Virtual Leadership: Managing Remote Working in the New Normal Era

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ABSTRACT

The extensive and growing population of remote workers has left traditional leaders with many challenges managing a team remotely, and virtual leadership has been introduced as a remote management style. The increasing use of workplace surveillance technology in organisations has resulted in considerable debate over the years. This qualitative study aimed to explore virtual leadership in practice and investigate the potential of using workplace surveillance technology to support effective virtual leadership. The results of the research will provide an answer to the following question: “How can workplace surveillance technology support virtual leadership in the new normal era?”.

Existing research suggests that there is no single theory for virtual leadership and that more research should be conducted. The use of workplace surveillance technology lacks practical evidence and does not keep pace with continual change, vast technological advancements, and expectations by followers for transparency. The methodology used for this research consists of ten in-depth interviews with leaders and followers from the same organisation within three different sectors. Interviews were conducted utilising a semi-structured interview format. They produced data based on the lived experiences of virtual leadership and participants' views on workplace surveillance technology relating to whether virtual leaders could become more effective by implementing that.

The findings of this research supported that there is not a single virtual leadership style, and continual change was recognised as an ongoing theme. Acceptance of change, adaptability, and personal attention were necessary for successful virtual leaders. The participants indicated that they saw some potential in using workplace surveillance technology for virtual leaders under certain conditions. The research has found that threats to using sensitive data information should be considered before deployment. When considering the needs and threats, participants argued that this could result in more effective virtual leadership depending on how virtual leaders act upon the information being gathered. Therefore, it is recommended to consider the threat that there is not a standard design of workplace surveillance technology and the potential of this technology is context-specific. Additional research should be conducted to evaluate virtual leadership, in general, to understand motivations and barriers to widespread adoption regardless of the use of workplace surveillance technology. Further research should be conducted on the operational and practical issues surrounding workplace surveillance technology in virtual work environments.

PREFACE

Working from home during my entire Master's and the limited personal attention was my main inspiration for my graduation research in practical fulfilment of my final thesis for the Master's degree in Management of Technology (MOT) at the Delft University of Technology.

The nature of the research is to show my ability to have an independent, critical and objective view of complex situations, with the appropriate use of methods and techniques for collecting and assessing the information. In an eventful period, I have learned through the coronavirus to be flexible in situations beyond your reach and when plans do not go according to plan. Without the encouragement and guidance of several people, I would not have reached this far.

I want to thank my supervisor, Dr Nikos Pachos-Fokialis, for the patience, guidance and support. I have significantly benefited from your wealth of knowledge and feedback to improve the quality of my research. I am incredibly grateful that you took me on as a student. Thank you to my committee members, Dr Robert Verburg and Dr Filippo Santoni de Sio. Your encouraging words and thoughtful, detailed feedback have been essential to me. Thank you to the interviewees, who so generously took time out of their schedules to participate in my research and make this research possible.

I now present my Master's thesis.

Amsterdam, August 2022
Flore M. Tadema

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
AIT	Advanced Information Technology
AP	Dutch Data Protection Authority
CSI	Computer Security Institute
DPIA	Data Protection Impact Assessment
EPM	Electronic Performance Monitoring
FLS	First-Line Supervisor
FRT	Facial Recognition Technology
FTF	Face-to-Face
FTE	Full-Time Equivalent
GDPR	General Data Protection Regulation
HREC	Human Research Ethics Committee
ICT	Information and Communication Technologies
ML	Machine Learning
MM	Middle Managers
MOT	Management of Technology
NWRC	Non-Work-Related Computing
TATS	Tracking and Tracing Systems
UAVG	AVG Implementation Act
WFH	Work from Home

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1. INTRODUCTION

The COVID-19 crisis has accelerated the use of Information and Communication Technologies (ICT). Over the last few years, the pandemic has hit all industries, bringing people and technology even closer together. As we are experiencing one of the most substantial transitions in history, digital technology has radically changed how individuals work and organisations operate (Cascio & Montealegre, 2016).

The shift towards remote work is not new and can offer many opportunities. However, before the COVID-19 pandemic, remote working in EU countries was done occasionally and by relatively few employees. According to a 2020 European Commission report, in 2019, only 5.4% of employees in the EU-27 usually worked from home, while in 2020, it increased to 12% (Eurostat, 2021). A key challenge for organisations is how to foster this quick transition and collaborate in remote working environments. Zaccaro and Bader (2003) noted that new ways of working require a unique leadership style. Virtual leadership is introduced as a remote management style of employees where trust will replace control compared to traditional leadership styles.

Virtual leadership is a leadership paradigm that requires managers to achieve leadership objectives in a digital-driven work environment with virtual teams and is mainly about the need to lead these geographically dispersed teams (Alward & Phelps, 2019). As remote work has grown in popularity, the need for virtual leadership emerged as well. Managing a team has never been an easy task for leaders, and even more, problems arise when leaders must manage virtual teams. The rapid remote working transition caused by COVID-19 has left managers and executives uncomfortable. Powerless to set standards for home offices and unable to control home distractions, executives worry about the loss of productivity and control (Gibson et al., 2002). Remote employees have more autonomy due to the nature of virtual work, and the Computer Security Institute (CSI) found that over 75% of companies faced issues with employees using illegitimate software, online shopping during work, using work hours for childcare or napping, and misusing their work e-mails (Nord et al., 2006). In addition, several studies pointed out the negative impacts of non-work-related computing (NWRC), costing employees thousands of dollars in lost productivity and increased exposure to outside risks (Bock & Ho, 2009). In such circumstances, virtual leaders cannot control their employees, and employee monitoring might become critical. Workplace surveillance technology is introduced to be employed to detect employees who are shirking their responsibilities during work hours. However, this results in a major ethical issue to build trust between employers and employees in the virtual workplace.

The technological impact of the virus has created the reality of remote work becoming part of the "new normal era", and even after the end of the pandemic, some digital applications will continue to be implemented in the workplaces regularly (Carol et al., 2020). Therefore, in the new normal era, managers must have these virtual skills to understand employee behaviour and performance,

especially as the physical distance between employees can be long. With this research, it will be questioned if and how leaders can be supported through workplace surveillance technology and under what conditions.

This research topic is a perfect example of what the Master's programme is about; that teaches to explore and understand technology as a corporate resource and to research how organisations can maximise corporate productivity in which technology can play a determinative role. However, practical research about the application and added value of workplace surveillance technology on virtual leadership within the remote workplace has not been done. Therefore, Moussa (2015) stated that the rise and the use of workplace surveillance technology cohere with and emerge from an organisational culture, values, and leadership style. Yet, he acknowledged that relatively little effort had been made to systematically study and compare leadership approaches in the context of what impact it has on how leaders react to employee monitoring through technology. Therefore, the review led to further research on how to support managers, especially regarding understanding their employees and how this could affect their leadership styles.

1.1. Problem Statement

The problem addressed in the current research was the lack of knowledge concerning the increased autonomy of remote workers and how virtual leaders can maintain their relations and trust in their employees to assure good leadership. Virtual leaders cannot check in with employees how in-office managers do, so they must trust employees' capabilities and well-being. Among the many challenges in managing an at-home virtual work environment, managers need to have a culture of accountability and understand their employee experience.

To mitigate these barriers, organisations have invested substantial operational dollars in surveillance software to track employee performance. The Gartner analysis (2020) shows that 16% of employers use technologies more frequently to monitor their employees through virtual clocking in and out, tracking work computer usage, and watching employee e-mails or internal communications/chats. While some companies track productivity, others monitor employee engagement and well-being to understand employee experience better. By keeping track of employees' performance using workplace surveillance technologies, employees can still be held accountable for their work. However, a lot of data and information become available using different kinds of workplace surveillance technology. Therefore, the question remains how are leaders treating and acting upon this sensitive information and if it adds any value to the organisation?

Even before the pandemic, organisations were increasingly using employee monitoring tools. Still, the transition to a digital organisation had to go faster and completely remote, which adapted workplace surveillance technology to be more complex. That trend will only be accelerated by

new monitoring technology and employee data collection. Therefore, this problem will continuously affect more employees and managers working remotely. Besides the potential negative impact of introducing workplace surveillance technology into the remote workplace, the opportunities for virtual leaders also need to be determined.

1.2. Research Objective

The research objective is to gain more insight into how and if workplace surveillance technology can help virtual leadership gain more insights into employee performance and experience to influence their leadership styles accordingly. To achieve this, the research aims to assess and understand different perspectives about applying virtual leadership and workplace surveillance technology in practice and link the relations that might change the new workplace and how is being led. It involves determining whether employees will be micromanaged through workplace surveillance technology, establishing whether technology is used as a powerful weapon of control and discovering if the high-level use of technology can create any ethical dilemmas for managers by identifying and evaluating any areas of good practice. This will result in a conceptual model of relating variables impacting if workplace surveillance technology can contribute to this transition.

Data was obtained using expert, in-depth interviews with virtual leaders and followers working remotely. The data from the interviews serve as an exploratory use. They can impact social change by possibly enhancing the understanding of what contribution workplace surveillance technology could bring and providing an opportunity for the participants to determine what information is lacking when leadership changes when overseeing teams remotely. The insights are eventually helpful for academics to support managers responding to changes in technology-driven work environments and innovators and how they can design new digital work practices. This research could help support research exploring the new normal era of leading remote working through the reactions of managers, teams and organisations to this change.

1.3. Research Questions

The main research question determines the type of research to cover the research objective. The results of the study must provide an answer to the following question:

"How can workplace surveillance technology support virtual leadership in the new normal era?"

Within the main research question, workplace surveillance technology refers to the technology used to monitor and track employees by performance tracking, work computer usage, employee e-mails or internal communications/chat and monitoring employee engagement or well-being and emerging technology to improve the employee experience. Supporting virtual leadership refers to providing better insights to adapt or change virtual leadership styles accordingly.

The research focuses on three sub-topics: (1) (virtual) leadership practices, (2) use of surveillance technology and collection of employee data, and (3) ethics, risks and future potential. The sub-questions support the main research question. The sub-questions are descriptive, comparative, defining or exploratory questions and will be answered through the different perspectives of both leaders and followers.

Sub-questions:

1. How is virtual leadership practised in the context of corporate organisations?
2. Where can workplace surveillance technology facilitate (or prevent) the application of virtual leadership practices?
3. What are the future potentials and limitations for workplace surveillance technology as a supporting mechanism?

1.4. Thesis Structure

The thesis consists of eight chapters, including the introduction. Chapter two provides an overview of the existing literature and theories of leadership in general and explains the phenomenon of virtual leadership and surveillance studies. Chapter three concerns the methodology used for this research and discusses the qualitative research design, including the data collection, sample, interview approach and data analysis methods. Chapter four describes the results and findings of the interviews by starting with how virtual leadership is being practised today, followed by if employee data is being collected, how managers interpret the signals from this, and under what conditions. In chapters five and six, a discussion of the interpretations of the results are linked with previous studies, theories and concepts and the recommendations are presented. Finally, the research implications, limitations and future research directions are indicated in chapter seven, and chapter eight provides an overview of the concluding findings of the research.

2. LITERATURE REVIEW

The literature review has started with a broad classification of journals and papers addressing the multi-perspective of traditional leadership, the emerging trend towards virtual leadership practices, the use of surveillance technology and the relation between workplace ethics and technology. Virtual leadership and the Panopticon were used as theoretical frameworks. The study was grounded in the theories and sought to discover connections if and how the theories affect using workplace surveillance technology as a management support mechanism.

Most of the literature reviewed scholarly peer-reviewed articles, journals, dissertations, and books utilising the following databases through the TU Delft Library access: Google Scholar, Scopus, ScienceDirect, and Web of Science. This literature review covered a review of the transformation of leadership, traits, and styles regarding virtual workers and surveillance technology, their functionalities and potential benefits or ethical risks for the workplace.

2.1. (Non)-Traditional Leadership

Formal leadership study began during the 1930s and has continued to be extensively researched (Allio, 2013; Bennett, 2009; Bennis, 2009). Numerous leadership theories have been developed, and multiple leadership theories are being practised. Historically one can find many traditional leadership theories, including great man theory, path-goal theory and servant leadership, that deal with leadership and its influences over subordinates in varying degrees.

2.1.1. Leadership styles

Leadership is generally described as a process in which a leader-follower role takes place. In most definitions, the essential elements of leadership usually include a leader, a follower, and their relational interactions. Over the years, the concepts and definitions of leadership have been evolving and expanding. For instance, the paper of Malik and Azmat (2019, p. 16) looked at some of the most important definitions. They defined leadership as “a process in which a person or persons inspire(s) and motivate(s) the people to meet the shared goals or objectives which may be changed or added as per the needs and challenges.”

Traditional or transactional leadership is defined as a style where power is given to the leader based on simple exchanges between leaders and followers for attaining goals, offering promotions, bonuses or other transactional deals for performance (Northouse, 2013). While traditional leadership studies mainly focused on why leaders are influential, more recent research has expanded the original theories by emphasising how and why followers are willing to be influenced by their leaders. Otte (2015) suggested that traditional leadership theory was developed for an industrial world without the vision for a future of globalised and collaborating organisations. The

conventional measures of leadership effectiveness are organisational performance and the results of the leaders' efforts, shifting toward evaluating leadership from a follower perspective (Higgs, 2003).

The modern interpretation of followership stems from believing that all leaders need good followers (Kelley, 1992; Shamir et al., 2007, Carsten et al., 2007). Kelley (1992) suggested that, for an organisation to become innovative and maximise efficiency, organisational performers must dispel the leadership myth by practising exemplary followership or instead of relying on leadership to provide detailed instructions for every task needed in the accomplishment of organisational goals. On the other hand, transformational leadership is defined as a method where the leaders, in a sense, transform themselves and, through changes in their behaviours and actions, connect and interact with their followers creating higher levels of motivation, morality and, ultimately, performance outcomes (Northouse, 2013).

2.1.2. Effects of leadership

Three primary leadership functions critical in all teams are performance management, job satisfaction and team development. Effective leadership can be considered the fundamental factor for organisational success. A capable leader guides the organisation and leads followers toward achieving desired goals. Therefore, organisations need efficient leaders to lead and motivate their employees daily to achieve organisational goals. Katzell (1987) showed that the effects of leadership are often indirect by showing that although leaders' direct influence on their subordinates was modest, they exerted indirect influence and improved the employee's morale by providing rewards, relating rewards to performance, and treating employees equitable. By increasing confidence, these managers enhanced the employees' performance (Bass et al., 1997).

According to Sarros (2011) and Torres and Reeves (2014), leaders continuing to practice traditional leadership are less effective due to a lack of confidence, adaptive capacity skills, and other factors. Leaders who focused on employees had higher rates of group performance and job satisfaction. Leaders who focused on production resulted in low satisfaction and production (Gregoire & Arendt, 2014; Yukl, 2012). However, research by Qu, Janssen and Shi (2015) suggested that although transformational leadership is supposed to drive positive follower performance, the study produced conflicting data suggesting that transformational leadership suppressed creativity and follower engagement (Qu et al., 2015).

The degree of leadership effectiveness is usually measured by the effect of leaders on organisational outcomes (Madanchian, 2017). Leadership researchers treat follower attributes as outcomes of the leadership process instead of inputs, even though there have been several calls over the years to examine the role that followers play in the leadership process (Shamir et al., 2007). They suggested that leadership effectiveness is just as much a product of good followers as

good leaders. Dansereau (2013) determined an effective leader as one with the skills and the attitude to influence subordinates, ideally resulting in positive outcomes, employee trust, retention and productivity. Development and maintenance of trust seem to be a critical process that underlies many traditional leadership approaches. Farrell (2016) found that transparency also positively affects followers' performance. The transparent organisational environment increases followers' drive, sense of participation, and awareness of recognition (Farrell, 2016). Transparency generates increased organisational efficiency resulting in an improved benefit for followers, organisation, and stakeholders (Farrell, 2016).

2.1.3. Leadership challenges

Future leaders face multiple challenges associated with the millennial workforce, emotional intelligence, security, virtual leadership, virtual work environments, globalisation, and the role of women (Avolio et al., 2009). Bennis (2013) suggested that due to the evolution of a technologically digital world and transparency, combined with the requirements of leaders to lead across multiple dimensions, current leadership theories are not sufficient enough to accommodate the current demands of today's organisational needs. Strategic leadership as a process will be an evolving area of theory and research in which the follower will become an integral part of the system. Savolainen (2014) found that the critical findings of future leaders' challenges regard trust-building and implications for leaders interacting with followers via technological devices. However, the systems will become more and more complex, integrating more mixed leadership methods or styles and distributed in shared and self-steering organisations.

2.2. Virtual Leadership

Leading from a distance in itself is not new and has been done for decades; the article of Avolio, Kahai and Dodge (2000) presents one of the first instances of the use of the term virtual leadership, also known as e-leadership, and reviewed existing literature to reach a broad understanding of what constitutes virtual leadership in organisations. The authors defined virtual leadership as "a social influence process mediated by Advanced Information Technology (AIT) to produce a change in attitudes, feelings, thinking, behaviour, and performance with individuals, groups, and organisations" (Avolio et al., 2000, p. 616) Although this is a comprehensive definition, it focuses on the interactions using AIT within organisational structures of which leadership is a part.

While all teams and organisations currently have some degree of virtuality, most conceptions of virtual leadership (Avolio et al., 2014; Schmidt, 2014) focus on the case of leaders who interact almost exclusively with followers online and in work-related relationships. Virtual teams can be described as decentralised teams with characteristics like working in different time zones or continents. As leaders might need to use and combine both traditional and virtual leadership styles in different situations, a definition that focuses solely on the use or non-use of AIT may not be

beneficial for all purposes. Therefore, Van Wart et al. (2019) proposes another definition for virtual leadership as "the effective use and blending of electronic and traditional methods of communication. It implies an awareness of current ICTs, selective adoption of new ICTs for oneself and the organisation, and technical competence in using those ICTs selected." Hence both definitions focus on how leaders and followers interact and use technology as a communication tool rather than the advantage of the availability of real-time information. In the electronic work environment, there is a more significant opportunity for sharing knowledge with organisation members and outsiders and relationships can be customised (Bass et al., 2008).
Gurr (2004) and Kerfoot (2010) argued that virtual leadership is a relatively recently emerged concept with conceptual ambiguity but significant differences between leading traditional organisations and those with technology-driven environments. Rawlins (1983) found that with audio-only teleconferencing by 20 four-person groups, the assigned leaders did not retain as much of their leadership roles as they did in face-to-face (FTF) meetings and the leadership roles were more widely shared. Also, studies of interpersonal space indicate that individuals interact more frequently with those who are close to them than with those who are farther away. Therefore, Gurr (2004) expressed the importance of future research and stated that virtual leaders are needed to inspire employees from a distance to develop self-management capabilities.

The article of Kozlowski et al. (1996) agreed with this and discussed these different forms for leading virtual teams and recommends setting expectations for team functioning, building shared knowledge, establishing trust, providing structural support and instantiating shared leadership. They defined shared leadership as "a strategy by which leadership functions are distributed to the team", which can help leaders manage effectively in a virtual context and prepare organisations for a new work reality that incorporates virtual teams at its core. Quisenberry (2011) also believed in self-managed virtual teams. Results indicated that leaders should use a hybrid management approach that uses transformational principles and incorporates rewards and incentives based on group performance metrics. Leaders should establish foundations and objectives at the beginning of the project, avoid micromanagement, and use empowerment and autonomy to motivate employees.

2.2.1. Effects of virtual leadership

The majority of existing literature on the subject of virtual leadership focuses on the advantages and disadvantages that come with leading remote workers (Bell & Kozlowski, 2002). The article of Bell and Kozlowski (2002) discusses the constraining role of task complexity on the interdependence of team workflows. Task complexity implicates different characteristics that distinguish different types of virtual teams. A leader's performance management functions will be critical when dealing with the more prototypical virtual team. In these situations, team members are temporally distributed and cross multiple boundaries. As a result, the information leaders will be temporally delayed and decoupled from events. Leaders must devote additional resources to

explicitly structuring performance management activities. After a leader establishes these effective and sustainable workflow patterns, their performance management duties should be less critical.

Also, about the literature on remote working, the article of Awada et al. (2021) suggests that workers' productivity levels overall did not change due to the remote work transition but that higher productivity was associated with better mental and physical health status. the focus is on the effects rather than on the opportunities. On the other hand, Marlow et al. (2017) research indicates that virtuality has a complex effect on team functioning. Many factors have been identified that influence how virtuality impacts team functioning and outcomes. In doing so, virtual leaders may be provided with a clearer idea regarding how to foster both effective communication and performance in highly virtual teams, given the circumstances under which they are functioning.

Overall, there does not appear to be disagreement amongst articles focused on virtual leadership. It is agreed that this is a new field and that more research needs to be conducted, especially when considering the impact and opportunities of the pandemic.

2.2.2. Virtual leadership skills

Effective and functioning virtual leadership requires key competencies as traditional leadership, such as problem-solving capacity, social skills and professional know-how listed by Mumford et al. (2000) in their skills model. Other literature can be found on what skills and competencies are required for a virtual leader and how it differs from traditional leadership (Kissler, 2001; Shriberg, 2009). These leaders must adapt to delegation, trust in followers, and confidence and security with the knowledge that followers will produce desired results (Savolainen, 2014). DasGupta (2011) summarises some new skills proposed to virtual leaders: more vital written communication skills, strong social networking skills, a global multi-cultural mindset, and greater sensitivity towards followers. Human relations and interaction skills are suggested as the most substantial challenges that virtual leaders face. However, the traditional forms of control and monitoring are absent when working remotely, and collegial and subordinate efforts cannot be observed. Organisations see the need to implement workplace surveillance technology (Wilson-Evered, 2001). Therefore, Martins, Gilson and Maynard (2004) suggested that ethicality may be helped by increasing trust, team tenure, and transformation leadership or reducing team size.

2.3. Surveillance Technology

Surveillance is a method of constant observation that has been widely researched through surveillance studies (Allmer, 2011). While surveillance has become popularised through recent technological advances, surveillance activities have occurred throughout history. The term surveillance covers many forms of observation and information gathering. Lyon (2001, p. 68)

defined surveillance as “the monitoring of behaviour, many activities, or information for information gathering, influencing, managing or directing”.

2.3.1. Workplace surveillance

Workplace surveillance is any form of employee monitoring undertaken by an employer. The article of Ball (2010) attempts to provide an overview of surveillance in the workplace and the issues surrounding it. She argues that workplace surveillance can take place in social and technological forms. Personal data gathering, Internet and e-mail monitoring, location tracking, biometrics and covert surveillance are all areas of development.

When working remotely, all the interaction amongst virtual team members and their managers is supported by technology. Mainly this results in endless video conference calls, e-mails and managers trying to keep up with performance and workload distribution, often skewed by the lack of information that one would generally obtain by being closer to their employees. Avolio and Kahai (2003, p. 332) discussed how technology affects organisational leadership. They emphasised that they are “fairly confident that leadership mediated by information technology can exhibit the same content and style as traditional face-to-face leadership.” On the other hand, Zigurs (2003) stated that leadership in virtual teams is expressed through communication technology and that teams can use technology as a starting point, adapt it to their needs, and learn how to communicate effectively, which should serve as a supporting mechanism. But the double-edged sword of remote working is that the exact technological solutions that allow remote work enable employee monitoring.

Organisations had to respond quickly to support their teams and managers to function during the pandemic. New technological innovations are in progress to help virtual leaders with their job. In 2010, Bishop et al. already discussed e-mail networks and technology to support virtual teams and pointed out that a lack of information often causes misunderstanding between virtual leaders and their virtual teams. Therefore, the authors proposed a set of tools called the Digital Diffusion Dashboard to provide metrics and analytics to enable the virtual leaders better understand the network that connects them with the virtual team. Multiple software start-ups have developed productivity and workforce management software (Hubstaff, 2022).

2.3.2. The Panopticon

Surveillance studies include various disciplines and models of surveillance theories (Galič et al., 2017). One of the key concepts is the Panopticon, a disciplinary idea that Jeremy Bentham had for the strategic, spatial placement of 19th-century prison guards. In Bentham’s metaphor, guards were positioned in a way that minimised who could see them but maximised their view of the prisoners in a panoptic design that aimed to direct inmates' behaviour through the compelling uncertainty of

being seen (Lyon, 2007). Michel Foucault, a philosopher, used the Panopticon as a model for surveillance in society. His idea was constructed so that people would understand that a disciplinary society was constantly surveying them. This means that, as a result of surveillance, you no longer have to punish people because they will spontaneously conform to dominant behavioural models in society and would not cause trouble through self-discipline or fear of punishment (Foucault, 1995). An example could be when managers confront employees about unproductive behaviours discovered through surveillance, this puts emotional or economic pressure on employees. Such tactics could lead to feelings of disappointment, guilt, betrayal, or even shame. These tactics could enhance productivity as they have led to a situation where workers feel and know they are being watched and therefore strive to perform better (Sewell, 1992).

While the Panopticon idea and goal of creating self-disciplined subjects have spread from prison to the workplace and governments for productivity and efficiency, they have also travelled to 'softer' forms. The article of Zuboff (2015) describes how 'surveillance capitalism' is networked in character and relies primarily on digital rather than physical technologies. It involves distributed forms of watching over people, with increasing distance to the watched and often dealing with data doubles rather than physical persons. Zuboff (2015) is also critical about conceptualising this power that plays beyond the panoptic effects of self-disciplining. Galič et al. (2017) article has provided a systematic overview of surveillance theories. It concludes that many ideas are connected by the core question of power and control, who is looking at whom in which setting and for what reasons and, in the case of surveillance technology, where technology acts as an intermediary of power or control dynamics.

A recent study by Hafermalz (2021) argues the opposite that a fear of exile, a fear of being left out, overlooked, ignored or banished, can act as a regulating force that inverts the radial spatial dynamic of the Panopticon and shifts the responsibility for visibility, understood both in terms of competitive exposure and existential recognition, onto followers. Today, we are more likely to identify the Panopticon effect in new technologies than in prison towers. Another current example of the Panopticon in the workplace is when individuals voluntarily enter into contracts and are therefore under an obligation to do during their working time as their employer demands. Employers have a corresponding right to check on their employees during work time or as long as employees are using their employers' property. Translating into employers in a position of power through the conditions an employee sign is in charge of and the terms and conditions of being on the job.

2.3.3. Motives behind workplace surveillance

Generally, the main objective for organisations to use workplace surveillance is to protect company assets and valuable information. The activity of employee monitoring is not just for security purposes but is being extensively used for performance assessment and employee

productive work contribution. Belcourt et al. (2008) found that motives behind employee monitoring are varied, such as to prevent inappropriate actions of employees, to emphasise the need for the effective use of the organisation's time, to ensure a safe and healthy work environment, to monitor compliance policies, to protect sensitive company data from becoming accessible to hackers. Therefore, an employer's perception might clash with the employee's perspective about how constant surveillance can impact the productivity of expanding interest and warrants deeper conversations around employee monitoring.

Instead, monitoring systems can also be used to accumulate, process, and provide performance feedback and knowledge of results about employees' work that can assist managers with performance improvement propositions as a helpful instrumental control for employee development (Sarpong & Rees, 2014).

2.3.4. Workplace privacy and surveillance laws

Workplace surveillance policies aim to ensure that a transparent environment exists within an organisation concerning surveillance and that it complies with the requirements of workplace surveillance legislation. Workplace privacy policies are usually communicated through employee handbooks, memos, union contracts, employment contracts, and non-disclosure agreements, which can be distributed to employees at any time. Currently, there are no comprehensive laws in The Netherlands regulating the extent to which employers can monitor employees in the workplace. However, to monitor your employees, the Dutch Data Protection Authority (AP) has set conditions (AP, n.d).

The most critical conditions for employee control are set out in the EU General Data Protection Regulation (GDPR) and the AVG Implementation Act (UAVG). These conditions include that you must have a legitimate interest in monitoring your employees and must outweigh the rights and interests, like their right to privacy. Also, the control of your employees must be necessary. That is, you cannot achieve your goal in any way that is less invasive for your employees. Besides that, you must inform your employees about what is allowed and not, that control is possible and how this is done. You must take into account the right to confidential communication of your employees. Suppose you want to use large-scale processing and systematic personal data monitoring to check your employees' activities. In that case, you must first perform a data protection impact assessment (DPIA). This includes checking e-mail, internet use, GPS trackers in employees' trucks and cars, or camera surveillance to combat theft and fraud.

In the Netherlands, the AP has issued several decisions and judgments concerning infringements of privacy rights and data protection rules resulting from employee monitoring. For example, the AP ruled unlawful the use of secret camera surveillance used by the consumer electronic retailer Media Markt Netherlands for reviewing the performance of individual employees (AP, 2013).

However, the stated goal of the monitoring activity was the protection of company assets and ensuring employees' safety. The AP took a similar stance in the case of the transport and logistics company De Rooy Transport, which used event data and video recordings of drivers to improve road safety. In this case, the AP also deemed this monitoring system unlawful and ordered the company to discontinue it, asserting that the drivers' right to privacy had priority over the road safety arguments (AP, 2015).

Concerning the motivation of how personally managing and protecting online privacy has grown interested, Boerman et al. (2018) research shows that, unlike prior research, age and gender do not seem to predict protective behaviour. Although previous studies have shown that women and older people are more concerned about their privacy online (Baruh et al., 2017; Smit et al., 2014), their study has not found evidence that the effects of gender or age influence protective behaviour. Their study suggested that education plays a role and that people with lower education levels are less likely to be familiar with the measures they can take to protect their online privacy, which results in less protective behaviour.

2.3.5. Digital footprint

The increasing use of digital technologies produces the availability of the amount of work being recorded and stored. Leonardi (2021) investigated the impact of logs of employee behaviour called digital exhaust. He defined digital exhaust as by-products of other activities that can be combined and turned into a digital footprint. Digital footprints are collections of data that represent an entity and are the mathematical representation of everything a company knows about that entity. They are used to make predictions about its behaviour. Digital footprints are constantly updated as the entity produces more digital exhaust. His previous research about behavioural visibility showed that employees who recognise that their activities allow companies to create digital footprints of them sometimes feel as though they are being surveyed by peers and leaders, causing them to act in ways that leave purposeful patterns of exhaust that effectively game the system (Leonardi & Treem, 2020).

The role of facial recognition technology (FRT), blockchain, artificial intelligence (AI) and machine learning (ML) has shown a growing interest of organisations in understanding enhanced work outcomes and employee behaviour. Because the volume of data produced in COVID-19 is tremendous, organisations increasingly use algorithms that code data into particular categories of action, sort those categories, and perform complex computations that link them together. The result is that algorithms are increasingly central in turning employees' data into digital footprints that serve as representations of them.

2.3.6. Workplace ethics and technology

With more employees working from home, companies might start using surveillance software to verify that employees are working. The implementation of tracking and tracing systems (TATS) has made its way to the workplace, enabling accurate electronic monitoring of employee performance and behaviour. Using unproportionally invasive workplace surveillance methods to track employee activity is a way to introduce adverse effects such as decreased employee morale, work-related stress, and counterproductive work behaviours (Ball, 2002).

Workplace surveillance technology enables leaders to use indirect motives. The term 'micro-managed' is commonly used when referring to managers that closely monitor and observes all or most of the actions of their employees by using technologies as a weapon of capital to control the workplace. This can constrain the right to autonomy and freedom of expression (Sarpong & Rees, 2014).

At the European level and in several Member States, trade unions have been vocal in raising concerns about the potential infringement of workers' fundamental rights due to the use of advanced technologies in the workplace (Riso, 2020). The article of Lee and Kleiner (2003) discussed the conflict between employees and employers over electronic surveillance in the workplace. They emphasise that the advantage of technology has helped organisations and employees; there has also been a feeling that constant oversight by employers has violated employees' privacy rights. They conclude that employers should clearly define how much they intend to monitor the workforce.

According to Kizza and Ssanyu (2005), it also creates an atmosphere of fear since the most devastating effect of employee monitoring is the fear of losing one's job. They have also cited stress, repetitive strain injury, lack of individual creativity, reduced or no peer support, lack of self-esteem, worker alienation, lack of communication and psychological effects on employees as some of the impacts of being monitored. Digitally enabled employee monitoring can also contribute to the gamification of work, making workers constantly feel in competition with one another. This could be counterproductive and affect employees' productivity, commitment and attendance. It can also cause mistrust and hostility (Vatcha, 2020).

Moussa (2015) stated that the frequent anxiety in a monitored organisation is generally not about whether monitoring should take place but how it should be performed and how the information should be utilised, and how feedback should be communicated to all individuals in the organisation. Hence, educating employees about the monitoring system and setting fair performance criteria, distributive justice, procedural justice, and interactional justice can make monitoring less distressful (Moussa, 2015). While many other factors influence the perception of workplace surveillance technology impacting virtual leadership, the two variables of employee performance and their exclusion from critical information are detrimental to ethical virtual leadership.

3. METHODOLOGY

This chapter outlines the qualitative methodology that uses expert, in-depth semi-structured interviews and describes the processes used to select research participants, data collection methods and data analysis.

3.1. Research Design

The research design presents the overall strategy chosen to integrate the different components of the study coherently and logically. The purpose of the personal interviews was to explore the experiences and current limitations of the participants working or leading remotely and their perspectives on how employee data collection could contribute to future virtual leadership styles. Although an interview may not lead to objective information, it captures many of the subjects' views on the research topic. The primary subject matter is not, as in qualitative research, object data but consists of relations to be interpreted. The qualitative research focuses on the difference between the leader-centric and follower-centric views and taking out their natural workplace environment while working remotely and describing their leadership settings in their own words.

Kvale (1996) states that qualitative research does not have to look objectively and that interviews can be free of bias and provide objectivity and mechanically measured reliability by the amount of agreement among independent observers. Qualitative research interviews can also be objective by "letting the investigated subject matter speak" in expressing the fundamental nature of the object. Kvale concludes that interviews are neither an objective nor a subjective method since their essence is inter-subjective interaction and will therefore be used as primary research method.

3.1.1. Interview design

The interviews consisted of three research sub-topic corresponding with three to five sub-questions for twelve interview questions in total (Appendix A). Participants were also offered the opportunity to add any additional information they believed would contribute to the study and provide some background information about their experience and professional career. The leader and expert approach differed slightly from the follower, which focused more on the employee's impact, conditions and feelings. At the same time, the leader and expert approach focused on the potential, after which different categories and labels were assigned.

The first part of the interview was designed to understand the participants' current working methods better. The interview sub-questions were about: (1) (virtual) leadership characteristics, (2) effective virtual leadership, (3) barriers that make it challenging to be effective as a virtual leader/working remote, (4) change in behaviour and follower engagement, (5) information and

support when working remotely. The responses to these five questions aligned with RQ1, how is virtual leadership practised in the context of corporate organisations?

The next part of the interview was designed to understand the different perspectives in collecting employee data. The research question sub-questions were about: (1) if their organisation collects any personal employee data, (2) what insights could help and what impact it might have on work performance, (3) under what conditions is workplace surveillance technology accepted, (4) influence on virtual leadership. At the start of the interview, the term workplace surveillance technology was explained to the participants, and different types of data collection and technologies were elaborated. The responses to these four questions aligned with RQ2, how can workplace surveillance technology facilitate (or prevent) the application of virtual leadership practices?

The last part of the interview asked sub-questions about (1) organisational ethics, (2) followers' limitations, and (3) the potential of workplace surveillance technology used by virtual leaders. The responses to these three questions aligned with RQ3: What are the future potentials and limitations for workplace surveillance technology as a supporting mechanism?

The interview's combination of questions and structure tried to answer the main research question based on the different leaders' and followers' perspectives and experiences.

3.2. Data Collection

Research data were obtained from in-depth interviews from multiple geographic locations and industries within The Netherlands. The participants were selected based on the determined selection criteria, and individuals are personally and professionally known to the researcher and from professional social media connections on LinkedIn.

3.2.1. Selection criteria

This research takes a leader-follower approach and has recruited different leaders, middle managers (MM) or first-line supervisors (FLS), and corresponding followers. Therefore, for leaders, it is required that they fulfil a position as a MM or FSL. All participants should be able to form an opinion about their virtual leadership style or how they were managed while working remotely. The main selection criteria required that participants have experience working in a digital environment, or a virtual team, in the past year. The open questions were structured to identify trait behaviours and allow participants to provide their perceptions, feelings, and practices without associating responses to specific leadership theories.

Participants don't need to work for an organisation that currently collects employee data, but they must be able to understand workplace surveillance technology and form an opinion about it.

3.2.2. Population and sample

This research is based on a geographical region of The Netherlands and focuses on the output of three different sectors and Dutch corporate organisations. The study explores employee monitoring and workplace surveillance technology only about dependent employment. Outside the scope of this research are practices used in the context of self-employment, freelancing and some new forms of employment in which the employment status is unclear (as in the case of platform work). Because it is exploratory research, it was decided to compare three different sectors or organisations with each other because they all represent various industries and working methods.

The participants are selected by non-probability sampling, in which the researcher selects samples based on subjective judgment and selection criteria rather than random selection. To understand the multi-perspective and overcome social desirability bias, different open questions will be used for both leaders and followers from the same organisation to check the alignment of the outcomes. An aspect of qualitative research is that it is subjective, and the participants can view the topic with a personal interest or own interpretations. Participants were selected from a combination of personal and professional friendships of this researcher and professional connections on LinkedIn. Most participants were willing to corporate. However, when contacting potential participants, their main concern was their lack of workplace surveillance technology experience.

The response rate determined the different sectors or organisations: health care industry, consulting and logistics. At that moment, it was important that the organisations were willing to corporate and that they represent a diverse combination of sectors and functions within an organisation. The most critical choice of combining the three different sectors was to include multiple perspectives within various service industries. Most importantly, the combination of sectors had other work processes and team compositions. For the health industry, a large call centre team was chosen. For the consulting sector, a more minor team was selected in which client relationships are important; for the logistic industry, the flow of information goods was chosen.

The interviewees had experience working remotely and come from multiple sectors in modern digital and transparent organisational environments. Saturation was defined when the researcher was confident that no new relevant data to the research question was emerging or would emerge if more interviews were conducted. Therefore, ten participants were interviewed for this research, three leaders and six followers within three different sectors and from the same organisation. In addition, one expert interview is conducted to provide additional information from the IT sector with independent research on business challenges and focus on digitisation, software and technological trends. However, it was recommended that after interviewing the initial first ten

participants, it is determined that additional data will not change the outcome of the research questions. The ten participants provided enough data to select categories, themes, and information to characterise the phenomenon of virtual leadership and workplace surveillance technology being studied.

3.2.3. Interview process and ethical assurances

Unstructured and semi-structured interviews are the primary tools used to collect data from participants. An introduction e-mail (Appendix B) was sent to potential participants. Upon participants' acceptance to participate, an e-mail (Appendix C) with an informed consent form was forwarded to the participants. The document provided details of how data would be confidential and how the interview would be conducted. Participation in this study was voluntary, and participants were provided with the option to withdraw from the study at any time. The identification of participants is confidential and is not identified in the study material or text. After the interview, the participants were given a transcript and the opportunity to confirm its content. This was done to ensure the accuracy and communicative validity obtained by validating a knowledge claim in the dialogue of the interview for correctness assessment. All data collected during the study was stored in the TU Delft OneDrive. Data was not organised until the Human Research Ethics Committee (HREC) approved the study.

The data were collected using semi-structured interviews with open-ended questions (Appendix A). The questions have been modified for leaders and followers to understand better how and if employee data is collected and how it affects the workplace. The interviews were conducted by the use of audio and video chat technology. Audio recording and a dissertation transcription service were utilised to transcribe the interviews. Interviews were conducted over two weeks at the end of May 2022.

Before the interviews, a pilot interview was scheduled to check the time management and whether all questions were straightforward. However, the interview process allowed open-ended question types and was shaped by the participants' interpretations or experiences. Therefore, all interviews provided new perspectives and were different, asking unstructured follow-up questions to the participants' information. Only one author conducted the interviews to avoid a bias that could arise from having multiple interviewers.

Participants agreeing to participate and meeting the selection criteria were asked to agree to an approximate thirty-to-forty-minute interview to be conducted using video chat technology. Interviews were transcribed using the recordings and a transcribing option in the video chat technology. Confidentiality and anonymity were maintained by using numeric identifiers for each participant, and personal information is left out in the transcripts or has been generalised.

Participants were provided transcripts of their interviews for review to ensure reliability and trustworthiness and to satisfy member checks as part of the data validation.

3.3. Content Analysis

The research design utilised semi-structured interviews after the data was analysed. For social sciences, content analysis is a method designed to examine patterns and determine the presence of certain words, themes, or concepts within qualitative data (Krippendorff, 2004). Content analysis is context-sensitive and therefore allows processing data texts that are significant, meaningful, informative, and even representational to others.

Based on the content analysis framework of Krippendorff (2004), figure 1 shows the structural approach for this research that has five different steps to code and analyse the data. Following Krippendorff, the interview transcripts were prepared in the first step, and the text segments relevant to the analysis were unitised by reading every transcript carefully. When significant portions of filler speech were removed (as opposed to a single instance of "but" or "um," for example), ellipses are used to denote this. Filler's speech was kept in the transcripts when it was deemed relevant. Subsequently, the data were coded for themes, phrases, and keywords and any parallels found in the interview transcripts were identified, labelled, and aligned with the research questions. Data was labelled critical for coding if or because they were repeated multiple times, they were surprising, participants said it was important, or it was recognised in the previous literature and related concepts. This coding procedure was thus explorative.

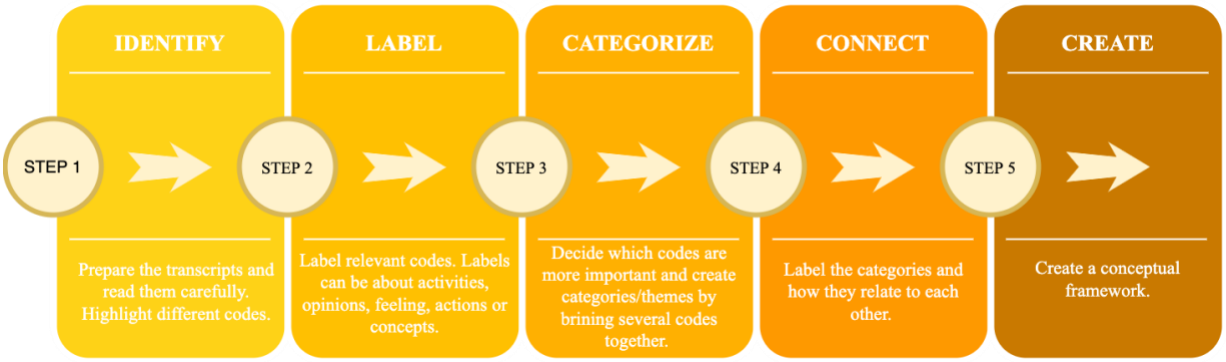

Figure 1 Content analysis framework for coding and analysing the interview data (own illustration)

The next step consists of further developing the coding instructions. After that, manageable representations of data and cross-tabulating the coding intersections between an excerpt referring to a workplace surveillance technology trend and a section of the coding category. The same procedure was done concerning intersections between a workplace surveillance technology potential and an excerpt of a category threat or external factor. Finally, the last step tries to operationalise the knowledge of what is being said to design a model developed based on the

outcomes of the interviews combined with the literature review of the existing studies and theories about the topic. Therefore, the last step aims to conceptualise underlying patterns and relations between inferring and narrating labels representing the data analysis. The findings' interpretation is illustrated and discussed in the following sections.

4. RESULTS

This qualitative research aimed to explore different leaders' and followers' perspectives and experiences using workplace surveillance technology as a supporting mechanism. The below sections present a summary of the research findings which answer the research questions. First, an overview of the selected participants and the findings of the semi-structured interviews are presented. Afterwards, a selection of themes, phases and quotes are delivered, resulting in a conceptual model and answers to the research questions.

4.1. Participants Data

After selecting the participants, the following participants were interviewed for this study. Table 1 provides an overview of the demographics of the participants. The anonymity of participants has been maintained by assigning pseudonyms for leaders as L1 through L3, and for the corresponding followers, a different pseudonym is assigned as F1 through F6. Current positions are generalised to protect company names and information. One independent expert was interviewed, for which the pseudonym of E1 was assigned.

Table 1 Participant demographics

	Gender	**Age**	**Years' Experience**	**Industry**	**Current Position**	**Education**
L1	M	26	<5	Health Care Industry	Senior Coordinator	Bachelor's
F1	M	24	<5	Health Care Industry	Contact Administrator	Bachelor's
F2	V	25	<5	Health Care Industry	Contact Administrator	Bachelor's
L2	M	29	>10	Consulting	Senior Manager	Master's
F3	M	25	<5	Consulting	Junior Analyst	Master's
F4	V	25	<5	Consulting	Junior Account Manager	Master's
L3	M	26	<5	Logistic	Manager Master Data	Bachelor's
F5	M	37	>10	Logistic	Master Data Specialist	MBA
F6	V	47	<20	Logistic	Senior Office Administrator	Bachelor's
E1	V	33	>10	IT	Content Analyst	Master's

All participants signed the informed consent form or verbal confirmation forms to agree to use audio/video recordings of the interviews. As shown in Table 1, demographic data were collected from the participants during the interviews.

Four participants were female, and six were male. Five participants had a Bachelor's degree, four had Master's degrees, and one had an MBA degree. Leaders were selected FLS and MM fulfilling

positions as senior managers or equivalent positions, and follower participants were experienced. The age of participants ranged from 24 to 47 years old. Participants' industry experience was spread across three sectors: health care, consulting, and logistics. Because not all sectors collect employee data, one independent expert with expertise in workplace surveillance technology was interviewed to include a different perspective on opportunities and risk.

All participants work in a (full) remote team or hybrid organisation. L1 is an FLS and manages his team remotely throughout The Netherlands, consisting of 100-150 FTE. Two assistant coordinators support him, and together they are responsible for ensuring that his group meets the objectives, communicating the standards, reviewing and monitoring the workload and reporting back to the national executives. F1 and F2 are experienced employees working in the team, and besides their administrative routine work tasks, they have been assigned additional controlling and coaching tasks. L2 is a MM who leads a team of consultants, account managers, and other staff members to oversee the support and services provided to clients in process transformation assignments. He manages a smaller team than L1, and his team composition differs per client assignment. His team generally consists of 2-10 FTE, and they have a hybrid form of working at home, in the office or at their client's office. F3 and F4 have been part of L2's team on different assignments. The last manager is again a MM responsible for a large project on improving the logistic data flows within the organisation. His team has grown from 2 to 7 FTE within a year and is expected to grow even further. Half of its team members are working from India, for which remote working is required. The other half of its team adopts a hybrid working attitude in The Netherlands. F5 is an executive team member with much experience working in India. F6 is another team member supporting the project in hybrid from within The Netherlands.

4.2. Interview Findings

Due to the chosen approach of a semi-structured interview, every interview was different, and participants' responses were anticipated. The reactions of the participants resulted in three research sub-topics; (1) virtual leadership practices, (2) collecting employee data, and (3) ethics, limitations and future potentials. These themes all correspond to one of the three research sub-questions and are answered as follows.

Questions related to RQ1: (Virtual) leadership, how it is being practised, changes, support, employee's behaviour/performance.

The first question posed to participants was to determine what knowledge participants had about leadership, regardless of their level of leadership knowledge. The question was about what style they practice or how their organisation is les, and how that practice differs when working remotely. At the start of the interview, the term virtual leadership was explained to the participants, and

different characteristics of leadership styles were elaborated. For leaders, a currently shared leadership trait was coaching, and self-steering, but no traditional leadership styles were practised.

Responses to each sub-question provided data that answered RQ1 and showed that the leaders were not practising a single leadership style and that their leadership practices differed slightly from when working remotely. The leader participants' experience range was 25 to 32 years, with an average of fewer than five years of leadership experience. Therefore, an assumption could be made that given that all leaders were relatively inexperienced, more experienced leaders might practice virtual leadership differently.

All followers agreed that when working virtually, they noticed a change in leadership. Table 2 provides an overview of the essential elements of change, which are indicated important to measure leadership effectiveness for the participants. Elements were listed if it was mentioned by more than four participants. L1 indicated that working remotely becomes less personal and communication is “only professional and not spontaneous”. All leaders indicated that they found it important to trust their employees. However, they have mentioned that their trust has decreased since working remotely.

Table 2 Change in elements of leadership effectiveness when working remote compared to FTF

	L1	**F1**	**F2**	**L2**	**F3**	**F4**	**L3**	**F5**	**F6**	**E1**
Accountability				↓	↓			↓	↓	↓
Control	↓	↓					↓	↓		
Coaching	↓			↓			↓			
Communication	↓		↓	↓	↓	↓	↓		↓	↓
Personal attention	↓		↓		↓	↓			↓	
Spontaneous	↓	↓	↓	↓	↓	↓	↓		↓	↓
Trust	↓	↓	↓		↓			↓		↓
Transparency		↓	↓				↓	↓		↓

All of the above-mentioned elements related to change in virtual leadership, compared to FTF leadership, were indicated with a negative or decreasing impact. Meaning that the majority of the participants agreed that when working virtually, leadership effectiveness decreases.

The following questions focused on effective virtual leadership and skills the participants found essential to practice effective virtual leadership and what barriers keep them from doing so. In the follower's view, the most important characteristics were adaptability, communication, fostering personal relationships with employees, support, transparency and trust, to focus on. All participants indicated that the most significant barrier was mainly about how to express yourself, team bonding, being less spontaneous, and the need to schedule a meeting and cross that threshold.

F2 stated, "I think it is important that a virtual leader is genuinely interested in their employees and more time is spent on how to connect with your team". Also, F4 mentioned, "I think virtual leaders should not be a wait and see because the barrier is high for employees to schedule an online meeting to discuss something personal". Another standard view expressed by the followers was their dislike of scheduling fixed progress meetings, but more personalised leadership was necessary for virtual leadership.

The last question focused on the support followers get and the type of information leaders have to support the followers properly. Again, the participants unanimously agreed that followers could be more supported regarding what is expected from them and related to the communication and barrier to scheduling online meetings. Also, leaders have indicated that more information could help with a better overview of what their employees were working on. L1 mentioned that because a lot is required for redesigning processes in a digital work environment, personal contact is lost and considered less important. So, leaders could find themselves in the fact that followers felt less supported when working online compared to in-office.

Questions related to RQ2: Collecting employee data and tracking and monitoring employees.

Responses to each sub-question provided data that answered RQ2 and indicated that not all types of workplace surveillance technology were useful and accepted and that under strict conditions, it could facilitate.

The sub-questions design was intended to provide data that suggested that elements such as followers' views towards change, transparency, generational, and trust impacted how they would perceive the technology. Also, participants indicated that not all additional information would add positive value to effective virtual leadership. Leaders were not confident about having much personal information, and activity tracking could result in micromanaging.

Many participants interviewed for this research demonstrated at least some acknowledgement of their organisation collecting employee data. However, this was not always reflected in their constructions or organisations' operations. Leaders mentioned their self-developed methods to track employee performance and behaviours with elements from different types of data collections.

Table 3 provides an overview of the current kind of information that is being collected per organisation/sector.

Table 3 Current employee data collection methods (sector-specific)

	Health Care Industry	**Consulting**	**Logistic**
Workload	X		X

Tracking Presence	X	X	X
Quality and Assurance	X	X	
Performance of Routine Work			X

Four primary employee data flows were established during the interviews; workload management, tracking presence, quality and assurance and routine work performance. Leaders indicated that they are not being supported by technology and that it is their responsibility to gather information and have an overview of how their team performs. Therefore, no standards are set on how to document or measure the data and have all organisations and leaders their way of measuring. Besides that, not all followers knew that their organisation was already collecting employee personal data. However, leaders confirmed that they have limited access to this type of information and stated that they do not act on the information and consist of manually collecting the data, which is an inefficient process.

When discussing the type of information leaders lack from their employee's, limited accessibility was not the problem. Still, it is time-consuming to get an overview from the team working remotely compared to working in-office. When asking the same question to followers, they indicated that the current type of information or result-based information would not impact how they work. However, they were resistant if other types of employee data were collected.

All participants agreed that there are to be conditioned before implementing workplace surveillance technology. Table 4 illustrates the elements and keywords participants mentioned during the interviews that can influence the perspective on workplace surveillance technology. For example, complexity of task dependency was found an important element influencing the perception of the participants. Namely. Participants found that the more complex task, the less potential workplace surveillance technology had in tracking the performance of the task. Another essential element was found power mechanism that has to do with how the leaders will act upon the information being gathered. If it will be used to attach consequences based on the output information, participants indicated that higher resistance in follower acceptance would arise.

Table 4 Elements and keywords that can influence perspective on workplace surveillance technology

	L1	**F1**	**F2**	**L2**	**F3**	**F4**	**L3**	**F5**	**F6**	**E1**
Accountability	X	X	X		X					X
Adaptability	X			X	X		X	X	X	X
Behavioural invisibility		X				X			X	
Change	X			X	X				X	X
Control	X	X					X	X		
Complexity			X	X	X	X	X		X	X
Empathic ability	X		X			X			X	
Generational			X	X	X			X	X	X

Power mechanism	X	X	X	X	X	X	X		X	X
Trust	X	X	X		X			X		X
Transparency	X	X	X		X		X	X		X

All participants were very united and could agree with specific conditions for the use of workplace surveillance technology. No distinction between the sectors is made, and individual importance has been addressed. One of the elements standing out was that almost all participants agreed that it should not be used as a power mechanism but only as information flow. No decisions should be made on the results, and transparency and control should be maintained. Another external factor mentioned by F1 is the level of employee responsibility. With this, he argues that he thinks that employees with lower responsibility levels are more prone to misusing trust and should be monitored more frequently.

Questions related to RQ3: Ethics, limitations and future potentials.

Responses to each sub-question provided data that answered RQ3 and showed that not all follower participants saw the potential, but the majority did. The fear of using workplace surveillance technology as a power mechanism or that the data would give an inaccurate representation of the employees was the main reason, they saw no value in using the technology.

Interestingly, all participants mentioned that there are no organisational ethics regarding collecting and protecting employee data. No standards or organisational policies were present on how to deal with personal employee data. A common concern was addressed and indicated that further research should also be performed on protecting employees regarding how leaders should deal with sensitive information. Other problems were based on a data overload, not validating the data with followers and providing no background context. For example, F3 mentioned that collecting employee data might shed light on specific behaviour forcing an employee to talk about it and that they might lose control over what they want to share or not. This emphasises the importance of company standards and procedures on how to leaders should act upon the information that is being gathered and how it is collected.

The participants saw the high potential for implementing workplace surveillance technology in future workplaces, mentioned under strict conditions. Two participants who saw lower potential in using workplace surveillance technology described their major concern as that the data would give an inaccurate representation and that company culture should be taken into account. F6 warned that “in a smaller organisation or team with elderly or more experienced followers”, implementing workplace surveillance technology would not add any value and that it is “not worth the investment”.

4.3. Linking Virtual Leadership with Surveillance Technology

The data collected from the ten participants during the interviews identified emerging themes relating to their respective experiences and views regarding virtual leadership and workplace surveillance technology. Following the information from the interviews, figure 2 presents a conceptual model expanding on the relations and conditions for using workplace surveillance technology.

The primary subtopics for this study focused on what type of information would support virtual leaders to become more effective? What opportunities might arise when collecting employee data? And under what conditions will leaders gain confidence and followers accept the technology? However, external factors and threats must be considered essential if workplace surveillance technology were to be used to support virtual leaders.

4.3.1. Types of information supporting virtual leaders

All leaders were asked which type of information from their employees they lacked when working remotely, and followers were asked what kind of information they thought would be helpful for their leaders to know. Remarkably, most participants did not see any added value in adding new information flows but only in improving the existing flows. Participants found it hard to imagine the impact of new types of emerging empathy or wellbeing tracking software. Therefore, this is currently not included in the conceptual model.

There was much resistance to using activity tracking technology or real-time monitoring, searching through browser history, making screenshots from desktops at specified time intervals or using their webcam technology. However, two followers, F1 and F5, did not have any resistance to being fully monitored. F5 answered, "Our work ethic is to give our best towards your work or routine assignments. If you are not doing anything wrong or if you are not doing anything purposely, it is fine to be tracked". The four potential types of employee data collection are; result-driving employee data, productivity tracking, workload and time tracking.

Result-driven employee data Participants found result-driven data the most valuable type of information to collect. F2 stated, "When looking at the results rather than how you got there, the data would give a better representation of how you perform". With this type of information, you could also set better standards or divide the workload more evenly when there is an overview of the work being completed. By sharing success and working towards goals, employee satisfaction can rise.

Productivity tracking With productivity labelling, monitoring and report features, an overview is presented on an analytics platform showing insights into habits and activities. Most

participants found it helpful to get more insights into their work behaviour and recognise trends. Followers did not find it useful only for leaders but also for their understanding of the data which is being collected. Providing employees access to their data can be an excellent opportunity to include them in figuring out ways to improve productivity. Also, perceived productivity and efficiency might affect employees' job satisfaction levels. F6 answered, "The feeling of having completed something meaningful and all the important tasks for the day makes me satisfied". F4 mentioned that insights could also help increase productivity by determining bottlenecks and constraints that keep you stuck.

Procrastination caused by a lack of motivation and accountability wastes organisations' time. When identifying the bottleneck, a manager could take action to make it clear why the team's work is important and by keeping employees accountable by setting deadlines for projects and tasks. However, F2 argues that productivity is not measured and combines many factors. One can be productive, but no direct results can be measured. Therefore, it is always context-specific.

Workload Planning and poor time management prevent performance. Therefore, leaders identified workload tracking software as applicable to assigning different time-consuming tasks and organising and prioritising the workload. L1 mentioned, "Sometimes I do not know who is busy with important tasks or whom I can assign another task to". Instead, using software to track employee productivity and see which projects and tasks the employees are currently working on without having to message them and interrupt their workflow.

Time tracking For irregular shifts and when working with schedules, an overview of monitoring time and attendance was useful. L2 also stated that it could help keep projects or assignments on track.

4.3.2. Leadership opportunities collecting employee data

The six most important advantages of using workplace surveillance technology for virtual leaders were identified. Eight of the ten participants generally saw the potential and opportunity of workplace surveillance technology. The most important themes were; steering on data-driven results, better overview, time-saving, knowledge sharing, team development and trend analysis.

Steering on data-driven results The first opportunity is building on data-driven information. L1 answered, "I do not want to judge someone on a gut feeling. I really think that I should be able to substantiate my opinion, and currently, that is a lot of manual actions because I have to track insight manually". Instead of doing things on intuition, insight in employee data can make decisions based on verified data. Three followers also mentioned that the subjectivity of leaders is, therefore, less presented and more based on facts.

Better overview Relating to the previous quote, all leaders mentioned the lack of overview and insights. F4 agreed that when having a better overview, no information is mixed up or forgotten, and all employees could be held accountable for their work.

Time savings All leaders saw additional value-added in freeing time when using workplace surveillance technology. L3 stated, "Having ready-made reports about your employees' tasks and productivity saves much valuable time you can spend on other things, like improving the whole company's performance". However, F2 said, "I think using workplace surveillance technology takes up space in your employee that cannot be spent on more productive things". It has the opposite result for employees when implementing tracking systems because employees will try to spend time on what kind of image they present.

Knowledge sharing A significant barrier noted by all participants when working remotely is the communication between leaders and followers. F5 mentioned the positive contribution of surveillance technology: "If we synchronise ourselves with the technology, we will have more knowledge about everything, it is always good using the upgraded technology" … "If we can share the knowledge, we can have more confidence in between discussion, and it will improve everything in between assignments and or any task".

Team development Collecting employee data can serve as the basis for fair employee or team evaluations. Using these insights to provide feedback on how they can improve as a team or individually their performance and come up with targeted areas for improvement were found important by the participants. F5 stated, "We never know the perceptions of managers in which we try to find out in which things I have to improve myself and in which process I have to elaborate in detail." And F2: "If you really get some personal feedback, based on facts, I think that is more valuable to someone." Also, it could be helpful for leaders to offer additional training or support when looking at the data.

Trend analysis Relating to the better overview workplace surveillance technology might provide, a more granular view of daily productivity, how it changes over time, and what affects it is also presented. All leaders agreed it would be valuable to understand employee and team trends.

4.3.3. Conditions of leadership confidence and follower acceptance

Four conditions have been identified from the interviews regarding the gain in the confidence of virtual leaders to use workplace surveillance technology and the follower's technology acceptance; transparency and control, no personal information, only task-dependent, only as support, not as a power mechanism and for positive and constructive feedback.

Transparency and control An important condition for follower acceptance was the transparency regarding the type of information being collected. Leaders were uncomfortable when not communicating to their employees what information was being collected and with what intentions. Also, controlling their data was seen as an essential condition for some followers. This relates to the previously mentioned to allow employees access to their productivity tracking. F2 also found it important that it can withdraw data from it and that the control lies with the employees, whether or not the organisation is allowed to collect employee data from them.

No personal information, only task-dependent Some followers have expressed their concern that personal information will become available, which they do not share. Therefore, F1 mentioned that there should be clear boundaries between personal information and work-related and task-dependent data.

Only as support, not as a power mechanism The most important condition for which followers fear is that workplace surveillance technology will be used as a power mechanism. Followers see the potential of workplace surveillance technology as a supporting mechanism, helping virtual leaders become more effective. However, they do not want to put any consequences based on only the data collected. The collection of data or the use of data that empowers leaders to cause a behavioural change in the subjects of supervision is enough to create a power imbalance.

Positive and constructive feedback Relating to team development, followers see the benefits of receiving constructive feedback. However, F6 stated that she would not accept feedback based on only data; therefore, the discussion still needs to be open. To accept workplace surveillance technology, F4 mentioned that it would help if the information is used for positive feedback instead of negative feedback.

4.3.4. External Factors

Nine of the ten participants have indicated the importance that not for all organisations, positions or tasks workplace surveillance technology could represent the work performed. Based on the interviews, some external factors were found important to consider when considering using workplace surveillance technology as a supporting mechanism for virtual leadership. Four external factors were identified; sector depending, task complexity, team composition and company culture.

Sector depending The interviews were conducted within three different sectors; health care industry, consulting and logistics. L2 stated that the technology used is sector and task-specific. He mentioned that GPS tracking for a consultant is not essential. However, he saw the opportunity in the logistics sector. Also, L1 stated the importance of recording the telephone

conversation for call centres or the service industry, but also for his employees to ensure the standards and quality of the call they administrate.

Nature of task complexity The nature of task complexity is the degree to which there is a need to integrate complicated interactions among different aspects of a task. E1 mentioned that it could be challenging for leaders to understand their employees' actions. This may relate to the specialised work that one or a few employees perform, or it might be sector-specific, as mentioned before. F3 said it could also be hard to measure the indirect results, such as improving client contact. He noted, "The consulting industry is mainly focused on building a social connection with the client, which is very difficult to quantify". Also, F5 indicated that he thinks it is related to our routine work.

Team composition Another aspect which can influence the adoption of workplace surveillance technology was identified as the team composition or team size. For example, L1 leads a large team and has indicated that a small amount of employee data collection could help a more efficient virtual leadership style. For L2 and L3, the impact of virtual leadership change might be smaller than for L1. Also, a common theme among participants centred on generational change, which was considered an essential concept that leaders must understand and believe that not for all generations the implementation of workplace surveillance technology would be accepted and can therefore be team composition depending.

Company culture The shared ethics and behaviour or how things get done can be referred to as company culture. F6 was resistant and against using workplace surveillance technology even if it would lead to more effective leadership or higher productivity. Her main argument was the importance of company culture, adaptability and generational factors.

4.3.5. Threats

Besides the external factors, the participants have indicated threats to workplace surveillance technology. Six important threats were commonly understood to use workplace surveillance technology ethically: sensitive data and protection, trust, micromanaging, data overload, not validating the data and no background context.

Sensitive data and protection Collecting personal data is a sensitive topic. However, based on the interviews, none of the organisations has currently an extensive code of conduct on how to proceed with this type of information. L1 mentioned that he feels uncomfortable with lots of personal data because he is unaware of how to proceed with this type of information. Also, F2 has found it confrontational that there are no organisational standards or procedures for protecting employee data and suggests that an organisation should establish these before further implementing them.

Trust Different aspects of trust were mentioned during the interviews. F3 said, "Ultimately, you have a relationship with your employer in which you have to do work. Therefore, you should be trusted that you are doing the best as you can". However, F4 mentioned putting more trust in the leader's instinct and not about trusting the employees: "I think we should trust the leader's instincts and should be more confident in his qualities". And also, F6 said: "Everyone has to be grateful for the freedom to work, and that is why we are not misusing it and trust each other". All aspects should be considered a threat as they could harm the leader-follower relationship.

Micromanaging Micromanaging occurs when managers closely observe and control or remind their subordinates or employees of the work. E1 warns that micromanagement is generally considered to have a negative connotation, mainly because it shows a lack of freedom and trust in the workplace.

Data overload Leading a team and having access to different types of employee data can quickly become data overload or information overload. L3 wants to make sure that only employee data is being collected that adds any additional value. The starting point of collecting employee data should be to make the decision-making process more efficiently; instead, data overload and when has too much information could make it challenging to make effective decisions.

Not validating the data Another threat has been found in fear of not validating the data. F4 stated that she is afraid that when leaders receive too much data and information, they will rely on the data and not find time to check if all the data provides an accurate representation. Followers found it important that the information being collected and the digital footprint being created are confirmed and validated by them. This is to prevent an incorrect representation of the employee's work behaviour.

No background context Relating to the threat of not validating the data, background information may be missing. The condition set for not collecting any personal information might hinder this. Still, all followers agreed that they would rather have a private conversation physically or otherwise virtually when a situation comes across instead of having a technology alert their leader upfront.

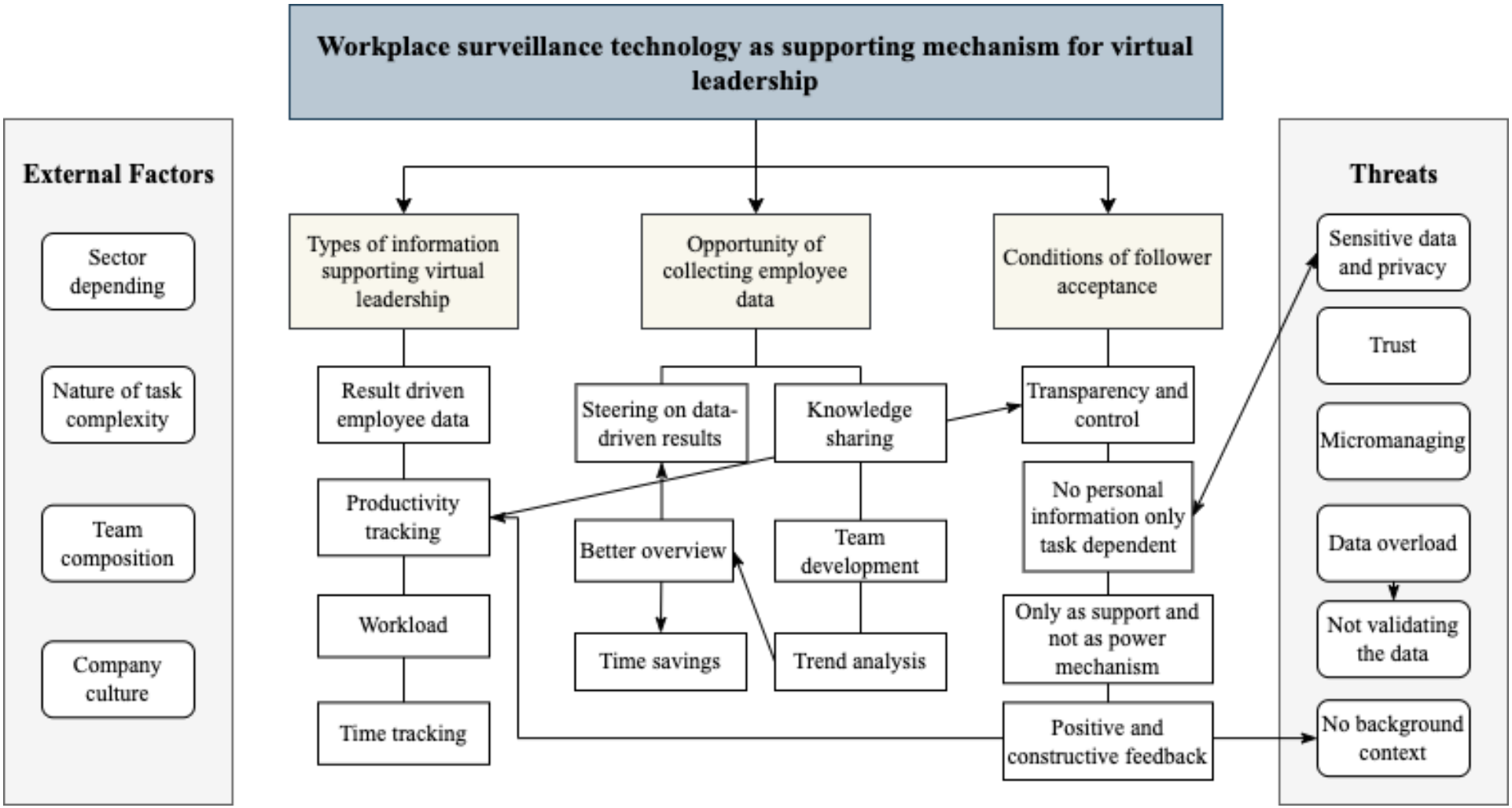

Figure 2 Conceptual model for virtual leadership and workplace surveillance technology

4.4. Future Potential

Figure 2 presents the constructs that influence the use of workplace surveillance technology for virtual leaders to answer the main research questions: “How can workplace surveillance technology support virtual leadership in the new normal era?”. Based on the findings figure 3 shows how virtual leadership can be effective through the use of workplace surveillance technology.

Participants have indicated that virtual leadership's effectiveness is a concept that needs further interpretation and definition. The most significant opportunities for using workplace surveillance technology to support virtual leaders were that it allows virtual leaders to steer on result-driven information, provides a better overview, is less time-consuming and offers the employee the chance to get more personal feedback. Participants indicated that this could result in more effective virtual leadership. However, that still depends on how virtual leaders interpret the information being gathered. It is seen as effective if the information is used to analyse trends and provide constructive feedback that results in personal-based leadership.

It is essential that not all types of information were found useful to collect, such as browser history, personal information or computer logs. Therefore, it is crucial to determine which information is likely to gather by considering the follower's conditions relating to how the data is being managed and acted upon. The use of workplace surveillance technology did not have any negative influence on employee performance; only it was found vital that it should not deal as a power mechanism as this could result in resistance and negatively affect the follower’s acceptance. For that reason, to use workplace surveillance technology to support virtual leaders, the most important constructs influencing the potential are how virtual leaders manage the data and what data is being collected. This figure finally shows how virtual leadership can be effective and lead to followers' acceptance.

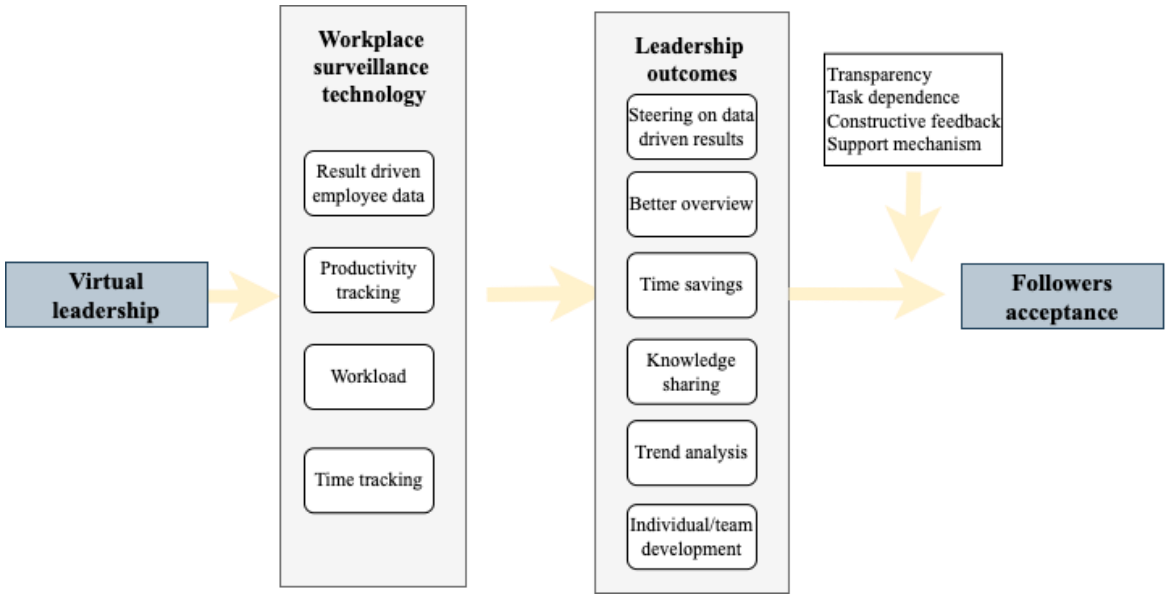

Figure 3 Effective virtual leadership through workplace surveillance technology

5. DISCUSSION

This study's qualitative research approach utilised a semi-structured interview format. The results of this study have provided new insights into the literature regarding the use of workplace surveillance technology for virtual leadership.

The conceptual model presented in the previous chapter is a point of departure, not a finished product, and establishes a conceptual foundation for the dimensions. The next step is to evaluate and interpret the propositions in light of results from similar previous studies, theories or concepts from the literature. More specifically, the propositions addressing the distinguishing characteristics for different forms of virtual teams, sectors, and the constraining influence of task complexity, are most relevant to elaborating understanding of workplace surveillance technology and have the most salient implications for virtual leaders.

One of the first interesting findings was that the current outcomes of the data propose that all virtual leaders are practising some non-traditional leadership style. They described themselves as coaching and managing self-steering teams. However, participants confirmed that when working remote, virtual leadership is currently practised less effective than traditional or FTF leadership. This might result from the limited range of leadership experience and training the leaders have, but also, based on the literature and future challenges for leaders, it is expected that the diversity of leadership styles will continuously grow. Also, data collection from participants was based on their perspectives and practices without any quantitative research or statistical data to support the findings. Therefore, this could not be argued as the most effective virtual leadership style.

The extensive literature on virtual leadership has been tried to understand and translated from practice. No distinction between virtual leadership styles could be determined between the different sectors. Two of the leaders work in hybrid forms, and the other leader manages his team fully remote. They indicated that the barrier to interacting more frequently with those close to them is less than with those who are farther away and that this sometimes results in a lack of leadership directions. This was argued as the most critical challenge for future virtual leaders. To overcome this barrier, practical examples of virtual leaders were to schedule frequent recurring meetings. However, followers found this was not the most personal and convenient way and indicated a lack of personal attention. It was found in the literature when Carsten et al. (2007) examined how individuals hold divergent social constructions of followership. Their research seems to coalesce around different levels of passivity or proactivity, which followers believe could lead to effectiveness in their role and for which different leadership styles are required.

The research revealed a surprising finding related to the conceptual model, as shown in figure 2. All participants had expressed an understanding and, in some form, working knowledge of the relationships defined in the model. Participants stated their views on the opportunities and belief

that a broad range of attributes are necessary for virtual leaders to adopt workplace surveillance technology successfully. These participants appeared to have embraced an apparent common viewpoint and practice, as Sarpong and Rees (2014) suggested, evident that monitoring could serve as a helpful instrumental control for employee development. Interestingly, participants did not see any additional value to adding more data flows than is currently assessable in some sort. For example, implementing data flows such as activity tracking, technologies reading along with business e-mails or other communication flows, and technologies to track physical well-being were not found interesting, as software companies have argued the benefits regarding this type of technology as necessary (Hubstaff, 2022).

The data produced from the interviews exceeded anticipated expectations for this study. The premise for this study was that today's remote workers acknowledged the need for change and suggested that some forms of workplace surveillance technology could contribute to improving the digital work environment. At the beginning of the research, there was assumed that the opinions of leaders and followers might differ regarding the subject of this research. Although, Belcourt et al. (2008) stated that an employer's perception might clash with the employee's perspective about how constant surveillance can impact the productivity of expanding interest due to the nature of different motives. However, no direct links could be found to support this theory, and the research found that the opinions of leaders and followers did not differ regarding the motives and conditions. Only the general assumption that the design of workplace surveillance technology is sector-specific could be made. One common design of workplace monitoring technology is not very likely given the vast differences between work environments. Still, the moral value could not be distinguished between sectors, functions, leaders or followers.

Throughout the interviews, there was a complicated relationship between privacy, generation and trust. Boerman et al. (2018) showed that age and gender do not seem to predict protective behaviour, unlike prior research. Other studies suggested that education plays a role and that most people with lower education levels are less likely to be familiar with the measures they can take to protect their online privacy, resulting in less protective behaviour. However, this research indicates that the collection of data or the use of data empowers leaders to cause a behavioural change in the subjects of supervision enough to create a power imbalance and is therefore determined as an important threat to take into account.

In light of the results from the previous study, some of the literature findings are not being recognised. For example, the fear of exile Hafermalz (2021) argues was not recognised by the followers. Accountability was found to be a less important factor of what benefits workplace surveillance technology could bring. Also, Leonardi and Treem (2020) found that followers could leave a purposeful pattern when knowing they would be monitored. Only F1 has mentioned something about intentional behaviour and followers circumventing the technology. Also, this has not been identified as a common threat to using the technology as a supporting mechanism.

Participants were selected from various industries to solicit data from a broad base of professionals not restricted to one speciality and produced two unexpected findings. No previous studies have been conducted about the practical conditions of which sectors, positions or organisations are better suitable for using workplace surveillance technology. However, Bell and Kozlowski (2002) discuss the constraining role of task complexity on the interdependence of virtual team workflows. Both results align with the importance of customisation. However, no direct support could be found for the outcome. Also, direct questions about budgets and generational or millennials were not asked; however, some participants introduced these two categories as important. For example, the expert interview identified budget limitations hindering technology effectiveness and leadership efficiency. This different view was not proposed by the other participants and has included a more realistic view.

Another common ground supporting the findings of Katzell (1987) is the influence of indirect motives to improve employee morale by providing positive feedback on performance and treating employees fairly. No distinction could be made between leaders and followers regarding their belief in the art of using workplace surveillance technology as a data source for influencing employees with direct rather than indirect motives and not as a powerful tool or power mechanism.

The conceptual model describes the relationship between the variables and why it is expected that this relation exists. The conceptual model for this research analyses the effect of technology on the relationship between virtual leadership. Different threats have been defined that can influence the relationship between virtual leadership and workplace surveillance technology and the strength or direction of the relationship. The focus lies on external factors, such as; sector depending, nature of task complexity, team composition and company culture as moderators of virtual leadership structure and process. In effect, these factors constrain the design characteristics of using workplace surveillance technology and therefore influence the leadership functions that will be critical for the team's effectiveness.

6. RECOMMENDATIONS

Based on the outcomes of the interview findings and discussion shows the potential practical relevance of this research and refers that it is argued that workplace surveillance technology could contribute to effective virtual leadership until a certain point. The participants indicated that they saw some potential in using workplace surveillance technology for virtual leaders under certain conditions. Therefore, it is recommended to consider the threat that there is not a standard design of workplace surveillance technology and the potential of this technology is context-specific.

When working virtually, leaders cannot use all their senses and possibilities to understand the followers compared to FTF leadership. One of the barriers indicated by the participants when working remotely is that virtual leadership lacks personal attention. Empathy, which helps us to understand other people and their messages, is made difficult in digital forms of communication. Therefore, regardless of the use of workplace surveillance technology, it is recommended for virtual leaders always to communicate empathically and contextually and not to rely on surveillance data solely. The research data has also suggested that external factors and threats could influence the added value of the additional data the workplace surveillance technology would provide, which is another substantiation to developing virtual leadership style further independently as well.

Regarding using workplace surveillance technology to support virtual leadership, it is recommended that all external factors and threats defined during the interviews be considered before implementing such technology. Hereby it is recommended that based on the findings from the participants, transparency and control of what data is being collected should be maintained, and organisational standards and policies should be determined and communicated before implementation. However, it is essential first to consult the company culture, employee morale, and relationship between the leaders and followers to understand if the technology could add any value. Initial implementation should also be investigated clearly so as not to collect an overload of employee data. It is also recommended that before investing in workplace surveillance technology, all the remote work processes are clearly defined and structured.

7. LIMITATIONS

Virtual leadership can be hard to study because opportunities to observe unretouched leadership actions are rare and hard to measure, and organisational structures become increasingly complex. Therefore, several research limitations and future research opportunities can be identified for this study.

7.1. Research Limitations

In research, results should be reliable, replicable and verifiable in all stages, and the limitations should be addressed. The most crucial issue posed by the methodology is that only one author conducted the interviews, which is time-consuming and usually requires a large sample size. However, this large-scale research becomes impossible due to the lack of resources. Therefore, the relatively low sample size could be a limitation for the research. Also, the study's replicability and the possibility to replicate the study in a different setting are limited due to the anonymous presence of the participants and the immense diversity in positions and responsibilities.

Another limitation of the study was that it was conducted with a limited number of participants with specific selection criteria and focused solely on three specific sectors in The Netherlands. Therefore, the broad focus means relationships and larger contexts can be missed to generalise the data. The limited research and experience with workplace surveillance technology in The Netherlands have made it difficult to investigate the actual impact on virtual leadership.

The methodology uses content analysis, an unobtrusive technique that can introduce errors into the data that are analysed through the participant's awareness of being observed, lack of experience, preferences or through the interaction with the interviewer. There was an expectation of honesty by the participants, and it was assumed that they had the expertise to provide accurate answers with rational explanations for their choices and their respective virtual leadership styles practised. Also, the inability to control the environment and responses depends on a particular time. In addition, the lack of experience with workplace surveillance technology can only outline a hypothetical or subjective reality, and the interpretation can stand for a more or less theoretical understanding of the deep meaning of the context.

During the selection process of participants, there were barriers to accessing the participants, such as scheduling conflicts, accessibility or being unsuitable to participate. Also, choosing to use non-probability sampling has a higher risk of sampling bias when some population participants are systematically more likely to be selected in a sample than others. In addition to participants' barriers, educational barriers included approval of the research data collection method.

7.2. Future Research

Based on the results of this study, it is recommended that further research should be conducted. This research was exploratory; therefore, future research should focus on more in-depth variables regarding the implementation and operationalisability of workplace surveillance technology. Other studies may explore the most effective leadership styles, traits, and behaviours required to monitor employee performance using workplace surveillance technology in organisations and include a more specific unit of analysis rather than the current use of a large diversity in positions and responsibilities.

Future research should explore operational and practical issues surrounding workplace surveillance technology in virtual work environments. Another significant issue that can be explored in future studies is the cost associated with implementing workplace surveillance technology to monitor employee performance and investigate the best way to measure employee performance. Leaders and organisations may also need to be aware of what kind of workplace surveillance technology can be the most relevant to projects in small, medium, and large organisations.

Additional research, but limited to virtual leaders, also needs to be conducted to identify barriers to widespread adoption and determine whether leaders' demographics may impact effectiveness concerning workplace surveillance technology—for example, fear or resistance to change or other reasons that may hinder adoption. More quantitative studies should be realised on virtual leadership and outcomes in cultures that are underrepresented in the literature, such as Muslim cultures, and how shared leadership evolves and develops should be a focus in face-to-face and virtual environments. The defined external factors, such as sectors, positions, organisational culture and team compositions, might have different implications that can influence the data results. Future research should be suggested to explore the additional impact of these factors.

8. CONCLUSION

This qualitative study aimed to explore how leaders have transitioned from traditional leadership styles to new virtual leadership practices and if the use of workplace surveillance technology can support them. The methodology consisted of ten in-depth interviews with leaders and followers from the same organisation within three different sectors. Interviews were conducted utilising a semi-structured interview format. They produced data based on the lived experiences of virtual leadership and participants' view on workplace surveillance technology relating to if virtual leaders could become more effective by the implementation.

The results of this study would indicate that virtual leaders across multiple industries and specialisations have recognised a problem with changing environments and have taken it upon themselves to adopt a combination of their self-developed methods to track employee performance and behaviours with elements from different types of data collections. Participants viewed current virtual leadership as lacking personal attention, and based on participant responses; the results suggested that workplace surveillance technology is considered to offer potential. Consequently, it is necessary to consider all moderating factors, such as task characteristics, to disentangle the complex influence virtuality has on team communication and its relationship with relevant team outcomes.

During the interviews, it was evident that all participants shared a common view regarding the potential that workplace surveillance technology could contribute in a positive way to virtual leadership. Therefore, followers' acceptance of workplace surveillance technology depends on the following factors; transparency on data collection, clarification of data usage for system security or as a power mechanism, the avenues available for employee privacy concerns to be heard and data used to improve the personal attention to provide positive and constructive feedback. The study results would also indicate that external factors, such as sector, position, company culture and team composition, impact the added value of using workplace surveillance technology. Six threats were identified for virtual leaders to consider when using workplace surveillance technology. Most importantly, consistency in accounting for all of these factors is integral to moving beyond the discrepancies that have plagued prior findings. In doing so, organisations may be provided with a more precise idea regarding how to foster effective leadership and performance in highly virtual teams, given their functioning circumstances.

This research contributes to the literature on virtual leadership and workplace surveillance technology, an area that has not been widely studied. Based on the results of this study, it is recommended that further research should be conducted. A broader range of research participants should be interviewed to determine if it would produce similar results that suggest all leaders are non-traditional. Also, a large sample should be performed within the sector and positions to generalise the results. Additional research should be conducted to evaluate how widespread

workplace surveillance technology has a different impact and if generation and other demographics play a role. In conclusion, it is hoped that this research will be a starting point for further study and discussion. Although there is a division between the types of organisations and sectors interviewed, these results can find common ground in using workplace surveillance technology, contributing to improving individual virtual leadership styles.

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APPENDICE LIST

Appendix A – Semi-structured Interview Guide

Intro: Hello ___, I would like to thank you for participating in this interview. This interview is designed to collect information based on your background, experiences, how you lead or how your organisation is led, and your views about collecting employee data and whether this can change or influence how virtual leadership is being practised today.

Demographic Questions

Participant ID#_____ Date:_____

1. Gender:
2. Age:
3. Years of experience:
4. Current position in an organisation:
5. Industry or career fields:

During the interview, I will use the term "virtual leadership." For this interview, virtual leadership refers to a leadership paradigm that requires managers to achieve leadership objectives in a digitally-driven work environment and is mainly about the need to lead geographically dispersed teams. The term technology refers to surveillance technology used to monitor employees by methods such as activity tracking, work computer usage, and employee e-mails or internal communications/chat and browser history.

Participant Background Questions Leaders/Followers

1. Could you describe your professional career?
2. What is your current position, and how long have you worked for this organisation?
    a. Briefly review the (leadership) positions you are in and how many subordinates/follow workers you have.
3. How did the COVID-19 pandemic change the way you work?
4. Is it possible within your organisation to work remote, and if so, how often do you and your subordinates/follow workers work remotely?
5. Can you provide what you feel are the most critical differences between leading/working remotely?

Questions related to RQ1: Virtual leadership, how it is being practised, changes, support, employee's behaviour/performance.

Leaders

1. What leadership style do you prefer, or what combination of leadership styles do you practice?
    a. Does your leadership approach change when working remote or digitally? And does this influence your subordinates?
2. Can you describe in one sentence what makes you an effective virtual leader today, including characteristics and why?
3. Are there barriers preventing or making it difficult to be effective and the best virtual leader you can be when working remotely?
4. How do you keep track of your employees and ensure they feel involved when working remotely?
5. Do you think you, as a virtual leader, have enough information about your subordinates to mentor and coach their teams?

Followers

1. What leadership style or combination of leadership styles is being practised within your organisation?
    a. Does the leadership approach change when working remote or digitally? And does this influence your performance?
2. Can you describe what makes you an effective virtual leader today and what skills a virtual leader should have?
3. Are there barriers that prevent or make it challenging to be effective when working remotely?
4. How is working remotely vs physically affecting your motivation, engagement, etc..…, performance, and how?
5. Do you think you could be supported more when working remotely, and how?

Questions related to RQ2: Collecting employee data and tracking and monitoring employees.

Leaders

1. Does your organisation collect any personal data from employees to track and monitor their behaviour or performance? If so, what data are you collecting and why?
    a. Are your subordinates aware that they are being observed, and what changes arise when they become aware?
2. What data do you wish to acquire or think can help execute an effective virtual leadership style?
3. Under what conditions do you become confident that access to different sorts of employee data is an accurate representation of employee behaviour?
4. Could access to employee data influence how you lead or are required to lead?

Followers

1. Does your organisation collect personal data from you or your fellow workers to track and monitor your behaviour or performance? If so, what data are they collecting and why?
    a. What do you think about your organisation's collecting employee data?
    b. Are you aware that this information is collected? If so, why has this changed your behaviour and in what way?
2. Does being aware of the data that is being collected help you to be more effective/or does it have a negative impact on your work performance?
3. Under what conditions do you become confident that your data is being assessed correctly and accurately represents your behaviour?
4. Do you think access to your data can help leaders manage more effectively?

Questions related to RQ3: Ethics, limitations and future.

Leaders

1. What are your organisation's ethics of granting access to employee data, and what limitations does it have?
2. What are your views regarding the future of how surveillance technology and access to employee data should be approached?
3. In the future, do you see the potential of using surveillance technology as a management tool?

Follower

1. Are you aware of your organisation's ethics of granting access to employee data, and what limitations does it have?
2. What are the limitations of using surveillance technology in the workplace?
3. In the future, do you see the potential of using surveillance technology as a management tool?

Closing Questions:

1. Is there anything else you would like to add that is important to the topic of virtual leadership and surveillance technology, including any recommendations concerning what future virtual leaders should embrace?
2. Anything else you would like to add?

Thank you for participating, and once I have a transcript of the interview completed, I will forward it to you for your review.

Appendix B – Participant Invitation

Subject line: Participant Invitation for Research

Dear XXX,

My name is Flore Tadema. I am a graduate Master's student in Management of Technology at the Delft University of Technology. I am researching to explore the phenomenon of virtual leadership and the contribution of surveillance technology in an ethical way.

I anticipate a 30–40 minute interview with all participants. The meetings will be conducted using Teams or another video conferencing technology. You may participate in this study if you have led a team or worked remotely during the past year and have experience working in a digital environment. You should be able to have an opinion about your virtual leadership style or how you were managed while working remotely.

What you say will be recorded and transcribed. If you do not wish to be recorded, you will not be eligible to participate in this study. Everything you say will be confidential. The transcriptions will be coded so that your personal information will not show up in the study. I will keep the recording and all the raw data locked up. I will destroy it after the completion of the project.

If you would like to review the transcript of your interview, please let me know at the interview, and I will be happy to give you a copy. I will let you know when it is ready and will send you a copy, by registered mail, for review. You will receive it within two business days. You will be asked to give your feedback within five business days of my sending it to you. You may send your feedback to me by e-mail if you like. You may also return it to me by registered mail.

Please respond to this e-mail if you are interested in participating in this study.

Kind Regards,
Flore Tadema

Appendix C – Informed Consent

Date: XXX

To: XXX

My name is Flore Tadema. I am a graduate Master's student in Management of Technology at the Delft University of Technology. I am researching virtual leadership practices utilised by leaders and followers working remotely. I am completing this research as part of my Master's degree and would like to invite you to participate.

Activities:

If you participate in this research, you will be asked to:

1. Participate in a 30–40 minute interview that will be conducted by video chat technology.
2. After the interview has been transcribed, you will have the opportunity to review a transcript of your interview for your approval or edits.

Eligibility:

You are eligible to participate in this research if you:

1. Have experience working in a digital or virtual team environment in the past year.
2. You should be able to have an opinion about your virtual leadership style or how you were managed while working remotely.
3. Leaders must fulfil a position as a Middle Manager (MM) or First-Line Supervisor (FSL).
4. Participants do not need to work for an organisation that currently collects employee data, but participants must be able to understand workplace surveillance technology and form an opinion about it.

Risks:

This study has minimal risks, including the risk of identifying personal data (only e-mail addresses and names used for contacting respondents for participation). Personal data is only kept at TU Delft OneDrive and will be deleted after completing the graduation project. Other possible risks include psychological or emotional harm due to rehashing old or suppressed memories. You have the option to stop your participation at any time.

Benefits:

If you decide to participate, there are no direct benefits to you. There is no financial compensation or personal gain for participation in this study, and no incentives are offered. The results of the study are for academic and research purposes only. The results may contribute to virtual leadership theory's existing or future development.

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps to keep your identity confidential are: I will use a number to identify you and keep your name and company name separate from your answers. Only anonymous quotes will be used in the final thesis report.

The people who will access your information are my graduate committee and me. The Human Research Ethics Committee (HREC) may also review my research and view your information.

I will secure your information in password-protected computer files and on the TU Delft OneDrive. I will keep your data until the graduation research has been completed. Then, I will delete electronic data and destroy paper data.

Contact Information:

If you have questions for me, you can contact me at: F.M.Tadema@student.tudelft.nl. You can also contact me on my cell phone at +31 6 46 311800. My graduation advisor's name is Dr Nikos Pachos-Fokialis. He works at the Delft University of Technology and is supervising me on the research. You can contact him at: N.Pachos-Fokialis@tudelft.nl.

If you have questions about your rights in the research, if a problem has occurred, or if you are injured during your participation, please contact the Human Research Ethics Committee (HREC) at: hrec@tuDelft.nl.

Voluntary Participation:

Your participation is voluntary. If you decide not to participate or stop participating after you start, there will be no penalty for you. You will not lose any benefit to which you are otherwise entitled.

Audio and Video Recording:

I want to use an audio/video recorder to record your responses. The audio/video recordings will be used to complete the interview transcripts. The audio/video recordings will be secured by password-protected files in the internal TU Delft OneDrive.

You cannot participate if you do not wish to be recorded.
Please sign here if I can record you: _____

Signature:

A signature indicates your understanding of this consent form. You will be given a copy of the form for your information.

Participant Signature	Printed Name	Date
_____	_____	_____
Researcher Signature	Printed Name	Date
_____	_____	_____