SHAPING THE PSYCHOLOGICAL CONTRACT: EXAMINING THE INFLUENCE OF TECHNOLOGY ON LEADER-FOLLOWER RELATIONSHIPS

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1. INTRODUCTION

1.1 SITUATION AND COMPLICATION

Within the employment relationship between a leader and a follower, the conventional psychological contract (PC) has historically revolved around mutual expectations, trust, and reciprocal obligations. This contract delineates what followers perceive they owe to their leader and what they expect in return (McDermott et al., 2013). It is rooted in an individual's belief in the reciprocal nature of their actions, articulated by Rousseau (1989, p.123) as "an individual's belief regarding the terms and conditions of a reciprocal exchange agreement between that individual and another party". Complementing the formal, written contract, the PC functions as an implicit and informal agreement, filling in the gaps unaddressed by explicit contractual terms (Anderson & Schalk, 1998).

The advent of the fourth industrial revolution, propelled by AI and smart technologies, is reshaping workplace dynamics (Dhanpat, 2021). These significant changes in the workplace consist of new ways of work, new forms of employment, different work schedules, data analytics, and automation, which is why the terms and conditions of the PC should be studied within this space, as they pose challenges to the upholding of the traditional PC. People working remotely or through digital environments may experience greater divergence in PC perceptions between a leader and a follower, as workers no longer have social ties to provide them with PC insights (Kraak et al., 2024). These shifts impact how tasks are executed, for example by technology, humans, or a blend, and consequently alter followers' perceptions of their employment relationships (Bankins & Formosa, 2021; Chaudhry & Tekleab, 2013). At the same time, the traditional PC involves an agreement between the follower and a human leader, evolving technologies in the workplace might blur responsibilities regarding the mutual obligation of the PC, as changes in the employment relationship impact the content of the PC (Anderson & Schalk, 1998; Schafheitle et al., 2021). The theories we rely on to understand the employment relationship have been developed in a different era and do not apprehend how individuals work and experience this in the current industrial revolution (Costa, 2021).

The increased integration of advanced technologies, such as artificial intelligence, signifies a shift in these technologies' roles from mere tools to active partners, potentially impacting followers' trust in this two-leader scenario (Bankins & Formosa, 2020). Weibel et al. (2023) suggest that this datafication of followers can lead to unexpected situations highlighting follower vulnerability, and intensifying reliance on systematic trust processing. The evolution of algorithms and automated systems in organisations and managerial functions raises concerns regarding reduced transparency and empathetic judgment associated with human managerial decisions (Zerilli et al., 2019). The integration of technological interventions might diverge leaders and followers from mutual and personalised understanding, individual context, and ethical considerations, potentially impacting follower trust, morale, and sense of belonging within the workplace (Bankins & Formosa, 2021). These emerging workplace technologies are shaping followers' work experiences and the technology-specific

components of the PC with their leader, which will increasingly happen in the future (Bankins & Formosa, 2021).

Research shows that technology complicates effective leadership, as technology-mediated ways alter how stable expectations can be built (Schafheitle et al., 2021). It might as well change power dynamics and dependencies, given that technological involvement might blur responsibilities and accountabilities. Hence, leaders and followers will likely expect an informal contract bound by shared values and to show integrity. However, PC studies largely ignore the changes in where, when, how, and why work is conducted, and their impact on the PC in today's working environment (Griep et al., 2019). Despite the limited scope of contemporary literature in comprehensively examining the ramifications of technologies in the workplace, this study endeavours to explore how human leaders can maintain mutual obligations within the PC amidst the influence of technology in this relationship.

1.2   RESEARCH GOAL, QUESTION AND SCOPE OF THE STUDY

In the realm of leader-follower relationships, scholarly investigations have predominantly focused on elucidating the PC from the perspectives of leaders and followers, with limited attention directed towards comprehending the maintenance of the PC in the context of technological alterations (Henderson et al., 2008; Sonnenberg et al., 2011; Suazo & Turnley, 2010). Consequently, this study endeavours to unravel the influence of technology on the relationship between a leader and a follower, particularly concerning the PC. The study aims to deduce how human leaders navigate the preservation of the PC while integrating technologies in the workplace. Thus, the research spotlight specifically centres on the interpersonal bonds between a human leader and their followers amidst the utilisation of technology-driven tools. The overarching research inquiry guiding this study is:

> "How does technology impact the uphold of the PC between leaders and followers from the leader's perspective?"

Subsequently, this study aspires to elucidate leadership strategies facilitating the upholding of the PC amid the increased integration of technology within workplaces and managerial functions. By addressing this research query, this paper seeks to provide comprehensive insights into the ways leaders can navigate the implementation of technology while ensuring the maintenance of the reciprocal balance of the PC.

The scope of this qualitative study delves into the immersive integration of (smart) technology and analytics solutions within workplaces, specifically examining a globally operating, high-tech market leader and pioneering frontrunner in their industry. Technological advancements, through the advent of the fourth industrial revolution, have brought a myriad of challenges to the conventional dynamics of the PC between leaders and followers within this organisation. Therefore, they serve as the backdrop for exploring how the infusion of technology impacts the traditional PC. The study aims to unravel the intricate interplay between the pervasive use of technology, data analytics, and the expectations, perceptions, and commitments inherent in the PC. By delving into the experiences, attitudes, and perspectives of leaders within this organisation, this study seeks to elucidate how the evolving technological landscape influences the mutual beliefs, obligations, and trust between the leaders and followers within

the organisation. The findings aspire to shed light on the challenges posed by technological immersion and its implications for sustaining a robust PC within the contemporary workplace context.

1.3 THEORETICAL AND PRACTICAL RELEVANCE

This study seeks to explore the leader's role in upholding the PC within the contemporary technological environment. This offers insights into how human leaders navigate the upholding of the PC amidst technological advancements influencing the workplace and leadership functions, effectively assuming the role of a technological leader. This effort not only contributes to the theoretical landscape concerning the upholding of the PC from the standpoint of the leader but also extends practical insights about the dynamics of technological advancements within an organisation. Given the leader's vital role in upholding the PC, this paper aims to uncover insights and best practices concerning how leaders can navigate this responsibility.

1.3.1 Theoretical Contribution

This study contributes significantly to several theoretical aspects of the PC literature. While extant research has delved into followers' perceptions of the PC and follower behaviour, limited attention has been given to comprehending the upholding of the PC from the leader's perspective (Cullinane & Dundon, 2006; Patrick, 2008; Shore & Tetrick, 1994). Technology complicates PC navigation, as it impacts the building blocks of PCs, which consist of trust, transparency, and reciprocity. Interviews showed that technology hinders trust-building between leaders and followers due to reduced face-to-face interactions. However, technology also increases transparency by providing more information about leadership practices. While technology creates barriers to forming deeper relationships, it can democratise information flow and improve decision-making visibility. Hybrid working improves work-life balance, partially mitigating the negative effects of technology on the reciprocal nature of the PC. Next to this, there is a negligible effect of technology on upholding PC obligations. Contrary to literature suggesting that technological advancements evolve PC expectations, interviews indicate that deeper relationships are formed through physical contact rather than technology. Technology might diminish leaders' influence, but it is not yet capable of significantly shaping leader-follower dynamics. Additionally, technology does not significantly impact the dynamic phases of the PC, such as creation, renegotiation, and repair, which still rely on personal interactions. Technology mainly supports the maintenance of existing relationships rather than creating new ones.

1.3.2 Practical Implications

The influence of technology on the PC accentuates two critical trust-related issues (Schafheitle et al., 2021). Firstly, trust emerges as a pivotal precondition for facilitating coordination and cooperation across the relationship interfaces altered by technological integration. Secondly, technology introduces strains that challenge trust within the framework defined by the PC. Organisations can use the findings of the study to formulate enhanced leadership policies and practices corresponding to a technological landscape. The study emphasises the need for leaders to manage trust, transparency, and reciprocity in a digital context. Trust is crucial for effective communication and cooperation, but digital interactions strain traditional trust-

building methods. Leaders must develop strategies to build trust virtually, ensure transparency in decision-making, and maintain open feedback channels. Ethical use of technology and transparent communication about its benefits and limitations can build a sense of shared purpose. Organisations should develop training programs focusing on digital communication, remote team management, and the ethical implications of technology use. These initiatives will help leaders foster a culture of trust and reciprocity, even with limited personal interactions, enabling them to navigate the challenges of technological advancements while maintaining a strong and effective PC with their followers.

1.4   OUTLINE OF THIS PAPER

This paper comprises six main sections. Initially, an introduction to the topic is presented, delineating the research goal, and research question, and underscoring the study's relevance. The subsequent chapter delves into conceptualising the PC, concluding with the importance of context within this relationship. Technology is then proposed to be a vital contextual factor, which is why the literature review dives deeper into this factor, as we try to uncover gaps in contemporary literature. Then, the research design section is presented, which elucidates the methods employed for data collection and analysis, where qualitative interviews are conducted with leaders within a singular organisation. Subsequently, the results obtained from the study are outlined narratively and visually supported by the Gioia methodology (Gioia et al., 2013). This is concluded by a comprehensive discussion and conclusion that expounds upon the primary findings about understanding how technology influences the PC between leaders and followers and how this impacts the upholding of the PC from the leader's perspective.

2. UNDERSTANDING THE PSYCHOLOGICAL CONTRACT

In recent years, the dynamic between leaders and followers within organisations has transformed, stimulated by the infusion of technological advancements into the workplace (Bankins & Formosa, 2020, 2021; Jarrahi et al., 2023; Park et al., 2021). These technological advancements change how work tasks are completed and by who, which will alter how followers perceive their employment relationship. Therefore, this evolution sparks a redefinition of the PC that governs the expectations, perceptions, and obligations between leaders and their followers. As a result, delving into the conceptualisation of the PC and exploring its characteristics and assumptions emerges as a crucial step in forming the subsequent research trajectory. This section introduces an exploration of the conceptual underpinnings of the PC, aiming to gain a deeper comprehension of its nature, concluding with the importance of contextual factors within the PC as the research emphasis.

2.1   DEFINING THE PSYCHOLOGICAL CONTRACT

During the latter half of the 20th century, multiple scholars paid attention to the concept of the PC, where their approaches are founded upon the fact that it is essentially an exchange relationship between two parties; leaders and followers (Anderson & Schalk, 1998). This study follows the definition introduced by Rousseau (1989, p.123), stating that it encapsulates "an individual's beliefs regarding the terms and conditions of a reciprocal exchange agreement between that person and another party". The construct of the PC therefore relies on followers' perceptions of their owed commitments to their leader and the expectations they hold in return (Anderson & Schalk, 1998; McDermott et al., 2013; Schalk & Roe, 2007).

The studies by Robinson (1996) and Conway et al. (2011) suggest that the PC must be viewed as a dynamic concept, as it is an ongoing interaction that is shaped by previous experiences, current behaviour and future expectations. This also causes it to be a potentially fragile relationship because of its unwritten and subjective nature. What this crucially means, is that the PC concerns the perception of reciprocity by both parties, which makes it an informal contract based on subjective interpretations rather than agreements on objective occurrences (Patrick, 2008). One of the complex dimensions of the PC is that it is rarely written or formalised, making it inherently difficult to manage such subjective exchanges between leaders and followers. There are three fundamental facets of these subjective exchanges that shape the perceptions: the content of the exchange, the parties involved in the exchange, and the underlying exchange process (Chaudhry & Tekleab, 2013). The leader's commitment to fulfilling obligations is pivotal for this exchange, as the PC expresses a leader's capacity to instigate followership by fostering perceptions of reciprocity, trust, and transparency among followers (Coyle-Shapiro & Kessler, 2000; Muterera et al., 2018). When the leader successfully manages to do this, followers perceive the leader as meeting their obligations, resulting in increased motivation to uphold their commitments to the leader (Rousseau et al., 2018).

In their research, Shore & Tetrick (1994) distinguish three functions the PC has within the employment relationship regarding expectations, beliefs and obligations. The first one is the reduction of insecurity, as not all aspects of the employment relationship can be addressed in a formal, written contract, so the PC fills the informal parts of the relationship. Second, the PC 'shapes' follower behaviour as a follower weighs his or her obligations towards the

organisation against the obligations of the organization towards them and adjusts behaviour based on critical outcomes. Finally, the PC gives the follower a feeling of influence on what happens to them in the organisation. The sense of influence provided by the PC therefore enhances the follower's engagement and commitment towards the organisation. Additionally, these three functions help in understanding the implicit dynamics that shape the PC and show its importance for the leader-follower relationship.

2.2 UPHOLDING THE PC: EXPECTATIONS AND OBLIGATIONS

2.2.1 Dynamism of the Psychological Contract

As briefly discussed in the previous subsection, the PC is proposed to be a dynamic contract. It involves a dynamic process of evolving aspirations, motivations, and commitment from both leaders and followers (Rousseau, 1995; Schalk & Roe, 2007). This means the relationships between leaders and followers are constantly evolving through organisational experiences (Guest & Conway, 2002).

Building on this dynamism, Rousseau et al. (2018) propose a phase-based model in which the functions of key variables such as promises, beliefs, contributions, and obligations change over time because of context. The phases they distinguish are PC creation, PC maintenance, PC renegotiation, and PC repair. Upholding takes place in the maintenance phase, so this study focuses mainly on this phase. Within this phase, two key change processes that might shift the PC into another phase are contract evaluation and change in perceived obligations. Disruption of this phase increases the likelihood of PC breach, which can be best described as "a perceived negative discrepancy between leader obligations and the inducements it provides" (Rousseau et al., 2018, p.1082). It is important to note that these discrepancies are about the follower's perception of the PC breach and therefore not necessarily about the actual PC breach (Robinson, 1996).

To minimise the chance of such discrepancies happening, leaders should employ a transformational leadership style (Oorschot et al., 2021). This leadership style is about inspiring people by linking job performance to the higher-order values of followers. In this age of digitalisation, there is an increased call for leaders with empathic skills, as leadership in the digital age is about creating a sense of purpose and meaning for followers (Khan, 2016). This means that to make leadership beneficial for the followers, the leader must possess leadership qualities like self-awareness, transparency, balanced processing, and moral perspective. Transformational leaders try to achieve that by seeking high levels of trust among their followers, according to Cullinane & Dundon (2006). Managing people at work contains a strong social dynamic, rather than a purely static and one-off economic transaction, emphasising that empathic leadership is vital in upholding a dynamic agreement like the PC.

2.2.2 Dynamics of Trust, Transparency and Reciprocity

As proposed in the previous paragraph, the PC is a subjective and dynamic contract. The perceptions of followers are very important and are mainly built on trust, transparency, and reciprocity. When looking at the PC, it consists of social interactions in which trust is a key element. It involves faith in the reliability, honesty, and competence of others and arises in uncertain situations. Addressing the reliability and honesty of the other party, is crucial for

societal functioning, reducing fear and chaos (Robbins, 2016). Transparency in the context of the PC is described as openness regarding expectations, obligations, and terms between the involved parties. It involves the extent to which the terms of the PC are communicated and understood by both leaders and followers (Middlemiss, 2011). Leadership transparency has a major influence on two vital factors within the PC: follower trust and openness towards the leader and follower awareness of facts (Subramanian, 2017). When leadership practices are not perceived as transparent, followers have no reason to trust their leader. Based on human nature they will then also not be open and trusting in return. This means that a lack of transparency and trust leads to lower intentions of reciprocal actions.

The strength of the PC therefore depends on how the organisation fulfils informal obligations like transparency and trust and how the followers perceive the leader's actions. The perceptions of trust by followers are significantly associated with higher levels of satisfaction and organisational commitment and lower levels of intention to quit. The informal and unwritten nature of the PC makes it rely heavily on trust, which is described to be fundamental for the PC as it is the basis of the necessary confidence and assurance for individuals to engage in such a relationship (Guest & Conway, 1998; Guest, 2016). A distinct lack of leadership can play a significant role in the disintegration of leader-follower relationships (Karnes, 2009). This indicates that a leader who knows what followers want and succeeds in providing this is far more likely to have success. Within this success, trust and open communication are critical and the basis of what followers value most in the PC with their leader (Deka & Srivatav, 2023). When the PC is perceived as favourable by the follower, this is likely to be associated with a more favourable perception of the organisation, resulting in greater commitment to the agreement and the organisation (Schalk & Roe, 2007). This means it is important for leaders to make sure followers perceive their actions and behaviours as trustworthy and transparent to create a 'successful' leader.

Within changing work environments and relationships between leaders and followers, the traditional PC consisting of long-term job security in return for hard work and loyalty may no longer be valid, resulting in leaders and followers reconsidering their mutual obligations (Robinson, 1996). Cassar et al. (2013) distinguish five forms of unfulfillment that might cause a breach of the PC, which are a delay of promises, the difference in magnitude, the difference in form, inequity, and reciprocal imbalance. A breach through these five forms of unfulfillment is almost always caused by the perceived actions or practices being different from what the follower expected and are therefore dependent on social and psychological factors specific to the employment relationship in which it occurs, with trust being such a factor (Robinson, 1996). This can also be explained as the imbalance between the commitments and obligations followers believe they have made to their leader and the commitments and obligations the followers believe their leader has made to them (Bankins, 2012). The experience of PC violation, involving a breach of promise and trust, goes beyond disappointment and produces feelings of betrayal, which enables discrepancies in the reciprocal balance between leaders and followers (Anderson & Schalk, 1998; Robinson & Rousseau, 1994). This makes it pivotal to prevent or deal with the consequences of unmet expectations, as this influences all three factors comprising the PC: trust, transparency, and reciprocity.

2.2.3 Changing Nature of Work Through Digitalisation

Another possible discrepancy caused by a difference between obligations and inducements and therefore challenging the upholding of the PC is the deployment of algorithmic management in the workplace. Algorithmic management consists of partly or fully automating managerial practices like coordination and administration of a workforce (Crowston & Bolici, 2019). This means humans and algorithms form "an assemblage in which the components of their differing origins and natures are put together and relationships between them are established" (Bader & Kaiser, 2019, p. 656). Subsequently, algorithmic management introduces new configurations between humans and technologies that could transform relationships between leaders and followers and their respective roles within this relationship (Jarrahi et al., 2021). This change in perceived configurations in the leader-follower relationship might shift the PC into a different phase as the maintenance phase described earlier by Rousseau et al. (2018). Algorithmic management shapes power relationships within an organisation, where the power of leaders might increase through overcoming cognitive limitations regarding data processing or nudging followers' behaviours. However, it might also decrease the power of leaders taking over firsthand experiences and contacts with followers, which has the risk of leaders being shaped and used by the technology, instead of leaders shaping and using the technology (Jarrahi et al., 2021).

2.3 CONTEXTUAL FACTORS WITHIN THE PC

The preceding paragraphs show that the PC is based on three important factors: trust, reciprocity, and transparency. These factors are all dependent on the context in which the PC is created and upheld. The context in which the PC occurs is referred to as "the setting that surrounds the obligations of the psychological contract in the transformation of workplace relationships", which means it encompasses viewpoints, situations or events that could potentially impact the meaning and relationships between various actors within organisations (Kutaula et al., 2020, p.2). These viewpoints, situations and events are unique for everyone, meaning that the contextual factors influencing the PC are also unique for every relationship between leaders and followers. As stated before, leadership transparency has a huge influence on both followers' trust and openness towards the leader, as well as awareness of what is happening to them, emphasising that trust and transparency are crucial for a healthy PC (Subramanian, 2017). This is the case because transparency from the leader starts a vicious cycle, enabling trust and openness towards each other.

However, the traditional employment relations literature is argued to be out of touch with the changing context of the world of work (Cullinane & Dundon, 2006). The PC is proposed to be a dynamic contract earlier in this section, which is one factor why the context is an important aspect to consider in PC research. Through this dynamism within the PC, there are ongoing and continuous changes in mutual expectations which are different for everyone, as the PC is the informal agreement between two parties (Rousseau, 1989). Acknowledging the dynamism of the PC also enables anticipating potential breaches, as the expectations, trust, and reciprocity are dynamic and require effort to balance and uphold the PC. There have been calls for including context in research on trust, transparency and reciprocity as the three important aspects making up the PC, but these calls are quite narrow and often reflect only on a specific aspect of context (Coyle-Shapiro et al., 2019). For example, one of the aspects that has been

studied as one of the antecedents of PC breach is job insecurity. The underlying reason for this is that job insecurity leads to perceptions of a lack of reciprocity (Coyle-Shapiro et al., 2019). The perceived job insecurity might originate from the fear of automation and AI or organisational changes related to increased technology in the workplace and within leadership practices. Automated systems or technologies implemented in leadership practices are less warm and personal, while personal affection and contact are one of the building blocks of feelings of reciprocity (Frank & Otterbring, 2023). PCs have a proven positive effect on job engagement and trust, but this positive effect decreases significantly with the adoption of AI technologies in the workplace (Braganza et al., 2021).

Therefore, technology is a salient but understudied factor in the changing context of work and the PC relationship. The three fundamental facets that shape the PC mentioned at the beginning of this section are subject to change due to the involvement of technology (Chaudhry & Tekleab, 2013). Firstly, the content of the exchange might change due to organisations using technology and therefore altering the reciprocal balance established before using these technologies. Secondly, the parties involved in the exchange are also subject to change due to technology transforming the relationship from dual to triad by involving it as a third party. Lastly, the underlying exchange process alters through different ways of communication and expressing trust, transparency, and reciprocity by using technology. These three evolving aspects imply that understanding how technologies influence them is vital in upholding the PC between leaders and their followers. Technology implemented in workplaces and leadership practices therefore touches and influences the three aspects that make the PC prevail. In the subsequent literature review, we focus on how technology influences the three mentioned aspects of the PC to see what is known about the phenomenon already and where possible gaps in the literature can be identified.

3. LITERATURE REVIEW

The previous section focused on the conceptualisation of the PC, where it was concluded that the PC is a dynamic and ongoing agreement, heavily dependent on contextual factors and built by trust, transparency, and reciprocity. This section focuses on contemporary literature on technology as one of the salient contextual factors of the PC. Previous research has shown how leaders could and should act to uphold the PC, however, not much has been written on leadership and the influence of technology as a third party to the traditional dual relationship between a leader and a follower. Therefore, this literature review produces an overview of contemporary literature on technology as a contextual factor to the PC, as we want to understand the role it plays in shaping the PC between leaders and followers, and how it influences the aspects of trust, transparency and reciprocity. This section will then be used as a basis for an in-depth, qualitative assessment of the phenomenon.

3.1   TECHNOLOGY AS A CONTEXTUAL FACTOR

With the immersion of technology in the workplace and the fourth industrial revolution we touched upon in the previous sections, the assumption is that technology is a salient contextual factor challenging the traditional PC between a leader and a follower, as PC variables like promises, beliefs, and obligations change over time and because of context and technology is a vital part of this (Rousseau et al., 2018). Not much has been written about this in contemporary literature and many academic studies do not include contextual factors in their research design, which sparked the interest for a more thorough investigation of the influence of technology on these factors (Kraak et al., 2024). Leaders and followers are embedded in their societal, organisational, environmental, and personal contexts, which all influence how both groups of people behave. Context can exist at an individual, team department or unit, organisational, community, or societal level (Kraak et al., 2024). Despite the demonstrated importance of researchers in taking context seriously, it remains understudied in the PC literature (Griep et al., 2019). This occurs through contemporary literature focusing heavily on the individual level of the PC a follower has with its leader, neglecting to consider the context that surrounds it. One of the aspects of the changing nature of work that affects these obligations, which is therefore the changing context of the employment agreement between leaders and followers, is changes in technology use (Guest, 2016).

In recent years, organisations have increasingly embraced and relied on digital technologies, impacting the dynamics of the relationship between leaders and followers through more flexibility for both leaders and followers, but also blurring boundaries between work and private life (Griep et al., 2021). As these technologies continue to evolve, leaders must navigate their impact on trust, reciprocity, and transparency within their relationships with followers. As stated before, the reciprocal balance at the centre of this relationship is highly influenced by trust in the leader. An example of technology influencing trust and reciprocity is electronic performance monitoring and surveillance. These aspects have a negative relationship on the trust of followers in their leaders, which causes them to experience tensions relating to work execution, compensation and belonging (Holland et al., 2015; Möhlmann et al., 2021). On the other hand, leaders should also be present in virtual work

environments, as perceived sense of social presence and immersion can lead to equal or even higher engagement and commitment than physical interactions (Kohntopp & McCann, 2020). Next to trust in the leader for achieving reciprocal balance resulting in engagement and commitment, followers' beliefs and behaviours regarding the technologies that are present in the workplace are also influenced by their trust in the information system itself (McKnight et al., 2011).

In the last decade, technological tools and applications changed the nature of work and restructured traditional workplaces into (partly) virtual workplaces. Therefore, leadership in virtual work environments using technology-mediated communication tools has become an increasingly important topic for research (Potosky & Lomax, 2013). Within physically dispersed teams, there is an inherent challenge of cultivating and sustaining trust, given the constraints created by the absence of traditional physical and social mechanisms for trust-building. However, not much attention has been given to this increasing engagement with technically, socially, and emotionally sophisticated forms of artificially intelligent technologies within contemporary research (Bankins & Formosa, 2020). Preceding beliefs and ethical orientation about technology serve as influencing factors regarding followers' responses to the implementation and utilisation of technologies in terms of acts of reciprocity and expectations of transparency by the human leader (Alder et al., 2008).

When looking at trust in this technological era, technologies can create small surprises in the workplace, highlighting vulnerability and increasing followers' reliance on the systematic processing of trust. These surprises lead to a phase where followers are more actively aware of these rising trust issues, which is why the leader should engage in active trust management practices to protect and strengthen the relationship (Weibel et al., 2023). Conversely, there is a possibility that leadership roles could undergo automation, potentially leading to a scenario characterised by a two-leader situation and a triad relationship between the human leader, the technological 'leader' and the follower (Schafheitle et al., 2021). This situation creates novel leadership focus areas, where three aspects can be problematic in terms of trust, transparency, and the reciprocal balance: the triad relationship making responsibilities blur, conflicting decisions of human leaders and algorithms, and followers' voices remaining unheard. Research by Höddinghaus et al. (2020) showed that followers perceive automated leadership agents as higher on integrity and transparency than human leadership agents. This is however not trivial, as it is almost impossible to develop an empathetic relationship with an algorithmic leader, as moral and ethical responsibility cannot be expected from algorithms (Duggan et al., 2020). Additionally,

The positive emotion as perceived by followers from decisions solely by a human leader was attributed to social recognition by the human leader, which underpins the research by Karnes (2009) who states that empathy and social skills are the two most influential leadership factors (Lee, 2018). Therefore, technology might be perceived as integer and transparent, in doing so the human side of recognition and appreciation becomes an even more salient factor in upholding the PC. The implementation of technology therefore calls for leaders with empathetic qualities, given that leadership in the digital era revolves around fostering a sense

of purpose and significance among followers. This concept resonates with the discourse on transformational leadership expounded upon by Oorschot et al. (2021).

3.2 RESEARCH MOTIVATION

The integration of sophisticated forms of workplace technologies shapes followers' work experiences and the technology-specific components of the PC with their leader (Bankins & Formosa, 2021). This trend will increase to do so in the future, as followers increasingly engage with and depend upon these technologies, shaping the dynamics of their relationship with their leader. One of the identified gaps in contemporary research comprises the responses of leaders to the evolving expectations within the PC sparked by technological advancements (Potosky & Lomax, 2013). This underexplored area requires deeper investigation to elucidate how leaders navigate and adapt their approaches considering technological influences on the PC.

In the context of this literature review, it is evident that multiple studies have examined the influence of technology on different components of the PC, revealing its transformative influence on the leader-follower relationship. However, these studies reveal a notable gap in elaborating on the mechanisms through which such alterations occur, and maybe even more important, what can be done to mitigate the negative effects and strengthen the positive effects of technology on the PC. In addition to that, some literature results on whether for example virtual work environments improve or decrease work engagement are in contradiction with each other. Subsequently, further investigation to provide insights into these dimensions and how they influence the relationship between leaders and followers is vital.

To conclude, research has been devoted to exploring followers' perceptions and the consequent shifts in trust dynamics and reciprocity within the context of the PC. However, too little attention has been directed towards explaining the alterations from the leader's standpoint regarding the maintenance of the PC and the influence technology has on this. This lack of research does therefore not capture the crucial dimension of understanding how leaders perceive and navigate changes within the PC. In doing this, it is important to gain an understanding of leader experiences and perceptions regarding the upholding of the PC and the integration of technology. A qualitative approach to these experiences and perceptions therefore offers a rich, in-depth exploration of individuals' subjective viewpoints, allowing this study to find how leaders interpret and interact with technological advancements within the relationship with their followers. Therefore, the utilisation of qualitative interviews allows for exploring leaders' perspectives and experiences amidst technological advancements.

4. RESEARCH DESIGN

Throughout this research design, we follow three phases of establishing how, where, and with what assurances this study takes place, elucidated by Elo and colleagues (2014). These are the preparation phase, the organisation phase, and the reporting phase. The preparation phase consists of the data collection method and the sampling strategy, composed in 4.1. The organisation phase consists of categorisation and abstraction, interpretation and representativeness, which is outlined in 4.2. This is continued in 4.3, where the quality assurance and the trustworthiness of the study are addressed and where also the reporting phase is addressed. This is about presenting the results and the analysis process, all to ensure the trustworthiness of this study.

4.1   DATA GATHERING

4.1.1   Method

The inquiry into the impact of technology on upholding the PC between leaders and followers from the leader's perspective is addressed by using a qualitative data-gathering methodology. This approach involves a systematic investigation of social phenomena within authentic contextual settings, focussing more on behaviours and feelings rather than testing hypotheses (Teherani et al., 2015). This qualitative data-gathering approach consists of narrative, semi-structured interviews with leaders from one organisation, creating a case study where in-depth examination is used to deduce findings from a broader array of entities (Gerring, 2004). This is a sophisticated method with generalisable results, as case study results are only less generalisable when considering the results within the population of the case study, and not for generalising cross-population results (Tsang, 2014).

The interviews aim to address several key inquiries to answer the research question proposed in the introduction. Firstly, they delve into the communication about expectations and reciprocity within the employment relationship between a leader and a follower. Secondly, they explore how technology has altered the expectations and perceptions of leaders regarding the PC. Additionally, understanding the impact of technology on trust, transparency, and reciprocity within the leader-follower relationship is crucial. Finally, these interviews elucidate the potential strategies or recommendations leaders can employ to navigate this evolving landscape effectively while ensuring the preservation of the PC with their followers.

4.1.2   Sample

In selecting this organisation as a case study to explore the influence of technology on the PC between leaders and followers, we applied a rigorous methodology as outlined by Yin (2009) in his book "Case Study Research: Design and Methods." He emphasises the importance of selecting a case that is both critical and revelatory, offering unique insights into the phenomenon under study. To answer the research question: "How does technology impact the upholding of the PC between leaders and followers from the leader's perspective?", we conclude that the best cases to analyse would be critical cases. These critical cases are pivotal because they provide key insights that can significantly influence the understanding and implications of the research question. This study intends to provide critical insights into how technology affects the PC between leaders and followers, which is why we want to investigate

the research query in a context that reveals unique challenges which might serve as an example for other organisations.

The organisation involved in this study is a globally operating, high-tech market leader and a pioneering frontrunner in their industry. The organisation consists of nearly forty thousand employees, and this study focuses on leaders within development and engineering, employing around twelve thousand people. The technology-driven nature of the industry they operate in calls for rapid adaption to innovations and new technologies, which might significantly impact the PC. The international scope of the organisation, coupled with the virtual collaboration and meetings among its teams, makes it a compelling subject for the proposed case study involving critical cases. As a market leader, the organisation's practices, policies and strategies hopefully provide valuable insights into broader trends within the industry or maybe even beyond that. The specific challenges and practices at this organisation, such as managing high-tech teams, dealing with rapid technological changes, and maintaining follower engagement and trust, can enlighten the broader phenomenon of technology's impact on PCs. The interplay between leadership styles, organisational culture and technological innovation offers opportunities to explore how leaders uphold the PC in a dynamic and competitive environment. This dynamic nature of work, shaped by technological changes, requires leaders to foster trust and empower autonomy. The organisation therefore provides a rich context for studying the evolving PC between leaders and followers and how technology influences this.

This study employs eighteen narrative, in-depth interviews as the primary method of data collection. Such interviews are instrumental in eliciting individuals' personal experiences, opinions, and values, thereby facilitating a deeper understanding of the respondents' perspectives and worldviews (Osborne & Grant-Smith, 2021). The interviews are conducted with leaders representing three hierarchical tiers, specifically four team leaders, six group leaders, and eight departmental leaders. The distinction between these leaders offers valuable insights in terms of different perspectives, depth of the analysis, identification of patterns, contextual understanding, and overall validation. However, the respondents are not dependent on the use of technology within the contact with their followers, as they all work physically together in the office most of the time. The primary emphasis of this study revolves around the technology used within the organisation and its influence on the preservation of the PC as perceived from a leader's perspective. It could subsequently offer both academic insights and practical relevance by bridging theoretical concepts with real-world leadership experiences, contributing to a better understanding of the topic.

Unlike quantitative methodologies where samples are randomised to generate objective and replicable data, in-depth qualitative interviews focus on comprehending individual participants and interpreting perceptual dimensions, in this case focusing on the PC. These semi-structured interviews incorporate open-ended questions, supplemented by follow-up inquiries aimed at elucidating responses and encouraging participants to articulate their viewpoints while possibly exploring unanticipated issues (Adams, 2015). The interview guide provided in 8.3 is designed to guide the discussions toward comprehending the upholding of

the PC and the impact of technology on the reciprocal relationship between leaders and followers from the perspective of the leader.

4.2   DATA ANALYSIS

The analysis of the interviews is conducted using the GIOIA methodology, a qualitative approach aimed at constructing insights that meet the rigorous standards required for trustworthy research, as expected by reputable academic journals (Magnani & Gioia, 2023). This methodological approach is founded upon three primary philosophical and methodological principles, elucidated through its procedural pillars: first, establishing a robust data structure; second, formulating a model derived from this structured data; and finally, presenting findings in a coherent and persuasive narrative (Gioia et al., 2013).

Firstly, emphasising the development of a structured data format ensures a systematic organisation and categorisation of information obtained from the interviews. This structured approach aids in comprehending and organising the multifaceted data collected during the interviews. Secondly, through the formulation of a model based on this structured data, the GIOIA methodology facilitates the development of descriptive codes and categories that emerge directly from the data. This model allows for a deeper understanding of the complex interrelationships and patterns found in the data, enabling the exploration of underlying themes and concepts that might not be immediately apparent, which also concerns what this study contributes to existing PC literature. Lastly, by emphasising the presentation of findings in a compelling narrative, the GIOIA methodology enables effective communication of the outcomes. This narrative style allows for a coherent and engaging portrayal of the study's results, enhancing the accessibility and interpretability of the findings for both academic and non-academic audiences.

With the usage of the GIOIA methodology to analyse narrative interviews, maintaining rigour, consistency, and transparency throughout the analysis process is crucial to ensure the validity and reliability of the findings (Gioia et al., 2013; Magnani & Gioia, 2023). Trustworthiness, along with detailed explanations of strategies employed to enhance the validity and reliability of this analysis, will be further elaborated on in the subsequent subsection.

4.3   QUALITY AND ETHICAL ASSURANCE OF THE STUDY

To ensure the robustness and trustworthiness of this study, the study adheres to four crucial aspects: credibility, transferability, dependability, and confirmability (Shenton, 2004). The credibility of the study is ensured by the open nature of the interview questions, the transferability is ensured through a rich description of the interview outcomes in the discussion, the dependability is ensured through the consistent use of the interview guide and recording of the research process during data analysis, and the confirmability is ensured through an open-minded stance during data collection and analysis.

The trustworthiness of the study is addressed and improved through inter-coder reliability (ICR), where a coding frame is evaluated by others to improve systematicity, communicability and transparency, eventually convincing the audience of the trustworthiness of the analysis (O'Connor & Joffe, 2020). By selecting approximately 20% of the interviews (five interviews) for recoding by the second coder, we hope to get additional valuable insights on the existing

coding scheme and the subsequent second-order themes and aggregate dimensions. The interviews for recoding are with two department managers, two group leaders and one team leader. We have chosen these interviews to allow the second coder to gain knowledge from all types of leaders, next to these interviews being the most fruitful and interesting to be looked at by a second pair of eyes. The second coder is provided with an overview including the RQ, important terms and their definitions used in the RQ and the interviews and what aspects were hoped to get out of the interviews. This allows the second coder to gain the necessary insights for recoding as stated by (O'Connor & Joffe, 2020).

During the discussion phase with the second coder, the interpretations were compared and used to refine the coding scheme to better capture the nuances of the data. Despite minor differences in initial coding, the iterative process and discussion that followed led to a consensus, demonstrating that the primary first-order concepts and second-order themes were consistently identified across the researchers. This underscores the robustness of the findings, indicating that the influence of technology on the PC was reliably captured across different perspectives. This rigorous approach ensures that the study's conclusions are not only a reflection of our experiences but also methodologically sound, reinforcing the credibility and trustworthiness of the results.

Additionally, this study adheres to ethical standards outlined by the University of Twente, validated by the Ethics Committee, as evidenced by the approval form appended in 8.1. While acknowledging potential biases concerning the influence of technology on the relationships between leaders and followers at the organisation, every effort is made to mitigate these biases from impacting the results and conclusions.

5. RESULTS AND FINDINGS

In exploring how technology impacts the PC between leaders and followers, this study focuses on three main components: trust, transparency, and reciprocity. Using the Gioia methodology (Gioia et al., 2013), the qualitative interview data has been systematically analysed and transformed from raw data into higher-level theoretical constructs. First-order concepts are derived from open coding based on the answers from the respondents, capturing the essence of their experiences and perspectives. These concepts are then grouped into second-order themes that reflect broader patterns and relationships. Finally, these themes are synthesised into aggregate dimensions, providing an overarching understanding of how technology influences the PC in the organisational context. The scheme, which consists of a data structure based on the Gioia methodology, is presented in **Fout! Verwijzingsbron niet gevonden.**.

First-order concepts	Second-order themes	Aggregate dimensions
Barrier for deeper relationships	Technology hinders effective trust-building	Technology complicates the way how leaders navigate the psychological contract
Decreased physical visibility		
Distracting face-to-face contacts		
Lower interpretation of body language		
Erasing communication boundaries	Technology facilitates increased transparency of leadership	
Enabling shared responsibilities		
Know how and where to use technology		
Make leadership practices and decisions more visible		
Increased pressure on relationship	Technology has mixed impact on reciprocal balance	
Weaker relationships through geographic dispersion		
Improved productivity		
Work-life balance through hybrid-working		
Listening to followers	Follower engagement primarily fostered through physical interaction	Technology does not significantly impact the sequence of processes within the psychological contract
Challenging, recognising and empowering followers		
Fostering visibility and ownership of processes		
Meetings are a cooperative effort		
Followers are responsible for their own development		
Expression of openness		

Expression of vulnerabilities	Personal relationships formed primarily through face-to-face interaction	
Relationship is leader's responsibility		
Relationships strengthen in person		
Focussing on shared values		
Seeking high levels of trust among followers	Challenges in implementing empathetic leadership through technology	Technology does not challenge the role of the leader in upholding the dynamic nature of the psychological contract
Leadership style developed through experience		
Importance of little moments of contact		
Doing team-building activities		
Finding a common goal with followers		
Difference in expectations of team members	Leaders rarely adapt to diverse needs and situations through using technology	
Communication and meetings differ based on different needs		
Leader behaves as facilitators for followers		
Freedom in moments of contact with employees		
Challenges in work make relationships stronger		

Table 1 - Data structure

5.1 TECHNOLOGY COMPLICATES THE WAY HOW LEADERS NAVIGATE THE PC

The primary theme that complicates the way how leaders navigate the PC, is through hindering effective trust-building. In this regard, the conducted interviews provide clear evidence that the implementation of technologies in the workplace is considered a **barrier for deeper relationships**. *"You cannot really go that step further. I feel that as a barrier (TL13)"* *"That's the way to build before you can do hybrid or Teams meetings. Otherwise you will not succeed as a leader. No chance (TL2)"* *"We can handle the operational work through technology. But bonding, I don't think it will be as strong as if it's built face to face (GL3)".* Evidence from the interviews mentions that leaders feel the need to be visible for effective leadership. Contact with followers through technology, however, leads to **decreased physical visibility**. *"I call it management by walking around and I'm still doing that. Actually, it's my opinion somewhat more important nowadays because you lose track if you do it only online. You really miss the connection (GL4)".* Technology also hinders active trust-building as it **distracts face-to-face contacts** as everyone within the organisation is always reachable through multiple channels *"In a meeting, it can also be very distracting if people are*

continuously looking at Teams pop-ups, so it can help on one side, but on the other side, it can be very distracting and lead to lack of focus in a real discussion meeting (DM14)". Lastly, online collaboration tools are also a barrier for creating trust as leaders feel there is **lower interpretation of body language**, which is considered as an important part of trust-building. *"I prefer my one to ones to be really live because we observe what we are doing. I observe their body languages. They observe me. We are not hiding behind any screens (GL3)""I think if you see people face to face, you see more from that person. The way he moves or she moves, what they are eating or drinking, you see way more and that all helps in creating contact with each other (GL7)".*

In addition to the impact of technology on trust, the respondents in the interviews are much more positive about the influence of technology on transparency, as they mention it <u>facilitates increased transparency of leadership</u>. Evidence shows that the respondents acknowledge that technology **erases the boundaries of communication**. *"I think the key aspect is understanding the value and understanding where it should be used to build those relationships and to develop individuals (GL10)"" I enjoy all the online collaboration and how easy it is to share with each other and to talk to each other, but that also means that I actively need to schedule time where I want to keep all of that away (TL13)".* Technology also affects perceptions of transparency by acting as an enabler to make contact more informal and being more open to building the relationship between a leader and follower, **enabling shared responsibilities.** *"They can also fill this document if they want to talk about something. And in the beginning it was me who was filling, but then as you see over the year, they are also bringing topics (TL5)" "That opens up doors to share more with each other with a lower threshold. More about your personal life, so it makes it easier (TL13)".* In addition to this, it is also important for transparency when using technology so that leaders **know how and where to use technology**. *"Technology has a place and has so much value, I think the key aspect is understanding the value and understanding where it should be used to build those relationships and to develop individuals (GL10)".* The last concept where technology acts as a facilitator for increased transparency, is that it **makes leadership practices and decisions more visible**. *"Things that can get lost in just discussions. In that sense, technology is very good in making sure that this is formalized and it's placed somewhere (TL5)" "Information is key to get people up to date on changes as we are in a very dynamic environment, things change continuously, decisions are being made everywhere. The understanding of why certain decisions are made is very key (DM14)".*

The last theme on the impact of technology on the building blocks of the psychological contract is that it <u>has a mixed impact on reciprocity</u>. The first concept focussing on this mixed impact, is that it affects reciprocity negatively through **increased pressure on the relationship**. *"It's so easy to just call someone or send them a text message that you automatically expect people to always just do that and you're always on (TL13)".* The reciprocal balance might also be hindered by **weaker relationships through geographic dispersion**. Respondents mention that there is not a deep connection or relationship between them and a follower if this happens mostly through technology. *"For communication it can help if the bond is already strong. If the bond is not as strong, then you can just go: yeah, we're doing it, but we are not doing it to the level of strong bonding (GL3)".* On the other hand, technology might also spark

more reciprocal actions through **improved productivity**. *"That would enable me to put my focus more on the higher impact stuff, and that is the people in the business (GL17)"*. Technology also enables more reciprocal actions by facilitating and improving **work-life balance through hybrid working**. *"We use technology by granting them the option to work abroad. They are still going to work, but when they close their laptop, they are with their family member they want to take care of. Just by giving them that option, by using technology, it really strengthens the bonds with the employee (GL17)"*.

5.2   TECHNOLOGY DOES NOT SIGNIFICANTLY IMPACT THE SEQUENCE OF PROCESSES WITHIN THE PSYCHOLOGICAL CONTRACT

Within the PC, leaders feel they are the facilitators for the ongoing, mutual obligations in upholding the contract. The concepts that make up the themes in this dimension mostly happen through physical interactions rather than technology, showing that technology does not affect the sequence of the processes within the PC, consisting of creation, maintenance, renegotiation, and repair. Evidence from the interviews derives two important themes, where the first one is that <u>follower engagement is primarily fostered through physical interaction</u>. The first concept contributing to creating this engagement is **listening to followers** to make them feel valued and give them the feeling of contributing. Leaders feel this is complicated using technology *"I always try to stay calm, whatever happens, and listen. I think that is very important, listening, and try to act on that, but the listening part is for me the most important (GL7)"*. This is also the case for **challenging, recognising and empowering followers**, as this is one of the obligations leaders feel they have towards their followers. *"To develop a relationship, a good team member relationship, maybe it's good to also understand like what is important to them so you know where you can challenge them a little bit and which part they care more about and which part they don't care so much about (TL5)"*. Evidence from the interviews also shows that **fostering visibility and ownership of processes** is also a vital concept in creating follower engagement through physical interactions. *"So I try to make it through all the buildings, I try to make myself accessible as much as possible so that people feel like it's kind of an open door policy type of thing (DM11)""I'd like really people to understand that you can do a lot yourself, be proactive and make proposals and not in a sort of complaining mode. That means that I give a lot of freedom to people in my group (GL4)"*. In that sense, it is also important that throughout the year followers are engaged in the meetings on their performance, just as it is the case that **meetings are a cooperative effort**. These meetings only happen online under special circumstances, as leaders feel the obligation to create physical relationships by showing compassion and effort to the person on the other side of the table *"It's also supporting them that somebody knows and somebody listens to me and knows and understands me. One thing that you also always gain with that close cooperation and communication with your people is a long term, they stay with you (GL1)"*. The last concept contributing to follower engagement is the fact that **followers are mostly responsible for their own development**. It is completely up to the followers what their targets and goals should look like and how they would like to position themselves within the organisation. *"They steer the one-to-ones, not me. I'm telling them that this is your opportunity with me to talk about anything. Something in life, something in work, anything related (GL3)"*

"If they play a role in that, then it's a collaboration, then the outcome of our collaboration will be better and the outcome will be also better for me and for them (GL17)".

The other important theme in the minimal impact technology has on sustaining PC obligations is the fact that <u>personal relationships are formed primarily through face-to-face interaction</u>. Leaders primarily do this through the **expression of openness**, happening primarily in face-to-face contact. *"So if you start showing that you are open as a leader towards the team, then maybe in the beginning they would be reserved, but over time, if they see the same constant behavior from a person, they will start adapting their style as well to you (TL5)""The most important thing is that they are open and transparent. That's also the relationship that I try to have and that's also what I expect from them, the other way around. If you can have that relationship, there is a lot you can discuss and overcome (DM8)"*. Next to this, evidence also shows that for creating personal relationships it is important to show **expressions of vulnerabilities**. *"So for me to show that vulnerability I hope that it role models that it's okay to make mistakes sometimes, and you can always get back to it, and I'm not perfect (DM12)"*. Through these expressions mentioned above, the feelings of the respondents express that the **leader is responsible for the relationship**. *"For me, I felt like that was the first thing that you need to create, especially if you're a new manager, you really need to create that very strong bond with your team, to give them time to know that you're there for them and to give them the opportunity multiple times to talk to you personally (TL5)"*. Evidence from the interviews elaborates that one of the most vital aspects of creating personal relationships is that **are strengthened in person**, meaning that leaders value that they keep seeing their followers in person, as they feel this is the best way to connect and bond with them. *"In the beginning I had very intense face to face situations, so there I built the connection. From there you can get it open and you can do it by Teams (TL2)"" I think the best bonding is face to face and sitting next to each other, working next to each other in the same area (GL7)"*. The last concept contributing to creating personal relationships is **focussing on shared values** because that creates a sense of interest in each other which is important for the mutual obligations the PC implies. *"So everyone or every person, in my opinion, has an entry point …. What is exactly his mood, his drivers, and afterwards try to show interest in some of these drivers if it also matches some of your interest and try to make the link from there (GL3)"*.

5.3 TECHNOLOGY DOES NOT CHALLENGE THE ROLE OF THE LEADER IN UPHOLDING THE DYNAMIC NATURE OF THE PSYCHOLOGICAL CONTRACT

The last dimension derived from the interviews considers the technological influence of the dynamic nature of the PC in upholding it from the leaders perspective, showing that technology does not fundamentally challenge the role of the leader in doing so. One of the most important themes for the respondents is to be a people-centric leader, where they perceive <u>challenges in implementing empathetic leadership through technology</u>. This is firstly the case as they are **seeking high levels of trust among followers** in creating the relationships. *"I think my main focus was to really work on it, to do more relationship building with my team at the beginning, then start to focus into the strategic part of the job to gain trust, to build trust, because trust would be the first thing to build on before everything else (GL3)""I expect also that trust is always mutual, at least it should be. So if I provide trust, I also expect that they start trusting me. That's something also to build a better bonds (DM14)"*. Next to this,

respondents elaborate on the fact that their **leadership style has developed through experience**, noting that it is important to keep learning to be the best empathetic leader possible. These experiences rather took place through physical interactions than through technology. *"I'm already doing this for quite some time and over those times, you just learn by trying, making mistakes (DM8)"*. The study also reveals that despite technologies in the workplace like online collaboration tools, being an empathetic leader mostly happens through **little moments of contact**, either through extensive one-on-ones or small moments of contact when being in the office. *"What gives a really good bond, I think, is if you have a meeting unorganized so sometimes you just pass by and you say: hey do you have a moment, you go together to the coffee machine or sometimes into a small room and just keep each other up to date on something (GL7)"*. Respondents also note that to create relationships with followers, they are **doing team-building activities**. *"So it's about sharing in the little moments, but also recently, I think two weeks ago, I organized an offsite, where we spent as a team really a full day of quality time (DM12)"*. The last concept related to empathetic leadership, is about **finding a common goal with followers**. This improves the relationships as it actively involves the followers. *"I ask them for input so that they can co-shape it and co-own it. Because I think that once you co-own something, then you also bond in a different way, as you have a common goal. That's very important: a common goal (CM15)"*.

In addition to the influence of technology on empathy, evidence shows that leaders <u>rarely adapt to diverse needs and situations through using technology</u>. Leaders from the interviews mention that their leadership style must be adapted based on the **difference in expectations with followers**. *"What I noticed is that if you don't know the history of the people and what was discussed or aligned or what they are expecting, then you can have not a nice beginning at that moment, without knowing it (GL7)"*. This is also the case for **communication and meetings as they differ based on different needs** because sharing of emotions and having hard conversations do not happen very often through technology. *"If somebody is open about their feelings or if somebody doesn't like to share, there also I need to adapt on how to get this person to understand or come to the same page as me (TL5)"*"*So for example in hierarchy, I see differences how they perceive hierarchy. You have to deal with that differently (DM8)"*. Subsequently, respondents feel they are the ones who must make sure the team can work as well as possible, so leaders **behave as facilitators for followers**. *"So I think it is the leader's core job to help the employee to understand that link, what these values have to do with my role, because it's not very easy for people to directly see that (GL1)"*"*I set out the direction and I determine the processes but for the rest, my main focus and my main responsibility is making sure that these guys know what they need to do and are well equipped to do it and can always reach out to me if they need help or if they're blocked by anything (TL13)"*. Respondents also mention they are empowered to adapt to different needs and situations because they have **freedom in moments of contact with employees**. *"It's up to the managers or the group lead to decide what he wants. How much or how can he invest his team budget on teambuilding activities if he wants. There is a guideline, but there is no one mandating you to do it in that way (GL3)"*. Adapting to different needs and situations and therefore also dealing with challenges contributes to upholding the PC, as **challenges in work make relationships stronger**. *"I worked for multiple companies and I think if the environment is really bad, maybe*

the bonding even gets better because you need to do or create more together to do things (GL7)""So that's typically what I see in the company that, once you became part of a team and went to interesting challenges on integrating a system or whatever, that is quite strong, such a bond that you create and you can leverage from that throughout your career (DM14)".

6. DISCUSSION AND CONCLUSION

This study provides a thorough investigation into the impact of technology on the PC between leaders and followers within a market-leading technological multinational. By focusing on the elements of trust, transparency, and reciprocity, the research illustrates how technology can serve both as a barrier and a facilitator in developing and sustaining these critical relational dynamics. This study adds to the discourse in the literature regarding the impact of contextual factors on the PC, as it addresses technology as a contextual factor where contemporary research had not focussed on this adequately (Kraak et al., 2024). The findings from this study contribute significantly to the existing body of knowledge by offering a detailed analysis of how technology influences leadership behaviour and practices.

The first dimension identified from the interviews was that technology complicates the way leaders navigate the PC. Leaders mention that the influence of technology on upholding the PC differs between the building blocks, which were established from the literature. The themes that were concluded from this were that technology hinders effective trust-building, facilitates increased transparency and has a mixed influence on the reciprocal balance between leaders and followers. This reveals that while technology facilitates effective communication and operational efficiency, it also creates challenges regarding trust-building and reciprocity that leaders must address in upholding the PC. The limitations of digital communication tools can lead to misunderstandings and misinterpretations of obligations and expectations, as the absence of physical presence can hinder the depth of the relationship.

Proposition 1: The complexity of navigating the PC increases for leaders due to the challenges posed by interactions through technology, having both positive and negative effects on the building blocks.

The second dimension derived from the evidence is that technology does not significantly impact the sequential processes within PC obligations. Despite the complexities introduced by technology showed in the first dimension above, the ability of leaders to sustain their obligations under the PC remains largely unaffected. This dimension highlights that technology does not fundamentally alter the capability of a leader to fulfil their commitments and responsibilities. In doing so, the foundational elements of commitment and responsibility remain intact and they adapt to possible technological challenges by developing and implementing strategies to mitigate the impact of these challenges. Follower engagement and personal relationships, which are vital themes in upholding the PC according to the respondents, are created primarily through physical interactions and face-to-face contacts, elucidating the minimal effect technology has on upholding the mutual obligations implied by the PC. Mutual obligations are harder to convey through technology, as body language and making small moments of contact are missed. Leaders feel that with the technological advancements, they are still able to fulfil their commitments and maintain their end of the PC, being it mostly through physical interactions rather than using technology in this process.

*Proposition 2: Despite the challenges in navigating the psychological
contract, technology does not significantly impact the sequence of
processes within the psychological contract.*

The third and last dimension this study found is considered the limited influence of technology on the dynamic nature of the PC, showing that technology has a minor effect on the evolving nature of the PC. The mutual expectations between leaders and followers still shift and develop, but evidence shows that technology does not significantly alter this dynamic process. Regarding these dynamic processes and the different phases the PC can be in, evidence shows that technology only impacts the upholding of the PC in a way that enables maintaining an already established level of the PC. When the PC is in another phase than maintenance, technology acts as a barrier, as problem-solving and renegotiation happen almost only in face-to-face contact. Therefore, technology makes the PC more fragile when in other phases. Therefore, technology introduces new ways of interaction but it does not significantly alter the fundamental processes through which the psychological contract evolves. The core human factors driving changes in the psychological contract, such as shifting expectations and mutual understanding, remain consistent. These factors are intrinsic to the relationship between leaders and followers and are not significantly altered by technology. Therefore, processes regarding renegotiation, adjustment, and evolution of the psychological contract proceed in similar ways regardless of technological influences. Additionally, the necessity for empathic leadership is emphasised in a digital age, where leaders must create a sense of purpose and meaning for their followers, thereby supporting the dynamic nature of the psychological contract.

*Proposition 3: Technology does not challenge the role of the leader in
upholding the dynamic nature of the psychological contract.*

In conclusion, while technology undeniably influences certain aspects of interactions between leaders and followers, it does not fundamentally alter the upholding of the PC. The evidence suggests that although technology can complicate communication and trust-building, and has a mixed impact on reciprocal balance, it does not significantly disrupt the essential elements of commitment, responsibility, and mutual expectations that define the PC. Leaders can still fulfil their obligations and maintain strong relationships through face-to-face interactions, which remain critical for effective trust-building and engagement. The dynamic nature of the PC, which is characterised by shifts in mutual expectations and ongoing renegotiations, remains to be largely independent of technological advancements. Non-technological factors, such as empathy, understanding, and personal connection, continue to play a very important role in how the PC is maintained and evolves. Ultimately, while technology presents new challenges and opportunities for interaction, the foundational aspects of the PC are upheld through leadership strategies that prioritise personal, empathetic, and direct engagement, ensuring the continuity of these relationships amidst technological advancements. This explanation of the three propositions are visualised in the conceptual model presented in Figure 1.
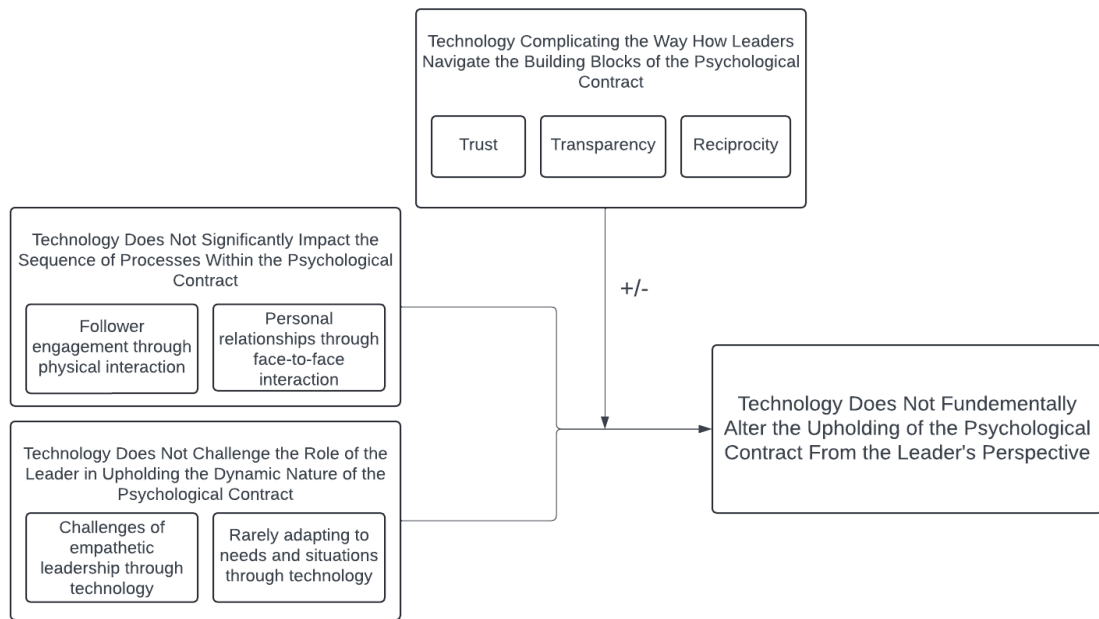
Figure 1 - Conceptual Model

6.1 THEORETICAL IMPLICATIONS

6.1.1 Technology Complicates the Way How Leaders Navigate the PC

Looking at the evidence from the interviews on the impact of technology on trust reveals how technology mostly hinders trust-building in leader-follower relationships. Respondents indicated that technology often acts as a barrier to forming deeper relationships, essential for building trust. The lack of face-to-face interaction decreases the development of strong bonds. This aligns with existing literature highlighting the limitations of virtual communication in fostering trust (Guest, 2016). While some studies like Bankins & Formosa (2021) emphasise the negative impact of technology on trust, our findings highlight that technology can simultaneously enhance transparency and maintain reciprocal balance. This suggests a more complex interplay between technology and the PC, challenging existing literature, which often portrays technology's impact on trust in a one-dimensional manner (Kraak et al., 2024; Weibel et al., 2023). Evidence showed that technology mainly enhances transparency by increasing the amount of information available, focusing on leadership practices and decisions. This increased visibility is vital in upholding the PC as leaders can make their decision-making processes more accessible and understandable. For instance, the study highlights how technology can democratise information flow and decision-making processes. Additionally, concerns were raised regarding reduced transparency and empathetic judgment when technology becomes involved through automated systems in managerial functions (Zerilli et al., 2019). As stated before, the findings from this study contradict this viewpoint, as transparency is shown to be primarily improved through technology by erasing boundaries and making leadership practices visible. The reciprocal balance initiated by the PC builds on the fact that it delineates what followers perceive they owe to their leader and what they expect in return for that (McDermott et al., 2013). This reciprocal nature of the PC is affected

by the potential weakening of relationships due to barriers created by technology. On the other side, hybrid working is mentioned to improve the work-life balance, focusing on the fact that technology not only negatively affects the reciprocal balance. This aligns with findings from Bankins & Formosa (2021), who indicate that technological interventions shape followers' work experiences and impact the PC.

6.1.2 Technology Does Not Have Significant Influence On the Sequence of Processes and the Role of the Leader in Upholding the PC

At the beginning of this study, it was mentioned that the PC consists of four phases in which the PC can be in; creation, maintenance, renegotiation, and repair (Rousseau et al., 2018). It was distinguished that within the maintenance phase, two key change processes might shift the PC into another phase through breach of the contract, which are contract evaluation and change in perceived obligations. Because technology is used as an additive tool in upholding the PC by easing creating moments of contact or to check in with followers, this does not have influence on the contract evaluation and changes in perceived obligations from the leader's perspective. Therefore, technology does not influence the sequence of these phases, it only impacts the phases separately. In the literature, it is mentioned that through technological advancement the expectations related to the PC evolve (Potosky & Lomax, 2013). Changes in technology use are one of the changing contextual factors within the employment relationship, affecting the mutual obligations established in the PC (Guest, 2016). However, evidence from the conducted interviews shows that this does not always hold, as deeper relationships are mostly created through physical contact. These relationships are not nearly as deep when they are created through technology, showing that technological advancements do not yet have the anticipated impact on the PC as elucidated in the literature. It was also discussed that technologies in the workplace might decrease the power and role of leaders in upholding the PC, as it could take over firsthand experiences and contacts with followers. Subsequently, this could increase the risk of leaders being shaped and used by the technology, instead of leaders shaping and using the technology (Jarrahi et al., 2021). The findings from this study indicate a far more nuanced impact, as technologies are not ready to perform tasks that would enable the shaping of leaders and followers.

The dynamic nature of the PC, including its phases of creation, maintenance, renegotiation, and repair, remains largely unaffected by technology, elucidating that personal interactions are still essential for these phases. Technology mainly supports the maintenance phase of existing relationships rather than creating new ones, as it enables sustaining the relationship when it is already in place. This is consistent with Robinson (1996), who emphasises the importance of face-to-face interactions in creating and renegotiating the PC. For creation, renegotiation, and repair technology is perceived (not yet) as suitable for taking over physical moments of contact. The respondents expressed their wishes that if this were the case, it would aggravate the positive effects of technologies in the workplace. Contrary to the suggestion that technological advancements evolve PC expectations, the study thus found that deeper relationships are primarily formed through physical interactions, and these interactions are more effective for upholding PC obligations than technology-mediated interactions. Rousseau et al. (2018) highlight that the phases of the PC, such as creation and renegotiation, rely heavily on personal interactions, supporting this finding. Technology

therefore has a limited impact on the evolving nature of the PC, and the dynamics of expectations between leaders and followers continue to evolve similarly to non-technological settings. This highlights the importance of personal interaction in the dynamic processes of the PC, reinforcing traditional views within the theoretical field.

6.2   PRACTICAL IMPLICATIONS

This study provides a comprehensive analysis of the influence of technology in upholding the PC from the perspective of the leader. It specifically focuses on the building blocks of the PC, consisting of trust, transparency, and reciprocity. Additionally, the study prompts a thorough examination of the dynamism of the PC and the ongoing mutual obligations and how technology alters and influences this. The findings and theoretical implications also hold significant practical implications because leaders who are trained to understand and manage the dual role of technology, adapt to contextual variability, and effectively switch between various leadership tasks will be better equipped to maintain strong, trust-based relationships with their followers, thereby upholding the PC effectively.

This might happen through training self-management of leaders. These trainings should provide leaders with knowledge for understanding the dual role of technology. Training programs should emphasise the importance of building trust in a technology-mediated environment. Leaders need to be aware that while technology can hinder the development of deeper relationships due to the lack of face-to-face interactions, it can also enhance transparency. By understanding this dual role, leaders can learn to leverage technology to increase transparency while actively seeking opportunities for interactions to build trust. In addition, leaders should be trained on how to use technology effectively to enhance transparency. This includes making leadership practices and decision-making processes more visible and accessible to their followers. Training should include practical tools and techniques for communicating decisions transparently and maintaining open channels for feedback. To conclude, the focus should be on strategies to balance physical and virtual interactions to maintain reciprocity. Leaders should be encouraged even more to use hybrid-working models that allow for both remote work flexibility and regular in-person meetings to foster deeper relationships and a sense of reciprocity.

Within the influence of inevitable technological advancements, it is important to empower leaders to manage ambiguous situations, as trust, transparency, and reciprocity are affected differently through technology. Training should highlight the contextual sensitivity required to navigate these dynamics, emphasising that the impact of technology can vary based on the situation and the individuals involved. In doing so, they should develop adaptive strategies for managing these ambiguities. This includes being flexible in their leadership approaches, understanding when to rely on technology for transparency and efficiency, and prioritising in-person interactions for trust-building and maintaining reciprocity. Technology hinders effective trust-building for upholding the PC, but managing these trust issues is crucial. Training should include modules on resilience and conflict resolution, helping leaders to address and resolve trust issues effectively when they arise in a technology-mediated context.

The last practical implication of helping leaders in navigating the upholding the PC in this digital age, is training them in deliberately jumping back and forth between various and

conflicting leadership tasks. This starts with leaders adapting and switching between different leadership tasks, especially those that may conflict, such as fostering transparency through technology while building trust through personal interactions. Training should include strategies for effective task switching, helping leaders to prioritise and balance conflicting demands. This should also involve integrating empathetic leadership with efficient use of technology, which involves understanding the importance of empathy in face-to-face interactions for trust-building while using technology to streamline processes and enhance transparency. To conclude, leaders should be equipped to guide their decision-making processes based on the phase the PC is in at that moment. Training should focus on the dynamic nature of the PC, teaching leaders to recognise when the PC is in a creation, maintenance, renegotiation, or repair phase, and to adjust their use of technology and personal interactions accordingly.

6.3   LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Despite the efforts to make valuable contributions to theory and practice, the study has several limitations that should be considered in interpreting its findings and implications. Firstly, the study is based on qualitative interviews within a single organisation, which allows for in-depth insights but may limit the generalisability of the findings. Future research could benefit from including a broader range of organisations and industries to validate the results. While the insights from the respondents were rich, focusing more on leaders who are dependent on technology in contact and relationship-building with followers rather than leaders only using it as an additive tool would increase the credibility of the study significantly. Next to this, the rapid pace of technological advancement means that the findings may quickly become outdated as new technologies emerge. Longitudinal studies could provide deeper insights into how the PC evolves with ongoing technological changes to give more insight into how this context develops.

The choice to focus on the leader's perspective of upholding the PC was deliberately made, however, while doing so, it potentially overlooks followers' experiences and perceptions. Including followers' viewpoints in future research could provide a more comprehensive understanding of the PC in a technological context. This also accounts for the study still focussing mainly on the individual level of the PC that leaders have with their followers, where acknowledging and using more of the context around it could improve the fields this study can be of influence.

6.4   CONCLUSION

By integrating empirical evidence and theoretical insights, this study provides a more nuanced understanding of technology's role in leadership. The leaders that were interviewed in this study work in a highly technologically infused environment, they however rarely elaborated on the impact of technology on their relationships or working environment. This endorses the fact that technology is merely seen as an enabling tool, not capable yet of taking over tasks that have an impact on the phases of the PC. As technology is seen as an enabling tool, it rather seems to have a significant impact on the building blocks of the PC than on how technology alters the mutual obligations and dynamic nature. The findings from this study contribute significantly to the existing body of knowledge by offering a detailed analysis of

how technology influences leadership behaviour and practices. While some scholars have highlighted the detrimental effects of technological interventions like electronic performance monitoring, which can undermine trust and reciprocity, this study presents a more balanced view on this. This study showed that technology complicates the way leaders can navigate through the building blocks of the PC: trust, transparency, and reciprocity. Despite these challenges, leaders emphasise that these technological advancements do not fundamentally influence the sequence of processes embedded in the PC, which are creation, maintenance, repair and renegotiation. It also does not significantly affect the role of the leader in upholding the dynamic nature of the contract. In some ways technology eases the ways of contact in the maintenance phase, but is nowhere near being able to take over tasks or significantly impact the role of the leader within the dynamic processes of the PC.

By focusing on trust, transparency, and reciprocity, the study provided a comprehensive view of the challenges and opportunities that technology presents for upholding the PC. The theoretical and practical contributions of this study offer valuable insights for future research and organisational practices, guiding leaders in navigating the complexities of a technologically advanced workplace. As technology continues to integrate into work environments, maintaining a focus on these core principles will be essential for sustaining effective and positive leader-follower relationships.

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8. APPENDICES

8.1   ETHICAL APPROVAL

UNIVERSITY OF TWENTE.

FACULTY BMS

231409 REQUEST FOR ETHICAL REVIEW

Request nr:	231409
Researcher:	Langeveld, K.A.
Supervisor:	Schafheitle, S.D.
Reviewer:	Bruinsma, G.W.J.
Status:	Approved by commission
Version:	2

1. START

A. TITLE AND CONTEXT OF THE RESEARCH PROJECT

1. What is the title of the research project? (max. 100 characters)

   The psychological contract: examining the influence of technology on leader-follower relationships

2. In which context will you conduct this research?

   Master's Thesis

3. Date of the application

   16-12-2023

5. Is this research project closely connected to a research project previously assessed by the BMS Ethics Committee?

   No/Unknown

8.2   MENTAL MODEL GUIDING THE INTERVIEWS

Cognitive	Emotional	Behavioural
Q4: understanding problems and thought processes in understanding roles and needs	Q1: understanding how the leader feels about the bonds.	Q2: addressing behaviour and actions regarding upholding the bonds explained in Q1
Q5: reflecting and reasoning own perspective and understanding other leaders' standpoints on tech influence	Q6: feelings on impact and how dynamics might have changed due to technology and affect the interpersonal bonds	Q3: uncovering actions when a bond almost failed and what was done to repair/fix this

8.3   INTERVIEW GUIDE

Introduction: Thank you very much for your time donation. As Heidi (Selleslagh) told you, this interview is about how you relate with your team members, how you maintain interpersonal bonds with them, and what role technology plays in helping you achieve this and shaping them.

Before we start with the interview, it is good practice of scientific integrity to explicitly ask you for your consent. I want to state that your participation in this interview is completely voluntary and you can stop this at any time. Also, I ask for your consent to record this interview so that I can follow the standard procedure of scientific analysis, which is transcribing it and if necessary, listening to it again during the analysis process. Of course, the data files will be stored safely according to UT data ethics regulations.

Do you consent to the procedure of the interview? [ANSWER]

Thank you very much, your insights will not only help me to make this important step in my academic career but also help make your leadership practice more effective. In the first step, I would like to learn more about the interpersonal bonds, you have with the members of your team.

1.   How would you describe the bond you have with your team members?
   a.   How do you feel about the bonds you have with your team members?
   b.   Since every individual is unique, in what ways do the bonds with team members differ? Do you maybe have an example for me?
   c.   How do the strengths of the bonds differ between the different team members?
   d.   (if not mentioned): In scientific literature, such bonds are conceptualised as composites of trust, transparency and reciprocity. How do these three components resonate with you when you think of the bonds you have with your team members? Do you have a situation where these factors matter, vary, or do not matter at all?

2.   Thank you very much for your openness and honesty. From what I have understood so far, upholding these interpersonal bonds is surely not a trivial task. How do you do this?
   a.   What practical methods/techniques do you use?
   b.   What methods/techniques do you think are most effective? Why do you think so?
   c.   Do you know whether your fellow leaders use the same techniques?
      i.   If so, why do they use these similar methods? What might be a reason to explain this?
      ii.   If not, why do they use different techniques?

3. Thanks for sharing about the upholding of such bonds. When hearing about this, I assume that there are also lots of challenges in upholding this, what do you think is most challenging about this? (look at the context of the interview/leader)
   a. Do you have an example of where an interpersonal bond almost failed?
   b. What did you do to fix or repair this?

4. I would like you to flip perspectives for a second. In your view, what is the contribution of your team members in upholding this contract?
   a. How do you make sure that they contribute equally to upholding this?
   b. Or what share do you think is yours and what do you think each team member contributes?
   c. How do you respond to the different needs of each of your team members?

5. You mentioned it already a few times/I have learned tech plays a big role in the organisation, how is technology involved in shaping the bonds with your team members?
   a. Do you think technology is something that helps in upholding these interpersonal bonds or does it rather challenge it?
      i. Do you have a situation where it helped you in upholding the bonds?
      ii. What was it precisely about the technology that made you feel that way?
      iii. Are there some technological functionalities that could be improved to make your life easier?
      iv. Where do you see the greatest potential for technology in upholding the interpersonal bonds, when returning to the concepts of communication, reciprocity and trust?
      OR
      v. Do you have a situation where it challenged you?
      vi. What about the interaction made you feel that way?
      vii. Are there some functionalities that could be adjusted to prevent this from happening again?
      viii. Where do you see the greatest challenge for technology in upholding the interpersonal bonds, when returning to the concepts of communication, reciprocity and trust?
   b. Do you think your fellow leaders also feel about the technology this way? Where might the differences lie?

6. Thank you for your insights on technology. What other factors of your work or working environment do you think affect the interpersonal bonds?
   a. How do they matter for upholding the bonds with your team members?
   b. What could be done to boost the positive things about these factors?

OR
    c. What could be done to mitigate the negative things about these factors?
    d. Do you think technology could help here?
        i. If so, in what ways?
        ii. If not, why not?

7. Is there anything else you would like to add or share regarding your approach as a leader to upholding the interpersonal bonds with team members? (if not done already: maybe address the cognitive, emotional, and behavioural aspects related to the PC)

If time allows:

8. One more favour, please give me your opinion on this/how this resonates with you:
Show card with (Jarrahi et al., 2021) *quote.*
"Technologies in the workplace will not entirely remove, for example, human decision-making, but they do encourage new ways of approaching, understanding, and acting upon such information."

Thanks for the valuable insights, it will contribute significantly to the understanding of the bonds between leaders and team members in a technological landscape.