Gordon Institute of Business Science
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Influence of managers' e-leadership skills on virtual team performance

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Abstract

The influence of managers' e-leadership skills on virtual team performance was investigated in this research, with a specific focus on the mining industry in South Africa. The knowledge gap in understanding the specific e-leadership skills crucial for enhancing virtual team performance was aimed to be filled by the study. A qualitative approach was employed by the research, and insights were gathered through semi-structured interviews with twelve participants from different mines. The data collected was also interpreted using thematic analysis.

It was found that e-leadership differs from traditional leadership in being output-driven, technology-based, flexible, and less people-centered. Essential e-leadership skills were identified, including digital communication skills, technology skills, emotional intelligence, and time and task management. Virtual team performance could be negatively impacted by the absence of these skills. Factors contributing to virtual team performance included clear meeting agendas, flexibility in scheduling, reliable technology, cultural sensitivity, trust, communication skills, and work-life balance considerations.

It was concluded by the study that the enhancement of e-leadership skills can improve virtual team performance by improving communication, collaboration, and decision-making. Valuable insights were provided by the findings for organizations seeking to improve the effectiveness of their virtual teams, contributing to the ongoing academic discourse on this topic and offering practical recommendations for businesses.

Keywords

E-Leadership, E-leadership Skills, Virtual Team, and Virtual Team Performance

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary
authorisation and consent to carry out this research.

08 November 2023

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Iband Jadot Nancy Kongolo Date

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1. Research Problem

1.1 Introduction

In today's rapidly changing business landscape, characterised by the increasing reliance on virtual teams and the digital transformation accelerated by the COVID-19 pandemic, the role of e-leadership skills has become paramount. This research study sought to address the pressing need to comprehend how managers' e-leadership skills influence the performance of virtual teams. As organisations adapt to remote work and virtual collaboration, the importance of effective e-leadership in managing virtual teams cannot be overstated. This research aimed to bridge the gap in our understanding of the specific e-leadership skills that are most crucial for enhancing virtual team performance, with a particular focus on the mining industry in South Africa. This study employed a qualitative research approach to investigate the influence of managers' e-leadership skills on virtual team performance. Data was collected through interviews and observations of managers and virtual team members in the mining industry in South Africa. A purposive sampling method was used to select participants who have experience working in virtual teams. The collected data was analyzed using thematic analysis to identify patterns and themes related to e-leadership skills and team performance. This methodology provided rich and in-depth insights into the research topic. This study strived to unearth valuable insights that will benefit both academia and practice, helping organisations improve the effectiveness of their virtual teams and adapt to the evolving digital age.

1.2 Purpose

The purpose of this research study was to investigate and gain insights into the influence of managers' e-leadership skills on virtual team performance. In today's rapidly evolving business landscape, organizations increasingly rely on virtual teams to conduct their operations. Additionally, In the wake of the COVID-19 pandemic, organizations were forced to rethink their traditional ways of working and shift towards a more digital and remote work environment (Diab-Bahman & Al-Enzi, 2020). This shift has brought to the forefront the importance of effective e-leadership in managing virtual teams (Chamakiotis et al., 2021).

As the digital age continues to reshape the way work is conducted, it becomes imperative to understand how leadership in the online realm affects team effectiveness. Previous

research has suggested that the e-leadership skills of managers can significantly influence the performance of virtual teams (Ayub et al., 2023). However, there is a need for further research to understand the specific e-leadership skills that are most important for managing virtual teams and how these skills influence team performance (Dinçer et al., 2023).

This research aimed to fill this gap by using a qualitative approach, to investigate the influence of managers' e-leadership skills on virtual team performance, focusing on the mining industry in South Africa. The findings of this research have important implications for both research and practice, providing valuable insights for organisations seeking to improve the effectiveness of their virtual teams.

1.3 Background

Digital technology and globalisation have changed the business landscape, resulting in teams working remotely using information and communication technology (ICT) (Barnes, 2020a). The world COVID-19 crisis and technological advancements have made organisations adopt new ways of working. In 1970, during the oil crisis, teleworking was used to allow employees to communicate and avoid moving around in vehicles (Garro-Abarca et al., 2021). In 1990, with internet use spreading widely, software development organisations that were familiar with the use of ITC implemented virtual teams. However, many other organisations did not see a need to create virtual teams (Dulebohn & Hoch, 2017). Virtual teams were not common in mining operations, yet due to the COVID-19 pandemic, they had to adopt remote working and create virtual teams.

In this context, the role of e-leadership has become increasingly important. E-leadership refers to the process of leading and managing individuals and teams in a virtual environment, using information and communication technologies to facilitate and enhance interactions between leaders and their teams (Dinçer et al., 2023). The skills required for effective e-leadership may differ from those required for traditional leadership, and understanding these differences is crucial for improving the performance of virtual teams.

1.4 Problem Statement

The advent of technology and the recent global pandemic have necessitated a shift towards virtual teams in many organizations (Cortellazzo et al., 2019; Newman & Ford,

2021). This shift has brought to the forefront the importance of effective e-leadership in managing virtual teams (Maduka et al., 2018). However, despite the increasing prevalence of virtual teams, there is a significant gap in the understanding of how managers' e-leadership skills influence the performance of these teams (Ayub et al., 2023).

Even though telework was initially used in the 1970s, the use of existing knowledge on e-leadership remains unclear (Contreras et al., 2020). As much as there is a growing body of literature on virtual teams and e-leadership, to date, no specific research has been conducted on e-leadership and virtual teams' performance in the mining sector. Therefore, this research aimed to identify e-leadership skills and to gain more insight into the influence e-leadership skills have on virtual team performance with a focus on the mining sector. The research was built on existing knowledge of e-leadership skills and virtual team performance.

The problem this research sought to address is the lack of a comprehensive understanding of the influence of managers' e-leadership skills on the performance of virtual teams. This problem is significant because as organisations continue to shift towards virtual teams, understanding the role of e-leadership in managing these teams becomes increasingly important (Alsharo et al., 2017). Without a clear understanding of the influence of e-leadership skills on virtual team performance, organisations may struggle to effectively manage their virtual teams, potentially leading to decreased team performance and productivity (Ayub et al., 2023).

1.5 Significance of the Study

The COVID-19 pandemic has had a profound impact on the business landscape, forcing organizations to rapidly adapt to remote work and virtual collaboration. Traditional ways of working have been disrupted, and companies have had to rely heavily on technology to facilitate communication and collaboration. This shift has not only affected the way teams operate but has also highlighted the importance of effective e-leadership in managing virtual teams. As organizations continue to navigate the challenges and opportunities presented by the pandemic, understanding the influence of e-leadership skills on virtual team performance becomes even more crucial for long-term success. It is evident that organizational- success is dependent on virtual team performance. Forbes magazine estimates that by 2025, 70% of the workforce will be working from home

(Castrillon, 2020). As of the latest statistics in 2023, 12.7% of full-time employees currently work from home, while 28.2% are currently adopting a hybrid work model (Haan, 2023). Organisations that can effectively collaborate using Information and communications technology (ITC) and virtual teams will have a competitive advantage (Contreras et al., 2020). Significant implications for both research and practice were found in the findings of this study. From a practical standpoint, the insights gained from this research could assist organizations in improving the effectiveness of their virtual teams. By understanding the specific e-leadership skills that were found to influence team performance, organizations could develop targeted training programs and interventions aimed at enhancing managers' skills. This, in turn, could lead to increased productivity, improved decision-making processes, and a competitive advantage in the global market.

From an academic perspective, this study contributed to the existing body of knowledge on e-leadership and virtual team performance. The findings provided a more nuanced understanding of the role of e-leadership in virtual teams, filling a significant gap in the literature.

1.5.1 Academic

The academic significance of this study lies in its potential to contribute to the existing body of knowledge on e-leadership and virtual team performance. Despite the growing prevalence of virtual teams, there is a significant gap in the understanding of how managers' e-leadership skills influence the performance of these teams (Ben Sedrine et al., 2020). This study aims to fill this gap by investigating the influence of managers' e-leadership skills on virtual team performance comprehensively and systematically. The findings of this study could provide a more nuanced understanding of the role of e-leadership in virtual teams, contributing to the ongoing academic discourse on this topic (Robert & You, 2018).

1.5.2 Business Rationale

From a business perspective, the findings of this study could provide valuable insights for organisations seeking to improve the effectiveness of their virtual teams. Virtual teams have become increasingly common in today's globalised business environment, allowing companies to leverage talent across different locations (Garro-Abarca et al., 2021; Liao, 2017). These changes in the business environment have created a competitive landscape for organisations (Tahirkheli, 2022). In a highly competitive industry like mining, gaining a

competitive advantage is crucial for sustainability and growth.

The ability to effectively harness virtual teams can provide companies with several advantages, such as access to a diverse talent pool, reduced costs, and increased operational flexibility (Cortellazzo et al., 2019). By understanding the factors that influence virtual team performance, companies can enhance their capabilities, improve decision-making processes, and gain a competitive edge in the market.

The study could inform the development of training programs and interventions to enhance managers' e-leadership skills. Furthermore, the study could help practitioners develop an e-leadership model at the workplace through which leaders can effectively transition to e-leaders (Chamakiotis et al., 2021).

1.5.3 South African

This study also holds particular relevance for South Africa, in particular the South African mining sector. Like many other countries, South Africa has seen a significant increase in the use of virtual teams due to the COVID-19 pandemic (Tigre et al., 2023). Understanding the influence of managers' e-leadership skills on virtual team performance could help South African organizations improve the effectiveness of their virtual teams, potentially leading to increased productivity and competitiveness in the global market (Robert & You, 2018). Furthermore, the study could inform policy-making in South Africa, helping to shape policies and strategies to promote effective e-leadership and virtual team performance (Chamakiotis et al., 2021). By focusing on the local context, this study aims to provide valuable guidance for the South African Mining sector and contribute to the country's economic development.

1.6 Delimitations

The study primarily focused on managers in organizational contexts within the mining sector and their e-leadership skills in virtual teams. It did not address other leadership roles or consider the broader implications of e-leadership outside of virtual teams. Additionally, the study's geographical scope was limited to South Africa, although its findings may have broader applicability. Furthermore, the study focused on the e-leadership skills of managers and did not extend its examination to other team members.

1.7 Definition of Terms

E-leadership: The process of leading and managing individuals and teams in a virtual environment, using information and communication technologies to facilitate and enhance interactions between leaders and their teams (Avolio et al., 2014; Roman et al., 2019).

Virtual Teams: Teams whose members are geographically dispersed and primarily interact through electronic means (Breuer et al., 2020; Whillans et al., 2021).

Team Performance: The final outcome of team processes, having both subjective (expected performance) and objective (actual performance) dimensions (Alsharo et al., 2017; Handke et al., 2022).

1.8 Assumptions

The study assumed that the e-leadership skills of managers can significantly influence the performance of virtual teams (Handke et al., 2022). It also assumed that the effectiveness of the communication process between leaders and team members within virtual teams is crucial for the performance of these teams (Mayer et al., 2023). Furthermore, the study assumed that the use of a qualitative methodology approach can provide a comprehensive understanding of the influence of managers' e-leadership skills on virtual team performance (Mahtta et al., 2022).

1.9 Conclusion

In conclusion, this research embarked on a crucial exploration into the realm of e-leadership and its impact on virtual team performance, addressing the challenges posed by the modern business landscape shaped by digitalization and remote work trends. The study's significance extended to multiple domains, including academia, business, and the South African context, where it promised to offer insights that could inform policies and strategies. By investigating the influence of managers' e-leadership skills on virtual teams, this research aspired to contribute to the knowledge base, guide organizations in enhancing their virtual team performance, and empower them to thrive in an increasingly competitive and digitally-driven world. This endeavor acknowledged certain limitations and assumptions while setting the stage for an in-depth exploration of e-leadership and its implications for the mining industry in South Africa.

2. Literature Review

2.1 Introduction

This chapter examined the extensive body of literature that supported the investigation into e-leadership and its impact on virtual team performance. The literature review served as the foundation for the research, offering a comprehensive overview of the relevant theoretical and empirical landscape. Firstly, the fundamental theoretical concepts necessary for adequately understanding the research were explored. The second part of the theoretical literature review concentrated on the theories that established the theoretical groundwork for the study. Empirical studies and related research that provided insights into the research questions were analyzed. Subsequently, a concise conceptual framework combining the theoretical and practical insights from the literature was presented. To conclude this chapter, the essential findings and insights from the literature review were summarized, emphasizing existing knowledge and research gaps.

2.2 Theoretical Literature Review

2.2.1 Theoretical Concepts

The contemporary business landscape has witnessed a paradigm shift in how teams operate, with a significant increase in the prevalence of virtual teams. These geographically dispersed and often connected electronic teams present unique organisational challenges and opportunities (Subrahmanyam, 2019). The success of virtual teams is highly dependent on effective leadership, and in the digital age, e-leadership has emerged as a critical aspect of guiding and managing these teams (Contreras et al., 2020b; Peiró & Martínez-Tur, 2022). This section provides a comprehensive review of the theoretical concepts relevant to the study, focusing on e-leadership, e-leadership skills, virtual teams, and virtual team performance.

2.2.1.1 E-leadership

E-leadership, also known as electronic leadership, is a modern leadership concept that has evolved in response to the rapid advancement of digital technology and its integration into the workplace (Mayer et al., 2023; Tigre et al., 2023). It encompasses using electronic communication tools and technologies to lead and manage individuals or teams in traditional and virtual settings (Alsharo et al., 2017; Handke et al., 2022; Robert & You,

2018). E-leadership goes beyond traditional leadership by leveraging electronic mediums, such as email, video conferencing, instant messaging, and collaborative software, to facilitate communication, collaboration, and decision-making within organisations (Garro-Abarca et al., 2021; Morrison-Smith & Ruiz, 2020).
Researchers like Avolio et al. (2014) have defined e-leadership as "the art of influencing a group of people to achieve a common goal through the use of an electronic medium." It highlights the importance of understanding technology and the skills to engage and motivate team members electronically (Avolio et al., 2014b).

The evolution of e-leadership can be traced back to the early stages of digital communication, where leaders primarily used technology for top-down communication and control (Henderikx & Stoffers, 2022; Tigre et al., 2023). However, as technology continued to advance, e-leadership underwent a significant transformation (Cordova-Buiza et al., 2022; Greimel et al., 2023). E-leadership evolved from a hierarchical and directive approach to emphasising collaboration, empowerment, and adaptability (Cortellazzo et al., 2019a; Roman et al., 2019; Torre & Sarti, 2020). In its earlier stages, e-leadership may have been seen as a way to streamline processes and improve efficiency (Bellis et al., 2020; Davidavičiene et al., 2020; Ferreira et al., 2023). Still, it has since recognised the importance of fostering employee engagement, built trust, and promoting shared leadership in virtual teams (Cortellazzo et al., 2019; Liu et al., 2018). The evolution of e-leadership is connected to the overall digital transformation of organisations, which mirrors the shifting expectations and requirements of a workforce that relies more on technology for communication and collaboration.

The COVID-19 pandemic, which emerged in late 2019, profoundly impacted the practice of e-leadership (Chamakiotis et al., 2021; Maurer et al., 2022). With widespread lockdowns and social distancing measures, organisations worldwide were forced to quickly adapt to remote work arrangements (Klostermann et al., 2021; Newman & Ford, 2021). E-leadership became not just a convenience but a necessity (Chamakiotis et al., 2021; Kashive et al., 2022). During the pandemic, e-leaders played a critical role in maintaining business continuity and ensuring the well-being of their teams (Chamakiotis et al., 2021; Chaudhary et al., 2022). They had to adapt to remote communication tools rapidly, establish clear virtual team protocols, and provide emotional support to employees dealing with the challenges of remote work, such as isolation and blurred work-life boundaries (Krehl & Büttgen, 2022; Whillans et al., 2021).

The pandemic accelerated the adoption of e-leadership practices, and many organisations recognised the need to invest in e-leadership development to thrive in a remote work environment (Bellis et al., 2020; Brown et al., 2021; Mayer et al., 2023). It highlighted the importance of having leaders who could not only navigate the digital landscape but also lead with empathy and resilience during times of uncertainty (Aggarwal & Kumar, 2022; Handke et al., 2022). E-leadership skills, including remote team coordination, crisis management, and technology proficiency, became vital for ensuring business continuity and employee well-being during the COVID-19 pandemic.

Looking ahead, e-leadership is poised to remain a central aspect of leadership in a post-pandemic world. Organisations are expected to continue embracing remote and hybrid work models, making e-leadership skills indispensable for leaders at all levels (Cortellazzo et al., 2019; Turesky et al., 2020a; Van Wart et al., 2019). E-leadership will become more integrated into leadership development programs, focusing on developing a hybrid skill set that combines technical proficiency with emotional intelligence and adaptability (Darics, 2020; Pianese et al., 2023). Furthermore, the future of e-leadership may see advancements in artificial intelligence (AI) and data analytics playing a more significant role in decision-making and team management (Dinçer et al., 2023; Tigre et al., 2023). To stay current with ever-changing technology and the evolving needs of virtual teams, leaders should regularly enhance their e-leadership skills. Additionally, e-leaders might find it beneficial to use AI-generated insights to make data-based decisions and improve team performance.

2.2.1.2 E-leadership skills

E-leadership requires a unique set of skills compared to traditional leadership. E-leaders must use the richness and interactivity of digital media to establish a positive presence and exert appropriate influence in guiding their teams (Peiró & Martínez-Tur, 2022; Roman et al., 2019).

The influence of E-leadership skills on team performance is substantial (Zhang et al., 2022). Leaders who can adeptly manage geographically dispersed teams and effectively employ technology to facilitate communication and collaboration contribute significantly to enhanced team performance (Maduka et al., 2018). Nevertheless, the management of

virtual teams presents unique challenges. Conflict resolution and identity formation can surface within geographically dispersed teams (Maduka et al., 2018).

Digital communication skills play a pivotal role in e-leadership and virtual team performance. Several studies highlight the significance of effective e-communication skills as a critical success factor for leaders in the digital age. For instance, the research by Chaudhary et al. (2022) emphasises the positive impact of e-communication skills on employee well-being and virtual team performance during the COVID-19 pandemic. Similarly, the SEC model proposed by Roman et al. (2019) identifies e-communication skills as one of the core competencies for effective e-leadership. Furthermore, Peiró and Martínez-Tur (2022) stress that e-leadership requires not only traditional leadership skills but also digital skills, including e-communication skills, to navigate the challenges of a digital environment. The research by Aggarwal and Kumar (2022) also underscores the importance of various communication strategies in e-leadership, including nonverbal communication and the use of social media. In summary, effectively communicating in the digital realm is essential for e-leaders to foster collaboration, build trust, and drive virtual team performance.

Technology skills are another critical aspect of e-leadership and virtual team success. The research conducted by Ahuja et al. (2023) categorises essential success factors for e-leadership, and 'Technology management' is one of these factors. The study suggests that e-leaders must be equipped with the skills to manage technology effectively within their teams and organisations. Furthermore, the SEC model proposed by Roman et al. (2019) includes e-tech savvy as one of the essential competencies for effective e-leadership. This highlights the need for leaders to not only understand technology but also to leverage it strategically to enhance virtual team performance. In today's digital era, where technology is at the core of business operations, e-leaders with solid technology skills are better positioned to lead their teams towards success in virtual environments.

Emotional intelligence emerges as a significant factor in the context of e-leadership and virtual team performance. A study by Chaudhary et al. (2022) highlights the moderating role of a leader's emotional intelligence in enhancing employee well-being and, by extension, virtual team performance. Additionally, the research by Peiró and Martínez-Tur (2022) suggests that emotional intelligence is part of the psychosocial skills necessary for effective e-leadership. However, Roman A, Van Wart M, and McCarthy A (2019) study,

while discussing the concept of e-leadership and proposing the Six E-Competency (SEC) Model for e-leadership, does not specifically mention or highlight emotional intelligence as one of the critical competencies. Instead, it focuses on skills such as e-communication skills, e-social skills, e-change management skills, e-tech savvy, e-team skills, and e-trustworthiness. In a virtual context, where face-to-face interactions are limited, understanding and managing emotions becomes even more crucial for building trust and rapport among team members.

A study by Ahuja et al. (2023) highlights the importance of e-change management; other authors do not explicitly address this aspect in their research. For instance, the study by Chaudhary et al. (2022) primarily focuses on the impact of e-leadership competencies on employee well-being and virtual team performance during the COVID-19 pandemic, with an emphasis on e-communication skills, e-change management skills, and e-technological skills. Similarly, Roman et al. (2019) and Peiró and Martínez-Tur (2022) discuss e-leadership competencies but do not delve into the specifics of change management in the digital context. E-change management is an essential skill in the context of e-leadership, especially in the digital age, where organisations frequently undergo transformations and adapt to technological advancements.

While there is agreement on the importance of these e-skills, researchers have a consensus regarding the importance of e-communication, e-tech savvy or e-technological skills, e-change management, and emotional intelligence in e-leadership. However, there may be variations in the degree of emphasis and inclusion of specific skills like e-social skills, e-trustworthiness, and adaptability. These variations could be due to different research foci and contexts explored in the respective papers. Recognising that these skills are distinct from those associated with traditional leadership is vital.

2.2.1.3 Virtual Teams

Virtual teams have emerged as a transformative approach to collaboration in the digital era, where geographical proximity is no longer a prerequisite for effective teamwork (Bhat et al., 2017). These teams, comprising individuals who collaborate across geographical boundaries, organisational barriers, and time zones, primarily establish connections through electronic communication tools (Bhat et al., 2017; Dulebohn & Hoch, 2017b). Virtual teams have revolutionised collaboration by breaking geographical barriers and

relying on electronic communication tools for effective teamwork.

The inception of virtual teams can be traced back to the rapid proliferation and extensive adoption of information and communication technology (Hoch & Kozlowski, 2014). The internet, in particular, has played a pivotal role in erasing geographical constraints, enabling seamless collaboration across diverse locations, and transcending time and organisational boundaries (Morrison-Smith & Ruiz, 2020). Virtual teams owe their existence to the widespread adoption of technology, particularly the Internet, which has facilitated collaboration across boundaries.

Virtual teams offer many advantages, leading to widespread adoption across various fields, including Service Outsourcing, IT and Innovation, and Research and Development (Maurer et al., 2022). These benefits include diverse personnel, extended organisational boundaries, a flexible organisational structure, and the efficient allocation of innovation resources (Kashive et al., 2022). Virtual teams offer diverse benefits, including resource allocation and flexibility, making them highly attractive in various fields.

However, while virtual teams offer remarkable advantages, they also present distinctive challenges. These encompass potential cross-cultural difficulties in team interaction, feelings of isolation among team members, and the intricate task of building trust within a virtual environment (Cordova-Buiza et al., 2022). Overcoming these challenges requires a combination of effective communication strategies, cultural sensitivity, and fostering a sense of belonging among remote team members(Tan et al., 2019). Virtual teams come with unique challenges requiring strategic approaches, including effective communication, and building trust.

Despite their challenges, using virtual teams is anticipated to continue its growth trajectory in the foreseeable future (Subrahmanyam, 2019). As organisations adapt to the evolving demands of the digital landscape, virtual teams will remain a pivotal element of contemporary work structures, emphasising the enduring significance of this innovative approach to teamwork (Karunathilaka, 2022). Virtual teams are expected to play a significant role in the future of work as organisations adapt to the digital age.

2.2.1.4 Virtual Team Performance

Virtual Team Performance refers to the efficiency and effectiveness of working together from different physical locations using collaborative Information and ICTs (Garro-Abarca et al., 2021c). This concept has evolved significantly over the past two decades due to technological advancements and work attitudes (Garro-Abarca et al., 2021c). The concept of Virtual Team Performance has undergone substantial changes driven by technology and evolving work practices.

Virtual teams were initially formed to facilitate joint creation and innovation among global or regional experts who did not have enough time to travel to fulfil the specialised tasks of the projects that required them (Garro-Abarca et al., 2021c). However, the performance of these teams was initially met with scepticism due to the low level of maturity of virtual teams and the significant failure rate (Garro-Abarca et al., 2021c). Over time, as technology advanced and companies matured with the use of ICT tools, the performance of virtual teams improved (Roman et al., 2019). Measuring the performance of virtual teams can be complex due to the unique nature of these teams. However, several methods have been proposed. One approach is to assess the team's ability to meet strategic goals using multiple media (Kashive et al., 2022). Another method is to evaluate the team's management of conflict and emotions (Alkhayyal & Bajaba, 2023). Advancements in technology have contributed to the enhancement of virtual team performance and the development of diverse measurement methods.

Team members' expertise, extraversion, and group interaction styles can also be used to measure virtual team performance (Alkhayyal & Bajaba, 2023). Trust dynamics within the team, such as trust tokens, can also be used to measure team performance (Alsharo et al., 2017; Breuer et al., 2020). Individual and interpersonal factors play a significant role in assessing virtual team performance. In addition, the nature of the team, such as team dispersion and information technology, can be used to measure project performance (Mahtta et al., 2022; Wang et al., 2023). Collaboration is another crucial measure of virtual team performance, with research showing that a higher level of team collaboration is highly correlated with better performance (Alsharo et al., 2017; Schulze & Krumm, 2017). In conclusion, various factors, including team structure and collaboration, contribute to measuring virtual team performance.

Goal-setting is also a critical measure in virtual teams, with research showing that it is

positively associated with multiple factors, including collaboration (Alsharo et al., 2017; Bhat et al., 2017). Goal-setting is essential to evaluating virtual team performance, positively impacting various team dynamics.

2.2.2 Theoretical Framework

2.2.2.1 Transformational Leadership Theory

Transformational Leadership Theory, as proposed by Burns (1978) and expanded upon by Bass and Avolio (1994), offers a robust theoretical foundation for investigating the dynamics of e-leadership in virtual teams (Bass & Avolio, 1994; Burns, 1978). This theory posits that leaders who inspire and motivate their followers, fostering a shared vision and promoting innovation, can drive exceptional performance (Bass & Avolio, 1994).

Maduka et al. (2018) identified transformational leadership as essential when selecting e-leaders, as they are known to achieve high performance. Greimel et al. (2023) argue that the impact of transformational leadership on team performance was proven more in face-to-face setups and requires further research in a virtual working environment. The transformational leader's characteristics like charisma, vision and individual considerations can influence virtual team performance (Balthazard et al., 2009). E-leadership skills to effectively communicate the vision, set up team goals, build trust, and provide guidance and support will encourage team collaboration and influence team performance (Ben Sedrine et al., 2020b)

The idealised influence component of the transformational leadership theory emphasises the significance of e-leaders acting as role models in the virtual space (Kaur Bagga et al., 2023). Literature has shown that e-leaders who effectively use digital tools, demonstrate ethical online behaviour, and gain the trust and respect of virtual team members can contribute to enhanced team performance (Garro-Abarca et al., 2021c; Kaur Bagga et al., 2023).

E-leaders can employ inspirational motivation by articulating a compelling vision for the virtual team's goals and fostering a sense of shared purpose (Aggarwal & Kumar, 2022; Castellano et al., 2021). Research suggests that e-leaders who create an inspiring digital vision can motivate team members to collaborate effectively, even in remote settings (Darics, 2020; Ferreira et al., 2023).

Furthermore, the transformational approach promotes innovation and critical thinking. Studies indicate that e-leaders who encourage experimentation with digital tools and a culture of innovation positively impact virtual team performance (Aggarwal & Kumar, 2022; Greimel et al., 2023)

Lastly, transformational leadership theory advocates for individualised support. E-leaders who provide tailored coaching, mentorship, and support in virtual settings enhance team satisfaction and performance (Garro-Abarca et al., 2021a; Turesky et al., 2020).

Applying Transformational Leadership Theory within e-leadership and virtual teams provides a robust framework for understanding and optimising leadership behaviours in the digital era, fostering enhanced team dynamics and performance.

2.2.2.2 Task-Technology Fit Theory

The Task-Technology Fit Theory posits that a team's performance is significantly influenced by how well the technology used aligns with the tasks that the team needs to accomplish (Tigre et al., 2023). This theory is particularly relevant in the context of virtual teams, where technology plays a crucial role in facilitating communication and coordination among team members (Mayer et al., 2023).

In the context of e-leadership, managers' skills in leveraging technology to facilitate team tasks can significantly impact the performance of virtual teams. For instance, a manager's ability to choose and effectively use technology that fits the team's tasks can enhance team performance (Alsharo et al., 2017). This is because when the technology used corresponds to the needs of the team and the task, it can positively impact perceived team success (Robert & You, 2018).

Moreover, the Task-Technology Fit Theory also suggests that the fit between the technology and the team can significantly impact team success (Hedman & Valo, 2015; Morrison-Smith & Ruiz, 2020). Different team characteristics, such as size and experience, require diverse technologies. Therefore, a manager's ability to adapt the technology to the team's goals and needs can improve trust and, subsequently, performance in virtual teams (Handke et al., 2022).

However, it is also important to note that while task-technology fit can directly influence perceived performance, it may not necessarily moderate the positive relationships of other factors, such as trust (Chamakiotis et al., 2021). Therefore, while e-leadership skills in managing task-technology fit are essential, other factors such as trust, communication, and cohesion also play a crucial role in virtual team performance (Tigre et al., 2023).

In conclusion, the Task-Technology Fit Theory provides a valuable framework for understanding how managers' e-leadership skills can influence virtual team performance. By effectively managing task-technology fit, managers can enhance the performance of their virtual teams.

2.3 Empirical Literature Review Related to the Studies

2.3.1 Factors Affecting Virtual Team Performance

Understanding the factors influencing virtual team performance is paramount in today's globalised work environment. Research in this domain reveals both established principles and ongoing debates. This investigation delves into Critical Success Factors (CSFs), diverse variables, team cohesion, leadership styles, and communication dynamics to provide insights into optimising virtual team outcomes (Ahuja et al., 2023). By examining the latest research, we aim to equip organisations and individuals with the knowledge to enhance virtual teamwork in an interconnected world."

In research by Ahuja et al. (2023), Critical Success Factors (CSFs) that are crucial for virtual team success were identified. Their CSFs were Technology Management, E-motivation and well-being, and E-change management, encompassing various elements like communication, financial well-being, trust, self-leadership, mindfulness, and work appreciation(Ahuja et al., 2023). Furthermore, research by Newman et al. (2020) emphasises that effective communication and trust within the team are commonly acknowledged as crucial factors affecting virtual team performance (Newman et al., 2020).

Tahirkheli (2022) acknowledges that virtual team performance can be influenced by various factors, including cultural diversity, lack of trust, lack of face-to-face communication, improper training, time zone differences, and the absence of formal leadership (Tahirkheli, 2022b). Additionally, research by Algesheimer et al. (2011)

indicates that team cohesion, shared goals, and we-intentions to perform positively impact virtual team performance (Algesheimer et al., 2011). Other factors like geographical distance, flexible working conditions, language skills, cultural backgrounds, and technical problems can influence virtual team performance (Efimov et al., 2020).

Using rich digital media channels for communication effectively enhances team engagement and transparent communication, thereby improving team performance (Vătămănescu et al., 2022). While Vătămănescu et al. (2022) focus more on the general benefits of rich digital media for communication, Ben Sedrine et al. (2020) discuss the importance of media richness in moderating relationships between leadership styles, trust, and operational cohesion (Ben Sedrine et al., 2020a; Vătămănescu et al., 2022).

Findings by Alexander et al. (2020) agree that leadership styles are significant, especially in hybrid virtual models. Leaders must adapt their behaviours to address the challenges posed by digital communication and create a safe learning environment (Alexander et al., 2020). Furthermore, Ben Sedrine et al. (2020) indicated that leadership styles impact virtual team trust and cohesion.

A study by Elyousfi et al. (2021) recognised e-leadership and team dynamics as factors impacting virtual team performance, with team dynamics having a more substantial effect. There is a difference in the degree of emphasis on e-leadership's impact, as some research suggests it has a negligible effect, while others consider it a more significant factor (Elyousfi et al., 2021).

There is no explicit agreement on whether leadership styles or leader behaviours have a more substantial impact on virtual team performance. While some scholars mention the importance of emotional intelligence, team building, technology, employee recognition, and motivation, the degree to which these factors affect virtual team performance and how they interact with other variables remains an area where further research is needed (Alward & Phelps, 2019).

2.3.2 Role of e-leadership skills on team performance

The role of e-leadership skills in virtual team performance is undeniably critical and multifaceted. E-leadership skills encompass a range of competencies required to lead in

a digital environment effectively, and their influence on the success of virtual teams cannot be overstated.

According to research by Dinçer et al. (2023), e-leadership skills are fundamental for achieving success in virtual team performance. They argue that these skills, encompassing e-communication, e-social skills, and e-trustworthiness, are essential in establishing effective communication and building trust within virtual teams. Without effective e-leadership, the challenges of managing a geographically dispersed workforce can hinder collaboration and goal attainment (Dinçer et al., 2023).

Furthermore, Kirkman and Stoverink (2021) assert that e-leadership skills play a significant role in shaping the performance of virtual teams. Their research highlights the impact of e-leaders in facilitating trust, fostering a positive team climate, and providing crucial support and guidance to team members in digital environments. This research underscores the importance of e-leadership in driving virtual team success (Kirkman & Stoverink, 2021).

In addition, the research conducted by Ferreira et al. (2023) emphasises that leaders must be adaptable and proficient with technology to lead virtual teams effectively. Their findings indicate that e-leaders should leverage digital tools and platforms, promote trust, and ensure alignment among team members. This research reinforces the argument that e-leadership skills are indispensable for improving virtual team performance (Ferreira et al., 2023).

According to Garro-Abarca et al. (2021) research, which further supports the critical role of e-leadership skills in virtual teams. They contend that transformational leadership, influenced by personality and communication factors, significantly increases virtual teams' performance, satisfaction, and motivation. This research underscores the positive impact of e-leadership on virtual team outcomes (Garro-Abarca et al., 2021c).

Moreover, research conducted by Tahirkheli (2022) emphasises that e-leadership can transcend geographical boundaries and offer leadership even in dispersed organisations. It argues that e-leadership skills empower leaders to overcome challenges such as cultural diversity, lack of trust, and communication barriers. This research demonstrates how e-leadership skills enable leaders to navigate the unique complexities of virtual team

management (Tahirkheli, 2022b).

While the research conducted by various scholars underscores the importance of e-leadership skills in virtual team performance, it is worth noting that there can be differing perspectives on this matter. Some researchers argue that the impact of e-leadership skills on virtual teams may not be as universally significant as suggested earlier.

For instance, research by Kashive et al. (2022) suggests that while e-leadership skills can influence virtual team performance positively, they might not be the sole determining factor. This research argues that other individual traits and skills, such as energy, need for achievement, and analytical abilities, also play a substantial role in managing virtual teams (Kashive et al., 2022). The influence of e-leadership skills may vary based on the context and specific team dynamics (Kashive et al., 2022).

Similarly, Greimel et al. (2023) research highlights that while e-leadership skills, particularly transformational leadership, can motivate virtual teams, there are still gaps in the literature. This research suggests that further investigation is needed to fully comprehend the dynamics between e-leadership skills and virtual team performance (Greimel et al., 2023). Some contextual factors or variables not yet fully understood could affect the relationship (Greimel et al., 2023).

Additionally, Algesheimer et al. (2011) research argues that factors such as organisational actions, team leadership, and team composition impact virtual team performance. While e-leadership skills are essential, this perspective suggests they are part of a broader set of factors influencing virtual teams. The contention is that a holistic approach is necessary to comprehensively understand and enhance virtual team performance (Algesheimer et al., 2011).

While research supports the role of e-leadership skills in virtual team performance, it is essential to acknowledge the existence of alternative viewpoints. Some researchers argue that the influence of e-leadership skills may be context-dependent and that other factors may also significantly contribute to the success of virtual teams. Further research and a nuanced approach are necessary to grasp virtual team dynamics' complexities fully.

2.3.3 Challenges facing leaders in managing virtual teams.

Challenges facing leaders in managing virtual teams have garnered significant attention in the literature, with multiple studies shedding light on these complex issues. Factors such as communication, trust-building, and adaptability consistently emerge as challenges across various studies (Handke et al., 2022; Karunathilaka, 2022; Krehl & Büttgen, 2022; Newman & Ford, 2021).

According to Krehl and Büttgen (2022), effective leadership in virtual teams requires skills in maintaining team harmony, choosing appropriate digital tools, and ensuring effective communication (Krehl & Büttgen, 2022). However, their emphasis on "committing to standard tools for task management" introduces an interesting point of disagreement with other studies.

While Newman and Ford (2021) argue that leaders should adapt to the new reality of virtual work environments, the challenge lies in sustaining a robust organisational culture (Newman & Ford, 2021). This assertion differs from the notion of standardising tools, indicating a diversity of opinions in addressing the challenges.

Moreover, Handke et al. (2022) highlight the importance of providing comprehensive, objective, and collaborative feedback as a crucial e-leadership skill in managing virtual teams (Handke et al., 2022). However, their focus on feedback strategies introduces a potential disagreement with studies that emphasise communication tools and technology as central to e-leadership skills (Karunathilaka, 2022).

The study by Davidavičiene et al. (2020) underscores the significance of language and IT competency for virtual team adaptation, suggesting that investing in language and technological training can improve communication (Davidavičiene et al., 2020). This perspective introduces a nuanced view of the challenges, emphasising the need for continuous learning and adaptation in virtual teams.

On the other hand, Cortellazzo et al. (2019) advocate for creating a positive organisational environment that fosters collaboration and unity among employees while effectively using communication tools and methods (Cortellazzo et al., 2019a). Their emphasis on fostering a positive culture aligns with the importance of organisational culture highlighted by

Newman and Ford (Newman & Ford, 2021).

While there is a consensus on the challenges of managing virtual teams, such as communication, trust-building, and adaptability, differing viewpoints exist on the strategies and skills required to address these challenges. This divergence of opinions highlights the evolving nature of leadership in the digital age and underscores the importance of considering multiple perspectives in effectively managing virtual teams. The gap in the literature lies in the need for further research to reconcile these diverse perspectives and develop a comprehensive framework for effective e-leadership in virtual teams.

2.3.4 Strategies for Enhancing e-leadership skills to improve virtual team performance.

E-leadership is a critical aspect of managing virtual teams and ensuring their success. It requires a unique set of competencies distinct from traditional leadership skills. E-leadership competencies include open-mindedness, sensitivity to cultures, complexity, resilience, creativity, honesty, stable personal life, and technical competence (Chaudhary et al., 2022).

Research by Van Wart et al. (2019) further expanded on these competencies, identifying six essential e-leadership skills: e-communication skills, e-social skills, e-team building skills, e-change management skills, e-technological skills, and e-trustworthiness skills (Van Wart et al., 2019). These skills are crucial for effective e-leadership and should be developed and honed to improve virtual team performance.

E-communication skills, for instance, involve clear and well-organized communication that allows for feedback and avoids miscommunication (Van Wart et al., 2019). E-social skills, e-team building skills, and e-trustworthiness are vital for fostering a positive and collaborative virtual team environment (Dinçer et al., 2023).

E-change management skills are critical in the rapidly evolving digital landscape. Leaders must be adaptable and align change management strategies with the organisational culture, providing employees with the necessary training, knowledge, support, and guidance to embrace change effectively (Dinçer et al., 2023). E-technological skills are also crucial. Leaders must understand how to use available technologies to improve the

company’s productivity and growth (Dinçer et al., 2023).

In addition to these competencies, e-leaders should also exhibit certain leadership styles. For instance, synergistic leaders inspire performance beyond expectations with a balanced approach (Aggarwal & Kumar, 2022).

Furthermore, e-leadership also involves managing conflicts in virtual teams. Clear direction, constant feedback, and communication opportunities for team members can enable e-leaders to deal with virtual conflicts (Aggarwal & Kumar, 2022).

Finally, e-leadership is not just about specific tools and communication events but also about leading in an increasingly pervasive digital environment characterised by the rapidly evolving nature of communication technologies (Peiró & Martínez-Tur, 2022).

Enhancing e-leadership skills involves developing a range of competencies, adopting effective leadership styles, managing conflicts, and adapting to the digital environment. These strategies can significantly improve virtual team performance.

2.4 Research Gap in Literature

The influence of managers' e-leadership skills on virtual team performance is a critical area of research, particularly in the current digital age, where virtual teams have become increasingly common. Despite the growing body of research on e-leadership, several gaps warrant further investigation.

Firstly, there is a need for more empirical studies that examine the influence of e-leadership skills on virtual team performance in real-world organisational settings (Contreras et al., 2020b). Most existing studies have used non-organizational samples, limiting the findings' applicability to actual organisational teams (Contreras et al., 2020b) Secondly, the current models of virtual team performance are insufficient to explain the performance in the new normal (Alward & Phelps, 2019; Contreras et al., 2020). There is a lack of frameworks discussing the drivers and barriers of virtual team performance (Alward & Phelps, 2019). Therefore, more research is needed to develop new theories and frameworks that can better explain and predict virtual team performance in the context of the new normal. Lastly, the relationship between leadership and ICT utilisation, which

is at the heart of the digital revolution, is still not fully understood (Alward & Phelps, 2019). More research is needed to explore this relationship and its implications for e-leadership and virtual team performance.

While significant progress has been made in understanding the influence of managers' e-leadership skills on virtual team performance, several gaps still need to be addressed in future research.

The literature provides a comprehensive overview of e-leadership skills and their influence on virtual team performance. However, there is a gap in understanding how these skills can be specifically applied and developed to improve virtual team performance (Aggarwal & Kumar, 2022; Contreras et al., 2020; Peiró & Martínez-Tur, 2022). For instance, while the literature identifies e-communication skills, e-social skills, e-change management skills, e-tech-savvy, e-team skills, and e-trustworthiness as essential e-competencies (Aggarwal & Kumar, 2022), it does not provide a detailed exploration of how these skills can be developed and utilized to enhance virtual team performance.

In terms of factors contributing to virtual team performance, the literature highlights the importance of trust, conflict management, and personal characteristics like self-efficacy, hope, optimism, and resilience (Aggarwal & Kumar, 2022). However, there is a lack of empirical research on how these factors can be cultivated and managed in a virtual team setting to optimize performance (Contreras et al., 2020).

Furthermore, while the literature acknowledges the role of technology in e-leadership and virtual team performance (Subrahmanyam, 2019), there is a gap in understanding how e-leaders can effectively leverage technology to facilitate communication, collaboration, and team performance. This gap extends to understanding how e-leaders can navigate the challenges of mastering technology, adjusting to cue-deprived communication environments, and synergizing dispersed teams (Subrahmanyam, 2019).

In conclusion, while the literature provides a foundation for understanding e-leadership skills and factors contributing to virtual team performance, there is a need for further research to explore how these skills can be developed and applied to improve virtual team performance, and how e-leaders can effectively leverage technology to facilitate team performance.

3. Research Questions

3.1 Introduction

This chapter focused on three key research questions (RQs). These RQs were designed to help us dig deep into the complexities of e-leadership and its impact on virtual team performance. Each question tackled a specific aspect of e-leadership and virtual teams, intending to uncover insights that can guide leadership practices and improve team performance in the digital age.

3.2 RQ1: What e-leadership skills influence virtual team performance?

The RQ1 sought to explore the specific skills that e-leaders need to effectively manage and enhance the performance of virtual teams. However, there seems to be a gap in the literature regarding this specific topic.

In the study by Henderikx & Stoffers (2022), the authors conducted a thematic analysis of articles related to digital transformation and leadership skills. However, the focus of their study was on the general management context, and they did not specifically explore the skills required for e-leadership in virtual teams. This leaves a gap in understanding how e-leadership skills can influence the performance of virtual teams.

Similarly, the study by Tigre et al. (2023) conducted a bibliometric analysis of articles related to digital leadership. While they identified a trend in the number of publications on the topic, they did not delve into the specific e-leadership skills that can influence the performance of virtual teams. This leaves room for further exploration and research on the specific e-leadership skills that can enhance virtual team performance.

Therefore, the research question "What e-leadership skills influence virtual team performance?" contributed to filling these gaps in the literature by providing insights into the specific skills that e-leaders need to effectively manage virtual teams.

3.3 RQ2: What factors contribute to virtual team performance?

The RQ2 sought to identify the elements that influence the effectiveness and productivity of virtual teams. However, there seems to be a gap in the literature regarding this specific topic.

In the study by Morrison-Smith and Ruiz (2020), the authors focused on the collaboration aspect of virtual teams. While collaboration is indeed a crucial factor in team performance, the study did not explore other potential factors that could influence virtual team performance, such as communication technology, leadership style, or team members' skills and competencies. This leaves a gap in understanding the comprehensive set of factors that contribute to virtual team performance.

Similarly, the study by Cortellazzo et al. (2019), examined the growth of the debate on e-leadership and digital transformation since 2000. While this study provides valuable insights into the evolution of digital leadership, it does not specifically identify the factors that contribute to the performance of virtual teams. This leaves room for further exploration and research on the specific factors that can enhance virtual team performance.

Therefore, the research question "What factors contribute to virtual team performance?" contributed to filling these gaps in the literature by providing insights into the specific factors that influence the effectiveness and productivity of virtual teams.

3.4 RQ3: How can e-leadership skills be developed to improve virtual team performance?

The research question "How can e-leadership skills be developed to improve virtual team performance?" seeks to identify strategies and methods for developing e-leadership skills that can enhance the performance of virtual teams. However, there seems to be a gap in the literature regarding this specific topic.

In the study by Tigre et al. (2023), the authors analyzed authors' co-citation relationship related to e-leadership. While they identified the importance of e-leadership in shaping the function of organisations, they did not specifically explore how these e-leadership skills can be developed to improve virtual team performance. This leaves a gap in understanding the strategies and methods for developing e-leadership skills that can enhance virtual team performance.

Similarly, the study by Chamakiotis et al. (2021), examined the work practices in the Covid-19 context, including virtual/remote working. While this study provides valuable insights into the evolution of work practices in the digital age, it does not specifically identify how e-leadership skills can be developed to improve the performance of virtual

teams. This leaves room for further exploration and research on the specific strategies and methods for developing e-leadership skills that can enhance virtual team performance.

Therefore, the research question "How can e-leadership skills be developed to improve virtual team performance?" contributed to filling these gaps in the literature by providing insights into the specific strategies and methods for developing e-leadership skills that can enhance the performance of virtual teams.

4. Research Methodology

4.1 Introduction

This chapter outlined the methodology used to address the research question. The chapter discussed the approach, population, unit of analysis, sampling methods and size, and tools and techniques for data collection and analysis. This section provided a roadmap for how the research gathered and interpreted the information received to address the research question and research objectives.

4.2 Research Methodology and Design

Similar to previous research conducted by Maduka et al. (2018) on team leader competencies in building effective virtual teams and Mahtta et al. (2022) on virtual team performance in today's evolving norms, this study follows a qualitative research methodology. This method enables a thorough exploration of how e-leadership skills impact the performance of virtual teams, contributing to organisational success (Maduka et al., 2018; Mahtta et al., 2022). By employing qualitative methods, the aim was to capture detailed insights and diverse perspectives that enhance our overall understanding of this subject. As emphasised by Creswell and Creswell (2018), qualitative research facilitates data collection through interviews, offering profound insights and building upon existing theories.

The research philosophy guiding this study is interpretivism, as it seeks to comprehend the influence of managerial skills on virtual team performance. This perspective aligns with Saunders et al.'s (2020) definition of interpretivism, which involves examining social phenomena within their natural context. Various approaches can be employed within interpretivism, including case research, phenomenology, and ethnography (Bhattacherjee, 2019). In this research, a case research approach was chosen as it allows for a more in-depth investigation of the research problem and offers the flexibility to discover additional contributing factors (Bhattacherjee, 2019).

The primary objective of this study was to gain deeper insights into the impact of e-leadership skills on virtual team performance. This was done by exploring the perspectives of both e-leaders and virtual team members. Therefore, the research adopted an inductive approach, in line with Hai et al.'s (2020) description of this approach as aimed at gathering data that provides insightful understanding. Specifically, the study focuses on two core

concepts: e-leadership skills and virtual team performance, aiming to uncover the relationship between these two elements.

To achieve its goals, this research employed a case study strategy, consistent with Saunders et al.'s (2020) definition of a multi-case study strategy as an exploratory research method. The study followed a cross-sectional approach in data collection, given time constraints, with data collection occurring in 2023, as Saunders et al. (2020) identified. This approach allowed for an exploration of the research questions within a specific timeframe.

4.3 Population

A research population is defined as all members of a population that can be selected as a sample (Hair et al., 2020). This research looked at people in managerial positions in organisations. Managers play a crucial role because they connect high-level decision-making with leading teams. Their viewpoints provided valuable insights into e-leadership skills and how these skills affect how virtual teams perform.

For this study, the population comprised managers responsible for leading virtual teams. One distinctive aspect of these managers' roles was that they oversaw diverse teams of team members who were not based at the mine operations but were situated elsewhere. These team members were required to travel to be physically present when necessary. This characteristic added depth and relevance to the study's exploration of e-leadership skills and their impact on virtual team performance within the mining context.

Before the COVID-19 pandemic, these managers were accustomed to traditional face-to-face leadership practices. However, the pandemic necessitated a rapid shift to online leadership strategies. Interestingly, some participants had adopted a hybrid model that blended online and face-to-face leadership, demonstrating the flexibility and adaptability required in the ever-changing work environment.

Selection criteria were applied to choose participants for this study, including the following prerequisites:

- Participants who have held managerial positions since 2018.
- Participants with a minimum of one performance year in a managerial role.
- Participants were employed by mining companies located in the Northern Cape.
- Participants who previously worked in a traditional face-to-face work environment

but transitioned to remote work.

4.4 Unit of Analysis

In accordance with Bhattacherjee (2019), the unit of analysis in this study was an individual, group, organisation, country, or object that can be a target to collect data to conduct a particulate study. Research can have more than one unit of analysis based on what the research is about (Saunders et al., 2020). In the present study, the unit of analysis was individual managers, who were expected to provide insights derived from their lived experiences. This choice aligns with the research's qualitative nature, aiming to understand the subject matter better.

4.5 Sampling Method and Size

The sampling method used for this research was a non-probability sampling method with homogeneous purposive sampling techniques**.** According to Denscombe (2017), homogeneous purposive sampling allows the researcher to select a similar sample and make the best selection by focusing on a small target population. The benefit of homogeneous purposive sampling is that it allows the researcher to select a sample that gives the best information and in-depth answers to the research questions (Denscombe, 2017). Hair et al. (2020) mentioned that non-probability sampling lets researchers selectively choose sample elements based on their judgment of desired representation rather than random chance, aiming for meaningful inclusiveness.

According to Saunders et al. (2020), the non-probability sampling method with homogeneous purposive sampling techniques is the most used for collecting qualitative research data. In qualitative research, purposive sampling is commonly employed to selectively choose participants or texts that can offer information-rich data, aiming to achieve deep insights and understanding of the research topic (Braun & Clarke, 2013).

According to Creswell and Creswell (2018), the sample size needed to reach data saturation in qualitative studies ranges between twelve and eighteen. Data saturation refers to the point in qualitative research where no latest information or themes emerge from the data analysis. However, it is important to note that the sample size may vary depending on the nature of the research question and the specific research design being used. Another study by Hennink & Kaiser (2022) indicated that saturation can be attained between nine and seventeen interviews, especially when conducting studies involving

homogeneous study populations and narrowly focused objectives. Saturation is reached when the researcher has collected enough information from selected samples, and there are no benefits in adding more samples (Creswell & Creswell, 2022; Denscombe, 2017). Saunders et al. (2020) recommend conducting 12 to 30 interviews for a heterogeneous population. Therefore, this study's sample size is twelve interviews with participants from different mines.

It is pertinent to mention that the researcher interviewed 12 participants, all with managerial roles with over a decade of experience in the mining industry. These participants represented a diverse spectrum, encompassing business owners serving the mining sector and managers within the same mines. They all managed teams characterised by the presence of team members situated outside the mine operations, who were required to travel, as necessary. Importantly, all these managers had experienced a transition from traditional face-to-face leadership to virtual leadership, although some still maintained a hybrid model favouring face-to-face interactions.

4.6 Measurement Instrument

According to Hair et al. (2020), observation and interviews are the most used measuring instruments for qualitative research. The chosen measuring instrument for this study consisted of face-to-face interviews conducted in a semi-structured format. The semi-structured format allowed for flexibility in the interview process, allowing the researchers to explore specific topics in depth while also allowing for unexpected insights to emerge. Additionally, face-to-face interviews were chosen as they provided an opportunity for non-verbal cues and body language to be observed, enhancing the richness of the data collected. Moreover, Semi-structured interviews, as suggested by Saunders et al. (2020), offer flexibility in data collection and allow for open-ended questions, enabling respondents to provide detailed responses that enrich the research findings. Research by Hair et al. (2020) added that a semi-structured interview is used when the study wants to gain insights into the data collected, as it allows for more flexibility.

An interview guide was meticulously followed to prepare for the interviews, focusing on gathering data from a heterogeneous population while considering participant characteristics such as position (notably managers), age, gender, and industry. This approach ensured that the data collected would be comprehensive and well-suited to addressing the research objectives.

4.7 Data Gathering Process

The data collection process for this research primarily relied on semi-structured interviews, focusing on key themes relevant to the mining industry, as Saunders et al. (2020) emphasised. Depending on the participants ' preferences and circumstances, these interviews were conducted using face-to-face or virtual platforms, such as Microsoft Teams or Zoom.

The interview process commenced with telephonic arrangements by the researcher, during which the purpose and expected duration of the interview were conveyed to the respondents. On the designated interview day, the researcher prepared essential preparatory documents, including an interview checklist and consent forms, adhering to the recommendations of Hair et al. (2020).

The interviews were initiated following an introduction following the interview guidelines. Explicit consent for participation and audio recording for transcription purposes was obtained from each respondent. The researcher maintained detailed notes throughout the interviews, facilitating familiarity with the data and ensuring thorough documentation.
After each interview, the researcher thanked the respondents for their participation and contribution. Subsequently, the interviews were promptly transcribed, with copies of the notes provided to the participants for reference, consistent with the methodology suggested by Saunders et al. (2020).

The research design strategically employed homogeneous interviews within the mining industry, leveraging selected instruments to enable a nuanced examination of commonalities and variations within the industry. This approach contributed to a more comprehensive understanding of the underlying themes and patterns, aligning with the research's qualitative nature and objectives.

Despite careful participant selection and a well-defined research scope, the data-gathering process was challenging. One significant challenge arose as the mining industry in the region underwent a restructuring phase. During this period, many middle and senior management positions fell within the study's scope, leading to some initially selected participants withdrawing from the interview process. However, the researcher adeptly managed this challenge by promptly replacing these participants with others who still met the established criteria. This adaptive approach ensured the preservation of a

representative and comprehensive sample.

The interviews ranged from 20 to 40 minutes, with each participant receiving the questionnaire before their scheduled interview. The initiative-taking nature of participants, who came well-prepared for the interviews, enriched the data quality, providing valuable insights into the research topic. All interviews were conducted through Microsoft Teams and were recorded for subsequent analysis. However, a technical issue disrupted the recording during the interview with Participant 6. To overcome this challenge, the researcher resorted to using voice memos for recording, ensuring that no crucial data was lost in the process. Furthermore, some interviews had to be rescheduled due to intermittent network issues, primarily stemming from scheduled load shedding in the region. These logistical challenges underscore the importance of flexibility and adaptability when conducting research in real-world settings.

Research Questions	**Literature Review**	**Proposed Interview Questions**
Q1: What e-leadership skills influence virtual team performance?	(Henderikx & Stoffers, 2022; Tigre et al., 2023)	Q1. What e-leadership skills do you believe are essential compared to others for managing virtual teams effectively? And why?
		Q2. Can you share an experience where a lack or presence of a particular leadership skill had a tangible impact on your virtual team's performance?
Q2: What factors contribute to virtual team performance?	(Cortellazzo et al., 2019; Morrison-Smith & Ruiz, 2020)	Q3. Beyond managerial skills, what other factors or conditions have you observed to significantly influence the performance of virtual teams?
		Q4. In your experience, how does communication technology impact virtual team collaboration and performance?
		Q5. How do team dynamics and interpersonal relationships affect the performance of your virtual team?
Q3: How can e-	(Chamakiotis et	Q6. How have you developed or enhanced your

leadership skills be developed to improve virtual team performance?	al., 2021; Tigre et al., 2023)	e-leadership skills?
		Q7. What tools or resources have you found most helpful in strengthening your e-leadership capabilities?
		Q8. What can you and your team members do to improve virtual team performance?

4.8 Data Management Plan

All interview data was recorded electronically and transcribed verbatim, eliminating any manual transcription errors. The data was stored securely in encrypted digital folders that only the researcher could access. To prevent any unforeseen data loss, multiple backup systems were implemented. Primary data was stored on encrypted cloud storage platforms, which guarantees data safety and allows for real-time access by the research team.

An independent professional transcriber **transcribed** the data for this research. Before beginning their task, the transcriber signed a non-disclosure agreement (NDA) to guarantee the confidentiality and security of the research information.

Once the study was finished, the data was stored electronically. It was kept for ten years in case there was a need for follow-up, more research, or audits. This long time frame ensures that the data can be used for checking or repeating the study, which is essential for keeping research transparent. After five years of storing the data, it was permanently removed. The deletion was done following data protection and ethical rules to ensure the data was erased and could not be recovered.

4.9 Data Analysis

The data was analysed using thematic analysis, following the six-step model proposed by Braun and Clarke (2021). This study aimed to answer the research questions, specifically focusing on the complexities and underlying themes within the mining industry.

Step 1. Familiarising oneself with the data: The researcher immersed themselves in the interview transcripts to identify preliminary ideas and patterns relevant to the research questions (Braun & Clarke, 2021). This step ensures a foundational understanding of the

participant's experiences and perceptions within the mining industry.

Step 2. Coding the data: During this phase, meaningful concepts specific to the mining industry and related to the research questions were labelled and categorised (Braun & Clarke, 2021). This step builds the structure for thoroughly examining the study's critical inquiries.

Step 3. Identifying themes: By grouping related codes into overarching themes, this stage drew together shared experiences and ideas that directly respond to the research questions (Braun & Clarke, 2021). This thematic structuring offers a nuanced view of the complexity of the mining sector.

Step 4. Reviewing themes: This step refined the themes to ensure they accurately represent the data in the context of the research questions (Braun & Clarke, 2021). The themes were adjusted to align them more closely with the study's primary objectives. This process involved analysing the data within each theme to identify any gaps or inconsistencies. The goal was to ensure that the themes accurately captured the diversity of perspectives and experiences within the mining sector, providing a comprehensive understanding of the research questions.

Step 5. Defining and naming themes: This phase focuses on shaping and naming the themes in line with the specific research questions (Braun & Clarke, 2021). The goal was to translate the data into insights that resonate with the study's focus on the influence of managers on team performance.

Step 6. Producing the report: The final step was synthesising the identified themes into a comprehensive report that directly answers the research questions (Braun & Clarke, 2021). This step provides a coherent analysis that contributes new insights into the mining industry by incorporating evidence from the interviews.

Regarding data analysis tools, ATLAS.ti was the primary software used for qualitative data analysis. This tool is renowned for managing varied data types; it facilitates meticulous categorisation, tagging, and data linkage. Any data conflicting with established themes was thoroughly examined in ATLAS.ti to discern its significance. This careful consideration ascertains a complete representation of the data spectrum in our findings. A combined

validation technique was used to vouch for the legitimacy of our identified themes: team discussions, expert reviews, and, when viable, participant feedback. This collective approach assures authenticity and alignment of our data interpretations with participants' real-world experiences in the mining domain.

4.10 Quality Controls and Rigor

The interviewer's skills in conducting the interview and collecting data during the process play a significant role in the quality of the data collected (Bhattacherjee, 2019). To ensure quality control pilot interviews were conducted to minimize the researcher's influence. The researcher frequently verified their interpretation of participant responses during the interview. A consistent interview guide was used, and the understanding of participants was checked throughout the interviews. Interviews were faithfully transcribed from recordings, ensuring data conformity (Saunders et al., 2020).

To minimise bias and capture the depth and breadth of experiences within virtual teams in the mining industry, this study sought insights from varied managerial roles such as operations managers, project managers, engineer managers and strategy managers, among others. Delineating their daily challenges responsibilities, and the innovative solutions they bring to the table ensures the study resonates authentically with stakeholders, enhancing the transferability of insights.

4.11 Research Limitations

This study, centred on the mining industry, acknowledges inherent limitations. While its insights were drawn primarily from a specific geographical region, they may not represent broader mining contexts or extend seamlessly to other sectors. The sample size and selection methodology might not encompass all industry perspectives. A cross-sectional approach captures data at a specific point in time and may not capture changes or trends that occur over a longer period. In the context of the mining industry, where dynamics and practices can evolve rapidly, a cross-sectional approach may not fully capture the complexity and nuances of the industry. It is important to note that the findings of this study reflect a specific moment in time and may not fully represent the current state of the mining industry.

The qualitative nature, particularly during interviews, introduces biases due to the researcher's influence or phrasing. Technical challenges from virtual platforms can include

issues with audio or video quality, internet connectivity problems, or difficulties in establishing rapport with participants due to the lack of face-to-face interaction. To mitigate these challenges, the researcher ensured that they had a stable internet connection and evaluated the audio and video settings before each interview. Additionally, the researcher made an effort to establish a comfortable and professional virtual environment to foster open and honest communication with participants. Lastly, unforeseen industry shifts or external events during the research could alter participants' viewpoints. Thus, these constraints should be considered when interpreting the study's broader applicability.

4.12 Research Ethics

Saunders et al. (2020) define Research Ethics as the moral principles that govern integrity, honesty, and respect in research, which is a vital consideration in this study focused on the mining industry. Ensuring informed consent, confidentiality, and responsible data handling is imperative (Bell et al., 2019). In interviews with managers and virtual team members, via platforms like Zoom and Teams, careful attention was paid to security and privacy measures.

The researcher secured ethical approval from the Ethics Committee at the Gordon Institute of Business Science (GIBS) before initiating the data collection process (see Appendix 2). Following a comprehensive explanation of the proceedings and an assurance of confidentiality, all participants were requested to complete a Consent Form (see Appendix 3). To safeguard anonymity, the findings were reported using participant numbering in place of the participant's actual names.

4.13 Avoidance of Harm

Saunders et al. (2020) define avoidance of harm as an ethical principle to prevent physical, psychological, or emotional harm to participants, which is a central concern in this study on the mining industry. Care was taken to frame interview questions that avoid personal or sensitive areas, and participants knew that they could decline or withdraw without penalty (Bell et al., 2019). Virtual interviews via Zoom and Teams were managed with a focus on privacy. This study's approach reflects a conscious commitment to respect the well-being of all involved, ensuring that insights are gained without compromising participants' welfare.

4.14 Informed Consent

Saunders et al. (2020) describe Informed consent as the process where participants are given complete and transparent information about the research's purpose, methods, risks, and benefits, and they voluntarily agree to participate. In this study involving the mining industry, obtaining informed consent was vital. Participants were provided with detailed information about the study and had the opportunity to ask questions before agreeing to participate. This process was carefully documented to reflect the study's commitment to transparency and respect for participants' autonomy and decision-making to not continue with the interview.

4.15 Privacy

According to Bell et al. (2019), privacy in research entails protecting the confidentiality and anonymity of the participants' information. This study's focus on privacy was paramount, especially in handling sensitive information from managers and virtual team members. Data was securely stored, and any public reporting anonymised participants to prevent identification. In addition, data was stored without identifiers. In conducting this research, safeguarding privacy is not merely a procedural necessity, but a reflection of the respect and consideration afforded to all participants. All personal information collected and processed in this study was managed strictly with the Protection of Personal Information Act (POPIA) of South Africa, ensuring the lawful, transparent, and secure management of participants' data.

4.16 Deception

According to Bell et al. (2019), deception in research refers to intentionally misleading or withholding information from participants about the true nature or purpose of the study. In most ethical frameworks, deception is used only when necessary and when it does not cause harm to participants. Within the context of this study on the mining industry, the policy was clear that deception was not employed. The researcher did not impose her conclusions and biases on the participants. All aspects of the research were disclosed to participants, ensuring that trust was maintained and that the study's ethical standards were upheld throughout.

4.17 Handling of Biases

It is acknowledged that individual researchers can inadvertently introduce biases based on personal beliefs or experiences (Bell et al., 2019). In this study, an initiative-taking

approach was taken to mitigate potential biases. By constantly engaging with literature and referring to the research objectives, the researcher aims to remain objective and focused on the research questions. Recognising the potential for industry-specific biases within the mining sector, this study also ensured that a diverse range of literature and expert insights were consulted to provide a balanced perspective.

The research was conducted within a specific geographic area, the Northern Cape to be specific, and there is a recognition of the potential for geographical biases. However, the study aims to account for this by including participants from different mines within the same region. Even within a confined geographical space, mines can have varied practices and perspectives. By diversifying participant selection from different mines, the study hopes to present a holistic view of practices and opinions in the region, thereby mitigating biases stemming from a singular geographical focus.

5. Findings and Results

5.1 Introduction

According to Ben Sedrine et al. (2020), in the context of managing virtual teams, e-leadership pertains to the capacity of team leaders to effectively guide, inspire, and organise team members who are geographically dispersed and rely on technology and electronic communication for collaboration. It encompasses diverse competencies and strategies that are pivotal for leading remote teams to achieve success and maintain productivity (Ben Sedrine et al., 2020a).

The primary objective of this study is to examine the impact of managers' e-leadership skills on the performance of virtual teams. Such an investigation is crucial as it not only facilitates the enhancement of leadership capabilities among managers but also fosters improved decision-making processes, enabling companies to gain a competitive advantage in the market.

This study delineates three specific goals. Firstly, it aims to assess the e-leadership skills possessed by managers that have the potential to influence the performance of virtual teams. Secondly, it seeks to explore the various factors that exert an influence on the performance of virtual teams. Lastly, the third goal involves formulating strategies and recommendations designed to enhance managers' e-leadership skills, thereby fostering improved performance within virtual teams.

The present analysis is based on data collected from 12 interviewees who provided qualitative responses to inquiries outlined in the interview guide. This analysis entails the utilisation of various methodologies, including text querying, incorporating verbatim statements, integrating quotations, referencing, and applying network analysis techniques, all facilitated through Atlas ti software.

5.2 Description of Sample

5.2.1 Demographic Information

Before presenting the research findings and their interpretation, this section furnishes the demographic information of the study participants. Figure 5.1 illustrates participants'

respective roles or positions within the organisation and indicates that most participants, comprising 7 out of 12 individuals, were female. In contrast, a smaller fraction, consisting of 5 out of 12 individuals, were male. This deliberate inclusion of female and male managers aimed to attain a balanced perspective on e-leadership. Notably, all participants held degrees and occupied senior managerial roles across various professions, directly involved in organisational management. Furthermore, all interviewees possessed more than a decade of managerial experience and were active participants in the mining industry. This careful selection of participants, encompassing individuals from diverse genders, well-educated backgrounds, and extensive managerial experience, was instrumental in ensuring a well-informed examination of the emerging phenomenon of e-leadership.

Participant	Gender	Role/Position	Education	Industry	Experience
1	F	Senior Manager Maintenance	Masters	Mining	> 12 Years
2	M	Senior Manager Engineer	Masters	Mining	> 12 Years
3	M	Director (Drilling Company)	Honours	Mining	> 15 Years
4	M	Senior Manager Communication	Bachelors	Mining	> 10 Years
5	F	Senior Management Project	Bachelors	Mining	> 10 Years
6	F	Director (Project Consultant)	Honours	Mining	> 12 Years
7	F	Senior Manager Finance	Bachelors	Mining	> 12 Years
8	F	Medical Doctor	Doctorate	Mining	> 12 Years
9	M	Senior Manager Engineer	Honours	Mining	> 10 Years
10	F	Senior Manager Construction	Masters	Mining	> 12 Years
11	F	Senior managers Project	Honours	Mining	> 12 Years
12	M	Senior Manager Engineer	Masters	Mining	> 15 Years

Figure 5.1:Characteristics of Participants

5.2.2 Data Saturation Test

We systematically evaluated the newly generated codes after each analysis to assess data saturation within the sample of 12 conducted interviews. Figure 5.2 visually represents the process of achieving data saturation.

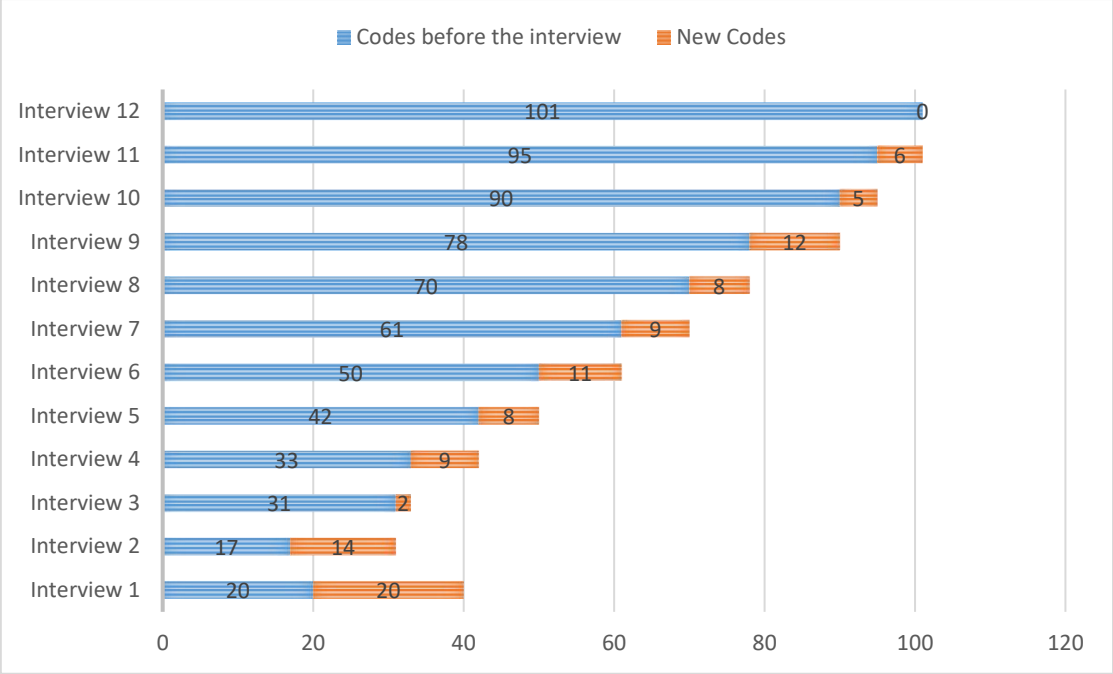

Figure 5.2: Data Saturation Process

During the transcript evaluation conducted using Atlas. ti, a total of 101 codes were created. Data saturation was confirmed upon concluding the twelfth interview. This determination was made as no novel codes emerged in Interview 12 that diverged from those identified in the preceding 11 interviews. Furthermore, subsequent interviews were not expected to yield additional unique codes.

The second interview yielded the highest number of newly generated codes, totalling fourteen. In contrast, Interview Three produced the lowest number of novel codes compared to the initial interview. Notably, Participant Six and Participant Nine introduced many new codes, highlighting their significant expertise in the hybrid working environment and e-leadership.

The absence of a progressive decrease in the generation of new codes from the first interview to the eighth interview underscores the intricate nature of the research and the continual emergence of fresh insights throughout the data collection phase. This dynamic contributed to establishing the findings' trustworthiness, as expounded upon in chapter four.

5.2.3 Word Cruncher Analysis

In this study, a thematic analysis was conducted using Atlas. ti, encompassing all available transcripts. The Atlas. ti word cruncher tool was employed to identify the primary themes within the transcripts. The thematic analysis process involved coding and categorizing the data into meaningful themes, which were then analyzed and interpreted to uncover patterns and connections. This rigorous approach ensured the validity and reliability of the findings, enhancing the overall credibility of the research. Specific criteria were applied to filter out irrelevant elements, including stop list words, single letters, and integers. The stop list underwent a meticulous review and was updated based on the researcher's discretion, eliminating terms deemed irrelevant to the study. Words such as "will," "far," "get," "I'm," "that," "we," "been," and "more" were included in the stop list.

Subsequently, Microsoft Excel was utilised to analyse the initially identified 2,533-word list. To ensure the integrity of the word cruncher analysis, equivalent words and acronyms were consolidated into single entries, reducing the list to 2,533 words. Words with a frequency of less than five occurrences were excluded from the analysis, resulting in a refined list of 200 words. Figure 5.3 presents the top 15 terms from this culled list.

Word	Length	Count ▼	%
team	4	463	8.38
virtual	7	380	6.88
leadership	10	366	6.63
performance	11	281	5.09
people	6	242	4.38
skills	6	191	3.46
technology	10	129	2.34
communication	13	116	2.10
traditional	11	66	1.20
understanding	13	65	1.18
collaboration	13	55	1.00
influence	9	54	0.98
skill	5	54	0.98
meeting	7	53	0.96
environment	11	49	0.89
online	6	49	0.89

Figure 5.3: Word Cruncher Analysis

The data has been visually depicted by creating a word cloud, using the software, Atlas. Ti. See Figure 5.4 below.

Figure 5.4: Word Cloud

The central aspects of this e-leadership research were consistently highlighted throughout the interviews, signifying the participants' commitment to addressing questions related to e-leadership. The recurrent use of terms like "team" and "virtual" within the discussions underscores their significant relevance in the context of e-leadership. Additionally, the word "performance" received particular emphasis, underlining the notion that the ultimate result of any leadership approach, be it in a virtual, in-person, or hybrid setting, is performance.

5.3 RQ1: What e-leadership skills influence virtual team performance?

5.3.1 Theme 1: E-leadership, Differences, and Virtual Team Performance

5.3.1.1 Subtheme 1.1: E-leadership in virtual team's management

Participants were queried about their conceptualisation of e-leadership within the context of managing virtual teams. The present study unveiled several salient sub-themes, which are presented below along with their respective prevalence and significance (in parentheses): Technology platforms [18, 4]; leading remotely [16, 4]; Virtual team management [9, 4]; Work from Home [5, 4]; Being understood in the absence [1, 4].

The participants emphasised the role of technology in their descriptions of e-

leadership. These findings indicate that E-leadership entails the remote management of teams through the utilisation of technology, including virtual communication platforms. Participants frequently highlighted the importance of effectively guiding and coordinating teams from a distance, leveraging electronic tools and digital platforms. E-leadership encompasses a range of strategies and practices aimed at building trust, nurturing relationships, and facilitating clear communication among team members. It holds relevance for overseeing teams within South Africa or across diverse time zones globally. The management of virtual teams necessitates the adept use of digital platforms for conducting meetings, sharing files, and engaging in collaborative tasks, necessitating a thorough understanding of the functionalities and advantages of these tools. E-leadership represents a contemporary concept that empowers management to drive performance through technology, facilitating communication across varied locations and timeframes.

Figure 5.5 below presents a network analysis illustrating the distinctions between traditional leadership and e-leadership. Given the interconnectedness of these sub-themes and their relevance, a network analysis is provided to elucidate their relationships further.

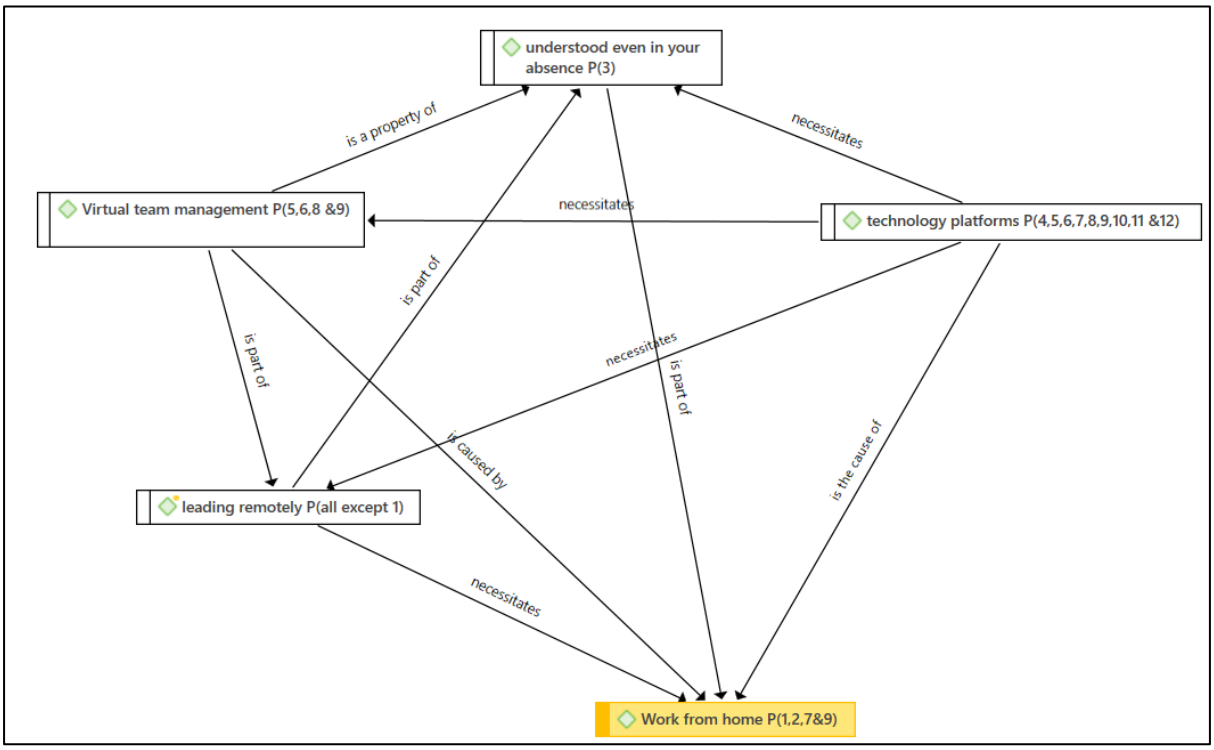

Figure 5.5: Traditional Leadership and E-Leadership Network Analysis

The findings indicate that participants have a solid grasp of various aspects, including technology, virtual team management, and leading from a distance while ensuring effective communication even in the absence of physical presence. These results underscore the participants' clear understanding of how e-leadership enables individuals to work remotely, which can be summarised succinctly. Participant 8 in particular, highlights that in the expression below:

> *"e-leadership in my view will be the type of leadership which is mediated by technology with the aim of influencing behaviour and/or performance to achieve strategic goals. So that is when one is managing virtual teams."*

5.3.1.2 Subtheme 1.2: Differences between traditional leadership and e-leadership

Participants were asked about their perception of differences, if any, exist between traditional leadership and e-leadership. Figure 5.6. below are the differences which were observed.

Code	Grounded	Density	Code Groups
Output driven	10	4	Differences
Technology-based	9	4	Differences
Flexibility	8	4	Differences
Not people centred	8	1	Differences
Remote relationship	3	2	Differences
Less costly	1	2	Differences
Practical	1	3	Differences

Figure 5.6: Differences Between Traditional Leadership and E-Leadership

Figure 5.6 illustrates those four primary distinctions, characterised by a higher frequency of narrative instances, are output-driven, technology-based, flexible, and not people-centred. Conversely, the least observed differences pertain to being less costly, practical, and involving remote trust in co-workers.

One notable difference that participants identified between traditional leadership and

e-leadership revolves around being output-driven. E-leadership places a premium on being outcome-oriented and emphasises results over physical presence. Given this emphasis on results, e-leadership typically involves monitoring key performance indicators (KPIs) and regular check-ins. In contrast, traditional leadership often focuses on personal connections and physical presence as metrics of measurement. E-leadership places a stronger emphasis on performance, milestones, and outcomes, while traditional leadership places a higher premium on people skills and empathy.

The ability to be output-driven is facilitated by e-leaders' capacity to connect with team members through technology. Participants underscored the importance of acquiring technological proficiency and employing appropriate tools and platforms to enable e-leadership. Additional differences encompass technological communication mediums and platforms, team interaction, and the methods of supervision and monitoring. Traditional leadership tends to rely on face-to-face communication and in-person interactions, while e-leadership leans heavily on electronic communication tools and deliberate measures to facilitate team interactions.

Furthermore, participants concurred that, in comparison to traditional leadership, e-leadership is less people-centred, as it does not hinge on face-to-face interaction and the cultivation of trust through physical presence. E-leadership necessitates leaders to adapt to virtual technological communication platforms and technology. Another crucial distinction is that e-leadership allows for greater flexibility in communication and does not mandate physical presence. In contrast, traditional leadership entails daily face-to-face interaction and direct management.

To a lesser extent, as indicated in Figure 5.6 in terms of logistics and costs, traditional leadership often entails travel and accommodation expenses. At the same time, e-leadership facilitates virtual meetings and collaboration with minimal costs. These differences can also depend on the level of employees being led; professionals and managers may have similar expectations regardless of leadership style, while lower-level employees may require more physical management in the context of traditional leadership.

In sum, the findings highlight differences in the ability to connect and build

relationships, the choice of communication mediums and platforms, team interaction, supervision and monitoring methods, and the prioritisation of results between traditional leadership and e-leadership.

5.3.1.3 Subtheme 1.3: Understanding of virtual teams' performance.

Participants were questioned regarding their comprehension of virtual teams' performance. The current study revealed several distinct sub-themes, which are presented below along with their respective prevalence and significance (in parentheses): Results [9, 4]; Technological competence and collaboration [8, 4]; Deliverables [6, 4]; Effectiveness and efficiency [5, 4]; Schedules and milestones [2, 4]. Figure 5.7 provides an overview of the aspects highlighted by participants within these sub-themes.

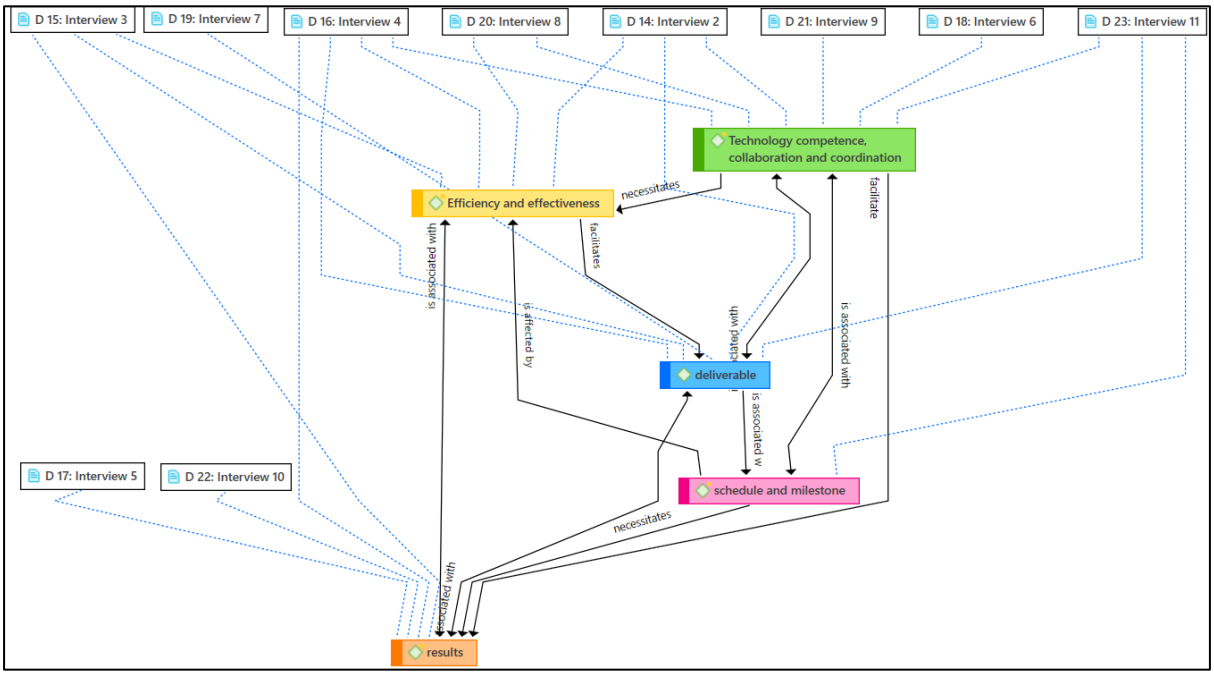

Figure 5.7: Virtual Team Performance Indicators

The findings suggest that participants hold the view that virtual team performance should be equivalent to that of physical teams. They underscore the significance of achieving results, possessing technological proficiency, fostering collaboration, delivering on commitments, ensuring effectiveness and efficiency, and adhering to schedules and milestones. The results snapshot indicates that performance within a virtual setting revolves around outcomes rather than mere attendance, with an emphasis on the need for technological competence, effective collaboration, and the provision of performance feedback within virtual teams.

Participant 9, in particular, highlights that within a virtual environment, measuring performance competently and collectively tracking progress hinges on employees adopting a self-driven approach to producing results. As expressed by Participant 9:

> *"Okay, I would say traditional leadership is more like policing, you know. You want people to do things when they see you or when they are in an environment where they can be seen and monitored and tracked, whereas e-leadership, according to my understanding, is more like people who are self-driven and don't need to be in an office to do their work."*

Therefore, the findings elucidate that the desired outcome defining virtual team performance is the attainment of output and results, aligning with the principles of traditional leadership.

5.3.2 Theme 2: What e-leadership skills influence virtual team performance?

5.3.2.1 Subtheme 2.1: What e-leadership skills are essential compared to others for managing virtual teams effectively?

Participants were queried regarding the e-leadership skills that exert an influence on virtual team performance. The present study has yielded several notable sub-themes, which are depicted in Figure 5.8 below.

Name	Grounded	Density	Groups
digital communication skills	13	2	[e-leadership skills]
technology skills	9	9	[e-leadership skills]
Emotional intelligence	5	5	[e-leadership skills]
time and task management	4	2	[e-leadership skills]
adaptablility skills	3	1	[e-leadership skills]
dynamics skills	3	2	[e-leadership skills]
soft skills	3	1	[e-leadership skills]
Buyin and Motivational skills	2	1	[e-leadership skills]
Traditional leadership skills	2	8	[e-leadership skills]
Influence skills	2	2	[e-leadership skills]
empowering skills	1	1	[e-leadership skills]
conflict resolution	1	1	[e-leadership skills]
interpersonal	1	1	[e-leadership skills]
forward thinking skills	1	2	[e-leadership skills]
cultural sensitivity	1	1	[e-leadership skills]
empathy	1	1	[e-leadership skills]

Figure 5.8: E-leadership Skill Requirement

E-leadership necessitates proficiency in various skills, with digital communication skills, technology skills, emotional intelligence, and time and task management emerging as the top essential skills. At a medium level, e-leaders would also require adaptability, dynamism, and soft skills, while to a certain extent, they would need a blend of traditional leadership skills, persuasive abilities, and motivational skills. On a lower level, managers would benefit from possessing skills such as cultural sensitivity, empowerment, conflict resolution, people skills, forward-thinking, and empathy. Many of these skills intersect with each other, not solely due to their categorisation but also because combinations of these skills are imperative for thriving as an e-leader.

Participant 2 and 4, in particular, highlights that technological skills and digital communication are essential skills as shown below:

Participant 2:

"I think first of all you need to have technology skills. You need to be affordable of technology. You don't have to be an expert; I think

even if we're in the workplace we use technology a lot, even if we are in the workplace. But I think you also need to understand how technology influences people."

Participant 4:

"We are in a unique era. And I would say for me, critical. One will be digital communication proficiency. You have to be proficient with your digital communication. So, you need to, as a leader, you need to excel in different digital communication tools."

Figure 5.9 illustrates that technology skills and emotional intelligence considered traditional skills, interact with numerous other skills required for e-leadership. It further demonstrates that technology and conventional leadership skills intersect with most of the essential skills. The red colour signifies skills with a high frequency of mentions, while the blue colour denotes skills that are components of broader skill sets.

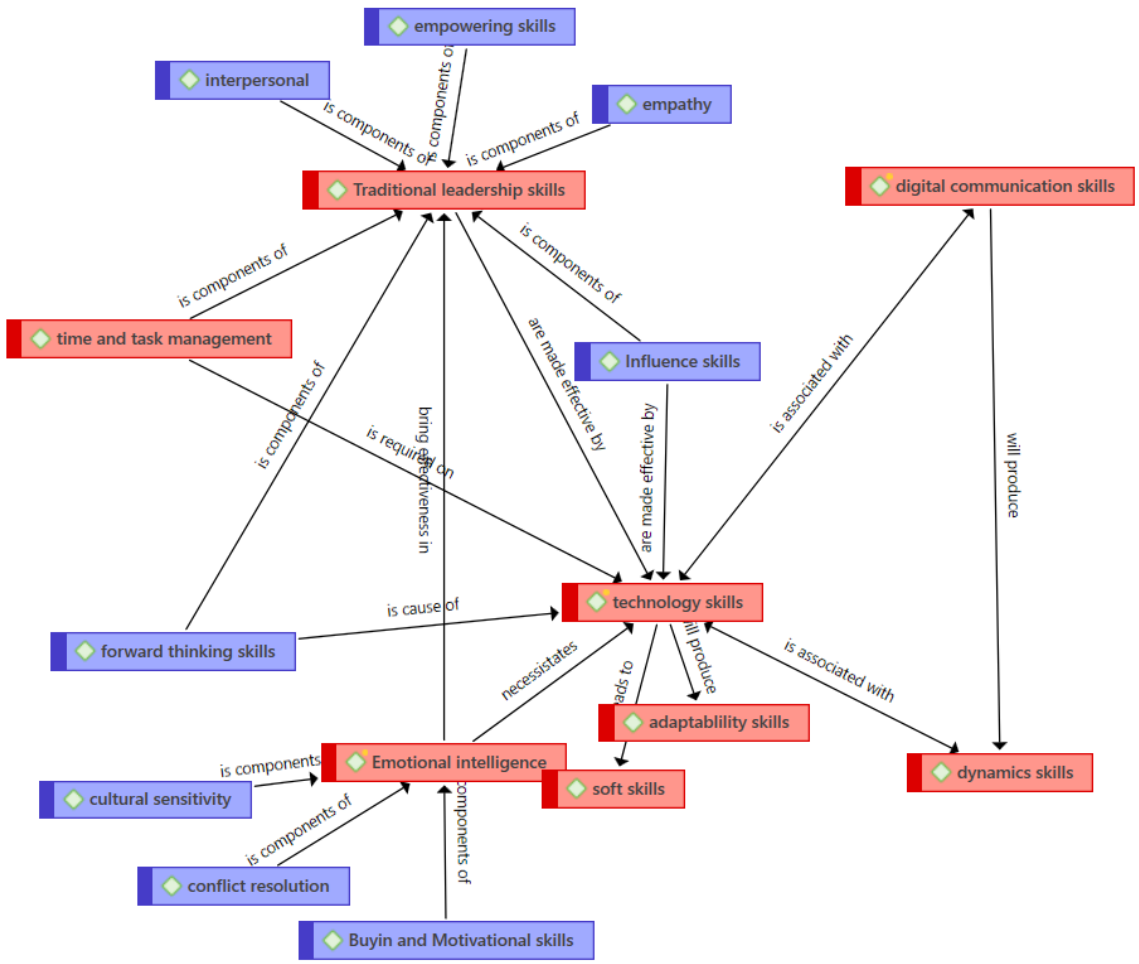

Figure 5.9: Essential E-leadership Skills Network Analysis

Drawing from the findings presented in Figures 5.8 and 5.9, it is evident that leaders must possess a profound understanding of technology and the ability to use digital communication tools effectively. Effective communication and people skills are indispensable for cultivating trust and nurturing a productive team environment. Leaders should empower their team members to make decisions while providing support and training to ensure success in a virtual work environment.

Leaders of virtual teams rely on technology, including tools like WhatsApp, free Wi-Fi, and Microsoft Teams, to facilitate efficient communication and collaboration. These platforms are integral for remote work and effective virtual leadership. Leaders in the realm of virtual teams should be tech-savvy, decisive, and adept at prioritising tasks. Clear and concise communication, combined with adequate planning and record-keeping, are also crucial skills for virtual leaders. Furthermore, proficiency in using virtual software and platforms, such as cloud storage and video conferencing tools, is essential for facilitating effective communication, particularly in industries like mining.

5.3.2.2 Subtheme 2.2: Experience of lacking skills

Participants were asked to describe situations where the absence or presence of specific leadership skills affected the performance of their virtual teams. Here is a summary of the critical skills they identified as potentially problematic when lacking.

Name	Grounded	Density	Groups
lacking good digital communication...	4	0	[lacking of skill]
lack of prioritisation	2	0	[lacking of skill]
lack of empathy	2	0	[lacking of skill]
lacking vision	1	0	[lacking of skill]
read team participatory dynamics	1	0	[lacking of skill]
lacking adaptability skills	1	0	[lacking of skill]

Figure 5.10: Critical E-leadership Skills

As shown in Figure 5.10, the results indicate that leadership skills that can significantly affect virtual teams are a lack of strong digital communication skills or

resistance to technology, a shortage of empathy, poor prioritisation, and a lack of vision. These skills are crucial for effectively managing and engaging remote employees, ensuring their productivity and well-being. Additionally, failing to understand team dynamics and not providing opportunities for quieter team members to contribute can lead to confusion and a feeling of exclusion. Neglecting to incorporate participatory activities within teams can undermine trust in managers, such as sharing sensitive information without consent, potentially hindering collaboration among virtual teams.

5.4 RQ2: What factors contribute to virtual team performance?

5.4.1 Theme 1: Other Factors Affecting Virtual Team Performance

Participants were asked to identify factors or conditions they have observed to impact the performance of virtual teams significantly. Here is a summary of these factors and conditions, apart from e-leadership or managerial skills, as reported by the participants.

Name	Grounded	Density	Groups
clear meeting agenda	11	5	[Other factors] [Resource requirements]
flexibility	8	2	[Differences] [Other factors]
reliable technology and tools	6	5	[Other factors]
cultural background	5	3	[Other factors]
Self displine	3	3	[Other factors]
adaptability	3	2	[Other factors]
diverse team composition	3	1	[Other factors]
trust and social cohesion	3	1	[Other factors]
Work environment set-up	3	1	[Other factors]
good commmunication	3	2	[Other factors]
emotional intelligences	2	2	[Other factors]
more work-life balance	2	1	[Other factors] [Suggestions to up VT perfomance]
clear policies: e.g work from home, insurance	2	2	[Other factors]
Infrastructure challenge : e.g loadshedding	2	1	[Other factors]
lack of incentives and prioritisation	1	1	[Other factors]
Accountability	1	2	[Other factors]

Figure 5.11: Additional Factors Influencing Virtual Team Performance

Figure 5.11 illustrates that numerous factors contribute to optimal virtual team performance. In summary, ensuring effective virtual team performance requires several key elements. It is essential to establish a clear meeting agenda prior to virtual meetings. Flexibility in scheduling meetings is crucial for achieving efficiency and effectiveness in team performance. Using reliable technological tools, such as video conferencing and project management software, is vital for facilitating effective communication and collaboration. Managers should also take into consideration the cultural backgrounds of team members to address issues related to humour and

offensive remarks.

Moreover, maintaining a conducive work environment, practising self-discipline, and adaptability, fostering diverse team composition, nurturing trust, and cohesion, and possessing effective communication skills are equally important. Providing employees with an ergonomic setup, including desks, screens, and ergonomic chairs, contributes to their well-being. A diverse team composition encompassing a variety of skills and expertise is beneficial. Clear work-from-home policies should be in place to address employee protection and insurance concerns. Cultural sensitivity and work-life balance considerations are essential to prevent negative impacts on performance. Managers play a pivotal role in setting clear meeting agendas and ensuring team accountability. Infrastructure challenges, such as power outages, can directly affect technology reliability and team performance.

Trust, social cohesion, accountability, understanding and respecting diverse cultural backgrounds, building professional relationships, effective communication, emotional intelligence, flexibility, self-discipline, setting clear objectives, proper document control, using appropriate platforms, having adequate equipment and reliable internet, and trusting the team are all integral aspects of effective e-leadership and virtual team management. Figure 5.12 below depicts the relationships and interactions among these factors contributing to virtual team performance.

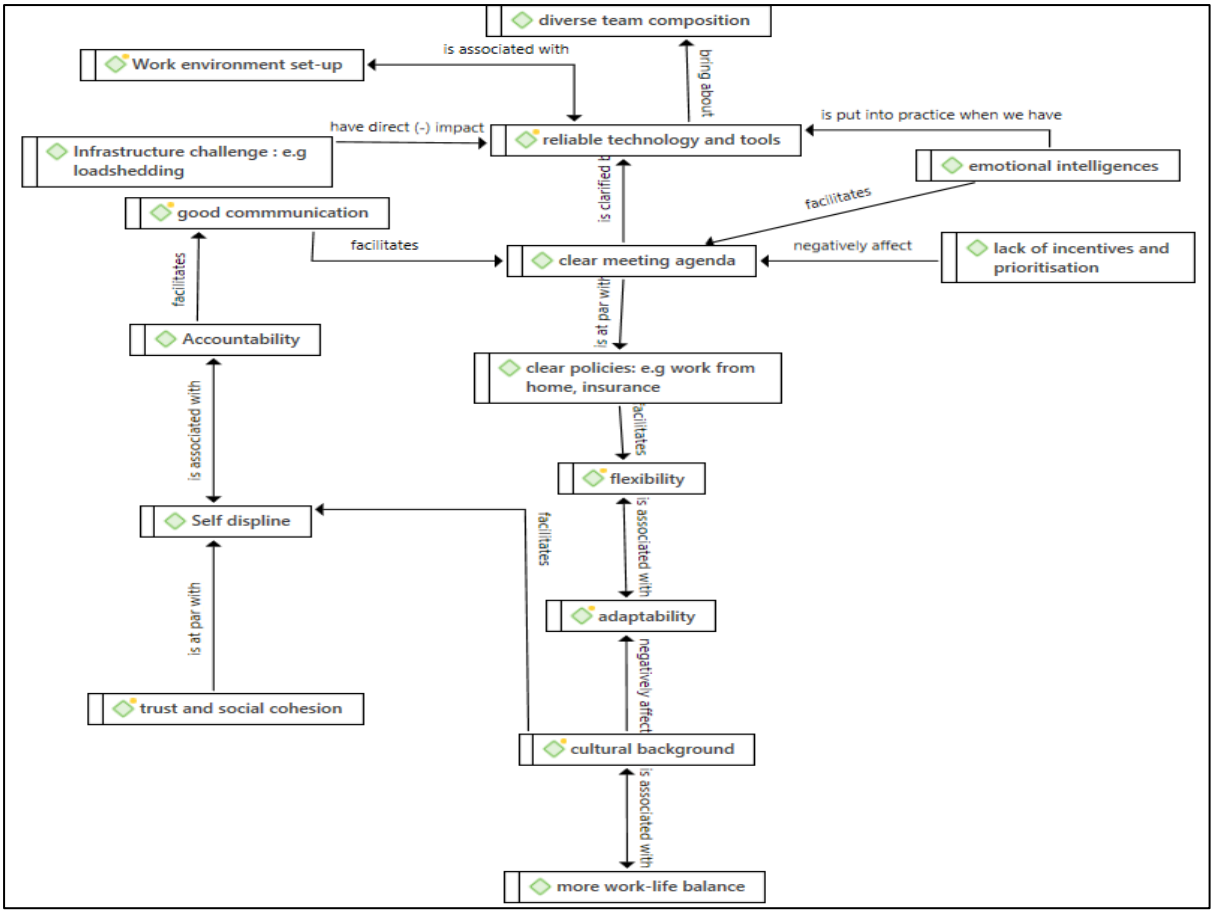

Figure 5.12: Network of Factors Contributing to Virtual Team Performance

Figure 5.12 demonstrates that each factor is interconnected with another. Notably, reliable technology supports the practice of emotional intelligence and facilitates clarity in meeting agendas. Diverse team composition can be facilitated by reliable technology. However, infrastructure challenges, like power outages, have a direct adverse impact on technology reliability.

5.4.2 Theme 2: Influence of Communication Technology on Virtual Team Collaboration and Performance

Given the prominence of technology and communication in discussions related to e-leadership skills and skills essential for organisational success, participants were invited to share their experiences regarding how communication technology affects collaboration and performance in virtual teams. Figure 5.13 below provides a summary of the impact of communication technology skills on virtual team collaboration and performance.

Name	Grounded	Density	Groups
(-) costs	1	1	[ICT impact]
(-) empowerment	1	2	[ICT impact]
(-) fatigue and different time zones	1	1	[ICT impact]
(-) lack interations	5	1	[ICT impact]
(-) lack techknowhow	1	2	[ICT impact]
(-) loadshedding	2	4	[ICT impact]
(-) wifi and network	5	1	[ICT impact]
(+) e-leading through documenting and tracking	1	3	[Enhance and Develop] [ICT impact]
(+) global	2	4	[ICT impact]
(+) platform connectivity	2	4	[ICT impact]
(+) quicker	2	2	[ICT impact]
(+) realtime and efficient collaoration	9	7	[ICT impact]
(+) saving	1	3	[ICT impact]
(+) teamwork virtual meetings	1	5	[ICT impact]

Figure 5.13: Impact of Communication Technology Skills

Communication technology, particularly mobile phones, and laptops, has both positive and negative effects on virtual team collaboration and performance. On the positive side, communication technology enables faster and more efficient real-time collaboration and communication through various connectivity platforms and networks. This allows teams to discuss issues, make decisions, and share ideas in real-time. It facilitates teamwork meetings and collaboration via platforms like Teams, where everyone can participate and contribute to group and team-based tasks. Additionally, communication technology supports e-leadership by enabling the documentation and tracking of project progress, enhancing team collaboration. It also facilitates global connectivity for team members working in multinational companies.

However, there are challenges to consider. Firstly, data costs and limited access to Wi-Fi, especially for employees without a mobile phone allowance, can limit effective communication and collaboration. Inadequate data and Wi-Fi access, as well as poor network connectivity, can hinder team members from connecting effectively. Additionally, power outages, such as load shedding, can disrupt connectivity and impact virtual team collaboration. Different time zones can pose challenges as team members may connect without regard for others' potential fatigue. Furthermore, communication technology may prevent physical interactions, which can be essential for resolving technical issues that require direct and in-person office interactions. It also assumes that all employees are proficient in working virtually, whereas some may need training to use common platforms like Zoom and Teams effectively.

To address these challenges, companies should consider the cost implications of

communication technology and ensure that employees have access to reliable internet and data. Regular team meetings and debriefing sessions can promote collaboration and address any issues or challenges. Familiarity with the technology being used and effective utilisation of its features and tools is crucial for team members. By addressing these factors, teams can maximise the benefits of communication technology for virtual collaboration and performance. Because there are interactions between negative and positive impacts of ICT-related variables, unfavourable implications on collaboration and communication can be mitigated. The network of relationships is depicted in Figure 5.14.

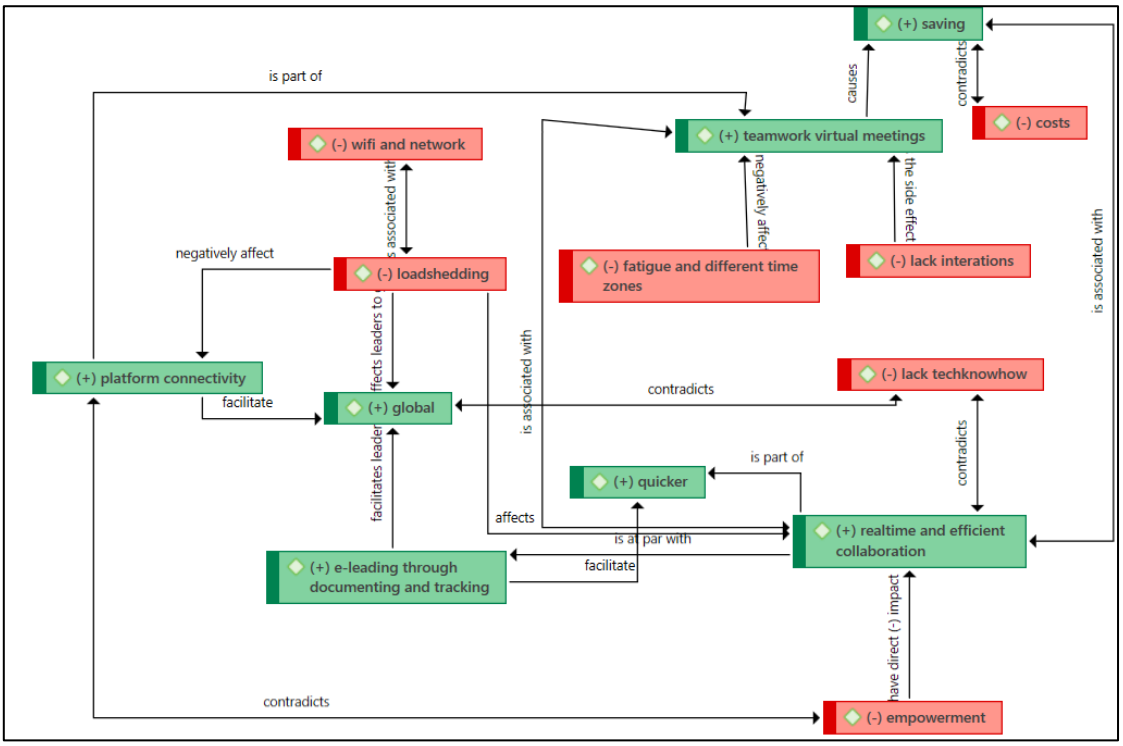

Figure 5.14: Communication Technology and Virtual Team Performance Network Analysis

In summary, the impact of communication technology, such as Microsoft and Zoom, can be positive when used effectively and when users are trained in their use. These technologies can save costs and time. However, they can have negative impacts in areas with poor network signals or infrastructure issues, leading to communication challenges. Proper technology infrastructure is essential for clear communication and achieving desired outcomes. Leadership practices can drive collaboration in virtual teams, but the effectiveness of communication technology can significantly impact team performance. Regular feedback and organisation are crucial in virtual settings, with communication technology playing a significant role in facilitating these

processes.

5.4.3 Theme 3: Impact of Team Dynamics and Interpersonal Relationships

Participants emphasised that team dynamics and interpersonal relationships significantly influence the performance of virtual teams. In response to the question, "How do team dynamics and interpersonal relationships affect the performance of your virtual team?" their sentiments are outlined below:

P	Quotation
1	*If the team is not related, the team will not be able to perform. That is why they can support each other, and that is why they can achieve together and create magic through connection, that is, through interaction.*
2	*I think with interpersonal relationships, one aspect that's going to be key is when a new member knows the team; he doesn't know the people, doesn't know the person's behaviour, doesn't know the tradition.*
4	*Yeah. Yeah, I think, you know, communication technology plays a sort of what, you know, what's a beautiful word. So, I think how communication technology influences virtual teams; I think you want to look at the enhanced connectivity.*
5	*Yeah, it affects because you don't quite have the full experience of someone expressing their contribution or input to whether the team or the meeting or the conversation; so, for me, they affect that. You know, even the interpersonal relationships, it's almost not so real.*
6	*So, team dynamics are almost like the foundation. You know you will sometimes sit in meetings where people, you know, someone will just put themselves on mute and will be quiet the entire meeting. And then interpersonal relationships similarly, I think me this speaks more to how members engage with one another and also the trust I referred to earlier which is paramount.*
7	*So, for me, the virtual platform doesn't create real connections among the team. So, we can be online as the same team working for years, but never friends; you cannot trust each other at a personal level. I think it is easier for people to work virtually having different backgrounds.*
8	*Now from a virtual platform people of different ethnicities will have different ways of maybe viewing something or I would perceive someone else's tone on the email in a certain way. So that can affect the team's performance in such a way that you have people that are starting to have perceptions about each other and that can just impact on your team in general.*
10	*Some of the people are introverts, some are extroverts. Some they prefer to work in silos. You know, this e-learning thing is working well for those people who are introverts, because they don't want to see people in face.*

11	*I see that organisations are moving to a point where they manage their risk of key personnel, for instance in procurement, networking in the environment that they stay, by removing the procurement personnel from the operations itself so that* ***no deeper connection happens*** *between procurement officers and the people on the ground, or the community in which they operate.*
12	*We need to somehow find common ground on how we can ensure that the guy who is staying in that type of environment also becomes productive and effective in what he does.*

A strong liking and connection among team members are vital for providing support and fostering collaboration. However, virtual teams may struggle to cultivate this element because of the absence of face-to-face interaction and personal connections. Trust and understanding among team members are essential for enhancing performance. Communication technology plays a crucial role in virtual team collaboration and performance by facilitating connectivity, information sharing, and access to talent on a global scale. Nonetheless, virtual platforms may not foster genuine connections and personal relationships among team members, which can impact performance. Furthermore, the diversity in backgrounds, perceptions, and conflicts can influence team dynamics and performance. Each individual's personality and working style also have an impact on team performance in a virtual setting. Introverted individuals may find the virtual environment more suitable, while extroverted individuals may struggle with the absence of in-person interaction.

In summary, the individual believes that virtual teams suffer from a lack of non-verbal communication, which affects the development of interpersonal relationships. They also note that organisations are physically separating key personnel from the operational teams, limiting opportunities for networking and relationship-building. They recognise that different environments can influence the productivity and effectiveness of individuals within virtual teams.

5.5 RQ3: E-Leadership skills that enhance virtual team performance.

5.5.1 Theme 1: Technology and Technical Skills

A strong consensus emerges from the responses of those surveyed regarding the significance of technology in e-leadership. Notably, 10 out of 12 participants emphasised the importance of technology or technical skills. Here are some of the

key phrases from their responses:

P 1	Ergonomic Support, Technology Accessibility, Communication, Motivation, Resource Allocation, Collaboration, Adaptability, Leadership Skills, Problem Solving, Inclusivity
P 6	Embrace and Enjoy Technology, Digital Problem-Solving, Internet Research Skills, Technical Proficiency, Adaptability, Self-Initiative, Information Evaluation, Online Communication, Problem Identification, Continuous Learning, Collaboration Facilitation
P 7	Technical Proficiency, Adaptability, Communication Skills, Digital Literacy, Problem-Solving, Leadership Presence, Facilitation Skills, Time Management, Engagement and Inclusivity, Feedback and Evaluation, Cybersecurity Awareness, Remote Team Building, Project Management, Conflict Resolution, Crisis Management
P 10	Continuous Learning, Training, Skill Strengthening, Adaptability, Self-motivation, Initiative-taking Learning, Continuous Improvement, Collaboration, Technology Proficiency, Problem Solving.

To effectively lead and manage virtual teams, e-leaders must possess proficiency in various technologies and tools. The evolution of e-leadership in response to technological advancements is evident. Contemporary leadership necessitates the utilisation of technology and digital platforms to facilitate collaboration and communication. This underscores the importance of tech-savvy e-leaders, suggesting that traditional leadership qualities may no longer suffice in the digital era.

As noted by Chamakiotis et al. (2021) and van Wart et al. (2019), technology is not merely an isolated aspect of e-leadership; it is an integral component. E-leadership now entails leveraging technology to advance organisational objectives, extending beyond traditional people-oriented skills. Proficiency in data analytics, virtual collaboration tools, and communication platforms is essential for effective e-leadership (Chamakiotis et al., 2021; Van Wart et al., 2019).

The ultimate aim of developing technology-focused e-leadership skills is to enhance the performance of virtual teams. Technology can streamline processes, improve communication, and foster better teamwork, as supported by Contreras et al. (2020) and Kashive et al. (2022). This underscores the recognition within businesses that having tech-savvy leaders can yield positive outcomes in remote team settings. Data

analysis and collection are closely linked to technology. E-leaders with technical expertise can use data to monitor team performance, make informed decisions, and adapt strategies when necessary, reflecting the increasingly data-driven nature of leadership in the digital age.

Nevertheless, while technology is crucial, this observation subtly raises the possibility that some e-leaders may lack the necessary technological skills. The emphasis on technical proficiency suggests that organisations should invest in training and development initiatives to bridge this gap. Companies should consider offering resources or training programs to help e-leaders acquire the required technical competence.

In conclusion, participants underscore the significance of technology and technical proficiency in e-leadership for enhancing virtual team performance. This highlights the need for e-leaders to employ technology to achieve organisational objectives adeptly and reflects the evolving landscape of leadership in the digital era. It also highlights the potential skill gaps that require attention and development in e-leadership roles.

5.5.2 Theme 2: Adaptation and Adaptability Skills

Out of the 12 participants, 10 emphasised the significance of adaptability as a crucial e-leadership trait, underscoring its importance in the management of virtual teams. Here are some of the key phrases from their responses:

P 1	Ergonomic Support, Technology Accessibility, Communication, Motivation, Resource Allocation, Collaboration, Adaptability, Leadership Skills, Problem Solving, Inclusivity
P 8	Proficiency in Virtual Tools, Effective Communication, Utilize Video Streaming, Facilitate Brainstorming, Task Assignment and Tracking, Adaptability, Visual Presence, Non-Verbal Communication, Team Engagement, Tech-Savviness
P 9	Information Retrieval Skills, Self-Learning, Problem Solving, Digital Literacy, Adaptability, Resourcefulness, Knowledge Sharing, Continuous Improvement
P 10	Continuous Learning, Training, Skill Strengthening, Adaptability, Self-motivation, Proactive Learning, Continuous Improvement, Collaboration, Technology Proficiency, Problem Solving.

Virtual teams operate in dynamic environments characterised by ever-changing global influences, market conditions, and technological advancements. Leaders who can swiftly adapt are better equipped to navigate these shifts.

Adaptability implies that e-leaders possess flexible leadership philosophies. They should be capable of adjusting their approach based on the team's needs and the circumstances at hand. Different situations within a virtual team may demand varying leadership approaches, such as adopting a collaborative stance during routine operations or a more directive approach during a crisis.

An e-leader who embraces adaptability is likely to be more resilient and skilled at problem-solving. They can overcome challenges that arise in virtual team settings and bounce back from setbacks. Given that virtual teams often face specific challenges like time zone differences, communication barriers, and cultural diversity, resilience is crucial and necessitates adaptable problem-solving.

Virtual teams frequently need to adapt to changes in processes or technology. E-leaders who prioritise adaptation are better positioned to guide their teams through these transitions. This aligns with the idea proposed by Sénquiz-Díaz and Ortiz-Soto (2019) that maintaining team productivity and ensuring members are comfortable with new tools or processes hinges on effective change management. Adaptation in a multinational virtual team may also involve being inclusive and sensitive to cultural differences. To consider various perspectives, leaders must adjust their communication and decision-making approaches. Fostering an inclusive work environment where individuals from diverse backgrounds feel valued and heard can enhance team cohesion and performance.

A willingness to learn and grow is closely tied to adaptability. Kniffin et al. (2021) support this by suggesting that e-leaders who prioritise adaptability are more likely to engage in ongoing education to stay updated on best practices and new developments in their field. Their commitment to learning may inspire team members to make similar investments in their professional growth.

The fact that 10 out of 12 participants highlighted adaptability indicates a substantial

consensus among survey participants regarding its importance. This consensus lends support to the notion that adaptability is a critical aspect of e-leadership. It also raises questions about the perspectives of the remaining two participants.

In conclusion, the significance of adaptability in e-leadership skill development for virtual team performance underscores its pivotal role in effectively overseeing and guiding virtual teams. In a rapidly changing world, adaptable e-leaders can successfully navigate challenges, lead with flexibility, and cultivate an inclusive and resilient work environment. These qualities contribute to the success of virtual teams.

5.5.3 Theme 3: Communication Skills

The high importance of communication in the realm of virtual teams is evident, as nine out of twelve participants emphasised its significance. In virtual teams, where members are often spread across different locations and face-to-face interaction is not feasible, effective communication plays a crucial role. Here are some key phrases from their responses:

P 1	Ergonomic Support, Technology Accessibility, Communication, Motivation, Resource Allocation, Collaboration, Adaptability, Leadership Skills, Problem Solving, Inclusivity
P 4	Digital Communication, Virtual Team Management, Adaptability, Tech Proficiency, Problem Solving, Strategic Thinking, Emotional Intelligence, Cross-Cultural Awareness, LinkedIn Learning, Skillshare, Professional Associations, Books and Publications, Mentorship and Coaching, Webinars and Conferences, Forums and Communities
P 5	Excel Skills, PowerPoint Skills, Word Skills, Snap Tools, Online Presentation Skills, Collaboration Tools, Visual Communication, Adaptability, Remote Project Management, Communication Skills, Tech Literacy, Time Management, Problem-Solving, Digital Etiquette, Feedback and Coaching, Cross-Cultural Competence
P 11	Effective Use of Virtual Tools, Meeting Management, Proactive Communication, Resource Management, Continuous Learning, Global Leadership Awareness

Various communication channels, such as email, instant messaging, video conferences, and collaboration tools, are indispensable for virtual teams. This emphasis underscores the importance of mastering these communication channels for successful e-leadership in virtual teams.

The overwhelming consensus of most participants (9 out of 12) highlights that effective communication is not merely a nice-to-have but a fundamental skill for e-leaders in virtual teams. The level of agreement suggests that it is widely recognised as a crucial component of success.

E-leadership involves exercising leadership in remote and digital settings. Proficiency in communication is vital for this role. This is in line with the suggestions of Chamakiotis et al. (2021) and van Wart et al. (2019), who propose that E-leaders must excel in communication, team building, conflict resolution, and fostering collaboration—all of which hinge on effective communication. Organisations developing leadership development programs for virtual team leaders should consider the insights provided by their stakeholders. To ensure that e-leaders can adeptly navigate the challenges of remote work, leadership development initiatives should incorporate a strong focus on communication skills.

Although the statement does not specify the exact type of communication, it encompasses a range of technologies and tools, given the context. In addition to possessing strong interpersonal communication skills, e-leaders should know how to use these tools to facilitate communication among team members effectively (Elyousfi et al., 2021).

While communication is essential, there are instances when it can be challenging in virtual teams due to factors like miscommunication, information overload, or issues related to time zones and language barriers. E-leaders should receive training on how to address these challenges. The emphasis on communication skills suggests that e-leadership is a dynamic role. E-leaders must continuously enhance their communication abilities to remain effective, given the ever-evolving landscape of technology and team dynamics.

In conclusion, this statement underscores the critical role that communication skills play in e-leadership within virtual teams. Prioritising and excelling in communication increases the likelihood that e-leaders will foster teamwork, enhance performance, and navigate the unique challenges of leading in a remote and digital context. Companies should recognise this emphasis and make the necessary investments to

help their e-leaders acquire these essential competencies.

5.5.4 Theme 4: Collaboration Skills

Certain participants hold differing perspectives on the significance of collaboration in bolstering e-leadership skills, as only five out of twelve participants highlighted it as a vital aspect. The phrases used in their responses indicate a diversity of viewpoints:

P 1	Ergonomic Support, Technology Accessibility, Communication, Motivation, Resource Allocation, Collaboration, Adaptability, Leadership Skills, Problem Solving, Inclusivity
P 5	Excel Skills, PowerPoint Skills, Word Skills, Snap Tools, Online Presentation Skills, Collaboration Tools, Visual Communication, Adaptability, Remote Project Management, Communication Skills, Tech Literacy, Time Management, Problem-Solving, Digital Etiquette, Feedback and Coaching, Cross-Cultural Competence
P 10	Continuous Learning, Training, Skill Strengthening, Adaptability, Self-motivation, Proactive Learning, Continuous Improvement, Collaboration, Technology Proficiency, Problem Solving.

This divergence in opinions could suggest that specific participants place greater value on other abilities or strategies for enhancing virtual team success. These differing viewpoints may stem from the participants' diverse backgrounds and experiences. Some may have emphasised alternative approaches based on their unique experiences, while others may have found teamwork to be more beneficial in their specific circumstances.

E-leadership encompasses a wide range of skills and strategies, including decision-making, technology management, communication, and more. The emphasis on collaboration underscores its importance within the realm of e-leadership. However, it also implies that successful management of virtual teams necessitates a multifaceted skill set.

For organizations aiming to enhance their leaders' e-leadership capabilities, it is essential to consider this spectrum of perspectives. This aligns with the recommendations of Alsharo et al. (2017) and Lukić Vračar (2018), who propose that training and development programs should offer a comprehensive curriculum covering all facets of e-leadership, including collaboration. Different virtual teams may

require different leadership approaches (Kozlowski et al., 2021). While teamwork may be crucial for some, others may benefit more from an emphasis on communication, technology usage, or conflict resolution. E-leaders should adapt their leadership style to meet the unique needs of their teams.

In conclusion, this statement underscores the significance of collaboration as one of the essential e-leadership competencies for enhancing virtual team effectiveness. It also emphasises the complexity of e-leadership and the importance of adopting a well-rounded approach that considers a variety of skills and strategies tailored to the dynamics of each virtual team.

5.6 RQ4: What strategies and recommendations are for enhancing managers' e-leadership skills to improve virtual team performance?

This research question aimed to discern the requirements identified by participants for enhancing virtual team performance. Specifically, it sought to unveil the prerequisites for performance improvement. The following subtheme delves into the participants' suggested resource requirements.

5.6.1 Theme 1: Resources Requirements

Resources encompass the essential elements such as finances, human capital, technology, and tools necessary for research, production, sharing, measurement, and enhancement (Chakma, Dhir, Ongsakul, Sakka, and Ahmed, 2022). Consequently, companies must allocate resources to support effective leadership. Human resources constitute the individuals who contribute to a business by manufacturing products and delivering services (Chakma et al., 2022). The financial aspect powers a business's activities and expenditures (Xu, and Kim, 2022). Information resources encompass various elements, including people, money, technology, and tools, such as encyclopaedias, books, magazines, newspapers, library catalogues, and the Internet (Rainer and Prince, 2022). Below are the resources participants believe are essential to facilitate e-leadership effectively.

Name	Grounded	Density	Groups
Online training development	5	2	[Resource requirements]
good digital commucation attitude	5	9	[Resource requirements]
Excell and Power point skills	3	1	[Resource requirements]
Unlimited Wifi connectivity	3	3	[Resource requirements]
file sharing platfoms	3	2	[Resource requirements]
Zoom and MS teams communication tools	3	2	[Resource requirements]
passion for technology	2	10	[Resource requirements]
Aesthetic Home Environment	1	5	[Resource requirements]
cellphone allowance	1	2	[Resource requirements]
signing tools	1	3	[Resource requirements]
online resources: google and internet	1	3	[Resource requirements]

Figure 5.15:Resource to Strengthen E-Leadership Capabilities

The findings reveal that online training development and effective digital communication are the most highly recommended resources, while the least mentioned include mobile phone allowances, signing tools, and online resources. It is worth noting that these less frequently mentioned resources are intertwined with other requirements, as indicated by their higher density. This intricate network of interactions is depicted in Figure 5.15.

The outcomes presented in Figures 5.15 and 5.16 delineate the necessary resources for enhancing leadership skills. The individual initially had limited experience with e-leadership but adapted due to the COVID-19 pandemic. They ensured their team had essential resources and technology for remote work, including unlimited Wi-Fi connectivity and mobile phone allowances. Collaboration was facilitated through platforms like Microsoft Teams, Zoom, and file-sharing tools. They also honed their skills in using signing tools, Excel, and PowerPoint. Online courses and platforms such as LinkedIn Learning and Skill Share proved invaluable for strengthening e-leadership capabilities. The internet and Google were vital for accessing information and acquiring new skills. Communication tools like Teams and cloud storage were essential for remote work. Additionally, the participant emphasised the importance of a positive communication attitude, a passion for technology, and a conducive home working environment for effective e-leadership.

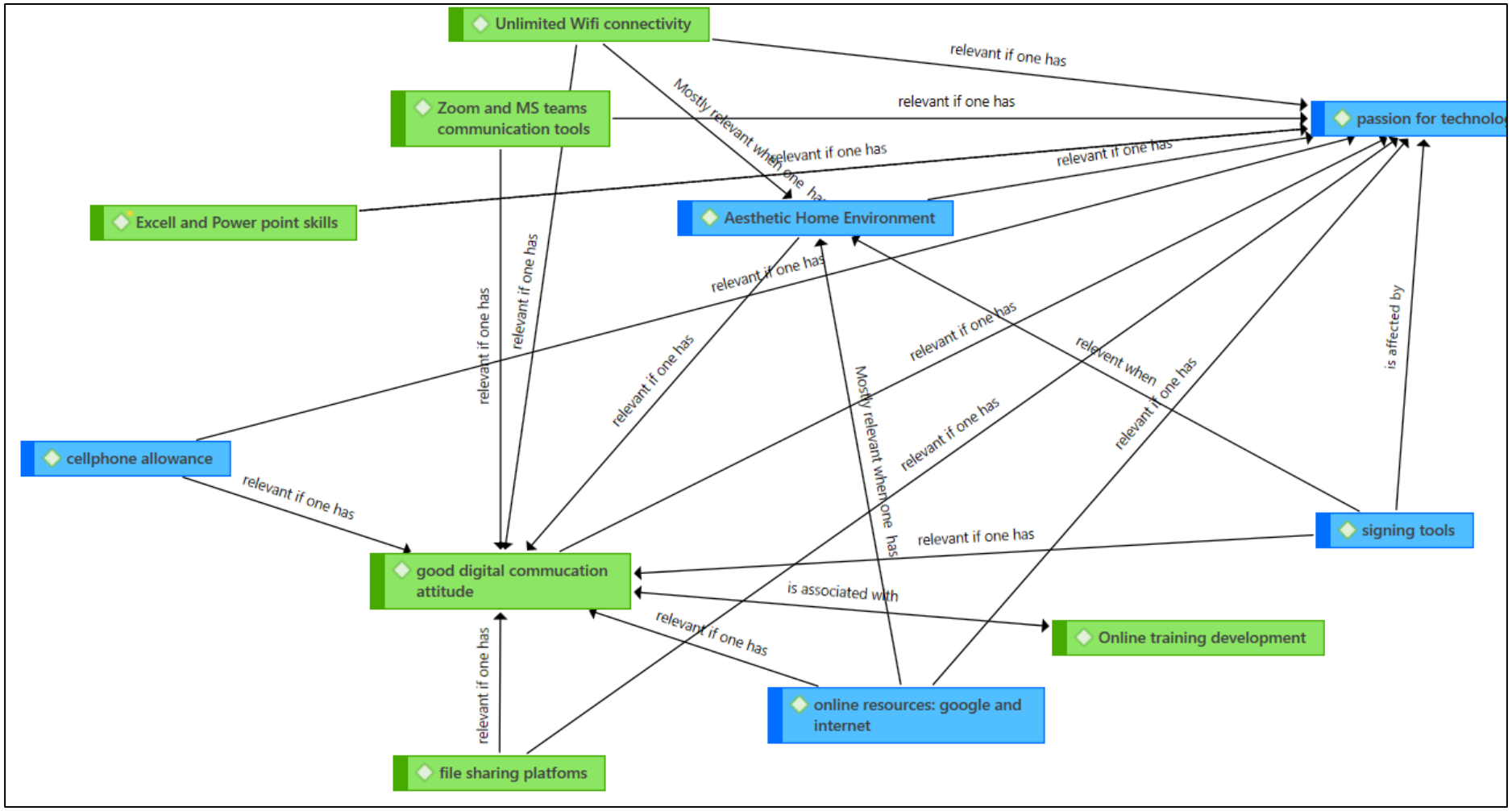

Figure 5.16: Resource Requirements for Enhancing E-Leadership Capabilities

The Table below shows the suggestions to improve virtual team performance by team members.

Subtheme	Quotations
Zoom, MS Teams 'and Google Meet communication tools	*I think first, it's Microsoft Teams, this technology, Zoom, where people can share their work and you can see the report, and I think the sharing platforms where you can share files. The other one that's become very… was also the signing tools [P2].* *They should use Zoom and Google Meet or Teams [P7].* *Teams are an effective resource for me. I've also found that having someone in the team who manages the planning of the meetings, that manages making sure that we have minutes, the tracks, that you have every key resource present for the meeting and follows up with all of the resources [P11]*
Mental health and wellness	*So I think that is an element which I would encourage more – mental health, wellness, doing something, walking around, but just focus on the whole triangle of a human and that balance of body, spirit and mind and not just focusing on the mind and overworking the mind as well. Switching off, how to switch off. My focus would be more on that, on mental health [P1]* *And I think the other one is to invest in mental health, as leaders, as an individual, again, we should prioritize mental health and well-being in the team[P4]*
Change Management	*So that is my background, and seeing what it could be when we do not actively introduce change management in our people [P3].* *For my team specifically, I think we need to work on our change management, we are still lacking in that one, it is something that was an issue before and now it is just getting even more problematic[P8].*
Good work environment	*So what it means, is you create an environment where everybody embraces, everybody creates sort of an environment where performance is seen as a teamwork, never in isolation. So, no more operating in silos [P3]*
Knowledge sharing	*And then let's do what we call knowledge sharing[P4]*
Participations	*And then what we need to improve also is the focus. I just also don't have a solution now to say: how do you get people engaged in your meeting? But you need to have the relevant people around the table so that they can engage and give input accordingly because I think people are not participating as expected if we were in a boardroom and we're talking about a certain issue. They are not participating as much as they would, neh. So, I think we need to improve that somehow [P5]*

Training and development	*Again, my song – I'm repeating the same. We need to prioritize training. It is the key, you know. You need to develop people. Put a lot of money into developing the people. So, training again is critical. Educate people as you move forward with the new technology. Educate people. Invest a lot in development [P10]*
Dynamic, flexibility and adaptability	*Effectiveness is dynamic, flexible, and continuously evolving. So, the ability to be flexible and adapt [P4].*
Others	*Investing in team building, feedback loops, EQ training, continuous learning and challenging oneself, improving performance tracking [P8]*

The provided quotations indicate that the author possesses experience in managing people and recognises the significance of implementing change management strategies to achieve positive results. They specifically address the need for improvement in change management within their team, which has been an ongoing concern escalating in severity.

Effectiveness is portrayed as a dynamic concept that continually evolves, requiring the capacity to adapt to shifting circumstances and contexts. To facilitate this, the author suggests cultivating a collaborative environment where individuals collaborate and perceive performance as a collective endeavour rather than working in isolation or isolated groups.

Furthermore, the importance of knowledge sharing is emphasised as a means to exchange information, experiences, and expertise among individuals and organisations. This practice is seen as beneficial for fostering collaboration, innovation, and continuous learning.

The participants stressed the need to prioritise mental health and overall well-being, emphasising the importance of maintaining a balance between the body, spirit, and mind. They urge leaders to invest in and prioritise mental health within their teams.

To enhance virtual collaboration, the establishment of clear boundaries between work and personal life is recommended. This involves defining specific time zones for

meetings, work-related activities, and personal time to prevent interruptions and frustration caused by work-related matters encroaching on personal time. Failure to establish these boundaries can negatively impact team dynamics and individual performance.

To improve engagement during meetings, participants emphasise the importance of having relevant individuals present to contribute and provide input actively. The issue of low participation is acknowledged, although specific solutions are not provided.

Additionally, investing in training is highlighted as key to the development and education of individuals, particularly in the context of modern technologies. Various online collaboration and communication tools such as Microsoft Teams, Zoom, and Google Meet are mentioned as valuable platforms for sharing work, collaborating on documents, and conducting video meetings. File-sharing platforms and signing tools are also referenced.

Having a resolute team member responsible for managing meeting planning minutes and ensuring the availability of necessary resources is suggested as a practical resource allocation strategy.

In summary, the findings indicate that increasing virtual team performance entails enhancing e-collaboration through digital communication platforms, prioritising mental health and well-being, embracing virtual teamwork, fostering flexibility and adaptability, investing in team building, promoting knowledge sharing, establishing effective feedback loops, providing emotional intelligence (EQ) training, familiarising team members with technology, implementing change management and effective communication strategies, promoting continuous learning and self-challenge, prioritising training and development, enhancing performance tracking, and ensuring consistency in virtual operations.

5.7 Conclusion

In conclusion, the insights provided by the participants underscore the imperative need to enhance e-leadership skills in response to the growing prevalence of remote work and

the management of virtual teams. Key focal points include the enhancement of listening skills, the cultivation of online relationship-building capabilities, the mastery of techniques to influence and motivate virtual employees, and the effective delegation of tasks within the virtual workspace.

Moreover, the participants stress the significance of comprehensive familiarity with the technological tools and virtual platforms integral to the remote work landscape. Clear and transparent communication, coupled with the articulation of a unifying vision, emerges as paramount in ensuring the alignment of team members. A resounding consensus exists regarding the essential role of continuous learning, self-assessment, and the consistent pursuit of up-to-date knowledge in fostering e-leadership development.

The participants acknowledge the dynamic nature of e-leadership, necessitating perpetual adaptation and skill refinement to navigate effectively within virtual work environments. In summary, the discussions reflect not only the speaker's observation that specific roles can indeed be performed remotely but also the observed resistance and inequality in extending remote work opportunities to all employees. They emphasise the essentiality of e-leadership competencies and the application of change management strategies for seamless adaptation to virtual work environments.

In addition to effective communication, building inclusive teams is deemed crucial, along with the utilisation of virtual platforms to enhance productivity. Furthermore, the participants underline the potential cost-saving advantages associated with e-leadership and the imperative to embrace the global networking opportunities afforded by virtual teams. However, it is noteworthy that some traditional leaders encounter challenges in fully adopting virtual leadership, often exhibiting resistance to change.

In summation, the speaker underscores the indispensable role of e-leadership as an essential and beneficial component of the modern work landscape. The multifaceted recommendations and insights provided by the participants collectively contribute to a comprehensive understanding of the evolving nature of e-leadership and its pivotal role

in achieving success within virtual work environments.

6. Discussion of Results

6.1 Introduction

In this section, we delved into the outcomes of our research, focusing on the implications and insights derived from our investigation. We explored the alignment between our findings and the existing literature on e-leadership, with a particular emphasis on its impact on virtual team performance.

6.2 Discussion of Results for RQ1

RQ1: What e-leadership skills influence virtual team performance?

6.2.1 E-leadership, Differences, and Virtual Team Performance

6.2.1.1 E-leadership in virtual team management

E-leadership is a modern leadership approach that uses electronic communication tools and technologies to guide and manage individuals or teams, regardless of where they are located (Robert & You, 2018). E-leadership emphasizes the importance of using electronic media, such as email, video conferencing, instant messaging, and collaborative software. These tools help with communication, collaboration, and decision-making (Garro-Abarca et al., 2021). Notably, e-leadership marks a departure from traditional leadership due to its reliance on electronic means to achieve leadership goals.

Our research findings align with the literature's definition of e-leadership, emphasizing its role in leveraging technology to influence behaviours and performance toward strategic objectives. E-leaders are expected to possess a blend of traditional leadership skills and digital competencies, including e-communication and technological aptitude

(see Figure 5.5). Furthermore, our findings highlight the accelerated adoption of e-leadership practices during the COVID-19 pandemic, driven by the necessity of remote work.

In conclusion, both the literature and our research findings converge in defining e-leadership as a contemporary leadership approach reliant on electronic communication tools and technology for guiding and managing teams, whether in traditional or virtual settings. E-leadership is distinguished by its emphasis on results, technology utilization, and adaptation to the digital era (see Figure 5.6).

6.2.1.2 Differences between traditional leadership and e-leadership

In Chapter 2, the literature review highlighted the key differences between traditional leadership and e-leadership. Traditional leadership often involves face-to-face interactions and relies heavily on physical presence, while e-leadership is mediated by technology and involves leading from a distance (Avolio et al., 2014). The literature suggested that e-leadership requires a different set of skills, including technical skills, adaptability, and effective communication in a virtual environment (Peiró & Martínez-Tur, 2022; Roman et al., 2019).

In Chapter 5, the findings from the study supported these theories. The data revealed that participants had a clear understanding of the differences between traditional leadership and e-leadership (See Figure 5.6). Participants noted that e-leadership involves managing virtual teams and requires a thorough understanding of digital platforms and tools. They also highlighted the importance of clear and transparent communication, the articulation of a unifying vision, and continuous learning in e-leadership (ref heading 5.3.1.1).

In conclusion, the findings from this study confirm the theories presented in the literature review. The differences between traditional leadership and e-leadership identified in the literature were also found to be significant in the empirical data collected in this study. This adds to the current scholarly debate by providing empirical evidence to support the theoretical claims made in the literature. It also extends the literature by providing a more

nuanced understanding of the differences between traditional leadership and e-leadership in practice. This study therefore contributes to the scholarly debate on the differences between traditional leadership and e-leadership by providing empirical evidence to support the theoretical claims made in the literature.

6.2.1.3 Understanding of virtual teams' performance

In Chapter 2, the literature review highlighted the concept of virtual team performance, referring to the efficiency and effectiveness of working together from different physical locations using collaborative Information and Communication Technologies (ICTs) (Garro-Abarca et al., 2021). The literature suggested that measuring the performance of virtual teams can be complex due to their unique nature, but several methods have been proposed, including assessing the team's ability to meet strategic goals, managing conflict and emotions, and evaluating team members' expertise and interaction styles (Alsharo et al., 2017; Kashive et al., 2022).

In Chapter 5, the findings from the study supported these theories. The data revealed that participants hold the view that virtual team performance should be equivalent to that of physical teams, emphasizing the significance of achieving results, possessing technological proficiency, fostering collaboration, delivering on commitments, ensuring effectiveness and efficiency, and adhering to schedules and milestones (See figure 5.7). The results snapshot indicates that performance within a virtual setting revolves around outcomes rather than mere attendance, with an emphasis on the need for technological competence, effective collaboration, and the provision of performance feedback within virtual teams (See heading 5.3.1.3).

In conclusion, the findings from this study confirm the theories presented in the literature review. The understanding of virtual team performance identified in the literature was also found to be significant in the empirical data collected in this study. This adds to the current scholarly debate by providing empirical evidence to support the theoretical claims made in the literature. It also extends the literature by providing a more nuanced understanding of virtual team performance in practice.

In terms of the relationship between the findings and the literature, the findings confirm the theories presented in the literature. They do not contradict the literature but rather add to it by providing empirical evidence to support the theoretical claims. This study therefore contributes to the scholarly debate on understanding virtual team performance by providing empirical evidence to support the theoretical claims made in the literature.

6.2.2 RQ1: E-leadership skills influence on virtual team performance?

E-leadership skills that influence virtual team performance encompass a wide range of competencies. In Chapter 2, the literature review highlighted several e-leadership skills that were theorized to influence virtual team performance. These included technology and technical skills, adaptation and adaptability skills, communication skills, and collaboration skills (Cortellazzo et al., 2019a; Garro-Abarca et al., 2021c; Maduka et al., 2018a). The literature suggested that these skills are important for e-leadership because they help leaders effectively guide and coordinate teams remotely, using electronic tools and digital platforms.

In Chapter 5, the findings from the study supported these theories. The data revealed that participants had a clear understanding of the e-leadership skills essential for managing virtual teams (refer to heading 5.3.2). Participants noted that e-leadership involves managing virtual teams and requires a thorough understanding of digital platforms and tools. They also highlighted the importance of clear and transparent communication, the articulation of a unifying vision, and continuous learning in e-leadership (see Figures 5.8 and 5.9).

6.2.2.1 What e-leadership skills do you believe are essential compared to others for managing virtual teams effectively? And why?

Based on the findings in Chapter 5, digital communication skills, technology skills, emotional intelligence, and time and task management stand out as the most essential skills for the effective management of virtual teams (see Figure 5.8). Digital communication skills are vital for clear, organized communication that allows feedback and minimizes miscommunication. Technology skills are crucial for understanding how to optimize available technologies for enhanced productivity and growth. Emotional

intelligence plays a key role in fostering a positive and collaborative virtual team environment, while time and task management skills are critical for on-time task completion and efficient resource utilization.

6.2.2.2 Can you share an experience where a lack or presence of a particular leadership skill had a tangible impact on your virtual team's performance?

Although we did not include specific examples in our study, it is important to note that lacking essential e-leadership skills can have negative consequences on virtual team performance. For example, poor digital communication, lack of prioritization, and absence of empathy can hinder team collaboration and productivity. Specifically, our findings emphasize that the absence of critical skills such as good digital communication, prioritisation, and empathy (emotional intelligence) can negatively affect virtual team performance. Conversely, the presence of these skills is associated with significant positive outcomes.

In conclusion, our research findings align with the existing literature on e-leadership skills and their influence on virtual team performance. The findings complement and reinforce the key points discussed in the literature, adding depth and practical context to the understanding of these skills' impact. Additionally, our research highlights the multifaceted nature of e-leadership skills and their interplay, contributing to a more nuanced perspective on effective e-leadership in virtual teams."

The research findings on Research Question 1 (RQ1), which focused on e-leadership skills and their influence on virtual team performance, appear to support and complement the existing literature on this topic.

6.2.3 Conclusion RQ1

In concluding Research Question 1 (RQ1), the study highlights the critical role of e-leadership skills in enhancing the performance of virtual teams, confirming that leaders who excel in digital communication, understand technology, demonstrate emotional intelligence, and manage tasks effectively are more likely to succeed in the digital workplace. As the professional world continues to embrace remote work, the research

emphasizes the urgent need for leaders to adapt and refine these skills. This study is not just a reflection of current trends but a roadmap for future leadership development, making it clear that mastering e-leadership skills is not just beneficial but essential for success in our increasingly online work environments.

6.3 Discussion of Results for RQ2:

RQ2: What factors contribute to virtual team performance?

6.3.1 Other Factors Affecting Virtual Team Performance

In the literature review in Chapter 2, it was established that virtual team performance is influenced by a wide array of factors. Beyond managerial skills, these factors encompassed Critical Success Factors (CSFs) like technology management, e-motivation, and e-change management (Ahuja et al., 2023). These included trust, conflict management, and personal characteristics like self-efficacy, hope, optimism, and resilience (Aggarwal & Kumar, 2022; Chaudhary et al., 2022). The literature also acknowledged the role of technology in e-leadership and virtual team performance, but there was a gap in understanding how e-leaders can effectively leverage technology to facilitate communication, collaboration, and team performance (Cortellazzo et al., 2019; Subrahmanyam, 2019).

In Chapter 5, the findings from the study supported these theories. The data revealed that participants had a clear understanding of the factors affecting virtual team performance (see heading 5.4.1). Participants noted that trust, social cohesion, accountability, understanding and respecting different cultural backgrounds, building professional relationships, effective communication, emotional intelligence, flexibility, self-discipline, setting clear objectives, proper document control, using appropriate platforms, having adequate equipment and reliable internet, and trusting the team are all integral aspects of effective e-leadership and virtual team management (see figure 5.11).

The findings in Chapter 5, Theme 1 of the study corroborate these factors and introduce

additional elements. The research findings emphasized several factors that significantly influence virtual team performance (see Figure 5.11):

1. Clear Meeting Agendas: Well-defined meeting agendas serve as roadmaps for virtual team meetings. They outline the purpose, objectives, and topics to be covered. This clarity ensures that meetings stay focused on critical discussions, preventing time wastage and enhancing productivity. Without clear agendas, virtual meetings can become disorganized and less effective.

2. Flexible Scheduling: Flexibility in scheduling is essential for accommodating the diverse time zones and work schedules of virtual team members. Virtual teams often consist of individuals located in different parts of the world, and accommodating their availability ensures that everyone can actively participate in meetings and collaborative activities. A lack of scheduling flexibility can lead to reduced participation and engagement.

3. Reliable Technological Tools: Virtual teams rely heavily on technology for communication and collaboration. Reliable technological tools, such as video conferencing platforms, project management software, and shared document repositories, are essential for seamless interaction and efficient work coordination. When these tools are unreliable or inadequate, it can lead to communication breakdowns and project delays.

4. Cultural Sensitivity: Virtual teams are often composed of members from diverse cultural backgrounds. Cultural sensitivity involves recognizing and respecting these differences. It means understanding varying communication styles, customs, and norms to avoid misunderstandings and conflicts. Failure to be culturally sensitive can lead to communication barriers and interpersonal tensions within the team.

5. Work Environment: A comfortable and suitable work environment is necessary for virtual team members to perform at their best. Ergonomic setups, such as desks and chairs, contribute to physical comfort during long work hours. Additionally, having a

quiet and well-organized workspace enhances concentration and productivity. A lack of an adequate work environment can result in discomfort and reduced efficiency.

6. Self-Discipline and Adaptability: Virtual team members must possess self-discipline to manage their time effectively and meet deadlines. They also need adaptability to cope with the unique challenges of remote work, such as changing work environments and work hours. Self-discipline ensures that team members stay on track, while adaptability allows them to thrive in dynamic virtual settings.

7. Diverse Team Composition: Diversity in virtual teams brings together a variety of skills, experiences, and perspectives. This diversity can lead to more innovative problem-solving and a broader range of solutions. However, it also requires effective management to harness the full potential of diverse talents. Ignoring the benefits of diverse team composition can limit creativity and adaptability.

8. Trust and Effective Communication: Trust among virtual team members is essential for building strong working relationships. Effective communication is the cornerstone of trust, as it ensures that team members understand each other's expectations and can rely on one another. Trust enables collaboration and prevents conflicts. Inadequate communication and a lack of trust can lead to misalignment and decreased team performance.

The conclusion drawn from both the literature and the findings is that virtual team performance is influenced by a combination of managerial skills, team dynamics, individual behaviours, and the work environment. Organizations must consider these multifaceted factors to optimize their virtual teams' performance. The factors identified in the literature as affecting virtual team performance were also found to be significant in the empirical data collected in this study. This adds to the current scholarly debate by providing empirical evidence to support the theoretical claims made in the literature. It also extends the literature by providing a more nuanced understanding of how these factors influence virtual team performance in practice.

6.3.2 Influence of Communication Technology on Virtual Team Performance

In Chapter 2, the literature review highlighted the significant role of communication technology in virtual team performance. The literature suggested that communication technology, such as collaborative tools and platforms, can enhance virtual team performance by facilitating real-time collaboration, efficient communication, and coordination among team members (Barnes, 2020; Cortellazzo et al., 2019). However, the literature also noted potential challenges, such as administrative communication, task allocation and the need for technical proficiency among team members (Morrison-Smith & Ruiz, 2020).

In Chapter 5, the findings from the study supported these theories. The data revealed that communication technology indeed plays a crucial role in virtual team performance (see Figure 5.13). Participants noted that communication technology enables faster and more efficient real-time collaboration and communication through various connectivity platforms and networks. However, they also highlighted challenges such as data costs, limited access to Wi-Fi, and power outages that can disrupt connectivity and impact virtual team collaboration (See Chapter 5, Theme 2).

Communication technology, such as video conferencing, instant messaging, and collaborative software, offers several advantages for virtual teams. It enables real-time communication, allowing team members to interact as if they were in the same physical location. This real-time interaction enhances collaboration, decision-making, and the exchange of ideas. Additionally, communication technology allows for global connectivity, enabling teams to work together across borders, time zones, and distances.

Despite its benefits, communication technology can pose challenges for virtual teams. Data costs can be a barrier, particularly in regions with expensive mobile data or limited Wi-Fi access. Poor network connectivity can disrupt communication and cause frustration. Different time zones can complicate scheduling and coordination, making it challenging for team members to find suitable meeting times. Moreover, technology proficiency varies among team members, and some may struggle with using complex

tools or platforms.

In conclusion, the findings from this study confirm the theories presented in the literature review. The influence of communication technology on virtual team performance identified in the literature was also found to be significant in the empirical data collected in this study. This adds to the current scholarly debate by providing empirical evidence to support the theoretical claims made in the literature. It also extends the literature by providing a more nuanced understanding of how communication technology influences virtual team performance in practice.

6.3.3 Impact of Team Dynamics and Interpersonal Relationships

In Chapter 2, the literature review highlighted the significant role of team dynamics and interpersonal relationships in virtual team performance. The literature suggested that team dynamics, such as trust, conflict management, and effective communication, can enhance virtual team performance (Elyousfi et al., 2021; Kashive et al., 2022). Interpersonal relationships, including mutual respect, understanding, and collaboration, were also identified as crucial factors influencing virtual team performance (Zhang et al., 2022).

In Chapter 5, the findings from the study supported these theories. The data revealed that participants had a clear understanding of the impact of team dynamics and interpersonal relationships on virtual team performance. Some of the team dynamics mentioned by participants are as follows:

- Need for Interpersonal Connection for Performance (P1): Essential for team performance, as relatedness and connection enable teams to support each other and create together effectively.
- Integration and Understanding of New Members (P2): The adaptation and integration process for new team members is critical due to their initial unfamiliarity with team behaviours, traditions, and personalities.
- Impact of Communication Technology on Virtual Teams [(P4) & (P5)]: The role of

communication technology in influencing how virtual teams connect and how the lack of full experiential interaction can impact interpersonal relationships and team dynamics.

- Trust and Engagement in Virtual Environments [(P6) & (P7)]: The formation of trust and engagement in virtual settings, including the challenges posed by limited real connections and the resulting impact on team dynamics.
- Diversity, Perception, and Performance [(P8) & (P10)]: How diversity in backgrounds, ethnicities, and personality types (introverts and extroverts) influences perceptions within a team, affecting communication and overall team performance.

Dedicated team dynamics and positive interpersonal relationships are crucial for virtual team success. When team members have strong connections and trust one another, they are more likely to collaborate effectively and support one another's work. Effective communication tools can facilitate interactions and help build these relationships, even in a virtual environment.

Developing genuine connections in a virtual setting can be challenging due to the absence of face-to-face interactions. Building trust and rapport can take more time when team members are physically separated. Individual differences in personality traits, such as introversion and extroversion, can affect how team members engage in virtual settings. Cultural differences can lead to misinterpretations and misunderstandings. Additionally, managing conflicts and resolving interpersonal issues in a virtual setting can be more complex than in face-to-face interactions.

The findings from this study confirm the theories presented in the literature review. The impact of team dynamics and interpersonal relationships on virtual team performance identified in the literature was also found to be significant in the empirical data collected in this study. This adds to the current scholarly debate by providing empirical evidence to support the theoretical claims made in the literature. It also extends the literature by providing a more nuanced understanding of how team dynamics and interpersonal relationships influence virtual team performance in practice.

6.3.4 Conclusion RQ2

This study has shown that virtual team performance relies on several key factors: clear

agendas, flexible timing, reliable technology, cultural understanding, good work setups, discipline, diversity, and trustful communication. These elements are crucial for teams working remontly to work well together. The findings agree with previous research, but they also give us new insights by showing these factors at work in real-life situations. By highlighting the importance of combining good management with the right technology and strong team relationships, this research offers valuable guidance for improving virtual teams, which is essential for modern organizations that depend on remote collaboration.

6.4 Discussion of Results for RQ3

RQ3: How can e-leadership skills be developed to improve virtual team performance?

In this section, we discussed the findings related to E-leadership skills that enhanced virtual team performance and compared them to existing literature. We delved into each of the identified themes.

6.4.1 E-Leadership skills that enhance virtual team performance.

6.4.1.1 Technology and Technical Skills

Existing literature supports the importance of technology and technical skills in e-leadership for virtual teams. The digital era has transformed leadership. As a result, technology proficiency has become a crucial component. Chamakiotis et al. (2021) and van Wart et al. (2019) emphasize that e-leaders must leverage technology to advance organizational objectives. This extends beyond traditional leadership qualities, as e-leaders need proficiency in data analytics, virtual collaboration tools, and communication platforms.

The findings from the study align with existing literature. Participants overwhelmingly emphasized the significance of technology and technical skills in e-leadership. They recognized the need for e-leaders to be proficient in various technologies and tools to enhance virtual team performance. The findings also suggest that traditional leadership qualities may no longer suffice in the digital era.

Both the literature and the study findings underline the critical role of technology and technical

skills in e-leadership for virtual teams. E-leaders must skillfully use technology to make processes more efficient, enhance communication, and make better decisions using data. The consensus among participants supports the need for organizations to invest in training and development initiatives to bridge potential skill gaps in technology proficiency.

6.4.1.2 Adaptation and Adaptability Skills

Adaptability is recognized as a fundamental e-leadership trait in the literature. Virtual teams operate in dynamic environments where changes in global influences, market conditions, and technology are common. E-leaders who can swiftly adapt their leadership approach and problem-solving strategies are better equipped to navigate these shifts. Sénquiz-Díaz and Ortiz-Soto (2019) emphasize the importance of change management and being inclusive in multinational virtual teams.

The study findings align with existing literature, highlighting the significance of adaptability as a crucial e-leadership trait. Participants emphasized the need for e-leaders to be flexible, resilient, and skilled at problem-solving. Adaptability allows e-leaders to overcome challenges specific to virtual teams, such as time zone differences, communication barriers, and cultural diversity.

Both the literature and the study findings emphasize the pivotal role of adaptability in e-leadership for virtual teams. E-leaders who embrace adaptability can effectively guide their teams through changes, maintain resilience, and foster an inclusive work environment. This quality contributes to the overall success of virtual teams.

6.4.1.3 Communication Skills

Effective communication is a well-established e-leadership skill in the literature. E-leaders must excel in various communication channels and tools to facilitate teamwork, enhance performance, and address challenges in remote work settings. Chamakiotis et al. (2021) and van Wart et al. (2019) emphasize the importance of communication, team building, conflict resolution, and collaboration, all of which rely on effective communication.

The study findings align with existing literature, with participants highlighting the critical role of effective communication in e-leadership for virtual teams. They emphasized the need for

e-leaders to excel in different communication channels and tools, as well as the importance of continuous improvement in communication abilities.

Both the literature and the study findings underscore the significance of effective communication as a core e-leadership skill. E-leaders who make communication a priority and excel in it can encourage teamwork, improve performance, and effectively manage the unique challenges of remote work.

6.4.1.4 Collaboration Skills

Collaboration skills are recognized as important e-leadership competencies in the literature, but there may be varying perspectives on their significance. E-leaders must consider a variety of skills and strategies tailored to the specific dynamics of each virtual team. Training and development programs should offer a comprehensive curriculum covering all facets of e-leadership, including collaboration (Alsharo et al., 2017; Lukić Vračar, 2018).

The study findings indicate that while collaboration skills are essential, there are differing viewpoints among participants. For example, Some participants emphasized collaboration, while others placed greater value on other skills and strategies. This diversity of perspectives suggests that e-leadership encompasses a broad skill set, and the importance of collaboration may vary depending on the context and participants' experiences.

Both the literature and the study findings emphasize the complexity of e-leadership and the importance of considering a range of skills and strategies tailored to the dynamics of each virtual team. Collaboration remains a vital e-leadership skill, but its significance may vary based on the specific needs of different virtual teams. Organizations should adopt a flexible approach to e-leadership development, accommodating diverse perspectives and requirements.

6.4.2 Conclusion RQ3

This research highlights a critical point: e-leadership skills are vital for the performance of virtual teams. The study aligns with existing literature to show that e-leaders need to be skilled

in technology, adaptable to change, communicate effectively, and collaborate well. These skills are no longer optional; they are necessary for success in the digital workplace. It's clear from both academic discussions and real-world feedback that organizations must focus on developing these areas. Training and development are not just beneficial but crucial for e-leaders to meet the demands of today's online team environments.

The evidence from this study sends a strong message to all organizations: invest in your leaders' digital abilities. As teams become more virtual, the way leaders guide their teams must also evolve. The agreement between scholarly research and practical findings is powerful. It tells us that when e-leaders improve their digital, adaptive, communication, and collaborative skills, they help their virtual teams succeed. This is the way forward for businesses wanting to excel in the digital age. There must be a shift in how we develop leadership skills, making sure that e-leaders are prepared to handle the unique challenges of managing teams across digital platforms.

7. Conclusions and Recommandations

7.1 Introduction

The following section presents the conclusions and recommendations derived from the comprehensive analysis of the research data. The insights provided by the participants underscore the imperative need to enhance e-leadership skills in response to the growing prevalence of remote work and the management of virtual teams. The conclusions drawn from the study are based on the findings and results presented in the previous sections. The recommendations are aimed at addressing the identified gaps and challenges in e-leadership and virtual team performance.

7.2 E-leadership skills that influence virtual team performance.

The study underscores the critical role of e-leadership skills in influencing the performance of virtual teams. The participants in the study highlighted the need for enhanced listening skills, online relationship-building capabilities, mastery of techniques to influence and motivate virtual employees, and effective task delegation within the virtual workspace.

Moreover, the study emphasizes the importance of comprehensive familiarity with technological tools and virtual platforms integral to the remote work landscape. Clear and transparent communication, coupled with the articulation of a unifying vision, emerges as paramount in ensuring the alignment of team members.

The study also acknowledges the dynamic nature of e-leadership, necessitating perpetual adaptation and skill refinement to navigate effectively within virtual work environments. The participants also underline the potential cost-saving advantages associated with e-leadership and the imperative to embrace the global networking opportunities afforded by virtual teams.

7.3 Other factors that contribute to virtual team performance

The report highlights that virtual team performance is influenced by a multitude of factors beyond e-leadership skills. These factors include clear meeting agendas, reliable technology, diverse team composition, trust, effective communication, and understanding and respecting

different cultural backgrounds.

The report emphasizes the importance of technology in facilitating communication and collaboration within virtual teams. For example, virtual teams rely on technology tools like video conferencing and project management software to communicate and coordinate their work. However, the report also acknowledges the challenges posed by infrastructure issues such as power outages, which can directly impact the reliability of these technology tools and, consequently, the performance of virtual teams. The study also underscores the significance of trust and effective communication in building strong working relationships within virtual teams. It suggests that a lack of trust and inadequate communication can lead to misalignment and decreased team performance.

The report concludes that optimizing virtual team performance requires a comprehensive understanding and management of these multifaceted factors.

7.4 E-leadership skills to develop to improve virtual team performance.

The research emphasizes the importance of developing specific e-leadership skills to enhance the performance of virtual teams. These skills include proficiency in using technology, being adaptable to changes, effectively communicating in digital environments, understanding, and managing emotions, and effectively managing time and tasks. The study also highlights the need for e-leaders to be proficient in various technologies and tools, as well as the ability to adapt swiftly to changes in global influences, market conditions, and technology. Furthermore, the research suggests that e-leaders should also exhibit certain leadership styles, manage conflicts effectively, and adapt to the rapidly evolving digital environment.

The study concludes that the development of these e-leadership skills can significantly improve virtual team performance.

7.5 Proposed framework

In the digital age, effective leadership over virtual teams has become a crucial competency for organizations worldwide. The "E-Leadership Skills for Virtual Team Performance"

framework in Figure 7.1 below provides a systematic visual representation of the key skills required for leaders to effectively manage and lead virtual teams. At the heart of the framework is the central concept of e-leadership, around which the entire model is anchored. This central node is circled by seven other crucial competencies, each representing a specific skill set vital for e-leadership effectiveness.

The seven satellite skills—Technical Proficiency, Adaptability, Effective Communication, Emotional Intelligence, Time and Task Management, Trust Building and Cultural Sensitivity—are arranged around the E-Leadership circle. Each skill is depicted as an outer circle connected to the centre, symbolizing that these skills are not optional but rather integral to the e-leadership skills model. This configuration underscores the importance of these competencies in supporting the central function of e-leadership. It communicates that a deficiency in any one of these areas could impact the overall virtual team performance.

Interconnectivity between these skills is a significant feature of the framework, depicted by lines that draw relationships between the various competencies. This web of interrelations suggests that these skills do not operate in silos; instead, they influence and enhance one another. For instance, effective communication amplifies trust building, while emotional intelligence can enhance cultural sensitivity within a team. This interconnectedness acknowledges the complexity and dynamic nature of virtual team management.

The framework serves as a guide for leaders to assess and develop crucial e-leadership skills. It can help leaders understand the interconnectedness of these skills and how they can enhance virtual team performance. Additionally, organizations can use the framework to structure leadership development programs and ensure that leaders have the necessary skills to succeed in a digital world.

Figure 7.1:E-Leadership Skills for Virtual Team Performance

7.6 Academic contribution

The academic contribution of this research is significant as it provides a comprehensive understanding of the evolving nature of e-leadership and its pivotal role in achieving success within virtual work environments. It offers empirical evidence supporting the theoretical claims made in the literature and provides a more nuanced understanding of how e-leadership skills influence virtual team performance in practice.

Moreover, the research contributes to the existing body of knowledge by highlighting the importance of various e-leadership skills such as technical proficiency, adaptability, effective communication, emotional intelligence, time and task management, trust building, cultural sensitivity, and training and development.

The research also highlights that e-leadership needs to constantly adapt and improve skills to be effective in virtual work environments. This finding adds to the existing knowledge of leadership in the digital age.

This research enriches the academic literature on e-leadership and virtual team performance, providing valuable insights for future studies in this field.

7.7 Recommendations

Based on the findings of the research, the following recommendations are proposed to enhance e-leadership skills and improve virtual team performance:

1. Invest in Technology and Training: E-leaders should be proficient in various technologies and tools that facilitate virtual collaboration. Organizations should invest in reliable technology and provide training to their leaders and team members to ensure they can effectively use these tools. This includes understanding and effectively using communication platforms, project management tools, and other digital resources. For example, organizations can provide training sessions on how to use specific communication platforms, and project management tools, and also provide ongoing support to address any technical issues that may arise.

2. Foster Adaptability: E-leaders should be able to adapt swiftly to changes in global influences, market conditions, and technology. Organizations should foster a culture of adaptability and flexibility, encouraging leaders and team members to be open to innovative ideas and strategies.

3. Enhance Communication Skills: Clear and transparent communication is crucial in a virtual team setting. E-leaders should be able to articulate their vision and expectations clearly, and also be good listeners. Organizations should provide communication training and create platforms for open and transparent communication.

4. Develop Emotional Intelligence: E-leaders should be able to manage their own emotions and those of their team members effectively. This includes being empathetic, understanding, and supportive. Emotional intelligence training should be part of the

leadership development program.

5. Improve Time and Task Management: E-leaders should be able to effectively delegate tasks and manage time, ensuring that team members are not overwhelmed and that deadlines are met. Time management training and tools can be beneficial in this regard.

6. Build Trust: E-leaders should foster a culture of trust within their teams. This includes being dependable, consistent, and respectful. Trust-building exercises and activities can be incorporated into team-building initiatives.

7. Promote Cultural Sensitivity: E-leaders should understand and respect the different cultural backgrounds of their team members. This includes being aware of cultural nuances and ensuring that all team members feel valued and included. Cultural sensitivity training can be beneficial in this regard.

8. Prioritize Training and Development: E-leaders should prioritize the training and development of their team members. This includes providing opportunities for continuous learning and professional growth. Organizations should invest in comprehensive training and development programs.

In conclusion, the development of these e-leadership skills can significantly improve virtual team performance. It is recommended that organizations invest in the development of these e-leadership skills through comprehensive training and development programs, fostering a culture of adaptability, and prioritizing clear and transparent communication. By doing so, organizations can significantly enhance the performance of their virtual teams and navigate the challenges of the digital age more effectively.

7.8 Limitations

The limitations of this research, include the following:

- The study is primarily centered on the mining industry and is drawn from a specific geographical region. Therefore, the insights may not represent broader mining contexts or extend seamlessly to other sectors.

- The sample size and selection methodology might not encompass all industry perspectives, potentially limiting the generalizability of the findings.
- The research employed a cross-sectional approach, providing a temporal snapshot that could potentially overlook evolving dynamics.
- The qualitative nature of the study, particularly during interviews, introduces biases due to the researcher's influence or phrasing.
- Technical challenges stemming from the reliance on virtual platforms can affect the quality of data collection.
- Unforeseen industry shifts or external events during the research could alter participants' viewpoints.

These constraints should be considered when interpreting the study's broader applicability.

7.9 Suggestions for future research

Based on the findings and limitations of this research, the following three suggestions are proposed for future research:

- Expand the Scope of the Study: Future research could expand the scope of the study to include other industries and geographical regions. This would provide a more comprehensive understanding of e-leadership and its impact on virtual team performance across different contexts.
- Longitudinal Studies: Longitudinal studies could be conducted to capture the evolving dynamics of e-leadership and virtual team performance over time. This would provide insights into how e-leadership skills and virtual team performance change and develop over time, offering a more dynamic perspective on the topic.
- Explore the Role of Technology: More research is needed to explore the relationship between leadership and ICT utilization, and its implications for e-leadership and virtual team performance. This could provide a deeper understanding of how technology can be leveraged to enhance e-leadership skills and improve virtual team performance.

7.10 Conclusion

In conclusion, the discussions reflected not only the researcher's observation that specific roles could indeed be performed remotely but also the observed resistance and inequality in

extending remote work opportunities to all employees. The multifaceted recommendations and insights provided by the participants collectively contributed to a comprehensive understanding of the evolving nature of e-leadership and its pivotal role in achieving success within virtual work environments. The conclusions and recommendations presented in this section should be considered in light of the research limitations acknowledged in the study. Future research should aim to address these limitations and further explore the dynamic nature of e-leadership in different contexts.

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Appendices

Appendix 1 Consistency Matrix

TITLE: Methodologies Used to Fund and Evaluate the Influence of Managers' e-Leadership Skills on Virtual Team Performance

Propositions Questions	Literature Review	Data Collection Tool	Data Analysis
Research question 1 What e-leadership skills influence virtual team performance?	**Section 2.3.2** Henderikx & Stoffers, 2022; Tigre et al., 2023; Dinçer et al., 2023 ; Ferreira et al., 2023.	Research interview questions 4 and 5	Six-steps thematic analysis model by Braun and Clarke (2021).
Research question 2 What factors contribute to virtual team performance?	**Section 2.3.3** Cortellazzo et al., 2019; Morrison-Smith & Ruiz, 2020	Research interview questions 6 to 8	Six-steps thematic analysis model by Braun and Clarke (2021).
Research question 3 How can e-leadership skills be developed to improve virtual team performance?	**Section 2.3.4** Chamakiotis et al., 2021; Tigre et al., 2023	Research interview questions 9 to 11	Six-steps thematic analysis model by Braun and Clarke (2021).

Appendix 2: Ethical Clearance Approved

Gordon Institute of Business Science
University of Pretoria

Nancy Kongolo <15262937@mygibs.co.za>

Ethical Clearance Approved
2 messages

Masters Research <MastersResearch@gibs.co.za> 1 September 2023 at 09:57
To: "15262937@mygibs.co.za" <15262937@mygibs.co.za>
Cc: Masters Research <MastersResearch@gibs.co.za>

Gordon Institute of Business Science
University of Pretoria

Ethical Clearance Approved

Dear Iband Jadot Nancy Kongolo,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards

Appendix 3: Interview Guide

Title: Influence of Managers' e-Leadership Skills on Virtual Team Performance

Research interview questions

Introduction

The researcher will do the following:

- Introduce the purpose of the study and explain the method that will be used to capture and analyse the data.
- Obtain informed consent of the participant, explaining confidentiality, anonymity, and expected interview duration.
- Explain potential benefits to the participant and leave room for any questions they may have.

Introduction to the research topic

1. How do you define e-leadership in the context of managing virtual teams?
2. What differences, if any, exist between traditional leadership and e-leadership?
3. What is your understanding of virtual teams' performance?

RQ1: What e-leadership skills influence virtual team performance?

4. What e-leadership skills do you believe are essential compared to others for managing virtual teams effectively? And why?
5. Can you share an experience where a lack or presence of a particular leadership skill had a tangible impact on your virtual team's performance?

RQ2: What factors contribute to virtual team performance?

6. Beyond managerial skills, what other factors or conditions have you observed to significantly influence the performance of virtual teams?
7. In your experience, how does communication technology impact virtual team collaboration and performance?
8. How do team dynamics and interpersonal relationships affect the performance of your virtual team?

RQ3: How can e-leadership skills be developed to improve virtual team performance?

9. How have you developed or enhanced your e-leadership skills?
10. What tools or resources have you found most helpful in strengthening your e-leadership capabilities?
11. What do you think you and your team members can do to improve virtual team performance?

Concluding Comments

12. Is there any additional insight or comment(s) related to virtual team performance or e-leadership that you would like to share?

Appendix 4: Code List

Code	Code Groups
● (-) costs	ICT impact
● (-) empowerment	ICT impact
● (-) fatigue and different time zones	ICT impact
● (-) lack interations	ICT impact
● (-) lack techknowhow	ICT impact
● (-) loadshedding	ICT impact
● (-) wifi and network	ICT impact
● (+) e-leading through documenting and tracki	ICT impact Enhance and Develop
● (+) global	ICT impact
● (+) platform connectivity	ICT impact
● (+) quicker	ICT impact
● (+) realtime and efficient collaboration	ICT impact
● (+) saving	ICT impact
● (+) teamwork virtual meetings	ICT impact
○ Accountability	Other factors
○ adaptability	Other factors
○ adaptable	e-leadership skills
● Aesthetic Home Environment	Resource requirements
○ Buyin and Motivational skills	e-leadership skills
● cellphone allowance	Resource requirements
○ change management	Suggestions to up VT perfomance
○ clear policies: e.g work from home, insuranc	Other factors
○ conflict resolution	e-leadership skills
○ continuous learning	Enhance and Develop
○ cultural background	Other factors
○ cultural sensitivity	e-leadership skills
○ cyberrsecurity skills	e-leadership skills
○ delegation skills	Enhance and Develop
● deliverable	Virtual team performance
○ digital communication skills	e-leadership skills
○ diverse team composition	Other factors
○ dynamic and adaptability	Suggestions to up VT perfomance
○ dynamics skills	e-leadership skills
○ effective communication skills	e-leadership skills
● Efficiency and effectiveness	Virtual team performance
○ Emotional intelligence	e-leadership skills
○ emotional intelligences	Other factors
○ empathy	e-leadership skills
○ empowering skills	e-leadership skills

● Excell and Power point skills	Resource requirements
● file sharing platfoms	Resource requirements
○ flexibility	Differences Other factors
○ forward thinking skills	e-leadership skills
○ good commmunication	Other factors
● good digital commucation attitude	Resource requirements
○ good work environment	Suggestions to up VT perfomance
○ handson	Enhance and Develop
○ influence skill	Enhance and Develop
○ Influence skills	e-leadership skills
○ Infrastructure challenge : e.g loadshedding	Other factors
○ interpersonal	e-leadership skills
○ knowledge sharing	Suggestions to up VT perfomance
○ lack of efficiency	lacking of skill
○ lack of empathy	lacking of skill
○ lack of incentives and prioritisation	Other factors
○ lack of prioritisation	lacking of skill
○ lack of team participation balance	lacking of skill
○ lack of trust	lacking of skill
○ lack of virtual skills	lacking of skill
○ lack participation initiates	lacking of skill
○ lacking adaptability skills	lacking of skill
○ lacking communication skills	lacking of skill
○ lacking digital communication skills	lacking of skill
○ Lacking presentation skills	lacking of skill
○ lacking sense of urgency	lacking of skill
○ lacking vision	lacking of skill
○ leading remotely P(all except 1)	Understand e-leadership
○ less costly	Differences
○ listening	Enhance and Develop
○ love	Enhance and Develop
○ love technology	Enhance and Develop
○ mental health and welness	Suggestions to up VT perfomance
○ mentorship	Enhance and Develop
○ more work-life balance	Other factors Suggestions to up VT perfomance
○ not people centred	Differences
● online resources: google and internet	Resource requirements
● Online training development	Resource requirements
○ open communication	Enhance and Develop
○ Output driven	Differences

○ Output driven skills	Enhance and Develop
○ participations	Suggestions to up VT perfomance
● passion for technology	Resource requirements
○ Practical	Differences
○ reliable technology and tools	Other factors
○ remote relationship	Differences
○ remote trust	Differences
○ reporting skills	e-leadership skills
● results	Virtual team performance
● schedule and milestone	Virtual team performance
○ Self displine	Other factors
○ self wareness and assessment	Enhance and Develop
○ self-assessment	Enhance and Develop
● signing tools	Resource requirements
○ soft skills	e-leadership skills
○ technolgy based	Differences
● Technology competence, collaboration and c	Virtual team performance
○ technology platforms P(4,5,6,7,8,9,10,11 &1	Understand e-leadership
○ technology skills	e-leadership skills
○ time and task management	e-leadership skills
○ Traditional leadership skills	e-leadership skills
○ Traning and development	Suggestions to up VT perfomance
○ trust and social cohesion	Other factors
○ trust skills	e-leadership skills
○ understood even in your absence P(3)	Understand e-leadership
● Unlimited Wifi connectivity	Resource requirements
○ Virtual team management P(5,6,8 &9)	Understand e-leadership
○ vision articulation	Enhance and Develop
○ whatsup skills	e-leadership skills
○ Work environment set-up	Other factors
● Work from home P(1,2,7&9)	Understand e-leadership
● Zoom and MS teams communication tools	Resource requirements Suggestions to up VT perfomance

Appendix 5: Consent Letter Participant

Dear leader,

You are invited to participate in an academic research study conducted by Nancy Kongolo, a Master of Business Administration (MBA) student from the Gordon Institute of Business Science at the University of Pretoria. The purpose of the study is to understand the Influence of Managers' e-Leadership Skills on Virtual Team Performance. The results of this study will be used to contribute to the body of knowledge in e-Leadership Skills and Virtual Team Performance.

Please note the following:

1. Your name will not appear on the questionnaire and answers that you give will be treated as strictly confidential. You cannot be identified in person based on the answers that you give.
2. The interview will be recorded and the recording will be transcribed by a third-party transcriber, who will be subject to a standard non-disclosure agreement.
3. Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without negative consequences.
4. The interview will not take more than 60 minutes of your time. However, where necessary your consent will be requested if there are still more insights and information that you would like to share to enrich this study.
5. The results of this study will be used for academic purposes only and may be published in an academic journal.
6. The summary of results will be made available to you on request.
7. All data to be reported and stored without identifiers.
8. You may contact my research supervisor (Aldrin Beyer) at beyera@gibs.co.za if you have any questions, concerns or comments regarding the study.

Thank you for agreeing to participate by sharing your insights, information and experience in this study

Signature of participant: _____ Date: _____

Signature of researcher: _____ Date: _____

Appendix 6: Editor Confidentially and Non-Disclosure Agreement

CONFIDENTIALLY AND NON-DISCLOSURE AGREEMENT (Editor)

It is a condition of engagement that students will assist in preserving all confidential information, ideas and plans; any confidential information or any information in respect of any data gathered, captured or analysed in respect of the research work they undertake in fulfilment of GIBS MBA programme, in this case the research project titled "The Influence of Managers' e-Leadership Skills on Virtual Team Performance" conducted by Nancy Kongolo.

The parties (i.e. Researcher and Editor) under this agreement agree to the following:

1. To apply their best efforts to keep any information confidential which has been acquired or may acquire pursuant to the research work. For the purposes of this clause, confidential information excludes information which:
   1.1 is publicly available or becomes publicly available through no act or default of any Party;
   1.2 was in the possession of a Party prior to its disclosure otherwise than as a result of a breach by any party of any obligation of confidentiality to which it is subject;
   1.3 is disclosed to the student by a person which did not acquire the information under an obligation of confidentiality; and
   1.4 is independently acquired by a student and as a result of work carried out by a person to whom no disclosure of such information has been made;
2. No party shall use or disclose confidential information except with the prior written consent of GIBS or in accordance with an order of a court of competent jurisdiction or in order to comply with any law or governmental regulations by which any Party concerned is bound or as may be lawfully requested in writing by any governmental authority.

3. The party undertakes to permanently delete any electronic copies of confidential information received, and destroy any confidential printed documentation or similar material in their possession promptly once they are no longer required, usually on completion of the service contracted by the student.

4. On completion of the contracted service on behalf of the student, the party is to confirm to the student that they are not in possession of any confidential information.

Signed at _____on this _____day of_____20___.

On behalf of:

_____

Name: _____ Signature: _____

duly authorised and warranting such authority

Witness: _____

Appendix 4: Transcribers Confidentially and Non-Disclosure Agreement

CONFIDENTIALLY AND NON-DISCLOSURE AGREEMENT (Transcriber)

It is a condition of engagement that students will assist in preserving all confidential information, ideas and plans; any confidential information or any information in respect of any data gathered, captured or analysed in respect of the research work they undertake in fulfilment of GIBS MBA programme, in this case the research project titled "The Influence of Managers' e-Leadership Skills on Virtual Team Performance" conducted by Nancy Kongolo.

The parties (i.e. Researcher and Transcriber) under this agreement agree to the following:

1. To apply their best efforts to keep any information confidential which has been acquired or may acquire pursuant to the research work. For the purposes of this clause, confidential information excludes information which:
   1.1 is publicly available or becomes publicly available through no act or default of any Party;
   1.2 was in the possession of a Party prior to its disclosure otherwise than as a result of a breach by any party of any obligation of confidentiality to which it is subject;
   1.3 is disclosed to the student by a person which did not acquire the information under an obligation of confidentiality; and
   1.4 is independently acquired by a student and as a result of work carried out by a person to whom no disclosure of such information has been made;
2. No party shall use or disclose confidential information except with the prior written consent of GIBS or in accordance with an order of a court of competent jurisdiction or in order to comply with any law or governmental regulations by which any Party concerned is bound or as may be lawfully requested in writing by any governmental authority.

3. The party undertakes to permanently delete any electronic copies of confidential information received, and destroy any confidential printed documentation or similar material in their possession promptly once they are no longer required, usually on completion of the service contracted by the student.

4. On completion of the contracted service on behalf of the student, the party is to confirm to the student that they are not in possession of any confidential information.

Signed at _____on this _____day of_____20___.

On behalf of:

_____

Name: _____ Signature: _____

duly authorised and warranting such authority

Witness: _____