



**CATÓLICA
LISBON**
BUSINESS & ECONOMICS

**THE SPECIFIC CHALLENGES THAT
SMALL AND MEDIUM-SIZED
ENTERPRISES FACE WITH THE
IMPLEMENTATION OF VIRTUAL
TEAMS.**

Alia Cheraït

Dissertation written under the supervision of Professor Ana Paula
Giordano

Dissertation submitted in partial fulfilment of requirements for the MSc in
Management with Specialization in Strategic Marketing, at the
Universidade Católica Portuguesa, January 2024.

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Abstract

Title: The specific Challenges that Small and Medium-sized Enterprises face with the implementation of Virtual Teams

Author: Alia Cheraït

Small and Medium-sized Enterprises (SMEs) embarking on the implementation of virtual teams encounter a myriad of challenges that demand attention and strategic resolution. This dissertation aims to shed light on the specific hurdles faced by SMEs in the process of integrating virtual teams into their operational frameworks.

The study employs a comprehensive examination of the challenges, drawing insights from a diverse array of industries and organizational structures. Key obstacles identified include issues related to communication and collaboration, technology infrastructure, team cohesion, leadership adaptation, and the management of remote work dynamics. These challenges are often exacerbated by resource constraints and limited access to specialized expertise within SMEs.

Addressing these impediments is critical for SMEs striving to harness the benefits of virtual teams, such as increased flexibility, access to global talent pools, and enhanced productivity. By synthesizing current literature, empirical evidence, and practical experiences, this dissertation aims to contribute valuable insights into the unique challenges faced by SMEs during the implementation of virtual teams, offering a foundation for the development of targeted strategies and best practices to foster successful integration in the evolving landscape of modern work.

Keywords: Virtual teams challenges, SMEs, Communication, Technology, Team Building

Resumo

Título: Os desafios específicos que as pequenas e médias empresas enfrentam com a implementação de equipas virtuais.

Autora: Alia Cheraït

As Pequenas e Médias Empresas (PMEs) ao implementar equipas virtuais encontram desafios que exigem atenção e resolução estratégica. Esta dissertação pretende esclarecer os obstáculos específicos enfrentados pelas PME no processo de integração de equipas virtuais nos seus quadros operacionais.

O estudo envolve um exame abrangente dos desafios, extraindo insights de uma ampla gama de setores e estruturas organizacionais. Os principais obstáculos identificados incluem questões relacionadas com a comunicação e colaboração, infraestrutura tecnológica, coesão da equipa, adaptação da liderança e gestão da dinâmica de trabalho remoto. Estes desafios são muitas vezes agravados pelas restrições de recursos e pelo acesso limitado a conhecimentos especializados nas PME.

Abordar estes impedimentos é fundamental para as PME que se focam em usufruir dos benefícios das equipas virtuais, tais como a maior flexibilidade, o acesso a conjuntos de talentos globais e uma maior produtividade. Ao sintetizar a literatura atual, as evidências empíricas e experiências práticas, esta dissertação pretende contribuir com informações valiosas sobre os desafios únicos enfrentados pelas PME durante a implementação de equipas virtuais, oferecendo uma base para o desenvolvimento de estratégias direcionadas e melhores práticas para promover uma integração bem-sucedida. no cenário em evolução do trabalho moderno.

Palavras-chave: Desafios das equipas virtuais, PMEs, Equipas Virtuais, Comunicação, Tecnologia, Team Building

Acknowledgments

I wish to convey my profound gratitude to those individuals whose invaluable contributions were pivotal in the triumphant completion of this thesis dissertation. Embarking on this academic journey has been both a challenge and a source of enrichment, and I am genuinely thankful for the unwavering support and encouragement I have received from various quarters.

First and foremost, I extend my heartfelt appreciation to my supervisor, Ana Paula Giordano, whose guidance and expertise have been instrumental in shaping the trajectory of my research. Your mentorship has been a cornerstone in this academic endeavor.

To my colleagues and friends, particularly Farah and Nikol, I extend my gratitude for cultivating a stimulating academic environment. Your camaraderie and shared experiences have infused joy into this journey, making it a truly enriching experience.

I am profoundly thankful to my family for their constant support and understanding, with special recognition to my parents, Meriem and Jalel, my brother Mehdi, and boyfriend Mahmoud. Your persistent support and motivation, especially during the most stressful moments, have been a driving force. Your unwavering belief in my abilities has served as a constant source of motivation.

A special acknowledgment goes to all the research participants who generously shared their time and insights, significantly contributing to the depth and breadth of this study.

To each person who played a role, big or small, in this academic pursuit, I extend my sincere thanks for being an integral part of this meaningful chapter in my life.

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List of Abbreviations

Virtual Teams.....	VTs
Information and Communication Technologies.....	ICTs
Small and Medium-sized Enterprises.....	SMEs
Dynamic Strategic Planning.....	DSP
Online collaborative software.....	OCS
Global Virtual Teams	GVTs
Computer-mediated Communication	CMC

1. Introduction

Small and Medium-sized enterprises (SMEs) play a vital role in advancing economic growth. (Achmad et al., 2023). In recent times, the significance of digital data in the administration and digital transformation of businesses has been on the rise (Sestino et al., 2020).

The swift pace of transformation and the forces of globalization are leaving their mark on both organizations and individuals. The landscape is evolving, customer behaviors are shifting, and information technologies are advancing rapidly (Mašić et al., 2018). The rapid adoption of cutting-edge digital strategies, including the integration of digital technologies and tools throughout the value chain, is profoundly impacting businesses across various sectors (Pfister & Lehmann, 2021). The exploration of digitization and its consequences on corporate performance and economic advancement has gained significant attention in academic inquiry over the past twenty years. Many research works have delved into examining how the integration of digital methodologies influences businesses (Ollo-López & Aramendía-Muneta, 2012).

Virtual team members may be located far apart geographically, yet they can effectively collaborate and access shared information. This is particularly vital for organizations operating on a global scale, as it's essential to leverage the benefits offered by Virtual teams (VTs) (Antoni, 2023). A virtual team is characterized by its members potentially belonging to different organizations, spanning various time zones, geographic locations, and cultures. Technology serves as the facilitator for communication and coordination among these members (Huang et al., 2010). Additionally, workers can gain advantages from adaptable work setups that offer them greater independence in choosing when and where to work. This reduces the time and expenses associated with commuting when they work from their homes. Back in the 1990s, VTs were heralded as the future of work and the vital human element of the 21st century (Lipnack & Stamps, 1997).

An exploration of existing literature highlights the pivotal role of SMEs as the cornerstone and driving force in numerous economies, contributing significantly to a country's development. SMEs, constituting over 99% of businesses in Europe, serve as a rich research foundation (Lopez-Nicolas & Soto-Acosta, 2010). They are key sources of innovation, novel products, technological advancement, and employment, accounting for 50 to 70% of full-time

equivalent employment. Consequently, the growth of SMEs holds substantial implications for the overall economic development of a nation (Higón, 2011; Matthews, 2007).

Engaging in remote work requires the utilization of technology such as computers and internet connectivity. However, employees in small businesses, particularly those situated in rural or isolated areas with restricted or nonexistent connectivity, face challenges that undermine the fundamental concept of virtual collaboration (Thambusamy & Bekirogullari, 2020). Indeed, SMEs encounter hurdles, including shortages in manpower, internal reluctance, security concerns, inadequate support and IT assets, all compounded by internal limitations. As a result, there is a pressing need for an improved comprehension of digitalizing business frameworks (Cenamor et al., 2019).

Many small businesses are currently grappling with the impact of the global economic downturn, which is significantly influencing their day-to-day operations (Bartik et al., 2020). In addition to this, they must navigate the additional hurdle of maintaining the productivity levels of their employees (Thambusamy & Bekirogullari, 2020). These difficulties are particularly pronounced within SMEs where the constraints are heightened due to their restricted resources (Ardito et al., 2021; Pfister & Lehmann, 2021). Yet, overseeing employees spread across different times and locations poses a challenge, particularly given resource limitations in ensuring that each individual enjoys an optimal remote work environment (Thambusamy & Bekirogullari, 2020).

The unexplored challenges faced by SMEs in implementing VTs have not received sufficient scrutiny. Therefore, this paper aims to answer the following question: “What are the specific challenges that SMEs face with the implementation of VTs?” The exploration begins with an analysis of scholarly journals and textbooks, covering concepts and empirical studies on the topic.

After identifying the challenges from the current literature, a theoretical framework is constructed to underpin the empirical study. The methodology is then outlined, and the findings are presented. Additionally, the findings are discussed in conjunction with additional

literature, elucidating the link between the theoretical framework and the results, while highlighting any novel discoveries. The paper concludes with limitations and a concise summary of the study's key insights.

2. Conceptual Framework

2.1. Definition of Virtual teams

In 1965, the concept of VTs took root in technologically advanced nations like the United States and the United Kingdom (Kirkman et al., 2002), as these countries were among the first to embrace computers and other cutting-edge technologies. However, the utilization of teams at workplaces gained momentum with the rise of quality circles and total quality management in the early 1980s. By the early 1990s, a significant number of companies began adopting self-managing or empowered work teams. This transition occurred swiftly, thanks to the rapid evolution of communication technologies and the ever-expanding influence of globalization, ultimately leading to the widespread acceptance and integration of VTs on a global scale (Gupta & Pathak, 2018).

VTs involve individuals situated in diverse geographical regions, often spanning different time zones (Garro-Abarca et al., 2021). Defined by Jarvenpaa and Leidner (1999), VTs operate in digital environments, where members are temporarily separated by distance and rely on information and communication technologies (ICTs) for collaboration (Jarvenpaa & Leidner, 1999). Martins et al. (2004) characterize VTs as teams whose members use technology to collaborate across geographical, temporal, and relational divides in pursuit of an interconnected goal (Martins et al., 2004).

Frequently, VTs are composed of members with varied skills and are engaged in interrelated tasks, jointly responsible for the team's results. As organizations increasingly employ VTs, there's a growing need for innovative collaboration to harness and combine diverse expertise, such as functional, organizational, and regional knowledge. This collaboration aims to create innovative products, processes, or business strategies (Lipnack & Stamps, 2000; Duarte & Snyder, 1999). According to Pillis & Furumo, members of VTs are anticipated to collaborate by exchanging information, creatively generating ideas, engaging in discussions to explore various solutions to issues, reaching decisions, and ultimately delivering results, which could take the shape of reports or tangible products (Pillis & Furumo, 2007).

The swiftly advancing scope, availability, and capacity of ICTs have given rise to the prospect of a virtual realm where physical face-to-face (FTF) encounters are supplanted by interactions through technology-mediated communication (Dixon & Panteli, 2010). Team members employ various ICT tools to engage in collaborative efforts (Müller & Antoni, 2020). Any technology that aids in the exchange of information among individuals falls under the category of ICT, encompassing both transmission and storage. The desire to align technology effectively with specific tasks in VTs influences the selection of ICT and the level of virtualization. In modern times, VTs employ a spectrum of ICT tools, varying from rich-media options to more feature-focused ones (Gupta, & Wingreen, 2014) to accomplish their tasks (Großer & Baumöl, 2017). Various ICTs encompass electronic mail, as well as auditory and visual tools like Zoom or Skype, alongside applications such as Microsoft Teams and Slack (Rahmani et al., 2023).

ICTs constitute vital components within the technical framework of VTs, facilitating collaborative efforts among team members (Antoni, 2023). Indeed, engaging in communication through various ICTs, including email, chat applications, ticket systems, video conferencing platforms, and file-sharing systems, may pose challenges for team members, particularly when there is a diversity of ICT tools used for a single purpose (Müller & Antoni, 2020).

VTs offer numerous organizational advantages, allowing enterprises to access the expertise of the best-suited individuals for a role, regardless of location. This adaptability enables swift responses to increased competition and provides enhanced flexibility for remote or mobile work (Bell & Kozlowski, 2002). These benefits extend to furnishing employees with fresh resources for connecting within and between organizations, promoting information sharing, nurturing social connections, and navigating individual and corporate identities (Shumate & Contractor, 2014). Despite the evident significance of VTs in shaping future organizations, our understanding of them remains relatively limited (Bell & Kozlowski, 2002).

2.2. Characteristics and Importance of SMEs

SMEs have transitioned from a marginal focus in past business literature to gaining prominence in government policies and academic research (Lind, 2013), acknowledged as significant contributors to the global economy and major providers of employment (Krishnan & Scullion, 2017). SMEs, as per the EU recommendation (European Commission, 2003), are characterized as enterprises with fewer than 250 employees. They play diverse roles in contributing to the advancement of society (Zamani, 2022). As Beck et al. (2005) pointed out, the perspective that favors policies in support of SMEs, a view shared by institutions like the World Bank, is grounded in the idea that the SME sector offers societal advantages through increased competition, potentially leading to higher productivity compared to larger corporation (Beck et al., 2005). The influence of SMEs is noteworthy, as they generate employment, contribute to economic growth, and play a role in maintaining social stability (Knight, 2000; Wallsten, 2000).

In developing nations, SMEs constitute more than 90% of businesses and typically account for around 50-60% of total national employment, on average (Krishnan & Scullion, 2017). Beck et al. Investigates the link between the proportional size of the SME sector, economic advancement, and the reduction of poverty across a study of 45 nations. Their findings reveal a robust and favorable correlation between the significance of SMEs and the growth of GDP per capita. (Beck et al., 2005). SMEs can effectively venture into the global marketplace when they can meet customer demands concerning product features and quality (Kušar et al., 2004).

Despite their limited size, small and medium-sized enterprises (SMEs) assume a crucial function in a nation's innovation ecosystem and economy. They infuse notable creativity into their offerings through dedicated research and development efforts.

2.3. The Growing Trend of Virtual Teams in SMEs

The proliferation of globalization and technological progress has precipitated a surge in the utilization of VTs over the past ten years. It is estimated that in the United States alone, up to 8.4 million workers are participants in one or more VTs or collectives (Furst et al., 2004).

Indeed, VTs have become increasingly common within businesses. A Gartner group survey conducted recently disclosed that over 60% of professional workers are actively participating in virtual team arrangements (Martins et al., 2004).

The adaptability and flexibility of digital assets enhance SME performance (Ojha et al., 2023). The operational procedures of VTs, meticulously detailed, reveal benefits and provide strategic suggestions to boost SMEs' competitive edge (Matlay & Westhead, 2007). Virtuality is portrayed as a remedy for SMEs aiming to enhance competitiveness (Pihkala et al., 1999). The rise of telecommuting could set a new standard, prompting SMEs to foster innovation for benefits beyond individual employees and managers, impacting overall productivity and organizational sustainability (Islam et al., 2021).

3. Literature Review

3.1. Benefits of Virtual Teams for SMEs

Global Virtual Teams (GVTs) present a myriad of advantages for businesses, including the ability to tap into a diverse pool of talent worldwide, streamline commuting, boost problem-solving capabilities, catalyze global innovation, and efficiently manage projects (Jimenez et al., 2017). One key benefit is their capacity to overcome the physical constraints and costs associated with face-to-face (FTF) meetings, eliminating space-time limitations. This not only reduces the time and fatigue associated with employee commuting but also contributes to cultivating an enhanced work-life balance (Capolupo et al., 2022). Moreover, companies can significantly elevate their efficiency and effectiveness by capitalizing on the opportunity to involve the most qualified individuals within the organization in VTs, irrespective of their geographical location (Alsharo et al., 2017).

In today's age of globalization, the pivotal factor influencing the viability of Small and Medium Enterprises (SMEs) lies in their capacity to produce and deliver more efficiently at a competitive cost, within shorter timeframes, while minimizing defects and utilizing fewer resources (Sharma & Bhagwat, 2006). Confronting this challenge head-on, SMEs are actively fostering synergies to surmount obstacles and achieve success. Leveraging web resource

services becomes instrumental for enterprises seeking external service resources, facilitating collaborative design, and optimizing manufacturing processes (Ale Ebrahim et al., 2009b).

Indeed, SMEs are now accessing a competitive edge by leveraging the geographical openness facilitated by VTs (Ale Ebrahim et al., 2011). These enterprises in fact stand to gain significantly by engaging with virtual R&D teams, as evidenced by studies conducted by Ebrahim et al. in 2009. This engagement can lead to accelerated growth rates and heightened profitability, underscoring the transformative impact of VTs on the success of businesses. (Ebrahim et al., 2009).

Disadvantage of SMEs	Can be compensated with advantage of virtual teams
Scarce resources and manpower	Able to tap selectively into the center of excellence, using the best talent regardless of location Reducing relocation time and costs, reduced travel costs Reducing time-to-market (Time has an 1:1 correlation with cost)
Lacking some of the essential resources for innovation, severe resource limitations in R & D Not having formal R & D activities limited degree of information technology (IT) implementation	More effective R & D continuation decisions Can manage the development and commercialization tasks quite well Sharing knowledge, experiences
Weak at converting research and development into effective innovation	Facilitating transnational innovation processes Higher team effectiveness and efficiency
Rely on outdated technology, labor intensive and traditional management practices	Respond quickly to changing business environments Most effective in making decisions Provide organizations with the unprecedented level of flexibility and responsiveness
Lagging in the export	Provide a vehicle for global collaboration and coordination of R & D-related activities

Figure 1: Compensate lack of SMEs by virtual teams (Ale Ebrahim et al., 2009c)

In Figure 1, Ale Ebrahim et al. outlines the multifaceted challenges faced by SMEs, emphasizing the disadvantages such as scarce resources, manpower limitations, and constraints in formal Research and Development (R&D) activities. The table further underscores the hindrances stemming from inadequate information technology (IT) implementation, the struggle to convert R&D efforts into effective innovation, and the reliance on outdated technology and traditional management practices, particularly impacting export competitiveness. However, the insightful contribution of Ale Ebrahim et al. extends beyond mere identification of challenges. The figure introduces a pivotal dimension by illustrating how SMEs can strategically address these disadvantages through the adoption of VTs. By connecting with centers of excellence globally and harnessing the best talent irrespective of location, SMEs stand to benefit from reduced relocation and travel costs,

accelerated time-to-market, enhanced R&D decision-making, and improved development and commercialization capabilities. This innovative approach, as depicted in Figure 1, positions SMEs to thrive in a dynamic business landscape by fostering knowledge sharing, facilitating transnational innovation processes, and elevating overall team effectiveness and efficiency (Ale Ebrahim et al., 2009c).

3.1.1. Cost Savings and Efficiency

Given the escalating force of globalization and the urgent demand for swift knowledge dissemination that surpasses geographical and temporal limits, CMC emerges as a remarkably beneficial tool for organizations. Beyond its facilitation of efficient information dissemination, CMC effectively addresses challenges inherent in face-to-face communication, including cost considerations. The adoption of CMC yields significant financial advantages, substantiated by remarkable cost savings. Leading multinational corporations, exemplified by notable cases, have documented substantial savings of up to \$50 million upon integrating CMC into their operational frameworks (Bergiel et al., 2008). This underscores the efficacy of CMC as a fiscally judicious strategy for conducting business, as highlighted in various studies (Baltes et al., 2002; Cascio, 2000; Hill, 2000).

Recent research indicates that managing teams dispersed across various locations has become more efficient through electronic collaboration. This facilitates swift virtual meetings and enables teams to seamlessly disband or reconfigure based on organizational requirements. In the face of escalating energy costs and increasing challenges in air travel, the concept of uniting individuals without the necessity for physical commuting emerges as a pragmatic and cost-effective alternative (Pillis & Furumo, 2007).

3.1.2. Access to a Global Talent Pool

Due of the challenges associated with gathering diverse interdisciplinary knowledge from team members within a temporary team structure, it is more advantageous for the company to

recruit team members from various locations worldwide and facilitate their collaboration within a virtual environment (Buche & Querrec, 2011). SMEs have the potential to bolster their innovation and growth endeavors by adopting inventive methods to appeal to and entice specialized talents from larger, well-established organizations (Rao & Drazin, 2002). By harnessing the capabilities of internet technologies, brand marketing, and institutional partnerships, SMEs with limited resources can explore alternative avenues to connect with their intended audience (Williamson et al., 2002).

Organizations were drawn to the concept of substantially diminishing expenses associated with travel and relocation, all the while tapping into a diverse global talent pool, irrespective of the physical location of individuals (Gilson et al., 2021). Numerous organizations recognize that e-internships provide SMEs with the opportunity to tap into talent resources on a global scale (Jeske & Axtell, 2016) and virtual project teams empower organizations to assemble a rich pool of talent, irrespective of the geographic dispersion of their employees, enabling them to tackle crucial tasks while capitalizing efficiently and swiftly on diverse skills and expertise (Furst et al., 2004).

3.1.3. Increased Flexibility and Adaptability

SMEs constitute a significant economic asset, and it is widely recognized that their prospects for enduring and thriving are deeply contingent on their adaptability and capacity to confront the demands of a highly dynamic market (Ferraris et al., 2000). In the present landscape, businesses encounter a range of trends, including outsourcing and mass customization, necessitating the discovery of adaptable strategies to address unpredictability and fulfill customer requirements with utmost effectiveness and efficiency. This is particularly significant for SMEs, as their survival often hinges on their capacity to swiftly adjust to customer demands (Liao & Barnes, 2015). Recognizing modern technology adoption was identified as a crucial solution to boost the effectiveness of the SME sector and address the competitive obstacles that businesses face in the 21st-century economic landscape (Prasanna et al., 2019).

3.2. Challenges that SMEs face when implementing Virtual Teams

GVTs come with distinctive hurdles that are uncommon in traditional FTF teams (Chudoba et al., 2005). FTF interaction is defined as several persons who exchange words with two or more people in a line of sight and in the immediate vicinity (Rashid et al., 2006). These include issues arising from team members being geographically dispersed, variations in culture within the team, and the necessity to depend on virtual communication tools (Chudoba et al., 2005). This heightened level of connectivity can yield productivity, yet it can also give rise to conflicts as it promotes team members to engage constantly, blurring the lines between their professional and personal lives (Fredette et al., 2012).

Additionally, in a virtual setting, the process of choosing a VT member is laden with uncertainties. Project managers lack the opportunity for FTF meetings with potential VT members; instead, they must rely on electronic resumes, remote interviews, and virtual test outcomes for their evaluations, introducing an element of uncertainty into the selection. While past research has acknowledged the importance of digital transformation, it has also highlighted the hurdles that companies face during this process (Türkeş et al., 2019; Orzes et al., 2018). For example, issues such as a lack of expertise, financial constraints, and resistance to change are the primary obstacles encountered by businesses (Sebastian et al., 2020; Singh and Hess, 2020; Orzes et al., 2018). These challenges are particularly pronounced in SMEs, where resource limitations exacerbate the difficulties (Ardito et al., 2021; Pfister and Lehmann, 2021).

3.2.1. Challenges in Communication and Coordination

While VTs and distributed work offer significant advantages, they also pose notable drawbacks. Misconceptions and misattributions often cloud the understanding of issues within VTs, making it challenging to address root causes effectively. For instance, suboptimal performance is commonly wrongly linked to technology, when it's more often associated with individual or social factors (Kimball, 1997). Studies show that challenges in virtual team performance, identified by both men and women, are primarily rooted in inadequate

information sharing, unclear expectations, and ambiguous lines of accountability rather than technological issues (Boiney, 2001). The complex communication and information technology infrastructure essential for managing VTs should be evaluated within the broader context of the communication environment, management information systems, organizational culture, management strategies, financial constraints, human resource capabilities, and physical environment (Nydegger & Nydegger, 2010).

In our quest to delve into the intricate landscape of challenges confronted by SMEs during the implementation of VTs, we recognize the imperative need for a structured approach. To comprehensively understand and analyze the multifaceted issues faced by SMEs in this context, we have opted for a categorization framework. Our exploration will be systematically organized into three primary categories outlined in Section 3.2 of our research. The first category, detailed in Section 3.2.1, centers on challenges pertaining to communication and coordination within VTs. Section 3.2.2 scrutinizes the technology and infrastructure challenges that SMEs grapple with within the virtual team implementation process. Finally, Section 3.2.3 delves into challenges related to team building and trust, elucidating the interpersonal dynamics crucial to the success of VTs within SMEs.

- Lack of Face-to-Face Interactions:

Effective communication plays a vital role in guiding a VTs. When working together from different locations, the team heavily relies on digital communication, which may lack the nuances of FTF interaction, making it more prone to misunderstandings (Aquino et al., 2022). While VTs enjoy popularity and widespread acceptance, scholars in the field of communication have recognized that FTF interactions remain unparalleled. The absence of "media richness," encompassing non-verbal signals like facial expressions, can instigate a negative cycle characterized by diminishing trust and commitment within a group (Watson-Manheim & Belanger, 2002).

Virtual spaces lack the diverse social atmosphere and chances for unmediated exchanges found in FTF collaboration, contributing to the perception that online communication tends to be more impersonal and structured than FTF interactions (Lin, 2020; Pérez-Mateo & Guitert,

2012). Teams that have limited chances for FTF interactions are particularly susceptible to encountering process inefficiencies and performance (Gibson & Cohen, 2003). As VTs rely on limited FTF communication, it becomes challenging to discern team members' responses by observing their body language and subtle cues (Aquino et al., 2022).

VTs require specific cultural competencies due to limited non-verbal cues, unlike in-person communication (Rahmani et al., 2023). Similar to FTF teams, effective knowledge sharing in global virtual teams (GVT) involves the rapid establishment of trust (Zakaria & Mohd Yusof, 2020; Muton et al., 2022). Research indicates that computer-mediated communication (CMC) groups underperform compared to FTF groups, especially in tasks requiring high coordination (Straus and McGrath, 1994; Martins et al., 2004). In virtual settings, potential misunderstandings are heightened compared to FTF interactions (Reyes et al., 2021). Striking the right balance between FTF and virtual interactions is crucial for SMEs, as each mode serves distinct yet mutually beneficial purposes (Harrigan et al., 2009). Additionally, the dispersed geographical locations of VTs, coupled with reliance on digital technology for communication, may increase the likelihood of misinterpretations compared to FTF teams (Zakaria & Ab Rahman Muton, 2022).

- Time Zone Differences:

Time zones pose challenges for synchronization and coordination as individuals need to align their schedules with different locations. Therefore, with the advent of the Internet Age, an intriguing initiative emerged to tackle the evolving complexities of coordination (Lee & Liebenau, 2000). Humans operate during daylight hours influenced by deeply ingrained biological and societal norms. When the time zone difference between collaborators exceeds eight hours, resolving the time zone gap becomes insurmountable. While one programmer is active, the other programmer crucial for coordination is in a state of rest. Video-conferencing, regardless of its pixel density, cannot overcome this inherent challenge (Camel, 2006).

Sustaining a strong team spirit and trust within geographically dispersed teams, often with diverse cultural backgrounds, demands significant dedication and effort (Furst et al., 2004; Ale Ebrahim et al., 2009a). Members of VTs need to become proficient in electronic communication technology, encompassing aspects such as virtual meeting platforms, managing internet connectivity challenges, coordinating meetings across various time zones,

and grappling with email overload. These demands can give rise to frustrations and the experience of 'technostress' (Ragu-Nathan et al., 2008). This suggests a need for being accessible during early mornings and late evenings or nights to accommodate time zone differences when dealing with international clients (Bocconcelli et al., 2017).

- Language and Cultural Barriers :

Cultural diversity serves as a valuable asset for organizations and teams, contributing to their overall capital. The varied cultural backgrounds within a team foster distinct perspectives and networks, ultimately enhancing innovation (Chua et al., 2012).

Language disparities, cultural distinctions, and the utilization of electronic communication platforms can pose challenges to interpersonal connections, potentially hindering the effectiveness of GVTs. Culture, in particular, plays a substantial role in the complexity and difficulties encountered when operating within and researching GVTs (Scott & Wildman, 2015).

Cagiltay et al. (2015) noted that language serves as the primary tool for intercultural communication and is also the primary wellspring of potential misunderstandings (Cagiltay et al., 2015). In investigating the influence of cultural diversity on team performance within GVTs, Shachaf (2008) noticed that this diversity can indeed result in communication breakdowns, particularly when it involves team members from Asian and Western nations, given the disparities in their communication approaches (Shachaf, 2008). Moreover, variances in organizational ties can diminish the mutual comprehension of the context and impede a team's capacity to cultivate a collective identity (Espinosa et al., 2003). In fact, GVTs frequently encounter hurdles posed by a wide array of cultural values and conflicting communication methods and patterns (Waizenegger et al., 2020; Zakaria & Mohd Yusof, 2020).

Research on cross-cultural interactions illuminates the intricate dynamics that arise when multiple cultures intersect, as individuals with diverse backgrounds often display varying

behaviors across a spectrum of contexts. In the 21st century, there is a growing acknowledgment of the complexities inherent in the functioning of multicultural teams (Adler & Aycan, 2021).

3.2.2. Technology and Infrastructure Challenges

While SMEs are essential to encourage social integration, job development, and economic progress (European Commission, 2018; Ramdani et al., 2021), merely 17% of European SMEs exhibit a high level of digitalization (Annosi et al., 2023). In fact, there are impediments to digital adoption on a structural level, such impediments include: internal skills deficit, hindering managers and workers from recognizing the digital solutions required and adapting business models and processes. SMEs in particular, encounter financial obstacle when it comes to securing funds for intangible digital investments, which are not readily usable as collateral for loan security (OECD, 2021). This in turn leads to other challenges for SMEs when it comes to the adoption of digital transformation (Bouwman et al., 2019). The adoption of digital technologies poses challenges, primarily due to the SME's capacity to smoothly transition from legacy technologies and business models to more contemporary ones (Ritter & Pedersen, 2020). The extent to which SMEs embrace digital technologies correlates with their anticipated sustainable competitiveness and growth (Gareeb & Naicker, 2015). As a result, a significant portion of SMEs initiates a digital transformation voyage, emphasizing the importance of studying technology adoption within the SME realm (Bayo-Moriones et al., 2013). The advent of new digital technologies presents both opportunities and challenges for SMEs, as noted by Roy, Lampert, and Stoyneva in 2018 (Roy et al., 2018).

- Inadequate Technology Infrastructure

SMEs in many regions worldwide face challenges related to economies of scale concerning technology. It's worth mentioning that SMEs have limitations in terms of resources and are less equipped to handle the expenses and risks connected to in-house technology advancement (Kayanula, 2000). In general, SMEs have underutilized new technologies due to their constrained technical capabilities (Peng et al., 2007).

Another technology-related challenge is that the significance of motivation is frequently underestimated in the process of designing and integrating technology in the workplace,

despite the fact that technological alterations can significantly influence individuals' motivation (Gagné et al., 2022). Other challenges, such as limited funding, insufficient technical expertise, basic infrastructure, access to appropriate or upgraded technology, and a shortage of training and skill development, can be considered as factors that impede the growth potential of SMEs (Asare et al., 2015).

- Data Security Concerns

The realm of cybersecurity is in a perpetual state of evolution and enhancement, driven by the rising incidents of cyberattacks within organizations. In 2020, there was an average of 206 attacks per company, and in 2021, this figure surged by 31% to reach 270 attacks per company (Fox et al., 2021).

In the present day, cybersecurity poses a threat to the reputation, as well as the operational and financial stability of organizations (Lois et al., 2020). SMEs encounter distinct cybersecurity hurdles. Their limited resources and expertise can often hinder their ability to effectively safeguard their systems and data, rendering them susceptible to cyber threats (Rawindaran et al., 2023).

Moreover, the escalation of these incidents also exerts financial strain on the organization, surging from an average of \$3.86 million in 2020 (Ponemon Institute and IBM Security, 2020) to \$4.24 million in 2021 (Ponemon Institute and IBM Security, 2021), and further climbing to an average of \$4.35 million in 2022 (Ponemon Institute and IBM Security, 2022) per data breach, as reported by IBM (Pérez et al., 2023). A significant hurdle lies in the limited recognition and comprehension of the significance of cybersecurity within SMEs. Numerous SMEs might not grasp the extent of the dangers posed by cyber threats, or they may lack the means to mitigate these risks (Grandi et al., 2021). The foundation of an organization's security lies in the understanding of risks originating from threats that take advantage of specific vulnerabilities (Aboutorab et al., 2021).

In SMEs, diverse attitudes toward new technology exist—some embrace it with optimism and innovation, while others feel discomfort and insecurity (Parasuraman, 2000). Managing VTs

involves intricate aspects such as communication, knowledge handling, and performance data acquisition (Haywood, 1998).

Implementing cybersecurity measures adds a financial burden, challenging SMEs to allocate resources for safeguarding systems and data, especially within tight budgets, making it complex to justify the expenditure to both internal and external stakeholders (Rawindaran et al., 2023).

- Adaptation to emerging Trends in Virtual Team Technology

The COVID-19 pandemic has compelled SMEs to embrace technology previously considered non-essential (Zamani, 2022). The fundamental premise of VTs is that they operate on the basis of technology for communication (Gilson et al., 2014). Indeed, the distinctive feature of VTs lies in their dependency on technology (Gilson et al., 2021). As technology progresses, fresh challenges emerge (Reyes et al., 2021), nonetheless scholars generally agree that VTs can be described as intricate, flexible, and ever-evolving systems within the broader framework of individuals, objectives, technology, and environments (Martins et al., 2004).

The affordability of adoption was identified as a significant factor affecting the uptake of technology (Masood & Sonntag, 2020). Moreover, according to Ghobakhloo and Ching (2019), it was deliberated to be linked with the risk associated with technology adoption (Ghobakhloo & Ching, 2019). Moreover, in the realm of virtual team research, it has been commonly assumed that team members might face challenges when engaged in communication through computer-mediated channels (Gilson et al., 2014).

Limited financial resources pose a significant hurdle (Fleiter et al., 2012; Trianni & Cagno, 2012; Song et al., 2015; Belitz & Lejpras, 2015; Howell, 2017; Mateut, 2017). The substantial expenses tied to technological innovation often surpass the allocated capital (Grimpe & Sofka, 2016; Capozza & Divella, 2019), consistently impeding innovation implementation (Motta et al., 2013). The innovation cost serves as a determinant of technological innovation levels within a business (Yong'an et al., 2016) and significantly influences the feasibility aligned with the company's innovation strategy (Wang, 2019). Securing financial support remains a

foremost challenge for SMEs (Madrid-Guijarro et al., 2016), fueled by the perception of innovation investments as intangible (Indrawati et al., 2020).

3.2.3. Team Building and trust-related Challenges

Extensive literature explores virtual team dynamics, covering trust and communication issues (Holton, 2001; Jarvenpaa et al., 1999). GVTs face challenges in communication efficiency, relationship cultivation (identity, trust, collaboration), conflict resolution, and team leadership, impacting both individuals and the organization (Maznevski et al., 2006).

- Difficulty in Team Building

In the domain of VTs, a substantial challenge lies in unlocking the complete potential of our collaborative endeavors, promoting seamless coordination, nurturing teamwork, and enabling transparent communication among team members (Feitosa & Salas, 2021). Indeed, according to Chinowsky & Rojas (2003), Hinds & Bailey (2003) and Olson & Olson (2000), this dispersed teams tackle challenges related to team building and trust-building (Chinowsky & Rojas, 2003; Hinds & Bailey, 2003; Olson & Olson, 2000).

Durkan et al. (2003) have observed that the internet's distant and depersonalized environment introduces a novel obstacle in building trust (Durkan et al., 2003). Confidentiality breaches outside the team can undermine the trust within the team (Malhotra et al., 2007). To illustrate, certain virtual team participants might experience feelings of seclusion and solitude (Gilson et al., 2014). Moreover, the matter of trust in an online environment has been extensively studied, and the consensus among many authors is that building trust on the internet is more challenging than in a traditional FTF setting (Reichheld & Schefter, 2000; Soliman & Janz, 2004; Bunduchi, 2005).

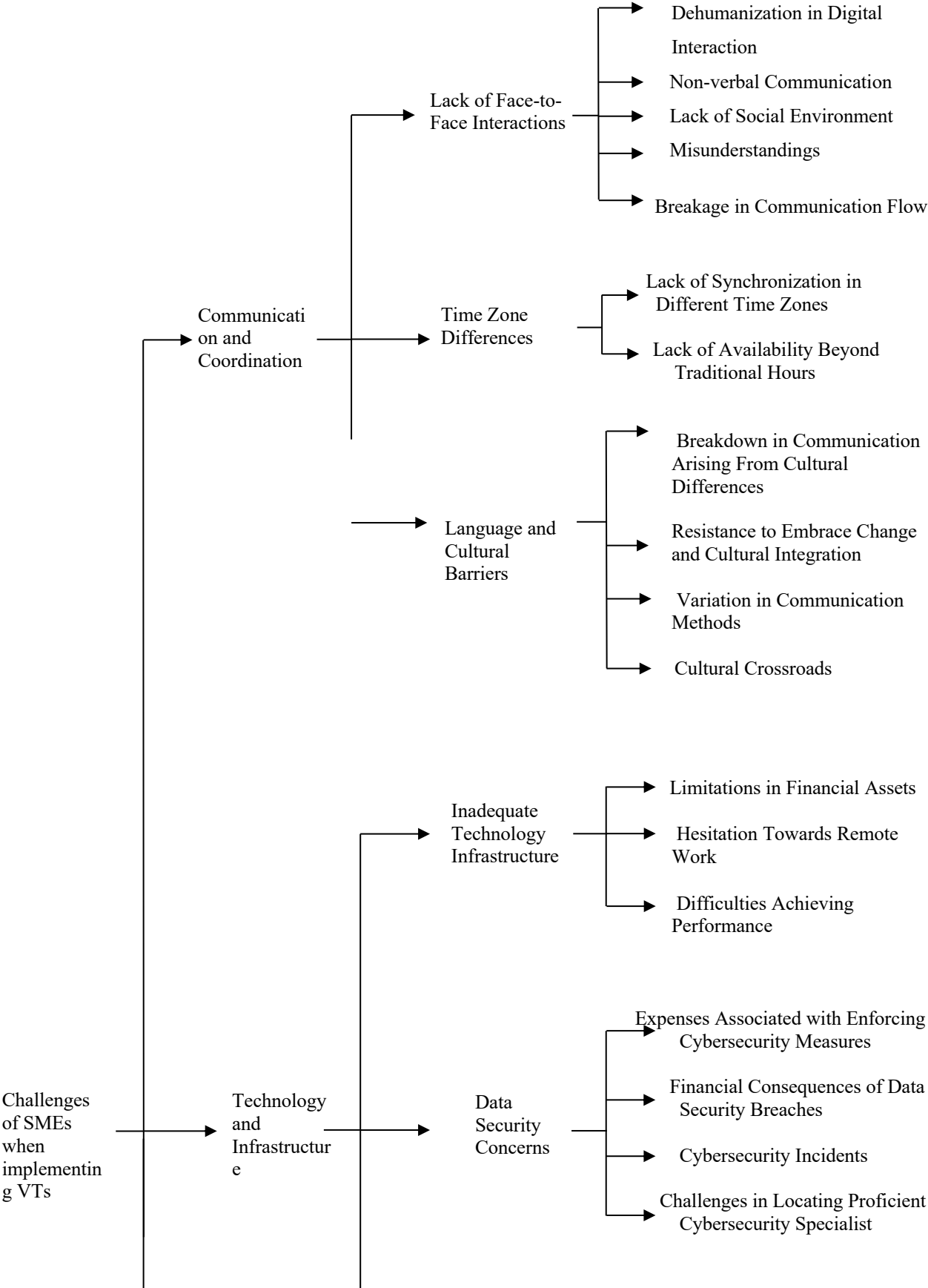
- Social Isolation

The rise of remote work, especially amid a pandemic with enforced social distancing, brings forth a heightened risk of social isolation among team members, potentially leading to a sense

of detachment from the organization (Reyes et al., 2021). This emotional disconnection is a critical factor influencing both the well-being and performance of team members (Gilson et al., 2014).

Within VTs, there is an increased susceptibility to misunderstandings that can significantly impact psychological safety—the confidence team members have in expressing concerns and innovative ideas without fear of negative consequences (Reyes et al., 2021). This concern is particularly pertinent as team members are often dispersed across different locations, working independently on collaborative projects, and may lack previous familiarity with their colleagues (Gilson et al., 2014). The challenge lies not only in physical separation but also in fostering a supportive and psychologically safe virtual environment for effective collaboration.

3.2.4. Overview of the challenges that SMEs face with the implementation of virtual teams



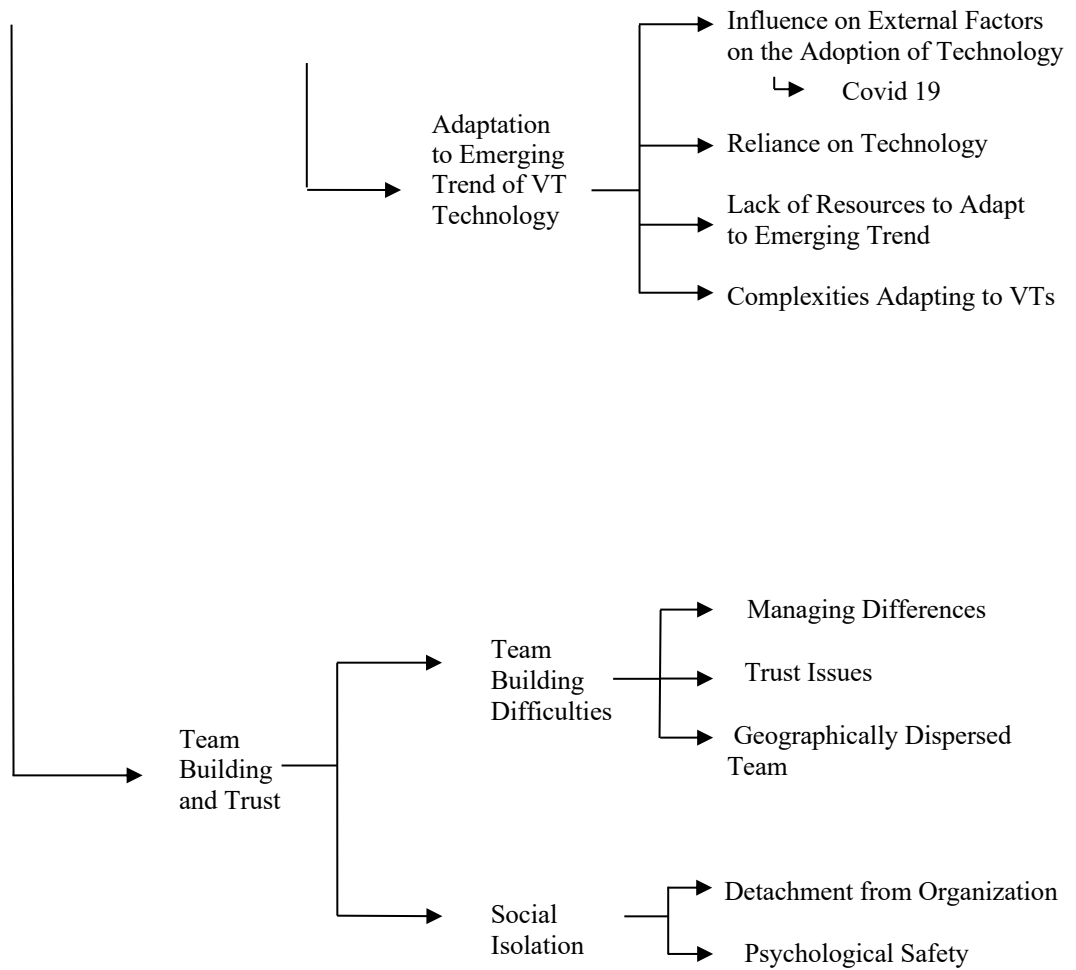


Figure 2: Theoretical Framework: Specific Challenges that SMEs face when implementing VTs

4. Methodology

The challenges that SMEs face when implementing VTs remain largely unexplored. Although several studies touch on many relevant subjects related to the topic, there is a lack of comprehensive studies that directly address this issue, leaving the management of VTs within SMEs with a limited empirical foundation. Hence, the primary objective of this paper is to investigate the following question: “What are the specific challenges that SMEs face with the implementation of virtual teams?”

This investigation utilized qualitative research techniques, primarily employing semi-structured interviews to gather narrative data and unveil novel insights into the challenges and intricate connections in the sample integration process. The data analysis followed a hybrid

approach (Fereday & Muir-Cochrane, 2006), incorporating multiple phases of examining interview transcripts (Wallwey & Kajfez, 2023).

Ethical considerations unique to qualitative contexts were prioritized to address biases and establish trust, guided by the principles of "Respect for people, beneficence, and justice" (Capron, 1989; Mack et al., 2005).

This study achieves these objectives by incorporating the following elements: (1) Ensuring respect for persons is reinforced through the practice of obtaining informed consent. Prior to the research, participants are provided with information about the research's purpose, the voluntary nature of participation, expectations, potential risks and benefits, and protective measures to maintain confidentiality regarding personal data, company information, etc. (2) Beneficence is maintained by anonymizing data entries, a topic further elaborated in the "Data Collection" subchapter. (3) Justice is upheld by including representatives from SMEs with VTs as research participants, as they stand to benefit directly from this study.

4.1. Research Sample

To define the sample universe, which can also be referred to as the "study population" or "target population," it is essential to articulate a set of inclusion criteria, exclusion criteria, or a blend of both (Luborsky & Rubinstein 1995). The exclusion criteria delineate characteristics that render a case ineligible for the study, while the inclusion criteria pinpoint qualities necessary for cases to meet the study's eligibility. These criteria, when combined, establish the parameters that shape the boundaries of the sample universe (Robinson, 2013).

In this study, a purposive non-random sampling strategy is employed. This approach is commonly utilized in qualitative research, emphasizing the importance of selection criteria rather than the number of participants (Wilmot, 2005). Purposive sampling, employing non-random techniques, ensures the inclusion of specific case categories anticipated to provide a unique or crucial perspective on the studied phenomenon, based on the researcher's theoretical understanding (Mason 2002; Trost 1986). In this situation, utilizing this sampling approach helps accurately capture the typical experience of SMEs implementing VTs. The criteria for the suitable sample must align with the insights derived from the literature reviewed.

Consequently, the subsequent set of inclusion and exclusion criteria must be met to procure a comprehensive sample:

- Size: An SME has fewer than 250 employees (Chaudhary et al., 2023).
- Position: Participants should have hands-on involvement in the functioning of VTs within their organization, having held positions like an employee, founder, or manager during the SME's active period.
- VTs experience: Participants must have practical experience working with VTs.

The sample of this study consists of 17 participants, each representing a distinct SME with fewer than 250 employees. The SMEs ranged in size from participant 05, who managed the smallest SME with 23 employees, to participants 12 and 13, who oversaw the largest SME, which employed up to 200 people. The participants are employees, hold management-level positions or are founders actively engaged in the company's operations, putting them in close proximity to the examined challenges. The companies are in a variety of industries, including hospitality, construction, telecommunications and more. Refer to Table 1 for a detailed sample breakdown.

Table 1: Interview Participants and Anonymization

Participant s	Company	Industry	Position	Number of Employees	Experience VTs	Country participants	Country company
01	Company 01	Venture Building	Project Manager	40	4 years	Austria	Switzerland
02	Company 02	Telecommunication	Career Manager	25	5 years	Portugal	Germany
03	Company 03	Professional Services	CEO	28	+9 years	Portugal	UK
04	Company 04	Professional Services	Head of Insights	46	+1 year	UK	France
05	Company 05	Hospitality Services	CEO	23	+3 years	Portugal	Portugal
06	Company 06	Professional Services	Communication Manager	45	+5 years	UK	UK
07	Company 07	Professional Services	Consultant	100	8 years	Portugal	Switzerland
08	Company 08	Professional Services	Product Manager	30	+2 years	Malaysia	Ireland
09	Company 09	Construction	Junior Backend Developer	60	2 years	Portugal	Switzerland

10	Company 10	Virtual Teams Consulting	CEO	25	+5 years	Spain	Austria
11	Company 11	Manufacturing and Commerce	Sales Manager	40	+2 years	Tunisia	Fraance
12	Company 12	Entertainment	Social Media Creator	200	2 years	Portugal	Tunisia
13	Company 13	Transport	Content Creator	200	+1 year	Portugal	Portugal
14	Company 14	Education	Management team	35	+3 years	Spain	Austria
15	Company 15	Media	Junior Director	80	+1 year	Netherland	Norway
16	Company 16	Commerce	Junior Marketing Manager	121	-1 year	Italy	Switzerland
17	Company 17	Education	Co-founder	28	+4 years	France	Tunisia

4.2. Data Collection Method

The explanatory research design is employed in this study to investigate the challenges that SMEs face in VTs. Exploratory studies are particularly suitable when dealing with problems for which there is limited existing research knowledge (Akhtar, 2016). Given the insufficient information gleaned from the existing literature, employing an explanatory research design proves fitting for observing the challenges faced by SMEs in implementing VTs.

Qualitative research, as described by Philipsen et al. (2007), explores diverse representations and contextual displays of phenomena. Denzin and Lincoln (2005) define it as a multi-method, interpretative, and naturalistic approach, emphasizing understanding phenomena within their natural contexts based on people's meanings (Denzin & Lincoln, 2005).

In this study, the author employed semi-structured interviews, following Magaldi and Berler's (2020) exploratory method. These interviews, characterized by flexibility and a central theme focus, enabled participants to share insights into VT implementation challenges. The method's balance of flexibility and structure facilitated in-depth exploration (Ruslin et al., 2022).

Effective interviews, per Rubin and Rubin (2005), require a balance between primary questions, follow-ups, and probes. It's crucial for interviewers to be well-prepared, having

specific subjects in mind (Rubin & Rubin, 2005). Many researchers recommend using an interview guide, a flexible list of topics and questions that aids focus on important areas, adapting to context and interviewees (Lindlof & Taylor, 2002).

The author, following this guidance, developed an interview guide based on a theoretical framework. Initial questions centered on interviewees, their companies, and VT experiences. A specific question delved into their perspectives on challenges in VT implementation. For the complete guide, refer to the appendix on page 72.

- Can you provide a brief overview of your company and your role within it?
- How long has the company worked with remote workers? Were workers allowed to work from home or remotely before the pandemic? Do you believe the company was prepared to operate with remote workers at the time? And what about now?
- Please give me an overview of your experiences with VTs, including details about their size of your present team and composition?

After starting the conversation with introductory questions, the author used a tabular reference tool in Chapter 3.2.4. to outline key challenges identified through literature review. The interviews, conducted from November 1st to December 2nd, 2023, employed Zoom for all 17 virtual sessions lasting 30-40 minutes each. While 16 interviews were in English, one was conducted in French due to language barriers with participant 11. All interviews were recorded in video and audio formats, serving as the primary data for analyzing challenges faced by SMEs in implementing VTs. Transcriptions, available in the link (pp.76), were anonymized for participant confidentiality. The table below summarizes essential codes for better understanding of transcribed texts and subsequent findings and discussions and an extended version of the overview of the specific challenges that SMEs face with the implementation of VTs is available page 74.

4.3. Data Analysis Method

The researcher examined the textual data derived from the 17 interviews with SMEs representatives, utilizing Mayring's qualitative content analysis methodology. The central emphasis was on pinpointing the unique method(s) for conducting this analysis and formulating a procedural framework for the analysis. Qualitative Content Analysis stands out among interpretive methods due to its predefined and segmented steps of interpretation,

serving as the foundation for the analysis, distinguishing it from other approaches (Mayring, 2000).

Each identified unit of meaning is assigned a code, crucial for interpretation within the context (Berg, 2001). Codes function as tools to identify concepts, facilitating the organization of data into coherent blocks and patterns (Catanzaro, 1988). Subsequently, codes are organized into categories by examining interconnections and relationships, methodically arranged into cohesive clusters with significant relationships (Coffey & Atkinson, 1996; Patton, 2002).

The process of creating codes can be approached deductively or inductively based on the study's nature. In a deductive design, a coding list is established before analysis, while in an inductive approach, the list is formulated during the analytical process (Catanzaro, 1988).

For stability and reliability, the coding process must be iterative, starting on different text pages with each repetition (Downe-Wamboldt, 1992). After identifying meaning units, the researcher ensures alignment with study objectives (Burnard, 1991).

This study employs a merge of deductive and inductive approaches. Initial coding involves crafting anchor codes, derived from research question, study title, and concept section, linking noteworthy statements (Braun & Clarke, 2006). These anchor codes include both inductive codes from participant interviews addressing challenges and other deductive codes from the theoretical framework.

Given that the research question of this study is “What are the specific challenges that SMEs face with the implementation of VTs?”, the anchor codes will capture these intricacies by aligning directly with the conceptual framework established in Chapter 3.2.4 and encompass the following anchors: (1) Lack of Face to Face Interactions, (2) Time zone differences, (3) Language and Cultural Barriers, (4) Inadequate technology infrastructure, (5) Data Security Concerns, (6) Adaptation to emerging Trends of VT Technology, (7) Team Buildings Difficulties, and (8) Social Isolation. These codes serve as anchors for the further categorization of additional codes.

Categorization is essential in distilling interview data into domains, comprehensive groups based on study aspects (Catanzaro, 1988; Patton, 2002). Following open coding, compiled

category lists are grouped under overarching headings to streamline and consolidate similarities or differences into more comprehensive higher-order categories (McCain, 1988; Burnard, 1991; Downe-Wamboldt, 1992). Dey (1993) emphasizes that forming categories involves classifying data into specific groups, implying a comparison with other observations (Dey, 1993).

The investigator delves into the core of the phenomenon for a deeper, even if descriptive, understanding (Patton, 2002). The researcher concludes by evaluating new findings' alignment with existing literature and assessing the reasonableness and logical coherence of the results (Burnard, 1991).

5. Findings

This study concentrated on exploring the distinct obstacles encountered by SMEs in implementing VTs. The summarized table below provides a comprehensive snapshot of the categorized codes derived from insights shared by the 17 SMEs, unveiling various unique findings.

Table 2: Overview of the specific challenges faced by SMEs when implementing VTs

Communication and Coordination	Lack of Face-to-Face Interactions (44)	Lack of Social Environment and Direct interactions (11)	
		Communication (10)	Miscommunication (4)
			Difficulty showing off one's abilities (2)
			Lack of insights into the context of an issue
			Chaotic meetings
			Communication Gaps
			Difficulties transmitting knowledge
			Coordination and Productivity (9)
			Lower productivity (4)
			Dehumanization in digital interaction

		Dehumanization in digital interactions (5)	Relationship building (2) Poor motivation (2)	
		Breakage in communication flow (5)	Ebb-Flow in Communication (3) Asynchronous communication difficulties (2)	
		Time as a resource (3)	Extended Task Durations (2) Lack of timely reaction	
		Difficulties for older generations		
	Language and cultural barriers (12)	Breakdown in communication arising from cultural differences (8)	Breakdown in communication arising from cultural differences (5) Non-verbal communication (2) Misinterpretation in communication	
			Amplification of differences (4)	Variation in communication methods (2) Variation in working methods Cultural crossroads
	Time Zone Differences (12)	Lack of Synchronization in Different Time Zones (8)		
		Lack of Availability Beyond Traditional Hours (4)		
Technology and infrastructure	Inadequate technology (16)	Difficulties achieving performance (5)	Difficulties achieving performance (4) Redundant meetings	
			Expenses stunting collaboration (4)	Limitations in financial assets (2) Remote Support Logistics Costly licenses
		Collaboration tools (4)		Communication Overload Interruption Inadequate tools in meetings Lack of coordination of tools between teams Process documentation

		Lack of training (2)	
		Finding a suitable infrastructure	
	Data Security Concerns (3)	Cyber Security (2)	Cyber security
			Security breaches
		Data Loss	
	Adapting to merging Trend of VT Technology (12)	Complexities adapting to VT (8)	
		Inadequate skills & competencies (2)	Lack of experience in VT
			Level of tech savviness
		Reliance on technology (2)	
Team Building and Trust	Team Building Difficulties (22)	Trust issues (9)	
		Geographically dispersed team (6)	
		Relationship building (6)	Relationship building (4)
			Sense of belonging
			Teamwork
		Lack of communication in stressful periods	
	Social Isolation (21)	Psychological distress (17)	Psychological distress (11)
			Psychological safety (2)
			Lack of interaction with colleagues
			Inadequate environment for extroverts
Balancing work and self-care (2)			
Detachment (4)	Detachment from colleagues	Detachment from organization (3)	
		Supervising performance	

Manager-Specific Challenges	Inadequately facilitated supervision (2)	Technology used for micro-managing	
	Communication tools strategy and consistency (2)		
	Difficulties setting clear objectives		
	Difficulties to recruit remote workers		
	Acquiring resources		

The initial column within the table serves as a representation of the categorization of all the challenges identified in the empirical data into (1) Communication and Coordination, (2) Technology and Infrastructure, (3) Team Building and Trust, (4) Manager-Specific Challenges. These specific challenges encompass several crucial elements outlined in the theoretical framework (refer to Chapter 3.2.4. for a detailed view of the theoretical framework portraying challenges identified in the literature review of this paper) and additional themes found in the data analysis. These elements include challenges like Lack of FTF interactions, Language and Cultural Barriers, Time Zone Differences, Inadequate Technology Infrastructure, Data Security Concerns, Adapting to Emerging Trends of VT Technology, Team Building Difficulties, and Social Isolation.

Among the myriad challenges identified by our participants in this research, the most prominent issue surfaced in the Communication and Coordination section, pinpointing a noteworthy absence of FTF interaction. This challenge, as extensively discussed in the relevant literature review, was consistently emphasized by participants, with a staggering 44 mentions. The recurrence of this concern underscores its pivotal role among the diverse obstacles encountered by SMEs when navigating the complexities of establishing VTs. Additionally, participants underscored a recurring theme, which was identified in the literature review, referenced approximately 11 times: the hindrance posed by the absence of a social environment and direct interaction. Furthermore, our research unveiled a noteworthy revelation brought to light by our study participants: the issue of communication. Participants consistently shared instances of miscommunication that presented substantial challenges.

These challenges manifested in various forms, including a discernible lack of coordination among team members and a subsequent decline in overall productivity.

Moreover, in the same realm of communication and coordination, an additional challenge surfaces—the intricacies of language and cultural barriers. This issue has been recurrently cited, underscoring breakdowns in communication stemming from diverse cultural backgrounds. Notably, this challenge has been extensively explored in the literature review and has been consistently raised by participants. Expanding our perspective to encompass the amplification of differences, the challenge of varying communication methods has also been prominently articulated on multiple occasions. This underscores the multifaceted nature of challenges within the communication and coordination domain, where not only cultural disparities but also divergent communication approaches contribute to the complexity faced by VTs. Additionally, a noteworthy challenge, within the same realm that deserves attention is the time zone difference, repeatedly brought to the forefront by participants. This emphasizes the prevalent issue of asynchronicity stemming from the geographical dispersion of team members across different time zones.

In the realm of technology and infrastructure, a prominent challenge takes center stage, as inadequate technology and infrastructure were cited 16 times. This underscores the persistent struggles faced in attaining optimal performance, aligning with the extensive discourse in the literature review. Furthermore, participants voiced concerns about financial implications, highlighting how limited resources impede collaboration. A distinctive challenge in this section is the mention of difficulties in remote support logistics, shedding light on the intricate logistical aspects of providing support in virtual settings. Remarkably, this section introduces a new dimension—collaboration tools, where issues like communication overload, interruptions, and inadequate tools in meetings were discussed. Building on the literature's exploration of adapting to emerging trends in VT technology, participants consistently referred to the intricate nature of adjusting to these evolving technologies, encountering complexities in adaptation to VTs 8 times. A noteworthy addition to the challenges is the revelation of inadequate skills and competencies, emphasizing the need to address the lack of experience in virtual teamwork and attain the requisite levels of technological proficiency and trust savviness.

In this context, it is crucial to underscore the pronounced challenge of team building and trust and more precisely team building difficulties, a concern that surfaced consistently across the feedback from 17 participants, totaling 22 mentions. This challenge illuminates the intricate nature of fostering teamwork, particularly accentuating issues related to trust and the inherent challenges posed by geographically dispersed teams. Adding depth to our understanding, two novel challenges emerged in this section. The primary breakthrough discovery centers on the intricate dynamics embedded in the process of relationship building—a focal point consistently emphasized by our interviewees on six distinct occasions. They expounded on the challenges encountered in fostering meaningful connections with colleagues, underlined by a prevalent sense of detachment within their organizational milieu and a conspicuous absence of collaborative teamwork. Moreover, participants shed light on a critical aspect—the deficiency in communication during stressful periods. For instance, participant 10 emphasized: “I think I can recall one situation where I think our trust was like really in danger and it was a situation when we were all very, very stressed out. And what happens when you are very stressed out, you don't have time for those informal chit chat. You don't connect on a social basis because you make everything about the project, about the work, about the to do's right”.

In the Team Building and Trust section, another noteworthy challenge emerged as a recurring concern among our interviewees: Social Isolation. This particular challenge surfaced a staggering 21 times, underscoring its significance for both SME employees and managers. Adding a layer of complexity to this issue, a novel finding came to light, specifically in relation to Psychological Distress. This aspect was cited 17 times, indicating its prominence among the various challenges associated with social isolation. Interviewees conveyed a sense of detachment from the organization, struggled with maintaining a balance between work and self-care, and highlighted a perceived lack of psychological safety. This underscores the profound impact of psychological distress within the broader context of social isolation challenges in the workplace.

In the scope of my research, a novel challenge has emerged, previously unexplored, under the category of Manager-Specific Challenges. Participants emphasized this challenge, specifically pointing out inadequately facilitated supervision, shedding light on issues related to supervising performance and the use of technology for micro-management.

Furthermore, another facet of this challenge pertains to the strategy and consistency of communication tools, as articulated by participant 02, who highlighted the difficulties in establishing clear objectives: "But I would say, regarding challenges, maybe the lack of clear objectives could be a bit challenging." Adding another layer to this exploration, participant 03 highlighted the challenges in recruiting remote workers, stating, "because most people in the UK wouldn't want to work for a small organization or work from home." These newfound dimensions contribute crucial insights into the specific challenges faced by managers in the context of VTs.

In totality, this comprehensive exploration provides a nuanced understanding of the challenges inherent in virtual team environments, offering valuable insights for practitioners and researchers alike in navigating the complexities of this evolving landscape.

6. Discussion

This research's empirical findings uncover a complex array of challenges for SMEs in implementing VTs, encompassing communication, coordination, technology, infrastructure, team building, trust, and manager-specific issues. The ensuing discussion explores the implications and interconnections of these challenges, offering key insights and potential avenues for resolution.

The utilization of VTs is integral to SME advancement, driven by cost-cutting benefits and access to a global talent pool (Gilson et al., 2021). Although research underscores the advantages of integrating VTs into SME operations (Ale Ebrahim et al., 2010), the establishment of VTs poses significant challenges for SMEs (Türkeş et al., 2019). The primary objective of this research is to address the following question: "What are the specific challenges that SMEs face with the implementation of virtual teams?"

The empirical findings in this study elucidate those challenges faced by SMEs in implementing VTs can be categorized into four distinct groups: (1) Communication and Coordination, (2) Technology and Infrastructure, (3) Team Building and Trust, and (4) a novel addition—Manager-Specific Challenges. Notably, Communication and Coordination challenges emerge as the most prominent and pressing concerns for respondents within the surveyed SMEs. These encompass challenges such as Lack of Face-to-Face interactions, Time Zone Differences, and Language and Cultural Barriers. The realm of Technology and Infrastructure challenges encompasses issues like Inadequate Technology Infrastructure, Data Security Concerns, and the adaptation to emerging trends in VTs technology. In the context of Team Building and Trust, challenges include Team Building Difficulties and Social Isolation.

Intriguingly, our investigation brought to light a hitherto unrecognized category termed "Manager-Specific Challenges," which, notably, received a heightened level of importance in the perceptions of study participants. This significance notably eclipsed the attention traditionally accorded to findings expounded within the established literature review. In the course of our exhaustive research endeavor, it became apparent that Manager-Specific Challenges failed to garner the same degree of prominence, importance, and relevance as other challenges we had meticulously delineated in our literature review. Specifically, challenges such as communication and coordination, technology and infrastructure, and team building and trust occupied a more conspicuous position in our analytical framework.

This observation calls for a critical reassessment of the current discourse in organizational studies. It suggests that the typical focus on challenges in communication, technology, and team dynamics might have unintentionally overshadowed the nuanced and context-specific managerial challenges. Manager-Specific Challenges may have been inadequately acknowledged, requiring a recalibration of scholarly attention to fully encompass the intricacies of managerial responsibilities. This recognition encourages a deeper exploration of managerial dynamics, prompting scholars and practitioners to broaden their perspectives and refine existing paradigms to include this newly identified and crucial aspect of organizational dynamics.

The success of VTs is intricately tied to the presence of crucial skills and behaviors within team members. Building an effective virtual squad necessitates individuals who possess qualities such as independence, a shared sense of objectives, and the adept use of diverse

communication channels (Fisher & Fisher, 2011). A project manager's proficiency in guiding a virtual team is reliant on a solid understanding of leadership theory and the capability to articulate distinct boundaries between leadership and communication. It is imperative to acknowledge and address potential disparities in managing VTs as opposed to traditional teams (Gardenswartz, 2003).

SMEs consistently grapple with inherent challenges in navigating leadership complexities, as highlighted in a study by Kindström et al. (2022). The research identifies significant hurdles for SME managers in areas such as building effective structures, forming strong management teams, defining owners' roles, and strategy development, which includes creating, developing, and communicating firm strategies and setting clear goals. Decision-making, delegation, and adapting to diverse leadership roles emerge as prevalent challenges, with many firms struggling to relinquish decision-making authority and adapt processes for complex future organizations (Kindström et al., 2022).

Our study findings align with the results of this research, particularly in the identification of challenges related to managers, as seen in the category of "manager-specific challenges." This parallels issues such as inadequate supervision, challenges with communication tools, strategy and consistency, difficulties in setting clear objectives, recruiting remote workers, and acquiring resources. The commonality in these findings underscores the shared struggles faced by respondents in both studies, emphasizing the importance of addressing these manager-specific challenges in the context of remote work.

The majority of our discoveries align with the insights drawn from the studies examined in the literature review of this paper. The recurrence of challenge themes in previous research and our investigation is worth highlighting. However, notably the significance of the Data Security concerns challenge, emphasized as crucial by researchers like Rawindaran et al. (2023), has shown a reduced importance according to the feedback received from our study participants. This can be attributed to the perspective of employees or managers, who may often have a viewpoint limited to their roles, and therefore, might not always possess a comprehensive understanding of the specific challenges associated with data security concerns within the organization. CEOs, for instance, might perceive that establishing cloud systems to prevent data loss is sufficient, with sentiments such as "Also, we don't have super big secrets that we need to protect," as mentioned by Participant 05. Another contributing

factor to this finding could be a lack of employee awareness regarding the paramount importance of data security in the organizational context. However, it is essential to approach this discovery with a nuanced examination, recognizing potential complexities in employee perceptions. The primary impediments hindering SMEs from embracing digital technologies encompass restricted financial resources and unclear economic advantages, cultural challenges spanning from inadequate management support to employee reluctance, a scarcity of skilled personnel and technical expertise, frail IT infrastructure, technical obstacles such as the absence of standards and uncertainty about system reliability, and legal apprehensions regarding data security (Orzes et al., 2018).

In the realm of communication and coordination, the study findings highlight a significant and recurring challenge—the lack of FTF interactions, underscored a striking 44 times by the participants. Participant 03 noted, "But one negative actually is that because of the work we do, if you sit next to someone you work with, next to your boss and especially work, we do a lot of conversations and meetings. Then you pick up stuff as you hear them talk, and since we're fully online, my employees don't get that with me." Participant 06 added, "Because it's not like if everyone's in the same office, you can just say, oh, I have one of those emails again and everyone, all right, I'll watch out for it. We've got to be very quick to circulate that message by digital means and hope the people who are working remotely see it at the right time on the right platform and don't actually click on it." Moreover, participant 06 emphasized, "I would say there's one place where there's no substitute for face-to-face communication, and that is in the education sessions that we do. We do those sessions almost every single time, face to face, and we only do them digitally if there's no alternative because when someone's standing in front of you and telling you their story about how they were seriously affected by an addictive issue and you can sense that tension in the room, it's so much more impactful." This consistent mention of the challenge—repeated 44 times—underscores its paramount importance. It contributes to a deficit in the social environment and direct interaction, significantly impacting the dynamics within VTs. The challenge of communication mentioned 10 times with references to miscommunication, difficulties showcasing one's abilities, a lack of insights into the context of an issue, chaotic meetings, lack of effective communication, and difficulties transmitting knowledge, further underscores the intricate nature of communication challenges within VTs. Additionally, the recognition of diverse communication methods as a challenge highlights the importance of aligning

communication approaches to alleviate potential misunderstandings. The study findings collectively emphasize the critical significance of addressing this challenge for enhancing collaboration and understanding in virtual team environments.

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According to the prevalent challenges of insufficient technology and infrastructure, highlighted by a majority of participants, pose formidable obstacles to optimal performance in VTs. The technological landscape's complexities are further emphasized by issues related to collaboration tools, lack of training, and remote support logistics. Another recognized challenge is inadequate skills and competencies among team members, emphasizing the need for continuous learning to enhance technological proficiency. Participant 11's firsthand experience illustrates the struggle of handling complex website management software without proper training. Participant 12 adds insights into day-to-day challenges, including difficulties in accessing shared documents and participating in virtual meetings, which can impede team efficiency and risk project delays. As noted by Ilag (2021), communication and collaboration challenges in remote work contribute to productivity gaps. The absence of well-defined schedules disrupts routines, hampers workflow, and fosters detrimental habits. To address these challenges, selecting a technological system that comprehensively tackles remote team issues is crucial (Ilag, 2021).

When it comes to Team Building and Trust Challenges vividly underscore the pervasive emergence of difficulties in team cohesion, with participants expressing apprehensions related to trust issues and the intricate dynamics introduced by geographically dispersed teams. Participant 09 articulated the impact of geographical separation on communication, noting, "I would say yes, because people are in different parts of the world, communication is not as prompt as it could be if we were FTF, and we found such challenges." Participant 10 further underscored the significance of face-to-face interactions in fostering trust within teams, stating, "With the immediate team that I constantly work with, I must say we don't really meet on a regular basis, but we try to meet because every company, every virtual company knows that face-to-face meetings are super important. They are important because we know that trust building is just much easier for us if we meet each other. So those company off sites are important for any kind of business with my team as well." These firsthand accounts illuminate the critical role of physical proximity in mitigating trust-related challenges within teams. The sentiments expressed align with the assertion that geographic dispersion poses a hindrance to the development of shared contextual understanding and diminishes opportunities for informal and spontaneous communication—a vital component for cultivating social ties among team members (Kiesler & Cummings, 2002). In essence, the testimonies of the participants underscore the intricate interplay between physical proximity, communication dynamics, and the establishment of trust within dispersed team environments, thereby

emphasizing the multifaceted nature of Team Building and Trust Challenges in contemporary organizational contexts. Additionally, social isolation appeared to be a prominent challenge in regard to Team Building and Trust. The pervasive challenge of social isolation, resonating across responses, extends beyond a mere lack of social interactions. Participants shed light on the psychological distress and safety concerns associated with social isolation, emphasizing the critical role of fostering a supportive virtual environment. The challenges of detachment from the organization and colleagues, and the delicate balance between work and self-care, highlight the need for holistic strategies that prioritize the well-being of VTs. Additionally, one very interesting fact is noteworthy was brought to our attention by one of our 17 interview participants. The latter highlighted that adapting to virtual team dynamics comes more naturally to younger generations, while posing more challenges for older counterparts accustomed to managing teams physically in an office rather than online. Participant 03 remarked, "They feel like they're losing control if they can't see everything because they spent their whole life working with the team in offices, so I think that they're the ones that struggle more, especially those who have spent more time remote." As per Verbeke et al. (2008), enterprises are presently grappling with the dual challenges of fostering favorable intergenerational interactions and adapting to virtual work environments. Their struggles encompass difficulties in acclimating employees to a new work paradigm, technological issues, monitoring both the quantity and caliber of worker performance, and gauging the ramifications of transitioning to an online setup (Verbeke et al., 2008). Conversely, the dynamics shift when considering social isolation, where older individuals often find remote work advantageous for family care, as explained by participant 03: "I prefer working remotely because my morning commute is 3 meters, I can go out for a run, pick up my son, drop him off—it gives me all these advantages rather than driving into Brisbane and swearing at the traffic." On the flip side, younger generations face this challenge more prominently as they find it challenging to navigate social isolation, preferring interpersonal interactions with colleagues, as specified by participant 09: "I believe it's very likely that someone also felt that way. I think it was because of being alone at home." As indicated by Hislop et al. (2015), individuals working from home exhibited a significantly diminished sense of inclusion compared to their counterparts based in offices, consequently experiencing a heightened sense of professional isolation (Hislop et al., 2015).

In conclusively categorizing Manager-Specific Challenges, critical issues such as inadequately facilitated supervision and technology-driven micro-management come to the forefront. Challenges associated with communication tool strategy and consistency, objective-setting, and remote worker recruitment underscore the pivotal role of managers in overcoming obstacles and fostering a productive virtual work environment. Participant 04 vividly expresses the stress of managing a remote team, highlighting the challenge of trust in overseeing dispersed work: “It's very stressful to have many people working with you, and you cannot monitor what they're doing and from where they're doing it. At the end of the day, it's a question of trust.” Managing remote teams requires a delicate balance between effective supervision and technology, emphasizing strategic communication in dispersed work settings, and navigating complexities in setting objectives and recruiting. Participant 11 adds practical insights, noting challenges in resource availability due to the absence of physical presence. Participant 06 contributes valuable perspective, underlining the delicate balance needed in managing remote staff, where trust and communication are pivotal. These challenges collectively underscore the imperative for managers to adopt agile, adaptable, and tech-savvy approaches for success in the realm of remote work. However, the dynamics of monitoring are poised to undergo transformation within distributed teams, where the physical separation of managers and employees prevails. In this context, the traditional reliance on direct observation, especially regarding behaviors, as a fundamental aspect of monitoring (Bernstein, 2012), becomes constrained due to the absence of physical proximity (Downes et al., 2023).

7. Theoretical and Managerial Implications

Building on the valuable insights gained from our research on the challenges faced by SMEs in implementing VTs, there are several important areas for further investigation. Firstly, studying successful organizations and understanding how they overcome these challenges can provide practical guidance for SMEs looking to improve their virtual team dynamics. Exploring customized training programs to address identified skill gaps is crucial for developing a skilled global talent pool. Investigating tailored technological solutions for SMEs and assessing their effectiveness in addressing infrastructure and collaboration issues can offer practical recommendations for attracting and retaining talent globally.

Additionally, a long-term examination of the evolving landscape of virtual team challenges, considering different organizational sizes and global contexts, can deepen our understanding

of how challenges vary across regions and industries. Continuing exploration in these areas presents an opportunity for both practitioners and researchers to collaboratively contribute to the development of strategies and frameworks that facilitate the successful integration of VTs within the SME sector. This, in turn, caters to a diverse and expansive global talent pool.

8. Conclusion & Limitations

The aim of this study was to explore the hurdles encountered by SMEs in implementing VTs. Employing qualitative research methods, the researcher conducted semi-structured interviews with 17 CEOs, managers and employees in SMEs, serving as the primary means of data collection. The author executed an exhaustive analysis, utilizing transcript text data and adopting a descriptive coding method. The resultant anchor codes authentically capture the challenges faced by SMEs in VT implementation. Significantly, these anchor codes were intricately linked to the theoretical framework, ensuring a meticulous examination of the data and incorporating novel discoveries. Subsequent to the data analysis, the subsequent step involved summarizing the categorized codes derived from the study. To enhance a comprehensive grasp of the findings, a visual representation was crafted.

According to the findings of this research, it is evident that various elements related to communication and coordination, technology and infrastructure, team building and trust challenges significantly influence SMEs in their adoption of VTs. The study highlights that CEOs, managers and employees within SMEs recognize perceived challenges in communication and coordination, as well as obstacles in team building and trust, as the primary hindrances to their success. Particularly noteworthy is the prominence of challenges such as the absence of face-to-face interactions, difficulties in team building, and issues related to social isolation, which emerged as the most significant obstacles faced by SMEs during the implementation of VTs.

Ultimately, the research revealed noteworthy insights into the novel challenges confronted by managers within SMEs during the implementation of VTs. Interestingly, the study suggests that manager-specific challenges are somewhat underemphasized in the obstacles faced by SMEs. This observation could be attributed to several factors. Firstly, the study primarily

relied on interviews with CEOs, managers, and employees, posing a potential limitation. It is conceivable that managers might have unintentionally overlooked certain aspects when discussing the obstacles their businesses encounter. In many instances, SMEs might prioritize challenges like face-to-face interactions or team building over manager-specific issues, assuming that the former are more crucial to the success of their implementation. Consequently, challenges specific to managers may be either underestimated or inadequately acknowledged by employees during interviews. However, it is essential to interpret this finding with caution, as it underscores the necessity for more effective management of manager-specific challenges by SMEs, as highlighted by the study. Moreover, the study's revelations underscore that the primary challenges linked to Social Isolation in SMEs adopting VTs are intricately tied to the psychological distress experienced by workers. Moreover, SMEs have expressed instances of detachment, both from the organization and fellow employees, a crucial factor in fostering trust within the company. This shortfall emerges as a substantial challenge for these SMEs grappling with the implementation of VTs.

While this study delves into the challenges faced by SMEs in implementing VTs, utilizing qualitative research methods, including semi-structured interviews with 17 managers and employees, it is essential to acknowledge certain limitations. The primary constraint arises from the study's reliance on a restricted pool of existing literature. Despite the comprehensive analysis and meticulous coding method applied to transcript text data, drawing from a more extensive range of literature could offer a broader understanding of challenges related to VT implementation in SMEs. Furthermore, the focus on Communication and Coordination, Technology and Infrastructure, and Team Building and Trust, as highlighted in prior research, leaves a notable gap in understanding other potential challenges in the realm of VTs for SMEs. While the identified challenges are significant, the study might not encompass all possible hurdles faced by SMEs during VT implementation.

Our investigation uncovered a previously overlooked dimension, "Manager-Specific Challenges," which emerged as notably significant in the perceptions of study participants, surpassing the attention traditionally given to challenges discussed in the literature. Despite our meticulous literature review outlining challenges in communication, technology, and team dynamics, Manager-Specific Challenges did not hold the same prominence, prompting a critical reassessment of prevailing discourses within organizational studies.

Identified challenges like inadequately facilitated supervision, cultural barriers, feelings of isolation, and trust issues arising from limited interaction with managers and supervisors represent pivotal considerations demanding meticulous attention and adept resolution in the dynamic landscape of the virtual work environment (Cascio, 2000). Additionally, navigating the intricacies of communication tools, establishing a consistent strategy, overcoming challenges in setting clear objectives, and addressing difficulties in recruiting remote workers and acquiring resources further underscore the multifaceted nature of fostering effective virtual teamwork.

For VTs to achieve optimal engagement and productivity, managers must not only entrust them with responsibility but also grant them the authority to operate autonomously. Oakley (1998) emphasizes that employing traditional supervisory monitoring and oversight methods undermines team effectiveness until trust supplants control (Nydegger & Nydegger, 2010).

This revelation implies that the customary focus on challenges in communication, technology, and team dynamics may have inadvertently marginalized nuanced and context-specific challenges unique to managerial roles. Consequently, there is a need for scholarly recalibration to comprehensively encompass the intricacies of managerial responsibilities, urging a more profound exploration into the nuanced dynamics of managerial challenges within organizational settings. This acknowledgment calls for scholars and practitioners to broaden their perspectives and refine existing paradigms to include this newly identified and crucial facet of organizational dynamics.

Several limitations accompany this investigation into the hurdles confronted by SMEs in implementing VTs, and these should be taken into account when interpreting the findings. Firstly, the focus on SMEs within a specific industry raises concerns about the transferability of results to SMEs in other sectors. The variations in industry characteristics and work processes could give rise to unique challenges not captured in this study. Secondly, depending on self-reported data introduces a potential avenue for inaccuracy and bias. Participants might not have been entirely aware of specific organizational dynamics, and the potential for socially desirable responses further complicates the accuracy concern. Thirdly, the study's emphasis on challenges may have overshadowed the critical influence of organizational culture dynamics on the success or failure of virtual team implementation. Lastly, the modest sample size of 17 participants and the use of semi-structured interviews, while providing valuable insights, may limit the generalizability of findings and overlook certain nuances that

could have emerged in more open-ended or quantitative research methods. It is imperative to acknowledge these limitations to ensure a nuanced and cautious interpretation of the study's outcomes.

In conclusion, while the findings shed light on critical challenges, especially in the context of social isolation and lack of FTF interactions, the study's limitations point to the necessity for a more extensive empirical research effort and a more nuanced exploration of challenges faced by SMEs in the evolving landscape of VTs.

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10. Appendix

10.1. Interview Guideline

Q1: Can you provide a brief overview of your company and your role within it?

Q2: What's the scale of your company in terms of the workforce, or how many employees are part of your organization?

Q3: In how many countries do you operate? Does your team have team members in different countries and time zones? How many?

Q4: FOR ALL WORKERS - How long has the company worked with remote workers? Were workers allowed to work from home or remotely before the pandemic? Do you believe the company was prepared to operate with remote workers at the time? And what about now?

Q5: FOR MANAGER – Are there many advantages of having virtual workers in your company? What are those?

Q6: Please give me an overview of your experiences with virtual teams, including details about their size of your present team and composition?

Specific challenge-related questions:

Q7: What were some of the key challenges you faced while implementing and working on virtual teams within your organization?

Q8: The streamlined theoretical framework presented in a tabular format. Interviewers pose questions utilizing a checkbox-based method.

Communication and coordination: <ul style="list-style-type: none">● F2F interaction	<ul style="list-style-type: none">- Absence of face-to-face interaction- Maintenance of productivity and commitment
<ul style="list-style-type: none">● Time zone differences	<ul style="list-style-type: none">- Have you encountered any difficulties to effectively communicating- Time zone disparities
<ul style="list-style-type: none">● Language and cultural barriers	<ul style="list-style-type: none">- Cultural differences

Technology and Infrastructure <ul style="list-style-type: none"> ● Inadequate technology infrastructure 	- Technological obstacles
<ul style="list-style-type: none"> ● Data security concerns 	
<ul style="list-style-type: none"> ● Emerging trend in VT technology 	- Adapting to new technology trends
Team Building and trust <ul style="list-style-type: none"> ● Team Building difficulties 	
<ul style="list-style-type: none"> ● Social Isolation 	- Issues related to trust

Q9: What are the practices that you use to overcome some challenges?

End of the interview Q10: Would you add something we didn't cover?

10.2. Interview Transcripts

https://docs.google.com/document/d/1vVDSHxCX6gYRLHyMrgN4JDUjJSWlor8xN9FnmgcM2_I/edit?usp=sharing

10.3 Extended version of the Overview of the Specific Challenges that SMEs face with the Implementation of VTs

Challenge category	Challenge subcategory	Challenge	Brief descriptor of challenge	Excerpt(s) from interviews
Communication and Coordination	Lack of Face-to-Face Interactions (44)	Lack of Social Environment and Direct Interactions (11)	Insufficient social environment and limited direct interactions.	<p>- « I do miss having colleagues. I do miss just silly conversations that socials. I think human beings, you know, anthropologically, we'd go out and work in groups and we'd always been in groups. And I think we feel best when we're working in groups. And so it is unnatural in that respect and you do feel it a bit, but I think that this is a generalization »</p> <p>- « I think that the biggest challenge would be changing in the office when you're working with the people and you can hear them have their conversations and that sort of thing, you learn that way as well.”</p>
		Communication (10)	Miscommunication (4)	Misunderstandings
		Difficulty showing off one's abilities (2)	Challenge in showcasing one's skills or capabilities.	“Yes, because I must demonstrate what I am capable of without physically being there as

			I said, it's behind a screen or a phone.”
	Lack of insights into the context of an issue	Limited understanding of the issue's context.	« So that was the point and it was for me the toughest thing because I was responsible. I was not the boss let's say in that way. But I felt that I was responsible and they asked me my opinion but I was like imagine that maybe it's not that, may be because it was the atmospheric conditions, may be because there are floods and there are no electricity and we don't know because we are not there »
	Chaotic meetings	Disorderly or tumultuous meetings.	“Sometimes, in a meeting that is super, super interactive, you kind of managed to have the hand in the meeting, to raise a hand but sometimes it can be caotic a little bit but it's still”
	Communication Gaps	Breakdowns in communication/ information lapses.	« Yes, because there are times when we don't always understand each other, and we don't have things right in front of us. Sometimes, we don't understand certain aspects. »
	Difficulties transmitting knowledge	Challenges in conveying information or knowledge.	”I would say there's one place where there's no substitute face to face communication is in the education sessions that we do. We do those sessions almost every single time, face to face, and we only do them digitally if there's no alternative because when someone's standing in front of you and telling you their story about how they were seriously affected by an addictive issue and you can sense that tension in the room, it's so much more impactful.”
Coordination and Productivity (9)	Lack of coordination (5)	Absence of synchronized efforts or collaboration.	« the most challenging thing within our area, for example, within the industry is if two people within the team are contacting the same client, that's the most challenging thing that can happen. Then it will be you know who started the communication first, who is more advanced in

			<p>the communication and so on. This is the most challenging, so most of the time it's like some pure communication will solve things up and I mean like in worst cases, it's fine, we can always exchange clients to say "take care of this one, I'll take care of the other one" and so on. But everything else I don't see much. I mean like challenging things within the industry, I'll say not really. »</p>
		<p>Lower productivity (4)</p>	<p>Reduced efficiency or decreased output.</p> <p>-« I would say one thing was to get a hold of a colleague because you text or you do instant messaging, or sometimes you call and the colleague doesn't pick up that delayed certain tasks, that I believe that if my colleague wasn't in the room next to me, I would just be like, " we have to talk. I need that thing. »</p> <p>-« But I believe personally that if we were face to face or if it was a hybrid scheme, it would be better. We would achieve even more, I believe. »</p>
	<p>Dehumanization in digital interactions (5)</p>	<p>Dehumanization in digital interaction</p>	<p>Difficulties in human-to-human interactions due to limited proximity, lack of access to social and emotional cues of online communication.</p> <p>"For example, right now, I'm not putting the camera on because I just woke up and I'm not ready and it happens to me all the time, for morning calls and it's very important for me to put the camera on, it gives a sense of humanity to the conversation and it creates a bond on the relationship with a person in front of you. So yeah, that a bit challenging."</p> <p>-« sometimes the way you can come across in digital conversation doesn't always have that same warmth or that sense of connection that you sometimes get when you're talking to someone face to face. You miss some of the body language, you miss some of the jokes or some of the small features that make people feel like you're connected and sometimes it can be quite a cold conversation</p>

			when you're either end of a team's cold. But I think we're all getting better at it. »
	Relationship building (2)	Establishing meaningful connections or fostering interpersonal bonds.	- "But I can say that it takes a lot of time, if you're thinking about getting closer to your colleagues" - "Before that, I was kind of always, you know, you do your thing, you meet them in the meeting and that's it kind of."
	Poor motivation (2)	Lack of enthusiasm or diminished drive.	« What I've noticed is is sometimes a lack of engagement in that and sometimes that much because people aren't motivated personally, but other times it will be because they need that one to one hand holding to explain how the Internet works and why it's beneficial to them to be on it. »
Breakage in communication flow (5)	Breakage in Communication (3)	Fluctuations or variations in communication patterns.	« but one negative actually is that because of the work we do, if you sit next to someone you work with, next to your boss and especially work, we do a lot of conversations and meetings. Then you pick up stuff as you hear them talk and since we're fully online, my employees doesn't get that with me, which is a shame, but we do a lot in terms of virtual as well because the other side is customers. » - "So sometimes you don't have an answer from your colleague and you need an immediate answer and you cannot get it because your colleague is not answering. So you just have to harass them on whatever platforms like teams or whatever, or just call them on WhatsApp just to ask for that answer but if you were in an office together, it would be very easy to get that answer."
	Asynchronous communication difficulties (2)	Challenges in coordinating communication due to time disparities.	- "I think that the key challenges for me is to embrace as a company a remote first mindset involving asynchronous communication because we are so used to being

				<p>in an office talking synchronously to each other, and that is what I would also for us, embracing a remote 1st and asynchronous mindset is the most difficult.“</p> <p>-« Yes, the biggest challenge is having a lot of patience because we work from home, and we don't necessarily have interactions with others, which can be uninteresting. It's interesting to work from home because there's no office pressure, but it's still not easy because you need a lot of patience without interactions with others. »</p>	
	Time as a resource (3)	<p>Extended Task Durations (2)</p>	<p>Prolonged or lengthened task completion times.</p>	<p>« But, there were some things when we did end up meeting up face to face where certain things could just get done very quickly »</p>	
		<p>Lack of timely reaction</p>	<p>Delayed or untimely responses.</p>	<p>“Because it's not like in if everyone's in the same office, you can just say, oh, I have one of those emails again and everyone, all right, I'll watch out for it. We've got to be very quick to circulate that message by digital means and hope the people who are working remotely see it at the right time on the right platform and don't actually click on it.”</p>	
		<p>Difficulties for older generations</p>	<p>Challenges faced by older generations.</p>	<p>« And they feel like they're losing control if they can't see everything because they spent their whole life working with the team in offices so I think that they're the ones that struggle more and I think the ones that have spent more time remote. »</p>	
	Language and cultural barriers (12)	<p>Breakdown in communication arising from cultural differences (8)</p>	<p>Breakdown in communication arising from cultural differences (5)</p>	<p>Communication breakdown due to cultural disparities.</p>	<p>“Also, we're all from different cultures and english is our second language. So even with that like in a virtual setting, I feel like it gets more challenging to kind of understand each other.”</p>
			<p>Non-verbal communication (2)</p>	<p>Lack of communication through gestures,</p>	<p>« I think that is the big point because personally I think that the humans are more just “look at</p>

			body language, and facial expressions.	them see what they are thinking” and we observe. »
	Misinterpretation in communication		Misunderstanding or misreading of communication cues.	“it's just a problem that you encounter when you don't know the person. So for example, my direct boss he was saying something like I'm going to update you, I was giving you new tasks to finish. I'm going to update you in more detail in the next meeting on Monday on those tasks and I was writing a perfect thank you and then he understood it in an ironic way. For example, he understood, but I was not meaning it to be ironic, you know. And he was like asking was making sure like, do I hear some sarcasm or you know, in my mind I was like, "Oh no, please, I'm sorry, no, I didn't mean to. Next time I'm going to write with a smiley". I'm going to include smiley's or a gift to make sure it's not misunderstood. So these kind of things I saw happening several times because also my colleague for example she was asking my direct boss in the group chat something and it could be understood or interpreted in a rude way, for example. Also me. I was like," oh, she could have asked that a little bit more polite," but for her it was. She's from the French part of Switzerland. I'm not sure if this plays a role and she grew up in India, so maybe it's like there a cultural difference the way she speaks because she's way more direct. I saw some people thinking like or like, you know, feeling a little bit offended by her sometimes. But then she always could clarify "no, no. Could you please explain me where this message was like rude?" Because in my opinion was not rude. Well, there I see some cultural differences, for example. But this arises a lot, I think. »

	Amplification of differences (4)	Variation in communication methods (2)	Differences in approaches to communication.	<p>- « But as I said, I think that it's just a way to amplify the cultural differences, I believe that it's not possible because they are super shy. I already understood that they make a high difference between males and females. I noticed that because they are open to talk with me to express their thoughts and all this stuff. »</p> <p>- « I think the only cultural challenge that ever came up was with a Spanish and she was just give everything all in once. That was fine. That was just like, OK, that was a lot very quickly. »</p>
		Variation in working methods	Diversity in approaches to work or methods of operation.	« But we also know that from Erin Myers research the culture map, we do know that people can be direct communicators, but very indirect when it comes to providing feedback. And the other way around, we know that people can be very indirect but when it comes to feedback they are more direct. »
		Cultural crossroads	Intersection of diverse cultures or points of cultural convergence.	« but obviously we do see challenges with interculturality and we actually even have special offer for that for clients, intercultural remote teamwork. So it is a challenge in many, many cases, yeah, and I also work with all of my clients as I'm working with them in so many different countries. Obviously like today I had a workshop with people from Germany, but also with two participants from South Africa. Then tomorrow morning I will have a meeting with someone from the Philippines and from Thailand, for instance. And like, I'm crossing cultural borders like every hour almost. And so, yes, it's super important to be aware of interculturality and to be aware of the fact that things work differently in other cultures. »

	Time Zone Differences (12)	Lack of Synchronization in Different Time Zones (8)		Asynchronous operations across multiple time zones.	« when it's West Coast, it can be a bit difficult because sometimes you're sending them a message and then they come online and you're offline and they send you the message and so it can take quite a long time to do stuff.»
		Lack of Availability Beyond Traditional Hours (4)		Limited accessibility outside conventional working hours.	« Yes, when there's one-hour difference, for example. When it's 6 PM for me, the end of the workday, and it's 5 PM for others, we still need to be available and reachable, even if we don't have the same working hours, or it could disrupt the workflow. »
Technology and infrastructure	Inadequate technology (16)	Difficulties achieving performance (5)	Difficulties achieving performance (4)	Challenges in attaining optimal performance.	« Well, you end up messaging more so we use Microsoft Teams, so you end up doing a lot more by messaging than by talking. And generally speaking, talking better than messaging and it can be distracting as well. So I always switch off my alerts, which drives my employees crazy because I never get back to them. But I think you have to do that because if not, you're concentrating on something and then suddenly you lose your concentration because you start respond to them. »
			Redundant meetings	Unnecessary or repetitive meetings.	“No, I think that we have face to face meetings and we know that they're important but it's even more important to not have them just for having them, but being intentional about the way that you communicate and that means embracing asynchronous communication.”
		Expenses stunting collaboration (4)	Limitations in financial assets (2)	Constraints in financial resources or capital.	« in terms of simple things like technical equipment and so they do not invest anything in those things. I know other consultants companies, I don't know, like 30 employees, they have one mural licence for the entire , how do you do it? Honestly, it's like, obviously it will not be fun using miral if you have to battle for the

			account and I don't know, and then also like 30 people managing must be quite a mess in the end. So, yeah, those kind of things. »
	Remote Support Logistics	Challenges in managing logistical aspects of remote support.	“I think one of the issues we've got as well is that it's a very expensive challenge to have staff as remote as we are. That's if somebody's equipment fails and they're based up in Scotland and they're 150 kilometres away from us. It's a slow and expensive process to start literally send kit back and forth if it's actually broken or you have to get people on remote calls and to take over someone's screen and see what might be the issue.”
	Costly licenses	Expensive licensing fees or costs.	“we have session Labs licenses and some of them are a little bit more costly,”
Collaboration tools (4)	Communication Overload Interruption	Interruptions due to an overload of communication.	“For example, when we're plugged into the main boardroom screens here at our office, if anyone sends me a multitude of messages, quick in quick succession on our Slack messaging service and also on our Outlook e-mail as well. My machine can't handle that much incoming data at once and it kills the microphone on the course. If my laptop's the one that's wired up to the screen for everyone else in the room to join the conversation and someone else has to then jump on in my place. Which is really frustrating and whether it's just, you know, not particularly great IT at our end or whether there's a genuine issue, we do have some slightly dodgy connections literally”.
	Inadequate tools in meetings	Insufficient or ineffective tools during meetings.	« The other bad thing is that was really the most significant bad thing. It's just multiple time zones, not necessarily being able to connect and no real access to that office whiteboard type of environment. Obviously, we have digital whiteboards and the other things, but you

			can't have a heated conversation, a challenging conversation that well over zoom or over video conferencing because you can't hear everyone. »
	Lack of coordination of tools between teams	Inconsistent or uncoordinated use of tools across teams.	“I think, maybe the only thing would be if you're working, let's say even within a company, like I told you, we have different ventures and different teams that we also collaborate with. So, every team tends to have their own set of kind of what they're used to, or their habits or the tools that they're using. So when you have to collaborate within the team, sometimes it can get a little bit tricky. So, let's say if one of our teams is used to, I don't know, using Zoom and we're used to Ms. teams and then you have to figure out how to, you know, schedule a calendar and who is more comfortable on which side and whatnot. So I think these things probably, yeah, that's another challenge.”
	Process documentation	Lack of recording or documenting procedures and workflows.	“I would say documentation is a challenge. I think that it can become overwhelming, too much documentation. I would say that I would add that. Or the lack of it even because you can't. Something is not documented, you can't talk to a person or you have to text. To look for the information, it's a bit of an annoying loop, and then when there's too much, it's like, what do I have to look or what is important.”
	Lack of training (2)	Insufficient training or inadequate instruction.	- “Yes, sometimes, we don't have proper training on what to do. For example, we have complicated website management software that I handle, but I wasn't given proper training on it. So, sometimes, I have to figure things out and be careful not to mess up the website.” - « For example, we have a newsletter software, and nobody knows how

				to use it. I managed to figure it out on my own to use it properly. We purchased software without receiving proper training, and it was rushed. I was asked to use the software for tasks without being trained on it. It was challenging at first, but I learned to use it through trial and error. »
	Finding a suitable infrastructure		Identifying an appropriate infrastructure solution.	“We also need to find the common denominator for everybody. So, everybody needs to be able to use the tools in a way that it's still productive and effective. Which doesn't mean people don't need to be trained, because they also need to learn new things. But still, don't overdo it with technology »
Data Security Concerns (3)	Cyber Security (2)	Cyber security	Ensuring digital security measures.	« The only challenge we seem to have as a company in terms that is a data concern is the amount of phishing scams that people are trying to impinge upon the company. That though as you can tell, it isn't related to people's location or where they are. It's just someone's obviously targeting our company for whatever reason. So we just have to be very clear on communicating to our staff through channels like our intranet, e-mail, Slack, messaging, etcetera, that when these messages start to come around again that they're aware of it. »
		Security breaches	Unauthorized access or breaches in security.	“There was, there was one that I can talk to that was human error, something being sent to the wrong person, but that was mitigated from a breach.”
	Data Loss		Unintended or accidental loss of data.	“Well, in the sense that as you work 100% online you need to have again, some sort of redundancy, like if one thing doesn't work also data wipes like if you cannot access a document then that you have a different copy of it on a different computer for instance. So we always work with things

				like we the most frequent documents we need, we always have a copy on the computer as well, plus the cloud version of course.”
Adapting to merging Trend of VT Technology (12)	Complexities adapting to VT (8)		Challenges in adjusting to virtual technology	<p>“I mean with virtual work, I feel like the beginning of working remotely, was very challenging because no one was used to it, but once you get used to it, you need to have the work done.”</p> <p>- “And in other senses, no. because there was obviously a learning curve and in terms of methodologies like how do I design a workshop when I'm not there on site, but when everyone's remote or what kind of platforms do I use? Those kind of things, what kind of techniques. Also very simple yet very important what kind of hard and software do I use to have a good online experience. So partly prepared, yes, but then on the other side was a lot of learning too. But luckily we learned very quickly »</p>
	Inadequate skills & competencies (2)	Lack of experience in VT	Inexperience in navigating virtual team dynamics.	“Like I got sick of having to have those discussions and can we just do this one thing, this is the strategy and then having to have that conversation like a month later. But I don't that wasn't a general thing. Most people would have that conversation and understand it was just an individual and it was just due to lack of experience in a particular space.”
		Level of tech savviness	Proficiency or familiarity with technology.	“Of course there are, because everybody has a different degree of technological proficiency, right?”
	Reliance on technology (2)		Dependence on technological tools or systems.	” So I think an over adherence towards a particular technology or solution that detracts from allowing people to just do the job that they need to do and connect with the people they need to connect with becomes an unnecessary burden that just adds

				administrative overhead.”	
Team Building and Trust	Team Building Difficulties (22)	Trust issues (9)		Concerns or challenges related to trust within a group or relationship. - « I mean like I'm a person who is suspicious by nature so I always trust and verify. So I don't always believe what other people say and I just like to see it written somewhere. I think that it's very natural that you cannot fully trust within a corporate society. So there is always a reason to verify, there is always a reason to protect yourself and so on. And that's anybody in corporate life should be aware of that actually. » - “I think that it takes a bit longer to develop a relationship of trust with someone if it's virtual and I think that the best way to go about that is to again over communicate”	
		Geographically dispersed team (6)	Team members spread across different locations or regions.	« That was one of the biggest challenges, I'm very like human, I love human, creating connection with people, creating relationships and it's a bit more complicated to have a relationship with some of your colleagues that you don't deal with on a daily basis. So the only way was to create, to maintain and create a relationship with a colleague was during the trips three times a year. » -“Actually we used to have two only but we had a survey and we asked for a third off site. So those trips were called off sites and we asked for a third one. They took into account our needs to see our colleagues more often.”	
		Relationship building (6)	Relationship building (4)	Establishing and nurturing connections or bonds between individuals.	“when one of my employee started it took longer to build the relationship. »
			Sense of belonging	Feeling included and connected within a group or community.	“you can say that it was a challenge more in a sense of I think in a normal work environment you have team building, right. Like you get a sense of

				belonging to the team and then in a virtual space, not so much.”
		Teamwork		« kind of learning how they work together, that has probably been something that was kind of the difficult thing »
	Lack of communication in stressful periods			« I think I can recall one situation where I think our trust was like really in danger and it was a situation when we were all very, very stressed out. And what happens when you are very stressed out, you don't have time for those informal chit chat. You don't connect on a social basis because you make everything about the project, about the work, about the to do's right. And I remember then when the project was finished, because we did not really have the mental or any kind of time resources during the project, we really connected again on a let's say more heart basis like with connecting with our hearts. »
Social Isolation (21)	Psychological distress (17)	Psychological distress (11)	Emotional or mental strain.	<p>“Also, especially as an adult it's difficult to kind of build bridges. It's I think much easier when you're younger to not care but at this point in stages in your life, it's definitely, I think, a big issue.”</p> <p>-“And then I just realized that there were months going by that I wasn't talking to people and became seriously socially isolated. I still carry a lot of those behaviours, even though I've been travelling around of Southeast Asia, probably gotten a little bit worse again in the last couple of months in terms of like just not bridging that gap. So I think there's like more personal aspects that I think are the danger of virtual offices than anything else. Social isolation, especially for people like me being much at high, much higher risk of overly isolating.”</p>

	Psychological safety (2)	An environment where individuals feel comfortable expressing themselves without fear of negative consequences.	« I think that you need to over communicate and you need to over organize social things and so for example every conversation I have always starts with about 5 minutes of talk about everything except work and like doing things like messaging. Just making sure rather than being very transactional to post a funny GIF as a response or you know, try and get some humor in there, just try and kind of get some emotions going. I think that's important because if not, it can get very transactional, if that makes sense, and that's a bit boring. » -“So the colleague in Greece was alone and she told me once that it was pretty challenging for her to be there alone.”
	Lack of interaction with colleagues	Limited engagement or communication with coworkers.	“I don't think it's healthy to be working remotely fully because definitely social isolation is a thing and there is something in just you going to an office and drinking coffee with your colleagues and so on.”
	Inadequate environment for extroverts	Unfavorable conditions for individuals who thrive on social interaction and external stimulation.	« if you're like super extrovert then it's more difficult, extroverts get energy from being around people, whereas introverts, it drains their energy. So if you're introvert, obviously it's like a spectrum, but if you're introverted, it's easier to work from home and if you're super extroverted, then you're kind of climbing up the walls and needing to speak to people. »
	Balancing work and self-care (2)	Maintaining equilibrium between professional responsibilities and personal well-being.	« I think the one thing that very often comes up in our training workshops and in my coaching's is the issue of work life harmony. One of the biggest challenges is for me and for other remote workers or one of the challenges is taking care of myself and not working too much. »
Detachment (4)	Detachment from colleagues	A sense of separation or	“And then, of course from one moment to another you're not with

				disconnection from coworkers.	these colleagues anymore so closely, then something will be missing, that's for sure.”
			Detachment from organization (3)	A feeling of disengagement or estrangement from the organization.	“About like 90% of them I would say they do not take pleasure in online and it always feels like OK, they're forced to do this. They're not into this and you can feel it now” -“But ultimately the biggest problem was just that I don't think she really got the chance to get a feel for the company and understand how it all works.”
Manager-Specific Challenges	Inadequately facilitated supervision (2)	Supervising performance		Overseeing and evaluating work performance.	“Whereas I have worked with staff in the past who we've relied upon to work remotely and out of sight and out of mind, we've questioned whether they're level of input has been quite high enough. And it's something that I think the suspicion always will remain around certain people in the organization because if you're not seeing them everyday and you have to take it on a lot of trust that they are doing what they're saying they're doing and certain people you never stop hearing from.”
		Technology used for micro-managing		Utilizing technology for detailed and close supervision of tasks.	“Yes, technology to a certain extent, has been the absolute pain of my existence. I'm a big believer that you don't necessarily need technology. I mean we obviously do like I build technology products and that kind of stuff, but the last company there was one person that just would not in stop insisting that we use click up, but at no point was click up delivering any value to anyone except for her. And it became a piece about micromanagement. So her wanting to know what everyone was doing at all times and like managing all these interdependencies about different tasks and all that kind of stuff and none of it was necessary.”

	Communication tools strategy and consistency (2)		Strategic and consistent use of communication tools.	<p>“we commit to the same role because otherwise people do not really understand how communication should be happening”</p> <p>-“ Of course there are, because everybody has a different degree of technological proficiency, right? And that is also why I think it is so important to figure out your communication protocols, the channels that you're using, the tools that you're using, and then you need to understand how your team members, how proficient your team members are on the usage of those tools and of course “</p>
	Difficulties setting clear objectives		Challenges in establishing precise and achievable goals.	<p>« But I would say from challenges maybe the lack of clear objectives I would say that could be a bit challenging but the thing is I make my own objectives, so there is no objectives within the company, but I make my own objectives for me. So that would be maybe challenging a little bit for other people. »</p>
	Difficulties to recruit remote workers		Challenges in hiring individuals for remote work positions.	<p>« because most people in the UK wouldn't want to work for a small organization, work from home and so actually when I recruited her, I kind of advertised the role as if you want to work from a ski resort or if you're a parent and you want to spend more time at home, basically looking for people who want to work remotely because of their life circumstances and I ended up getting a lot of responses from people from Eastern Europe and some from Southern Europe who wanted access to those kind of jobs that makes sense. »</p>
	Acquiring resources		Obtaining necessary assets or provisions.	<p>“However, there are challenges, especially when we need to take product photos or identify details, we may not have everything we need because we are not physically present.”</p>