to the traditional working methods and because e-leaders themselves don't understand the requirements of e-leadership.

Raisinghani et al. (2010) have also added, in addition to the efforts of the team members, that it is necessary to explore traits, skills and behavioral patterns related to the e-leader in order to enhance trust. They have found that e-leaders that reduce uncertainity, promote unity, set expectations

commitments, create a positive and helpful environment to meet challenges, establish standard procedures, enable joint decision making, improve knowledge management, clearly communicate effectively by utilizing ICT, and matching the proper task with the proper technology, improve the opportunity and the success of e-leadership. They also concluded that e-leaders that have the ability to adapt their behavior and communication to the requirement of virtual team setting, in addition to motivating their globally dispersed teams improved the cohesion in their teams and this feeling of togetherness improved their e-leadership practices.

In their study, Raisinghani et al. (2010), also found that e-leaders that addressed cultural distance by quickly responding to the specific distance-related needs of the geographically dispersed team improved cohesion. This combined with active mitigation of time-related stressful schedules, and conflict within the group improves team success. Enacting diversity was also found useful in expanding the opportunity or successful e-leadership. E-leaders that respond to the different needs of team members and those skilled in handling people from different cultures by applying the right user-friendly technology improved the teams' value.

Sunnie, (2016), on her study of effective leaders, has found that leaders with the highest ability to provide goals to their teams and guide them show the smoothest leadership implementation. She notes that leaders that can communicate clearly, often and openly, and care about their team members' growth and development greatly enhanced their leadership practices.

Purvanova & Bono, (2009)'s study on e-leadership and technology has shown that not enough is known about how technology impacts leadership and the literature on leadership in virtual communication is still at an infant stage. There seems to be a lack of evidence on how technological communication affects leadership.

In his study, Savolainen, (2013) revealed that social networking and chat tools such as Twitter , LinkedIn , Slack, and Skype are great ways to connect with remote team members. Team document sharing and shared projects can be facilitated by cloud-based collaborative file sharing platforms such as Microsoft Office 365 or Google Drive.

A breakthrough was made by Jarvenpaa and Tanriverdi (2003) in which they identified a new kind of technical structure, if not technology itself, called the virtual knowledge network that supports the e-leader. They noted that what is more important today than physical and monetary resources are knowledge resources, as these are the "drivers of firm performance." The organizations themselves are transitioning from hierarchical tree structures to flatter web-like structures. This is because these structures better enable knowledge flow. The firms now create networks of customers, vendors, partners and business associates and "tap into complementary knowledge sources." As a result the place where working, learning and innovation occurs appear to have moved from inside the organizations to a virtual knowledge network.

The authors observed that organizations manage uncertainties by designing structures that increase their information processing ability. One example for this can be a virtual knowledge network which consists of hardware, software, intellectual property, people, digital media, electronic records, and so on. It is a passing, boundary-less, horizontal, and computer-mediated organization structure. Jarvenpaa and Tanriverdi explained this type of e-leadership to be network-centric leadership practice, and concluded by noting that firms need leadership that can create and nurture these virtual knowledge networks.

It should also be noted that although there are advantages to get from technology, most information technology projects tend to face problems and risks, and great deal of such projects fail to meet

their goals (Raisinghani, Arora, Baylor, Brown, Coleman, & Craig, 2010).

There have been numerous studies that indicate the rise of e-leadership around the world. Flexobs, in their 2018 survey, found that there has been a 22 percent increase in telecommuting from 2017 to 2018. Owl Labs 2019 research showed that remote workers report found that 54 percent of U.S. workers work distantly at least once a month, 48 percent work remotely at least once a week, and 30 percent work remotely full-time. Global Workplace Analytics claims that distant working rose 173 percent between 2005 and 2018.

The recent Covid-19 pandemic has also had a major impact on remote working. Entire organizations across the world are now abruptly required to work distantly from home for an undefined period of time. This unprecedented global phenomena has deemed it more necessary than ever to face the challenges that come with being a part of a virtual team.

With such a rise and importance of virtuality, the student researcher aims to understand the opportunities and challenges that might encounter Ethiopian firms in terms of e-leadership by conducting a study on Atlas Computing Technologies.

2.3. CONCEPTUAL FRAMEWORK

Zarifi an, (2004) states that e-leadership can tackle the unity of time, unity of location, and unity of action. The unity of time refers to the discipline of working hours and productivity in the accomplishment of tasks, the unity of location refers to the operator is assigned to a position in a workshop, in order to carry out a given operation, the unity of action is required in order for a group to collectively carry out certain tasks.

E-leadership presents many new opportunities. It creates the ability to instantly communicate one-on-one with potentially thousands of employees, its capability to use talent that does not necessarily live within driving distance from the office, the opportunity to enhance organizational performance by assembling multi-functional teams, the ability to target better customer satisfaction by providing 24/7 service, the ability to cut costs, and the scope for better knowledge management.

Some challenges posed by e-leaders are communicating effectively through the electronic medium, communicating enthusiasm digitally, building trust with someone who may never see the leader, creating a viable electronic presence, inspiring remote team members, mentoring virtual employees, monitoring and controlling social loafing, preventing lack of technical competence from affecting performance, maintaining work-life balance.

Additional skills will be required of the e-leader to be successful. An e-leader requires stronger written communication skills, strong social networking skills, a global, multi-cultural mindset, greater sensitivity towards followers' state of mind, and a 24/7 orientation. The areas in which competence in e-skills are most important include: e-communication, e-social skills, e-team building, e-change management, e-technology skills, and e-trustworthiness.

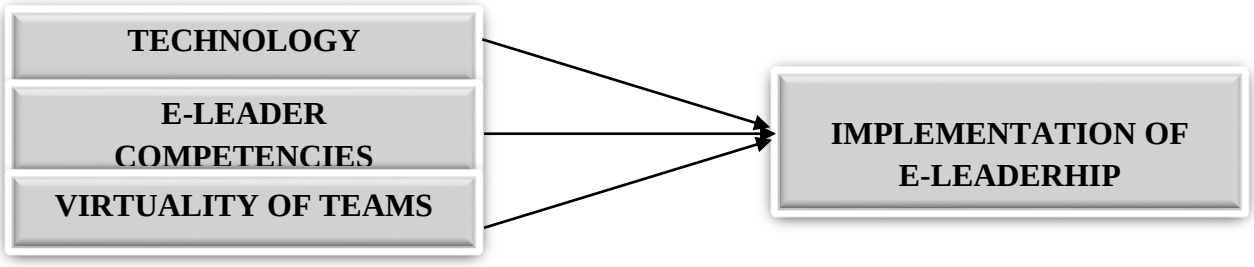


Figure 2.1. Conceptual Framework

By referring to the above conceptual framework, the hypotheses for testing were presented as follows:

H1: Technology has a positive effect on implementation of e-leadership

H2: E-leader competencies has a positive effect on implementation of e-leadership

H3: Virtuality of teams has a positive effect on implementation of e-leadership

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter gives an overview on the approaches used to answer the research questions to achieve the purpose of the research. It clarifies the research design approach, data gathering instrument, target population and sampling, the methods of data collection, and the methods of analysis, presentation and interpretation of that data.

3.1. RESEARCH DESIGN

As Macmillan and Schumacher (2001:166) define it, research design is a strategy for choosing topics, research places and data collection procedures to give response to research questions. The major objective of having a decent research design is to have credible results. Explanatory research seeks to understand relationships, and address the questions of 'how', 'what', and 'why'. Because the student researcher looked to understand the relationship between issues that create opportunities and challenges for e-leadership implementation, explanatory research method was used.

3.2. RESEARCH APPROACH

Quantitative research is the methodical investigation of an occurrence by gathering quantifiable data and undertaking statistical and mathematical techniques. Since the student researcher knows exactly what to look for, and has all facets of the data collection designed, quantitative research method has been used. As Van der Merwe (1996) has stated, quantitative research approach is "aimed at testing theories, determining acts, demonstrating relationships between variables, and predicting outcomes."

3.3. SAMPLING DESIGN

3.3.1. TARGET POPULATION SIZE

The student researcher undertook this study on the employees of Atlas Computing Technologies, which has a total worker population of 52 people. The population is comprised of regular workers that are not in the leadership position.

3.3.2. SAMPLING TECHNIQUE

In order have a representative sample of all five functional departments of Atlas Computing Technolgies, the student researcher used stratified sampling by taking each department as a strata group and select the department workers by sampling them randomly. This is because it is easy to use and allows for the accurate representation of the larger population.

3.3.3. SAMPLE SIZE DETERMINATION

The student researcher used Yamane's (1967) sampling formula to calculate sample size. The student researcher chose this formula due to its simplicity. Considering a 5% margin of error and using the formula:

$n = N/ (1+N * (e)^2)$

Where n = the required sample size

N = target population

e = margin of error

n = $52 / (1+52 * (.05)^2)$

n = 46 respondents

From a total target population of 52 people, the study was conducted on 46 respondents.

3.4. DATA SOURCE AND METHOD OF COLLECTION

3.4.1. SOURCE AND TYPES OF DATA

The primary data on the opportunities and challenges of e-leadership implementation was gathered by questionnaires deployed by the student researcher. The data here was quantitative in nature.

The secondary data on e-leadership was obtained from the review of relevant literature, articles, and previous researches on the subject. It was a qualitative data and was retrieved from top sources such as Research Gate and Academia.

3.4.2. DATA COLLECTION METHOD

The student researcher used questionnaires to collect information on the opportunities and challenges of implementing e-leadership. The questions to address the technological, team and e-leader aspects was developed from literature reviews of various researches by the researcher. The questionnaire was in a Likert scale format where the respondents were asked to rate their responses from strongly agree to strongly disagree.

The questionnaire was divided into five parts. The first part involves demographics, the second part relates to the technology aspect, the third is about virtuality of teams, the fourth part includes questions related to leader competencies, and the last part includes questions about e-leadership implementation.

3.4.3. DATA COLLECTION PROCEDURES

Questionnaire was used to gather the required data. Considering the current COVID-19 pandemic, these questionnaires were created on Google Docs and the link was sent to a representative of the company who distributed the link to the employees through their e-mail. Once they filled out the questionnaire, the student researcher received their answers through Google Docs directly.

3.5. VALIDITY AND RELIABILITY

Reliability refers to the extent of a measurement of an occurrence to provide consistent outcomes. The student researcher used Cronbach's Alpha to test whether the design has accurately measured the variable in questions. A large coefficient alpha implies that k-items test correlates with the true scores closely, therefore, an alpha of 0.70 or greater should be considered adequate to develop a new questionnaire (Malhotra, 2007). The student researcher chose Cronbach's alpha because it is the most widely used test for Likert Scale questions. *Table 3.5.*shows the Cronbach's Alpha values and their meaning.

Table 3.5. Cronbach's Alpha Coefficients

CRONBACH'S ALPHA	INTERNAL CONSISTENCY
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: Claire et Al. (2000)

The analysis done for the effect of technology, leader competencies and, virtuality of teams on e-leadership implementation can be seen from *Table 3.6.*

Table 3.6. Reliability Analysis Summary

Cronbach's Alpha	N of Items
.810	4

SPSS Reliability Analysis Output, 2020

From the above table, it can be seen that the value for Cronbach's Alpha is 0.810. From *Table 3.5.*, it can be seen that this is a good internal consistency. From this, the student researcher has concluded that the test has accurately measured the variable in question.

Validity is the precision of a research measurement. The student researcher paid a close attention to the content and criterion predictive validity. Content validity is the extent to which the measurement tool is relevant and descriptive of the target construct. This was checked by the articles and literatures read by the researcher prior to choosing the measurement. The criterion predictive validity is the degree that a measure predicts another measure. The student researcher used regression analysis to measure this validity. Cronbach's alpha was also used to test for internal consistency after the data collection and analysis.

3.6. METHOD OF DATA COLLECTION

Close ended questionnaires was used to collect the information pertaining to the opportunities and challenges faced by Atlas Computing Technologies in implementing e-leadership. The student research we made use of both primary and secondary data to get a full perspective on the research problem.

3.7. METHOD OF DATA ANALYSIS

SPSS was used by the student researcher to present analysis of the collected data. This data regarding the opportunities and challenges of implementing e-leadership was analyzed by regression analysis-this is because it can estimate the relationship between a dependent and independent variable.

3.8. ETHICAL CONSIDERATIONS

The student researcher undertook the research in line with the ethical standards of research. The respondents were kept anonymous and no personal information was asked of them. The respondents were communicated earlier research was conducted only on those respondents who were willing. The student researcher also stayed objective throughout the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS & INTERPRETATION

This chapter presents the findings on the study conducted on Opportunities and Challenges of e-leadership implementation, in the case of Atlas Computing Technologies. It gives the results of the descriptive analyses done on the data collected. The relationships between technology, virtuality of teams, and e-leader competencies is also shown by the use of Pearson's correlation, and regression analysis.

4.1. RESPONSE RATE OF RESPONDENTS

To conduct this study, a questionnaire was designed on Google Docs. It was sent to the employees of Atlas Computing Technologies through a link. Out of the 46 respondents, all 46 respondents have filled out and sent their responses. Therefore, the response rate is 100%.

Table 4.1. Response Rate of Respondents

Total Target Population	***Total Sample Size***	***Questionnaires Returned***	***Response Rate***
52	46	46	100%

Source: Own Survey, 2020

4.2. RESPONDENTS' DEMOGRAPHICS

The respondents were selected from the population to represent the population with 95% confidence, as stated in Chapter 3. From the data collected from the respondents, the student researcher was able to identify the frequencies of gender, age, marital status, educational background and number of years worked-this information is shown below in *Table 4.2.1.*

Table 4.2.1 Gender Statistics

	Frequency	***Percent***	***Valid Percent***	***Cumulative Percent***
Female	18	39.1	39.1	39.1
Male	28	60.9	60.9	100.00
Total	***46***	***100.00***	***100.00***	

Source: Own Survey, 2020

The above table shows that 28% of the employees are males and 18% of them are females. This is 18 respondents are females and 28 are male. This shows that there were more male respondents than there were females. But this doesn't mean that there is favoritism towards men.

Table 4.2.2. Age Statistics

	Frequency	***Percent***	***Valid Percent***	***Cumulative Percent***
Below 25	7	15.2	15.2	15.2
25-30	26	56.5	56.5	71.7
31-40	12	26.1	26.1	97.8
41-50	1	2.2	2.2	100.00
Total	***46***	***100.00***	***100.00***	

Source: Own Survey, 2020

The above table shows that the greatest majority of respondents are between the age of 25 and 30, constituting for 56.5% of the total respondents. The second majority of people are between the ages of 31 and 40, constituting 26.1% of the respondents. 15.2% of the respondents are below the age of 25 and only 2.2% of the respondents are in the 41-50 age range. This shows that Atlas Computing Technologies has more young people working in its organization.

Table 4.2.3 Educational Background Statistics

	Frequency	***Percent***	***Valid Percent***	***Cumulative Percent***
Diploma	1	2.2	2.2	2.2
Bachelor's Degree	30	65.2	65.2	67.4
Master's Degree	14	30.4	30.4	97.8
Above Masters	1	2.2	2.2	100.00
Total	***46***	***100.00***	***100.00***	

The above table shows that 65.2% of the employees have their Bachelor's Degree, while 30.4% have their Master's Degree. Those employees with above Master's Degree and those with their diplomas comprise for 2.2% of the respondents each. This shows that most of the workforce in Atlas Computing Technologies are educated.

Table 4.2.4. Number of Years Worked Statistics

	Frequency	***Percent***	***Valid Percent***	***Cumulative Percent***
1	6	13.0	13.0	13.0
2	13	28.3	28.3	41.3
2.5	2	4.3	4.3	45.7
3	13	28.3	28.3	73.9
3.5	1	2.2	2.2	76.1
4	8	17.4	17.4	93.5
5	3	6.5	6.5	100
Total	***46***	***100.00***	***100.00***	

The above table shows that most of the employees at Atlas Computing Technologies have worked there for 2 and 3 years, with 28.3% for each. Employees who have worked there for 4 years follow with 17.4%, while those who worked there for a year follow with 13%. It is also seen that 6.5% of the respondents have worked there for 5 years while those who worked there for 2.5 years and 3.5 years constitute 4.3% and 2.2% of the respondents respectively.

4.3. NORMALITY TESTING

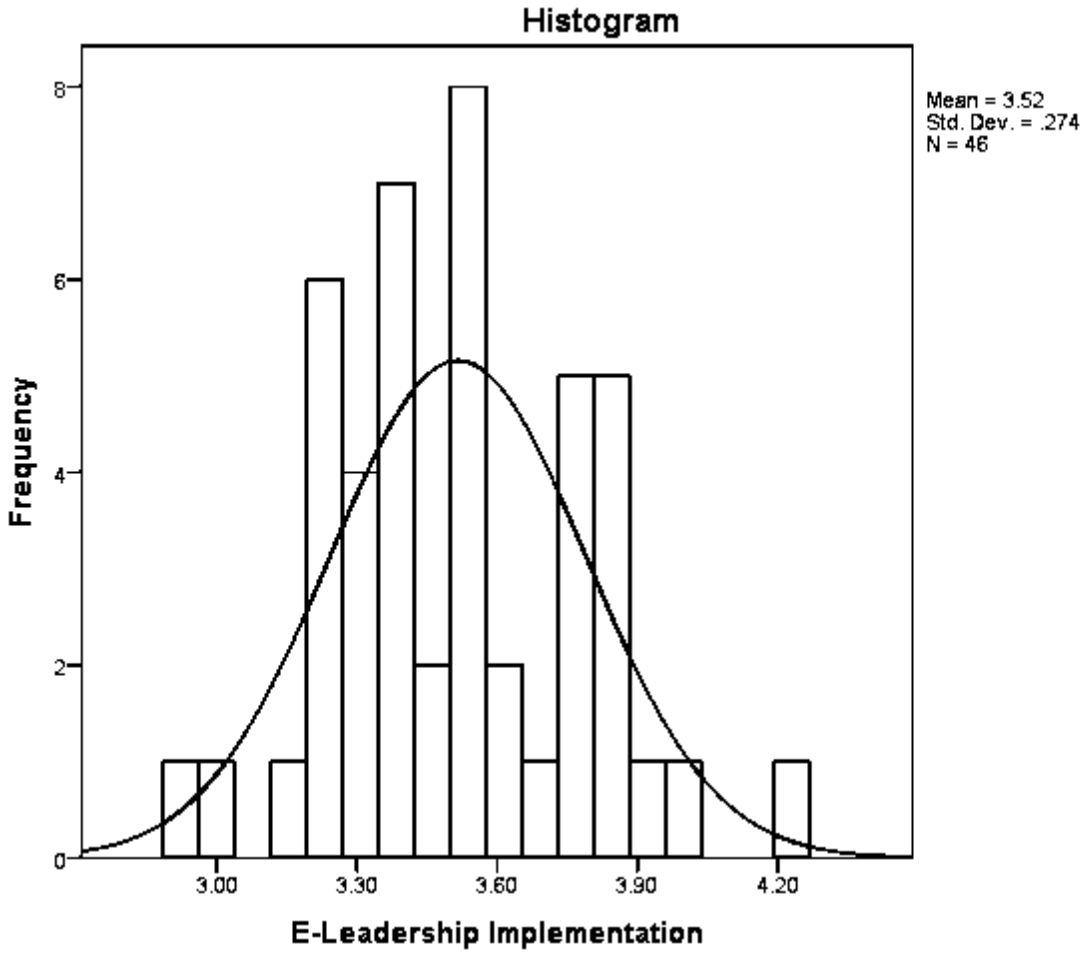
The student researcher has performed normality testing, from the respondents observation, to prove that the sample has been drawn from a normally distributed population. The below table, *Table 4.3.*, and figure, *Figure 4.3.* displays the results of the normality test.

Table 4.3. Normality Table for E-leadership Implementation

Mean	***Standard Deviation***
3.52	.274

SPSS Normality Test Output, 2020

Fig. 4.3. Normality Figure for E-leadership Implementation



SPSS Normality Test Output, 2020

From *Table 4.3.*, and *Figure 4.3.*, it can be seen that it has a mean of 3.52 and a standard deviation of 0.274. This shows that most of the values are close to the mean. This indicates that the distribution is normal.

4.4. COLLINEARITY

In the below table, *Table 4.4.* collinearity for the variables, both dependent and independent has been computed.

Table 4.4. Collinearity Summary

MODEL		***COLLINEARITY***	
1		***Tolerance***	***VIF***
	(Constant)		
	Leader competencies	.794	1.260
	Technology	.794	1.260

SPSS Regression Analysis Output

In order for the variables to be collinear, the VIF should be less than 10. The VIF, as shown in *Table 4.4.,* is 1.260 which is much lower than 10, showing that the variables are collinear, as observed by the respondents.

4.6. DESCRIPTIVE ANALYSIS ON TECHNOLOGY, E-LEADER COMPETENCIES AND VIRTUAL TEAMS

In this study, Likert Scale was used to understand the opportunities and challenges in e-leadership implementation in Atlas Computing Technologies. This information was later analyzed by using descriptive statistics and the below codes were used.

Table 4.6.1 Scale Coding

SCALE	SCALE CODE
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Source: Oxford Writing Criterion Scale

During the analysis, the student researcher used the Oxford Writing Criterion Scale to understand what each mean rating means, as described below.

Table 4.6.2. Criterion Referenced Scales

MEAN RATING	SCALE LEVEL	RESPONSD FREQ. LEVEL
1.00-1.49	Strongly Disagree	Very Low
1.50-2.49	Disagree	Low
2.50-3.49	Neutral	Medium
3.50-4.49	Agree	High
4.50-5.00	Strongly Agree	Very High

Source: Oxford Writing Criterion Scale

4.6.1. DESCRIPTIVE ANALYSIS ON TECHNOLOGY

This section presents the findings on technology as it relates to Atlas Computing Technologies. The below table shows the mean and standard deviation of the respondents' responses.

Table 4.6.1. Descriptive Analysis on Technology

Description	***Mean***	***Standard Deviation***	***Rank***
I use file sharing systems such as DropBox and Google Drive	4.23	0.90	6
I can access all the information I need, on my own, from the company database	3.95	0.73	11
I use project management tools for my projects	4.20	0.65	7
I use telephone most of the time to communicate with my colleague	4.24	0.64	5
I use digital tools to work from other places than my office	2.54	0.50	14

I am allowed to bring my own devices to work	3.87	0.85	12
I can competently use information and communication technologies, such as e-mail	4.41	0.50	1
I have work tasks that I handle online, from home, only	2.04	0.63	15
Atlas works towards innovative solutions	4.35	0.56	2
Atlas has other branches outside of Ethiopia	1.70	0.89	16
Atlas has ample programmers that are willing to develop software	4.20	0.62	7
Atlas often relocates employees	4.07	0.90	8
Atlas is continuously searching for new ways to compete	4.07	0.74	8
Atlas has a vision to penetrate global markets	3.63	0.57	13
Atlas provides 24/7 services	2.65	0.48	14
Creativity is supported within the organization	4.06	0.71	9
There are various creative project funding within the company	4.20	0.77	7
Process is mapped in a clear way within the organization	3.98	0.74	10
Atlas uses automated documentation and classification solutions	4.35	0.48	2
Atlas uses secure file sharing	4.30	0.46	3
Atlas uses shared project files	4.26	0.61	4
Technology Average	***3.78***	***1.14***	

Source: Own Survey, 2020

The above table shows that there is a big agreement among the employees that they are very competent in using information and communication technologies, with a mean of 4.41. The second highest agreed upon statements are that “Atlas works towards and innovative solution” and that “Atlas uses automated documentation and classification solutions”, with means of 4.35 each. The third most agreed upon statement is that “Atlas uses secure file sharing”, with a mean of 4.30.

This shows that there is a high agreement between Atlas employee’s about the use of technology in their work environment, i.e., a mean of 3.78. This finding has also been found in the study of Savolainen, (2013) that revealed that social networking and chat tools such as Twitter, LinkedIn, Slack, and Skype are great ways to connect with remote team members. Team document sharing and shared projects can be facilitated by cloud-based collaborative file sharing platforms such as Microsoft Office 365 or Google Drive.

This shows that technology is adapted and used by the organization which is a big advantage as it facilitates the basic technical infrastructure and need for implementing e-leadership. The ICT competence of the employees creates an opportunity for e-leadership because it eases the adaptation of new and advanced Information and communication technologies. The existence of secure file sharing and using project management tools is also an advantage because it makes the distribution and dissemination of information easier. Working towards innovative solutions and penetrating the global markets as an organizational need exists strongly, which can be seen as a big advantage for the implementation of e-leadership, as this need can drive the necessity of implementing e-leadership.

The standard deviation score of 1.14 also denotes that most of the individual responses are close to the mean.

4.6.2. DESCRIPTIVE ANALYSIS ON E-LEADER COMPETENCIES

This section presents the findings on e-leader competencies as it relates to Atlas Computing Technologies. The below table shows the mean and standard deviation of the respondents' responses.

Table 4.6.2.1. Analysis on E-leader competencies

Description	***Mean***	***Standard Deviation***	***Rank***
My leader is open to change	3.89	0.74	8
I trust my leader	4.04	0.59	5
My leader has strong written communication skills	4.08	0.75	4
My leader has strong networking skills	4.24	0.67	1
My leader has a multi-cultural mindset	4.09	0.81	3
My leader cares for my personal development	3.65	0.99	13
My leader is a great decision maker	4.08	0.75	4
My leader is an active listener	3.76	0.60	10
I can depend on my leader	4.13	0.80	2
My leader inspires me	3.87	0.69	9
My leader is a great planner	3.67	0.63	12
My leader is a great problem solver	3.91	0.78	7
My leader has gained my trust using digital tools such as Telegram and Whatsapp	3.61	0.57	15
My leader has motivated me using digital tools	3.61	0.68	15

My leader has improved my problem solving ability using digital tools	3.41	0.90	16
My leader can build social networking using digital tools	4.00	0.69	6
My leader is concerned about diversity of distant team members	2.70	1.00	17
My leader has the ability to motivate me through ICT tools, such as Telegram and Whatsapp	3.72	0.83	11
My leader has the ability to change my behavior towards a certain issue through ICT tools, such Telegram and Whatsapp	3.61	0.74	15
My leader has the ability to change my attitude towards a certain issue through ICT tools, such as Telegram & Whatsapp	3.63	0.83	14
E-leader competencies Average	***3.78***	***0.75***	

Source: Own Survey, 2020

The above table shows that there is a big agreement among the employees that their leaders have strong networking skills, with a mean of 4.24. The second highest agreed upon statement is the dependability of the leaders, with a mean of 4.13. The third most agreed upon statement, by the employees, is that their leaders have a multicultural mindset, with a mean of 4.09. Their belief that their leaders are great decision makers, and that they have strong written communication skills rank fourth with a mean of 4.08 each.

This shows that there is a high agreement between Atlas employee's on the skills of their leaders, i.e., a mean of 3.78. This shows that the leader skill and competencies are great opportunities for

implementing e-leadership as leaders in the organization have already acquired the basic competencies e-leadership requires. A strong networking skill can facilitate the implementation of e leadership because e-leadership requires a strong ability of networking with people in a global setting. A multi-cultural mindset is also critical as e-leadership can create opportunities to work with employees from international borders. A great decision making ability is also critical as e-leaders can face challenges that could demand a very fast response and at the same time those responses have to be mindful and appropriate. The importance of e-leader competencies has also been seen from the study of Sunnie, (2016), on her study of effective leaders, has found that leaders with the highest ability to provide goals to their teams and guide them show the smoothest leadership implementation.

The standard deviation score of 0.75 also denotes that most of the individual responses are close to the mean.

4.6.3. DESCRIPTIVE ANALYSIS ON VIRTUALITY OF E-TEAMS

This section presents the findings on virtuality of teams as it relates to Atlas Computing Technologies. The below table shows the mean and standard deviation of the respondents' responses.

Table 4.6.3. Analysis on Virtuality of Teams

Description	***Mean***	***Standard Deviation***	***Rank***
I have team members that I only work with using digital tools	2.07	0.77	9
I have a team who I work with, digitally , on a regular base	4.20	0.83	1
My team members, who I work with only digitally, are located at a distant location	2.04	1.01	10
I can reach and communicate with my leader easily	4.04	0.63	4
I communicate with my leader and colleagues digitally	4.07	0.74	3
A large portion of my co-workers always do work for the organization online only	2.13	0.77	8
My colleagues and I use communication tools such as Skype and Zoom to connect with remote team members	3.15	1.01	6
I can reach my leader 24/7.	4.00	0.84	5
My leader uses digital tools to measure progress of virtual teamwork	2.62	1.11	7
Responsibility is equally shared among the employees	4.13	0.74	2
E-Team Virtuality Average	***3.24***	***0.85***	

Source: Own Survey, 2020

The above table shows that there is a big agreement among the employees that they work with their colleagues digitally on a regular basis, with a mean of 4.20. The second highest agreed upon statement is that responsibility is shared equally among the employees, with a mean of 4.13. The third most agreed upon statement, by the employees, is that they communicate with their leaders and team members digitally, with a mean of 4.07. They consent that they can reach and communicate with their leaders easily (mean of 4.04) and that they can reach their leader 24/7(mean of 4.00).

This shows that there is a medium agreement between Atlas employee's on the virtuality of their teams, i.e., a mean of 3.24. This lower mean can be attributed to the fact that Atlas employees don't have teams in distant location that work digitally only (mean of 1.01) and that they have no co-worker they work with online only (mean of 2.07). Working with digital tools to interact with co-workers is a big advantage to implementing e-leadership as e-leadership practices also demand for the interaction of workers to be mediated by technological tools. Equally, sharing responsibility is also a big advantage for e-leadership implementation as it creates trust and dependability of the responsibility distribution scheme used by the organization.

Another advantage is the ability to reach leaders 24/7, as it points that digital tools are used for communication. Although the opportunities are present, the low degree of virtuality poses a challenge for effective implementation as it becomes a barrier to the practice. If virtual teams are not fully developed, then functional virtual leading can be difficult. While the importance of virtuality of teams was also seen in the study of Schweitzer and Duxbury, (2010), they revealed that higher levels of virtuality may be linked to perceived decreases in the quality of team connections and performance because of the adherence of people's psyche to the traditional working methods.

The standard deviation score of 0.85 also denotes that most of the individual responses are close to the mean.

4.7. E-LEADERSHIP IMPLEMENTATION, AND TECHNOLOGY, E-LEADER COMPETENCIES AND VIRTUALITY OF TEAMS

As stated above, the purpose of this study was to examine the effect of technology, e-leader competencies, and virtuality of teams on e-leadership implementation. As such, it is important to understand the relationship the three independent variables (technology, leader competencies, and virtuality of teams) have with the implementation of e-leadership and with each other.

Because the sample size is small, an exploratory factor analysis was done. The KMO and Bartlett's test was used to see if there are any issues with the sampling. This test shows whether to proceed with the Pearson Correlation analysis and with any further analyses.

Table 4.7. KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.708
Bartlett's Test of Sphericity	Approx. Chi-Square	73.901
	df	6
	Sig.	.000

Source: SPSS Exploratory Factor Analysis, 2020

From the above KMO test, the following have been observed. By looking at the KMO value of 0.708, it can be inferred that a sampling issue doesn't exist. That is because the value is greater

than 0.5. The significance value of 0.00 also shows that this test will be accepted. Therefore, this shows that the sample size is good enough to conduct further analysis.

4.7.1. PEARSON CORRELATION ANALYSIS

The Pearson Correlation Analysis is meant to figure out the associations between variables. It quantifies this relationship with values between -1 and +1 to show how associated they are. A positive sign shows a positive relationship and a negative sign shows a negative relationship.

Table 4.7.1.1 Correlation Coefficients Meaning

CORRELATION COEFFICIENT (r)	INTERPRETATION
r = -1	Perfect Negative Relationship
-1 < r ≤ -0.70	Strong Negative Relationship
-0.70 < r ≤ -0.30	Moderate Negative Relationship
-0.30 < r < 0	Weak Negative Relationship
r = 0	No relationship
0 < r ≤ 0.30	Weak Positive Relationship
0.30 < r ≤ 0.70	Moderate Positive Relationship
0.70 < r < 1	Strong Positive Relationship
r = 1	Perfect Positive Relationship

Source: Marczyk, Dematteo & Festinger, 2005

Table 4.7.1.2. shows the Pearson Correlation analysis for technology, virtuality of teams, leader competencies and e-leadership implementation.

Table 4.7.1.2. Pearson Correlation Analysis Matrix

		E-leadership Implementation	Technology	Leader competencies	Virtuality of Teams
E-leadership Implementation	Pearson Correlation	1	.640**	.758**	.492**
	Sig. (2-tailed)		.000	.000	.001
	N	46	46	46	46
Technology	Pearson Correlation	.640**	1	.454**	.266
	Sig. (2-tailed)	.000		.002	.074
	N	46	46	46	46
Leader Competencies	Pearson Correlation	.758**	.454**	1	.509**
	Sig. (2-tailed)	.000	.002		.000
	N	46	46	46	46
Virtuality of Teams	Pearson Correlation	.492**	.266	.509**	1
	Sig. (2-tailed)	.001	.074	.000	
	N	46	46	46	46

***Correlation is significant at the 0.01 level (2-tailed)*

SPSS Pearson Correlation Output, 2020

The above table shows that, with a value of 0.758 and 0.640 respectively, leader competencies and technology have a strong positive relationship with e-leadership implementation. It can be seen that virtuality of teams has a moderate positive relationship with e-leadership implementation.

Table 4.7.1.2. also shows the relationship these independent variables have with each other. It can be seen that technology has a moderate positive relationship with leader competencies (0.454), and a weak positive relationship with virtuality of teams (0.266). It can also be seen that leader

competencies and viruality of teams have a moderate relationship with each other as indicated by the value of 0.509.

In general, all the independent variables have positive relationship e-leadership implementation and to one another, however, leader competencies and technology have the strongest relationship to e-leadership implementation.

4.8. MULTIPLE REGRESSION ANALYSIS FOR E-LEADERSHIP IMPLEMENTATION

Multiple regression is a statistical technique that analyzes relationships between two or more independent variables and one dependent variable. To this end, the student researcher has used it to understand the relationship between technology, virtuality of teams, and leader competencies (independent variables) and e-leadership implementation (dependent variable).

4.8.1. MODEL SUMMARY

Table 4.8.1 Regression Analysis Model Summary

Model	***R***	***R Square***	***Adjusted R Square***	***Std. Error of the Estimate***
1	.828	.685	.670	.15712

a. *Predictors: (Constant), Leader competencies, Technology*

b. *Dependent Variable: E-Leadership Implementation*

SPSS Regression Analysis Output, 2020

From the above regression analysis model summary, the following have been observed. By looking at the R value of 0.828, it can be inferred that a strong linear relationship exists between the independent and dependent variables. Therefore, this shows that the respondents believe that there

is a strong relationship between leader competencies, and technology with e-leadership implementation.

By looking at the Adjusted R Square value of 0.670, it can be seen that 67% of the variation in e-leadership implementation (dependent variable) can be predicted by the independent variables. The remaining 33% of e-leadership implementation variations will be explained by other variables. The precision of the regression is also good as can be seen from the standard error of the estimate, 0.157.

4.8.2. COEFFICIENTS SUMMARY

In *Table 4.8.2.1.*below, the unstandardized coefficient, standardized coefficient, and significance can be seen. The unstandardized coefficient is what indicates the amount of effect a change on the independent variable has on the dependent variable.

Table 4.8.2.1 Coefficients Summary

Model		***Unstandardized Coefficients***		***Standardized Coefficients***	***t***	***Sig.***
		B	***Std. Error***	***Beta***		
1	(Constant)	1.000	.328		3.054	.004
	Leader competencies	.522	.085	.588	6.124	.000
	Technology	.341	.088	.373	3.884	.000

a. Dependent Variable: E-leadership Implementation

Table 4.8.2.2. Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Virtuality of Teams	.126	1.278	.208	.194	.740	1.352	.632

a. *Dependent Variable: E-leadership Implementation*
b. *Predictors: (Constant), Leader competencies, Technology*

SPSS Regression Output, 2020

As stated in the third chapter, this study was based on a 95% confidence interval and a 5% standard error. When referring to the significance, since 0.004 and 0.000 are much lower than the p value of 5%, it shows that there is an existence of association between the independent and dependent variables, as observed by the respondents

Table 4.8.2.2. shows that the respondents believe that virtuality has no significant relationship with e-leadership implementation and has, therefore, been excluded from the analysis. This means that the virtuality of team doesn't necessarily mean an effect on e-leadership implementation in the case of Atlas Computing Technologies.

4.8.3. ANOVA

ANOVA test has been used to compare means across more than two groups. The table below, *Table 4.8.3.* shows the ANOVA computation.

Table 4.8.3. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.307	2	1.154	46.725	.000
	Residual	1.062	43	.025		
	Total	3.369	45			

a. *Dependent Variable: E-leadership Implementation*

b. *Predictors: Leader competencies, Technology*

The residual sum of squares shows how much of the dependent variable's variation the model doesn't explain. From the above table, as per the respondents' observation, it can be seen that the residual sum of squares equals 1.062, which is low. That shows that the model is a good fit.

The mean square shows if the values of the data are closely or widely dispersed around the mean. From the above table, it can be seen that it is small, therefore, the values are closer to the mean.

4.9. HYPOTHESES TESTING

By referring to the coefficients table, the hypotheses in this study was accepted / rejected.

H1: Technology has a positive effect on implementation of e-leadership

By referring to the unstandardized beta coefficient, as technology increases by unit, e-leadership implementation increases by 52.2%. This is based on the confidence interval of 95%. This shows that technology has a positive effect on implementation of e-leadership. Therefore, the first hypothesis is accepted.

H2: E-leader competencies has a positive effect on implementation of e-leadership

By referring to the unstandardized beta coefficient, as e-leader competencies increases by unit, e-leadership implementation increases by 34.1%. This is based on the confidence interval of 95%. This shows that e-leadership competencies has a positive effect on implementation of e-leadership. Therefore, the second hypothesis is accepted.

H3: Virtuality of teams has a positive effect on implementation of e-leadership

By referring to the unstandardized beta coefficient, as virtuality of teams increases by unit, e-leadership implementation increases by 12.6%. This is based on the confidence interval of 95%. But because the significance value of 0.208 is greater than the p value of 5%, this relationship has been rejected. Therefore, the third hypothesis is rejected.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the findings of the above analyzed data and gives conclusions based on the data. The recommendation is presented at the end of this chapter.

The study was focused on understanding the opportunities and challenges of e-leadership implementation in the case of Atlas Computing Technologies. The specific objectives were to understand the current e-leadership practices and e-leader's competencies, as well as, to check whether the organizational needs of Atlas Computing Technologies can drive the use of e-leadership.

5.1. SUMMARY OF FINDINGS

Below are the findings of the research:

- Out of the 46 respondents, all 46 respondents have filled out and sent their responses. Therefore, the response rate is 100%.
- 28% of the employees are males and 18% of them are females. This does not indicate favoritism within the company.
- 56.5% of employees are between the age of 25 and 30, 26.1% are between the ages of 31 and 40, 15.2% of the respondents are below the age of 25, and only 2.2% of the respondents are in the 41-50 age range.
- 65.2% of the employees have their Bachelor's Degree, while 30.4% have their Master's Degree. Employees with above Master's Degree, and with diplomas comprise for 2.2% of the respondents each.

- Most of the employees at Atlas Computing Technologies have worked there for 2 and 3 years, with 28.3% for each. 17.4% of employees have worked there for 4 years, 13% have worked for a year, 6.5% of the respondents have worked there for 5 years, while, those who worked there for 2.5 years and 3.5 years constitute 4.3% and 2.2% of the respondents respectively.
- With regards to **technology,** the employees agree to being competent in using information and communication technologies, that Atlas Computing Technologies works towards an innovative solution and uses automated documentation and classification solutions. In general, there is a high agreement between Atlas employee's about the use of technology in their work environment with most of the individual responses close to the mean.
- With regards to their **leaders' competencies,** there is a big agreement among the employees that their leaders have strong networking skills, that they are dependable, have a multicultural mindset, are great decision makers, and that they have strong written communication skills. In general, it was found that there is a high agreement between Atlas employee's on the skills of their leaders, with most of the individual responses close to the mean.
- With regards to **virtuality of teams**, there is a big agreement among the employees that they work with their colleagues digitally on a regular basis, that responsibility is shared equally among the employees, and that they communicate with their leaders and team members digitally. Furthermore, the employees have pointed with agreement that there are no employees that work online only or from a distant location. In general, there is a medium agreement between Atlas employees' on the virtuality of their teams, with most of the individual responses close to the mean.

- Through the **Pearson Correlation Analysis,** it was found that leader competencies and technology have a strong positive relationship with e-leadership implementation and that virtuality of teams has a moderate positive relationship with e-leadership implementation. It was also seen technology has a moderate positive relationship with leader competencies and a weak positive relationship with virtuality of teams.
- From the above **regression analysis,** it was found that a strong linear relationship exists between the independent and dependent variables. It was also seen that 67% of the variation in e-leadership implementation (dependent variable) can be predicted by the independent variables. The precision of the regression is also good as can be seen from the standard error of the estimate, 0.157.
- From the **coefficients summary,** it was seen that while technology and leader competencies are significantly associated with e-leadership implementation, virtuality of teams do not. This means that the low degree of virtuality of teams is medium within the organization; this is not a favorable situation for e-leadership implementation. Virtuality of teams was found to be insignificant in the case of Atlas Computing technologies because of the lack of virtual teams. In other studies, it has been found to be significant.
- The residual sum of squares showed that the model is a good fit; and the mean square showed that the individual values were close to the mean. The standard deviation of 0.274, also showed that most of the values are close to the mean indicating that the distribution was normal.
- The **Cronbach's Alpha** of 0.810. showed that the study had a good internal consistency, indicating that the test has accurately measured the variable in question.

- The study found that the **current practice** in Atlas Computing Technologies is somewhat above average. They have a high technological practice and the competencies of their leaders are also high as viewed from the perspective of their subordinates.
- The **leader competencies** in Atlas Computing technologies is very promising. In the study, the subordinates agreed to their leader's capabilities of having strong networking skills, being dependable, having a multi-cultural mindset, having strong communication skills, and being great problem solvers. Therefore, there is not much challenge facing the leader in becoming an e-leader as the **s/**he already has acquired the basic necessary competencies.
- As per the above findings, the **opportunities** found for Atlas Computing Technologies were that they have a very good practice of utilizing technology regularly in their daily work life, and the existence of competent leaders. Their use of digital communication tools shows that they have started the way for e-leadership implementation. This is viewed as an opportunity as it was found that technology and leader competencies were found to have the most significant influence on e-leadership implementation.
- The leaders in Atlas also have behavioral competencies that can facilitate the implementation of e-leadership. According to the study's findings, these are the leader's abilities to gain trust (mean of 4.0), having strong written communication skills (mean of 4.8), the ability to build social networks using ICT tools (mean of 4.0), and being able to be depended on (mean of 4.13).
- The study also led to the discovery of a major **challenge,** that is, although there is a high use of technology in Atlas Computing Technologies, these technologies are not being used to enhance the virtuality of teams. Employees work from their work place, and there is little evidence that the subordinates have team members they work with, only virtually.

- One of the biggest challenges for leaders to become e-leaders is the lack of fully functional virtual team, although the leaders rank high on e-leader competencies, the lack of virtual tams makes it difficult to practice their competencies effectively and efficiently.
- The above challenge paves way to another possible difficulty in Atlas Computing technologies' **organizational needs.** It was seen that Atlas Computing Technologies seeks to find ways to compete and a reflection of that is their effort to penetrate global markets. Unless they create the sense of virtuality of teams, it might hinder their ability to effectively implement e-leadership.

5.2. CONCLUSION

This section concludes the findings on the opportunities and challenges of e-leadership implementation. It has been found that the high use of technology and the leader competencies are an opportunity for the proper implementation of e-leadership.

There is a high agreement between Atlas Computing Technologies about the high use of technology use and that their leaders are highly competent. It was also seen that there is a medium virtuality of teams. The study also found that technology and leader competencies have a strong positive relationship with e-leadership implementation while virtuality had a moderate positive relationship. Technology has also been seen to have a moderate positive relationship with leadership and a weak positive relationship with virtuality of teams. Leader competencies and virtuality of teams have a moderate relationship with each other.

It was found from the regression analysis that there is a strong linear relationship between the independent variables (technology, virtuality of teams, and leader competencies) and the dependent variable (e-leadership implementation). However, it was found that the existence of

mediocre virtuality of teams alone doesn't guarantee e-leadership implementation. Virtuality of teams was found to be insignificant in the case of Atlas Computing technologies because of the lack of virtual teams. It has been found that it is significant in other studies.

The regression analysis also showed that the independent variables are collinear and that 67% of the variation in e-leadership implementation can be predicted by these variables. The residual sum of squares (1.062) also proved that the model is a good fit.

It was seen from the mean of 3.52 that the values of the data are closely dispersed around the mean and the standard deviation of 0.274 that the distribution is normal. The model also has a god internal consistency as it was seen from the Cronbach's Alpha of 0.810.

In general, the current practice of Atlas Computing Technologies shows a high technological practice and leader competencies. These can be seen as opportunities for implementing e-leadership. A major challenge found is that these technologies are not being used to enhance the virtuality of teams. This challenge paves way to another possible difficulty in their future plans to penetrate global markets, as a virtual team will be highly essential then. Leaders' competencies of becoming e-leaders are also being held back by the lack of a functioning virtual team

5.3. RECOMMENDATION

5.3.1 RECOMMENDATION FOR ATLAS COMPUTING TECHNOLOGIES

It is recommended that Atlas Computing Technologies develop their technological capabilities and also use it to grow virtuality of teams without affecting performance. This practice will help them easily adjust to the workings of a global operation. The student researcher suggests developing a Group Support System (GSS), which is a set of techniques, software and technology designed to

focus and enhance the communication, deliberations and decision-making of groups (Avolio 2000). It is also recommended that they build awareness of e-leadership and its benefits using seminars and expert coaching of staff.

Another recommendation is that the leaders be trained towards effective and efficient management of diverse distant team, beforehand, to keep up with e-leader competencies. This will make sure the virtual teams are productive in the future. The student researcher suggests training leaders on showing and rewarding achievement, managing effective diversity of teams, creating team culture, organizing face to face communication, efficient monitoring of e-team work, how to give effective management training to e-teams, etc.

The researcher also recommends that leaders be trained in proper creation and effective management of virtual teams. These team building activities will not only create virtual teams who will be productive, it will also enable the leaders to better understand what being an e-leader means and enhance their skills.

It is also recommended that Atlas Computing Technologies create a virtual knowledge network. This boundary-less network consists of hardware, software, intellectual property, people, digital media, electronic records, and helps the e-leader's efficiency in managing teams. This was a new technical structure that was put forwards by Jarvenpaa and Tanriverdi (2003).

5.3.2 RECOMMENDATION FOR OTHER STUDIES

There is little research on e-leadership, especially in Ethiopian journals and firms. The student researcher recommends that other researches be conducted in the area, and that the study of e-leadership be studied in specific detail as well. For example, one title to could be “Behavioral competencies required from team members for an effective virtual team”.

The researcher also proposes the following titles as examples.

- “Virtuality as a means of cohesiveness for groups”
- “Benefits of virtuality in reducing cost of working”
- “E-leadership on fostering digital democracy”
- “E-leadership and its relationship with productivity”
- “E-leadership and its relationship to E-governance”
- “Virtuality as a means of fighting corruption”

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ANNEX

QUESTIONNAIRE

Thesis Survey: Addis Ababa University (Department of Business Leadership)

Dear Respondent,

My name is Romahay and I am a Masters graduate candidate at Addis Ababa University, School of Commerce. This questionnaire is meant to collect primary data on E-leadership practices to serve as an input into my thesis project entitled "Opportunities and Challenges of E-leadership Implementation". I will only take 20 minutes of your time; all information collected here is confidential and will only be used for educational purpose. For further questions, please e-mail me through kassahunro@gmail.com. I would like to thank you for your cooperation.

DEMOGRAPHICS

1. Gender: Male ☐ Female ☐
2. Age:

   Below 25 ☐ 25-30 ☐ 31-40 ☐ 41-50 ☐ Above 50 ☐
3. Educational level:

   Primary ☐ High school ☐ Diploma Degree ☐ Masters ☐ Above masters ☐
4. Marital status

   Single ☐ Married ☐ Divorced ☐ Widowed ☐
5. Number of years with the organization: _____

Please rate the below statements.

TECHNOLOGY RELATED QUESTIONS

	STRONGLY DISAGREE	**DISAGREE**	**NEUTRAL**	**AGREE**	**STRONGLY AGREE**
I use file sharing systems such as Dropbox and Google Drive	☐	☐	☐	☐	☐
I use project management tools for my projects	☐	☐	☐	☐	☐
I use telephone most of the time to communicate with my colleague	☐	☐	☐	☐	☐
I use digital tools to work from other places than my office	☐	☐	☐	☐	☐
I am allowed to bring my own devices to work	☐	☐	☐	☐	☐
I have work tasks that I handle online, from home, only.	☐	☐	☐	☐	☐
Atlas works towards innovative solutions	☐	☐	☐	☐	☐
Atlas has other branches outside of Ethiopia	☐	☐	☐	☐	☐
Atlas has ample programmers that are willing to develop software	☐	☐	☐	☐	☐
Atlas often relocates employees	☐	☐	☐	☐	☐
Atlas is continuously searching for new ways to compete	☐	☐	☐	☐	☐
Atlas has a vision to penetrate global markets	☐	☐	☐	☐	☐
Creativity is supported within the organization	☐	☐	☐	☐	☐

There are various creative project funding within the company	☐	☐	☐	☐	☐

E-LEADER COMPETENCY RELATED QUESTIONS

I trust my leader	☐	☐	☐	☐	☐
My leader is open to change	☐	☐	☐	☐	☐
My leader has strong written communication skills	☐	☐	☐	☐	☐
My leader has strong social networking skills	☐	☐	☐	☐	☐
My leader has a multi-cultural mindset	☐	☐	☐	☐	☐
My leader cares for my personal development	☐	☐	☐	☐	☐
My leader is a great decision maker	☐	☐	☐	☐	☐
My leader is an active listener	☐	☐	☐	☐	☐
I can depend on my leader	☐	☐	☐	☐	☐
My leader inspires me	☐	☐	☐	☐	☐
My leader is a great planner	☐	☐	☐	☐	☐
My leader is a great problem solver	☐	☐	☐	☐	☐
My leader has gained my trust using digital tools such as Telegram and Whatsapp	☐	☐	☐	☐	☐
My leader has motivated me using digital tools	☐	☐	☐	☐	☐

My leader has improved my problem solving ability using digital tools	☐	☐	☐	☐	☐
My leader can build social network using digital tool	☐	☐	☐	☐	☐

VIRTUALITY OF TEAMS RELATED QUESTIONS

My leader is concerned about diversity of distant team members	☐	☐	☐	☐	☐
I have a team who I work with digitally on a regular base	☐	☐	☐	☐	☐
My team members who I work with only digitally are located at a distant location	☐	☐	☐	☐	☐
I can reach and communicate with my leader easily	☐	☐	☐	☐	☐
I communicate with my leader and colleagues digitally	☐	☐	☐	☐	☐
My colleagues and I use communication tools such as Skype and Zoom to connect with remote team members	☐	☐	☐	☐	☐
I can reach my leader 24/7.	☐	☐	☐	☐	☐
Responsibility is equally shared among the employees	☐	☐	☐	☐	☐

E-LEADERSHIP IMPLEMENTATION RELATED QUESTIONS

I can access all the information I need, on my own, from the company database	☐	☐	☐	☐	☐
I can competently use information and communication technologies, such as e-mail	☐	☐	☐	☐	☐
Atlas provides 24/7 services	☐	☐	☐	☐	☐
Process is mapped in a clear way within the organization	☐	☐	☐	☐	☐
Atlas uses automated document and classification solutions	☐	☐	☐	☐	☐
Atlas uses secure file sharing	☐	☐	☐	☐	☐
Atlas uses shared project files	☐	☐	☐	☐	☐
My leader has the ability to motivate me through ICT tools, such as Telegram and Whatsapp	☐	☐	☐	☐	☐
My leader has the ability to change my behavior through ICT tools, such as Telegram and Whatsapp	☐	☐	☐	☐	☐
My leader has the ability to change my attitude through ICT tools, such as Telegram and Whatsapp	☐	☐	☐	☐	☐
I have team members that I only work with using digital tools	☐	☐	☐	☐	☐
A large portion of my co-workers always do work for the organization online only	☐	☐	☐	☐	☐

My leader uses digital tools to measure progress of virtual teamwork	☐	☐	☐	☐	☐