

Invoking team trust to facilitate performance management in the context of virtual teams



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Purpose: Recent years have seen an upsurge in virtual working arrangements. However, many managers find it difficult to manage and motivate employees in the absence of face-to-face contact. Traditional, structured performance management approaches therefore need to give way to more holistic and technology-enabled approaches that are better suited to virtual work. This study set out to investigate how managers optimise the performance of virtual teams, with specific reference to the role of trust, both within and across teams. While there is growing interest in the role of trust as a driver of virtual team performance, there is insufficient convergence between the respective literatures on virtual teams, team trust and performance management, leaving a research gap.

Design/methodology/approach: Semi-structured interviews were conducted with 18 middle and top managers of virtual teams who worked in large companies in South Africa. The collected data were then subject to thematic analysis.

Findings/results: These included: Virtual work can lead to a work-life imbalance; a lack of human contact can strain interpersonal relationships and erode trust; and optimal performance management in a virtual context depends on a trusting environment, clear and realistic goals, 'agile management practices' (including coaching and frequent feedback) and appropriate technologies.

Practical implications: The study provides new insights into the challenges faced by middle managers in creating trusting and performance-gearred relationships with virtual team members.

Originality/value: The study expands on the existing team dynamics literature while also providing a convenient conceptual framework to guide future studies on the drivers of virtual team trust and optimal performance management.

Keywords: virtual working; virtual teams; trust; team trust; performance management.

Introduction

Driving performance in a virtual context

With the upsurge in virtual working arrangements (Henry et al., 2021; Zakaria et al., 2020), managers admit to difficulty in managing, developing and motivating virtual team members (Wang et al., 2020). Managers assert that they are ill-equipped to measure and manage performance when they have limited physical interaction with employees and teams especially (Brown et al., 2019; Ford et al., 2017; Jimenez et al., 2017; Liao, 2017). It follows that managers should adapt to performance management (PM) approaches that have evolved from a structured set of processes towards more holistic management approaches aimed at driving or enhancing the performance of individuals and teams (Aguinis & Burgi-Tian, 2021; DeNisi & Smith, 2014), wherever they are located. Given the current context of hybrid and flexible workplace practices, investigations on virtual team performance are receiving increasing attention. While emphasis is placed on requirements, influencing factors of team performance and alignment as argued by Tan et al. (2019, p. 2065) who suggest that virtual team performance requires 'communication, relationship building, cohesion and trust'. Similarly, Garro-Abarca et al. (2021) also investigated influencing factors of virtual team performance and concurred that communication and trust are determinants of virtual team performance. Newman and Ford (2021) also emphasise the role of the leader and also advocate for communication, trust and shared leadership as requirements for virtual team performance. Little empirical research has been conducted on the specific role middle managers have in ensuring effective virtual team performance (Brown et al., 2019; Liao, 2017) and little emphasis has been placed on performance management in virtual team contexts.

Owing to the paucity of research in this aspect of virtual team performance, some scholars have advanced aspects of trust as useful mechanisms to explain the dynamics of virtual workforces (Breuer et al., 2020; Garro-Abarca et al., 2021; Tan et al., 2019; Zaharie, 2021). Other scholars have argued that limited face-to-face contact may result in poor trust relationships among work team members (Jarvenpaa & Leidner, 1999). This, in turn, contributes to a reduction in workplace psychological safety (Gibson & Gibbs, 2006), with deleterious effects on team performance. Given the difficulty associated with building trust in nonvirtual contexts (Mayer & Davis, 1999), it is prudent to shine a light on within-team and across-team trust. This contributes to trust scholarship by advancing the nascent concept of team trust (Alves et al., 2022; Breuer et al., 2020) within the established team dynamics literature (Larson et al., 2020), especially in virtual contexts. As such, an exploratory study to examine how managers optimise the performance of virtual teams, with specific reference to the role of trust both within and across teams, is warranted and requires further investigation.

Literature review

Challenges associated with virtual teams

One of the challenges of working remotely, with different degrees of 'virtuality' (Henry et al., 2021), is that reduced face-to-face contact may result in employees feeling isolated, with their social needs increasingly unmet (Zhang, 2016). Also, their work-life balance has been disturbed (Scholarious & Marks, 2004) as individuals working in virtual teams have no physical or permanent work space or location that demarks the boundaries of the home and work life increasing workloads, 24 h work cycle, time zone pressures and tech-enabled blurred boundaries make it difficult for virtual team members to separate personal and professional life (Ruppel et al., 2013), resulting in them becoming less trusting of their organisation (Cascio, 2014) and psychologically unsafe (Gibson & Gibbs, 2006). Moreover, decreased levels of incidental communication among virtual team members could result in a lack of understanding of organisational goals and team objectives and could prompt feelings of role ambiguity (Eaidgah et al., 2018).

Notwithstanding their periodic challenges, technology-based virtual tools, especially online collaboration tools such as Discord, Microsoft Teams and Zoom (Mora-Jimenez et al., 2022), help to coordinate workflows and activities in virtual teams. They also provide the means through which to communicate, exchange information and manage performance (Hertel et al., 2005). Studies have shown that easy-to-use, technology-based virtual tools may also boost employee satisfaction and interpersonal trust if appropriately implemented (Ford et al., 2017).

Engaging in frequent communication using various technology-based virtual tools alleviates task complexity, improves people's coping abilities and helps coordinate team activities. However, much of the existing literature focuses

on older virtual tools such as email and online discussion boards. There is a gap in the literature on how new technologies such as Discord, Microsoft Teams and Zoom are being leveraged to ensure virtual team success (Jimenez et al., 2017; Mora-Jimenez et al., 2022).

Seeking to address challenges to virtual team success, Aguinis and Burgi-Tian (2021) argue that managers need to focus more on managing and monitoring outcomes as opposed to inputs, which is the inverse of the performance assessment (PA) process (Brown et al., 2019). The formal and episodic nature of the PA process, which is distinct from the continuous PM process, can be more readily accommodated by current technological advances, which have made virtual working accessible to many.

Trust in performance management

Trust, in exchange relationships, incorporates a willingness by one party (the trustor) to be vulnerable to another party (the trustee) on the basis of the trustee's positive intentions or behaviour (McAllister, 1995). Trust at an interpersonal level has been seminally defined to distinguish it from its outcomes (i.e. risk-taking behaviour) and its antecedents (i.e. the propensity to trust and the trustworthiness of the trustee) (Mayer & Davis, 1999). Ahteela and Vanhala (2018) argue that interpersonal trust emphasises 'issues of competence, benevolence and reliability and is directed towards both co-workers and leaders' (p. 4). Whereas the competence and reliability dimensions of interpersonal trust emphasise skills and compliance, benevolence centres on the intention to do good. Additionally, interpersonal trust can either manifest quickly, as with 'swift trust' (Zakaria et al., 2020), or gradually and deeply, as with 'calculus-based trust' which relies on prior knowledge and repeated experiences of the trustee.

While understanding different types of interpersonal trust is important for virtual work settings, it is more salient in the present study to engage the concept of team-based trust. Crucially, team-based trust could be viewed as nested within the concept of organisational trust which relies less on interpersonal interactions and more on processes, systems and reputations embedded in the organisation. To this end, team-based trust is said to be isomorphic to interpersonal trust (Alves et al., 2022), such that it is (Breuer et al., 2016):

[T]he shared willingness of the team members to be vulnerable to the actions of the other team members based on the shared expectation that the other team members will perform particular actions that are important to the team. (p. 1152)

It follows that virtual team members are expected to reveal shared meanings and expectations as a precondition for effective team performance.

Mindful of virtual work contexts and building on the isomorphic nature of team trust in relation to interpersonal trust (Alves et al., 2022), we argue that PM can be reframed to privilege traditional trust antecedents such as competence,

benevolence, reliability and integrity within the realm of team trust, alongside emerging antecedents such as predictability, transparency, feedback and shared values (Breuer et al., 2020; Ahteela & Vanhala, 2018). We further argue that the antecedent elements of benevolence, integrity, predictability and transparency are more operational when the focus shifts from interpersonal trust to team-based trust in virtual work contexts (Breuer et al., 2020) because they help to mitigate the inability to directly observe employees performing tasks, as would be the case in face-to-face work teams. In short, and in the context of this study, the challenge is how to leverage technologies to enhance team-based trust in virtual work contexts using effective performance management techniques.

Evolution of performance management

Aguinis (2013) defines performance management as a continuous process of 'identifying, measuring, and developing the performance of individuals and teams and aligning performance with the strategic goals of the organization' (pp. 2–3). Performance management is generally presented as a complex and multifaceted discipline, with an increasing number of scholars recently questioning the impact of formal PM processes on performance outcomes (Pulakos et al., 2019). Performance management has been evolving, though, and now encompasses more informal processes and behaviours which arguably produce better results. Cappelli and Tavis (2018) indicate that, with innovation on the rise, many organisations are embracing more holistic approaches to employee development, underpinned by coaching and informal feedback, and are dispensing with the more traditional quantitative approaches to PM which are typically associated with PA (Cappelli & Tavis, 2016, 2018). Continuous PM contributes to the formation and management of shared meanings and expectations – a precondition of team-based trust.

Stages of performance management

Various models and frameworks appear in the literature, which were designed to enhance employee performance and productivity (Aguinis, 2013; DeNisi & Smith, 2014). Building on PM concepts that are closely aligned to trust antecedents such as competence and reliability (Ahteela & Vanhala, 2018), we follow Cascio (2014) who emphasises that effective PM should include processes such as communicating expectations on a regular basis, providing immediate feedback and helping employees to maximise their performance. Aguinis (2013) developed the PM process which tracks the different stages of PM.

The first two stages of Aguinis's PM process, prerequisites and performance planning, require an understanding of the organisation's strategic objectives and how an employee's job aligns with the organisation's mission and goals (Aguinis, 2013). For this reason, goal setting features strongly in the PM literature (David, 2013; Rodgers & Hunter, 1991). According to Latham and Locke (2006), if

goals are well conceived and communicated, employees' motivation rises, and performance improves. This point is further emphasised by Aguinis and Burgi-Tian (2021) who argue that PM based on clear goals performs 'important administrative, strategic and communication' (p. 233) functions and Guzmán et al. (2011) emphasise that when goals are unclear, virtual teams could feel confused or ambiguous about their roles.

Performance execution involves an employee following through on a plan and producing the results that were determined during the planning phase (Aguinis, 2013). Motivating employees through coaching and ongoing feedback is an important part of the performance execution process (Aguinis, 2013; DeNisi & Smith, 2014). The need for coaching and feedback in the PM process is greater in virtual teams because of the difficulty of establishing shared meanings in such contexts (Zaharie, 2021).

Performance assessment and review involves the employee and manager evaluating outcomes against agreed deliverables (Aguinis, 2013). Performance assessment is covered extensively in the literature. Some authors discuss the value of assessment tools such as competency-based evaluations and the balanced scorecard in ensuring alignment between employee performance and organisational goals (Catano et al., 2007; Chan, 2006; Nankervis & Compton, 2006). Others argue that the impact of evaluation tools on employee performance has not been proven objectively.

Performance management and virtual teams

Hertel et al. (2005) developed the Lifecycle Model of Virtual Team Implementation, which outlines critical management tasks when forming virtual teams, spread over five key phases. However, this model was designed for project teams that collaborate for a brief period before disbanding after project completion – where a brief period of trust sufficed (Mayer & Davis, 1999; Zakaria et al., 2020). Little attention, therefore, is given to ongoing PM and its role in respect of long-term virtual teams (Breuer et al., 2020). An integrated, virtual performance and management model or framework would therefore be useful.

Eaidgah et al. (2016) conceptualised the integrated visual management (IVM) model which combines PM with visual management (VM) tools and continuous improvement (CI) processes in traditional work settings that are based on an in-person mode of work. The IVM model comprises three elements, namely performance, planning and implementation, PM and VM, and finally, PA and CI (Eaidgah et al., 2016). Eaidgah et al. (2018) tested the model in a virtual setting and found that team performance systematically improved. However, while the model includes the element of feedback, it lacks other developmental PM elements such as coaching and techniques to drive goal attainment, which are important in an environment that places a premium on innovation (Cappelli & Travis, 2018). Moreover, the manager's role does not feature in the IVM model (Eaidgah et al., 2018). To close

this gap in the models, there is a need to incorporate these additional interpersonal PM elements (i.e., ‘socioemotional and relationship activities’) (Larson et al., 2020, p. 1146).

Research questions

Given the identified gaps at the intersection of the literatures on team trust, virtual teams and performance management; with a view to establishing how to drive effective performance among virtual teams, we formulated the following research questions:

- *What trust-related challenges do managers face when driving performance in virtual teams?*
- *What strategies have managers relied on to develop and assess team members, so as to drive performance, while navigating trust challenges in virtual teams?*
- *How is performance management technology being used to drive performance in virtual teams?*

Methodology

Edmondson and Mcmanus (2007) suggest that it is best to use an inductive approach when little or no previous theory has been generated on a particular research topic or if the topic represents ‘new phenomena in the world’ (p. 1161), which they agree is also well suited to virtual team studies. Therefore, for this study, we considered an explorative, inductive approach to be the most suitable and assumed a relativist ontological positioning together with an interpretivist philosophical underpinning (Bryman & Bell, 2015; Creswell, 2013; Mills et al., 2006; Saunders & Lewis, 2012; Zikmund et al, 2013).

Sample

Our inclusion criteria for the study were managers who operate in virtual work contexts in large, private sector companies (250+ employees). In our study, virtual teams were defined as knowledge workers spread over various time zones and locations who use electronic media to communicate, while the population consisted of managers who had experience of managing virtual teams across various industries, in different parts of the world.

Our selection of participants produced a sample that was well-placed to provide insightful answers to the research questions. Industries from which the sample was drawn included media and broadcasting, financial services, IT, consulting services, real estate, construction, mining and automotive, thereby ensuring sample diversity. Furthermore, to ensure a fair representation of managerial experience, the 18-person sample comprised 9 top managers and 9 middle managers, whose virtual team sizes ranged from 2 to 10 direct reports. Those in the top management category had job titles such as chief strategist, head of governance, marketing group executive, head of sales and audit manager. Those in the middle management category had job titles such as financial manager, supply

chain strategy manager, governance manager, engineering manager and tax manager.

Procedure

After obtaining ethical approval and informed consent from each participant, we collected data through in-depth interviews conducted via Zoom. We assured participants that the collected data would be used without any identifiers. Each interview lasted about 45 min.

Measurement instrument

Given the qualitative nature of the study, our chosen research instrument was in-depth, semi-structured interviews with open-ended questions that allowed participants to communicate their opinions, experiences and feelings. We used an interview guide as a data collection tool. During the interviews, we encouraged participants to elaborate and provide richer insights on the answers they had given. We also sometimes asked additional questions to explore constructs more fully (Collis & Hussey, 2014). Interview questions are provided in Table 1.

Data analysis

We analysed data using thematic content analysis, which involved identifying common themes across the gathered data (Vaismoradi et al., 2013). Braun and Clarke (2006) identified six phases in the thematic analysis process, which we followed in this study. Firstly, we transcribed the Zoom voice recordings with the help of an automatic transcription tool, Otter.ai. We replayed each interview recording and reviewed the transcription to ensure that all data had been

TABLE 1: Interview questions.

No.	Interview question
1	Can you tell me about some of the challenges that you face when driving performance in your virtual team?
2	What processes do you use to communicate with your team about their role in a virtual setting?
3	How do you set expectations with your team around the goals you need them to achieve in a virtual setting? Follow-up question: To what extent do you involve your team in setting these expectations?
4	How do you observe the performance of your team members when you have limited opportunity for face-to-face interaction?
5	How do you motivate your team virtually to achieve their goals in a virtual setting?
6	How do you provide feedback to your team to drive their performance in a virtual setting? Follow-up questions: How frequently do you provide this feedback and is it reinforcing or negative? Do you use any informal feedback on a daily basis to drive performance?
7	How do you coach your team to drive their performance in a virtual setting? Follow-up question: How frequently do you provide coaching to your team?
8	How do you assess your team's performance to drive performance in a virtual setting? Follow-up question: How frequently do you conduct assessments?
9	What kind of assessment tools, if any, do you use to assess your teams performance in a virtual setting (e.g. BSC, competency-based evaluations, etc.)?
10	How do you use technology to drive performance in your team?
11	How do you select and adapt the relevant technologies to drive performance within your team? Follow-up question: Do you ever adopt any other tech other than the company's prescribed technologies? Can you tell me more?
12	Is there anything more you would like to mention or add, based on your experiences with driving performance in your virtual team?

No., Number.

correctly transcribed and to rectify any mistakes. We embellished the transcriptions with additional notes that we took during periods of general observation as the interviews were under way.

An inductive approach was adopted which was informed by an interpretive understanding of reality. The study assumed individuals construct their own meanings of virtual teams and make use of individual experiences in order to formulate a considered worldview of performance in and of virtual teams (Hyde 2020). Through the interpretation of these meanings, we completed the initial coding using the Atlas.ti program to generate initial themes from the data (Strauss & Corbin, 1998). We then defined second-level categories by reviewing the codes, finding similarities and differences across the participants' responses, and comparing and clustering the initial codes. Thereafter, we performed thematic analysis to identify and report patterns or themes within the collected data (Maguire & Delahunt, 2017). We reviewed and checked the themes against one another to develop thematic maps, before analysing and further refining them. We named, counted and rank-ordered the different categories.

The 18 interviews generated a total of 160 unique codes. This allowed a number of themes to emerge from the data, including those that may not have been directly related to the research questions or had not previously been given consideration in the literature review. We grouped the first-order codes that emerged from the coding into 55 second-level categories, which resulted in six aggregated themes.

Results

What trust-related challenges do managers face when driving performance in virtual teams?

The first research question related to trust-related challenges faced by managers when driving performance in virtual teams. Table 2 lists the six constructs that emerged from the interviews that were conducted.

Difficult to monitor and control employee performance

One of the most frequently mentioned challenges was the difficulties that managers experienced in observing and controlling their teams' performance. This is consistent with Holtbrügge et al.'s (2011) observation that 'monitoring and controlling' (p. 212) employees become complicated because of the distance that separates team members and their managers in a virtual context. Morrison-Smith and Ruiz

(2020) argue that geographical distance negatively affects awareness of schedules and activities, something that vexes managers who fail to distinguish between task- and relationship-based leadership when applied to virtual work teams. Within the trust literature, an overemphasis on monitoring and control mechanisms serves to highlight distrust as opposed to trust – constructs that, it has been argued, have distinct (and not simply opposite) meanings (Mthombeni & Chizema, 2022).

While only four top managers cited monitoring and controlling their team's performance as a challenge, all middle managers struggled with this aspect. Middle managers indicated that an additional challenge was not knowing if team members were actually working. Certain middle managers found performance management (including coaching, motivating and mentoring) particularly difficult. Managers highlighted how challenging it was to motivate, coach and mentor their team and thereby drive performance when there was no face-to-face interaction.

Work-life imbalance

Another frequently mentioned challenge was a work-life imbalance, which was seen to negatively impact team members' performance. The literature on perceptions of justice helps to explain how a perceived work-life imbalance reduces employee commitment. This appears to resonate with the assertion by Scholarios and Marks (2004) that a work-life imbalance in the context of a virtual team could result in an employee feeling personally unsatisfied and less trusting of their organisation. Indeed, perceived feelings of injustice could negatively affect the level of trust in organisations (Cascio, 2014).

Seven participants, all top managers, expressed concern about team members who exhibited an increased commitment to virtual work, noting that it was difficult for these people to find a harmonious balance between their home life and work life. Similarly, middle managers observed that a work-life imbalance in a virtual context resulted in waning concentration or burnout. In addition, five middle managers highlighted the negative effect of home interruptions on a team member's performance.

Unmet social needs

Among the key challenges that managers faced while driving performance virtually were team members' lack of human contact and unmet social needs (Zhang, 2016). This is not surprising, with Jimenez et al. (2017) emphasising that in a virtual context there is a risk that socialising will be neglected, thereby compromising both trust and virtual team effectiveness.

While only two middle managers mentioned unmet social needs, most top managers agreed that the virtual environment resulted in the loss of the 'human element'. The top managers also reported challenges in building and maintaining

TABLE 2: Challenges experienced by top and middle managers.

Rank	Literature-derived construct	Frequency
1	Difficult to monitor and control performance	43
2	Work-life imbalance	43
3	Unmet social needs	19
4	Technology challenges	12
5	Communication difficulties	9
6	Cultural barriers	3

relationships with team members, while a few reported difficulties in establishing rapport with new recruits. This highlights the link between maintaining relationships and building trust (Ford et al., 2017; Jimenez et al., 2017). Other stated drawbacks were an inability to arrange team-building activities and the much-reduced likelihood of spontaneous interaction, epitomised in the 'water-cooler concept' which has no place in the virtual world.

Technology challenges, communication difficulties and cultural barriers

Several participants cited technology challenges (such as poor Internet access or limited bandwidth), communication difficulties and cultural barriers as obstacles to performance. Both top and middle managers consistently highlighted how the inability to observe body language resulted in communication challenges.

What strategies have managers relied on to develop and assess team members, so as to drive performance, while navigating trust challenges in virtual teams?

Managers indicated that they engaged in goal setting and PM to drive performance virtually, while navigating trust challenges in virtual team contexts. Managers relied on feedback, coaching, motivation and evaluation activities, which were complemented by high-level managerial support. Accordingly, managers exhibited elements of competence-based trust, which garners confidence in others on the basis of their perceived reliability, the latter established through regular interactions that permit the demonstration of their technical skills (Table 3).

Goal setting

Clarity of goals was the most frequently mentioned construct. In line with Latham and Locke's (2006) view of goals as specific and clear, participants also stressed the importance of goals being formulated in a transparent manner. Both middle managers and top managers highlighted the need for organisational, operational and individual development goals to be aligned.

TABLE 3: Activities to drive performance in virtual teams.

Rank	Literature-derived construct	Frequency
Goal setting		
1	Clarity of goals	38
2	Agile goals	26
3	Group goals	23
4	Team commitment	22
Performance management		
1	Frequent evaluation	106
2	Frequent feedback	85
3	Frequent coaching	33
4	Motivation	28
Managerial support		
1	Consideration for well-being of the team	36
2	Direct and develop team members	19
3	Establish trust in the team	18

Although two top managers discussed aligning goals to operational tasks, six middle managers indicated that in a virtual environment, they were beginning to set shorter, more agile goals in preference to long-term goals. Some participants indicated that goals were broken down into smaller operational tasks or increments, which could then be tracked to drive performance. These findings resonate with Cappelli and Tavis's (2018) views about agile PM practices.

All 18 participants followed a collaborative, *team-based* approach to goal setting in a virtual environment. This was evidenced in various comments about reaching consensus on expectations, asking for the team's feedback on set goals or setting shared team objectives. Some managers mentioned setting team goals and putting incentives in place to promote healthy competition within the team.

These findings were not surprising as the literature has shown that group-level goals and feedback promote the sharing of task-related information, resulting in greater engagement and improved team performance (Latham & Locke, 2006).

Performance management

The performance management construct mentioned most often was ongoing evaluation. Participants felt that it was important to conduct performance evaluations on an ongoing basis because of the lack of personal interaction in a virtual context. This is in line with Cappelli and Tavis's (2018) finding that organisations are opting for more frequent evaluation. Six top managers measured their team's performance by output and made sure that the team's expectations could be tracked and reported in real time. This allowed them to detect problems early on, course-correct behaviour through feedback and immediately address performance-related issues. Four top managers indicated that they had implemented more regular, 360-degree feedback systems, specifically for the virtual context. These findings were consistent with the literature promoting a more agile approach to performance evaluation, using multiple feedback sources (Cappelli & Tavis, 2018; Eidgah et al., 2016; Pulakos & O'Leary, 2011).

The second most commonly mentioned construct was frequent feedback, which all 18 participants believed was essential to drive performance in a virtual context. Both top and middle managers indicated that constant interaction with their team members compensated for the lack of face-to-face contact and allowed them to track progress and detect problems timeously. Some top managers contrasted this with the traditional working environment in which issues would generally only be picked up once tasks had been completed. This finding supports Cappelli and Tavis's (2018) view that iterative and more immediate feedback is better suited to newer work structures. This is also consistent with earlier findings that feedback is an antecedent of team-based trust.

As many as 16 managers employed frequent, informal coaching among their virtual team members. Managers in

both groups believed it was important to conduct coaching within a team setting as it helped to cross-skill team members and promote knowledge sharing. The acknowledged importance of coaching is in line with Cappelli and Tavis's (2018) view that companies that conduct ongoing coaching are better equipped to adopt agile talent practices through increased employee engagement.

Many participants mentioned that, as their organisations had adopted more virtual ways of working, they had become more focused on keeping their teams motivated – particularly in view of some team members feeling isolated. Some managers reported a decline in motivation levels among team members when they had to adapt to virtual working arrangements during the COVID-19 lockdown period. In response to this, the managers concerned used recognition, positive feedback and incentives to motivate their teams to perform.

While participants had previously mentioned team members' social needs not being met, some managers reported coming up with creative team-building or fun activities to keep their teams motivated and engaged, and to foster a greater spirit of collaboration. Some participants mentioned incentivising performance, which might include providing leave incentives, annual performance bonuses and organisational incentives such as small monetary awards or vouchers. However, 15 managers were of the view that regular recognition for a job well done was a powerful motivator in a virtual context.

Managerial support

The issue of managerial support was raised by all participants, who said that they used it to create a supportive environment and to actively direct and develop their team members. This finding is consistent with Liao's (2017) view about the importance of virtual team managers directing and developing their team members' efforts in line with organisational and individual goals, while also showing consideration for their team's well-being (Ford et al., 2017). Crucially, this aligns with the view that actively engaged managers elicit positive perceptions of justice, accompanied by elevated trust levels.

When referring to the aspect of managerial support, participants generally meant displaying consideration for the team through, for example, 'empathy' and 'personal, regular check-ups'. Both top managers and middle managers stressed the importance of supporting team members on a personal level, understanding their unique circumstances and allowing them flexibility when needed.

All top managers recognised that they had an obligation to actively direct and develop their virtual team members to help them overcome some of the performance challenges that they had encountered, such as having an unsatisfactory work life balance. Regarding the latter, several managers stressed the importance of helping their team members set personal boundaries. In addition, both top managers and

middle managers acknowledged that they needed to make themselves available to their teams, particularly as the virtual working environment does not lend itself to automatic manager-employee interactions.

The issue of trust in a virtual team was raised by three middle managers and two top managers, who stressed the importance of the team feeling trusted and not being micromanaged. One participant suggested that, if necessary, managers should work on improving their capacity to trust their team members as this was indispensable for group cohesion and performance.

How is performance management technology being used to drive performance within virtual teams?

The third research question relates to how managers leverage technology to drive performance virtually. Table 4 lists the constructs that emerged from the interviews in this regard.

The use of virtual tools to support work processes was most frequently mentioned by participants. Both top managers and middle managers used technology not only to facilitate communication but also to support work processes and virtually track their team's performance. This is consistent with Hertel et al.'s (2005) view that technology and virtual tools streamline work processes and facilitate coordination of activities in a virtual environment.

To enable communication and coordination of team activities, both top managers and middle managers indicated that they relied on a range of virtual tools to support work processes, such as the agile methodology, formal feedback processes, retrospective sessions, platforms to showcase work and structured evaluation tools. Furthermore, both top managers and middle managers said that they relied even more on task-tracking tools to track performance in a virtual environment than in a traditional environment because the tools enhanced the visibility of their virtual team's performance.

A few top managers indicated that, ever since the accelerated transition to remote working in the wake of the COVID-19 pandemic, they had deliberately formulated remote working policies to drive performance. Some top managers added that it would be difficult to drive performance remotely without having the necessary virtual tools in place. Notwithstanding the importance of technology, several managers emphasised that directing performance remotely was less about the technology and more about forging strong connections with team members and providing ongoing support.

TABLE 4: How technology is used to drive performance in virtual teams.

Rank	Literature-derived construct	Frequency
1	Virtual tools to support work processes	47
2	Support communication and coordination of team activities	46
3	Track and communicate performance	38

Discussion

The difficulty of monitoring performance in virtual contexts, as experienced by the middle managers in this study, suggests that the socioemotional and relational factors identified by Larson et al. (2020) require more attention at this intermediate management level than at the top management level where the nature of the work lends itself to more relational interactions (Breuer et al., 2020). This is consistent with the literature which indicates that middle managers feel that their strategy implementation efforts are constrained simultaneously by a lack of senior management support and a breach of the psychological contract with subordinates who do not perform in a consistent manner. This often results in emotional exhaustion on the part of middle managers (De Jong et al., 2020).

The different experiences of the middle management and top management teams reveal that the lack of relational investment at the middle management level of the organisation is a serious constraint in virtual work contexts. At the top management level, relational investment is evident in respectful engagement, openness and connectedness (Lee et al., 2020). These three factors have been found, empirically, to be antecedents to team trust among top management which is consistent with the team trust antecedents suggested by Breuer et al. (2020).

Furthermore, an unsatisfactory work–life balance (Scholarios & Marks, 2004) and unmet social needs (Zhang, 2016) could trigger perceptions of organisational injustice and inadequate commitment to employees, which could in turn lead to less trust in the management team (Farndale et al., 2011). It is therefore important to invest in relational activities to boost trust, not only within teams but also across teams in virtual contexts. Relational investments across virtual teams are difficult to achieve because of the interdependencies underpinning the completion of tasks in complex organisational settings (De Jong et al., 2016). Relational trust must be able to flourish in the virtual work context to engender a feeling of organisational justice including its underlying processes and systems (Farndale et al., 2011).

Empirical studies have shown that to ensure an appreciable return on investment in relational activities in virtual contexts, it is crucial to resolve any technology challenges relating to performance management. Addressing such technology challenges is an aid to effective team performance in virtual contexts as it enhances the quality of goal setting, PM and managerial support. There is a growing awareness that while performance management technologies can be used to track performance to monitor and control, it is better to use technologies to empower employees by supporting communication, coordination and work processes. This is consistent with the notion of integrity-based trust having greater valence than cognitive-based trust.

It is noteworthy that goal setting is an antecedent of PM (Ford et al., 2017). Moreover, managers' quest to seek

goal clarity by setting shorter ('sprint-like') goals is consistent with Breuer et al.'s (2020) view that trustworthiness is the antecedent of predictability and also, by association, ability. Managerial support, in turn, moderates the relationship between PM and organisational performance. Conducting more regular performance evaluations means that communication in virtual team contexts is paramount, which contributes to relational investment, as indicated in the literature. Relationships are enhanced if there is trust between supervisors and employees and trust among team members.

Based on our empirical study and the earlier discussion, we developed a conceptual framework that integrates the aggregated themes emanating from the collected data and prescribes the process of using PM to drive virtual team performance. Our proposed Virtual Team Performance Management Framework shown in Figure 1 has five key elements that are necessary to drive optimal performance within a virtual team.

As depicted in the framework, driving team performance in a virtual context should start in quadrant 1 by clearly defining expectations, followed by setting shared goals and ensuring their alignment to the organisational strategy, operational tasks and individual development goals. This quadrant emphasises elements of ability in the trust concept (Ahteela & Vanhala, 2018; Ford et al., 2017).

In quadrant 2, managers employ agile PM practices to drive and develop their team to realise the stated expectations. This entails providing frequent feedback, coaching and motivating, as well as monitoring and evaluating the team's performance. In this context, monitoring is done to facilitate learning; it is not used for punitive purposes. This quadrant emphasises the reliability dimension of trust (Ahteela & Vanhala, 2018; Breuer et al., 2020; Lee et al., 2020).

Quadrant 3 highlights the role of managerial support made possible by practices aimed at encouraging employee well-being, employee development, and inter-team and intra-team support (Ford et al., 2017). This quadrant emphasises the benevolence aspects of trust.

Quadrant 4 integrates technology and related processes to enhance the development of trust at multiple levels within a virtual team context. The quadrant focuses on using technology as a source of empowerment as opposed to monitoring and control. This is aimed at improving employees' and teams' perceptions of justice in the organisation (Farndale et al., 2011) to alleviate the negative consequences arising from a poor work–life balance (Scholarios & Marks, 2004).

Finally, the four quadrants are integrated into the core element of *team trust in virtual teams*, the operationalisation of which requires great care and attention. This is achieved through the exercising of organisational justice (Flavian et al., 2019) to enhance trust between the virtual team and their manager. In this way, our framework builds on a large body

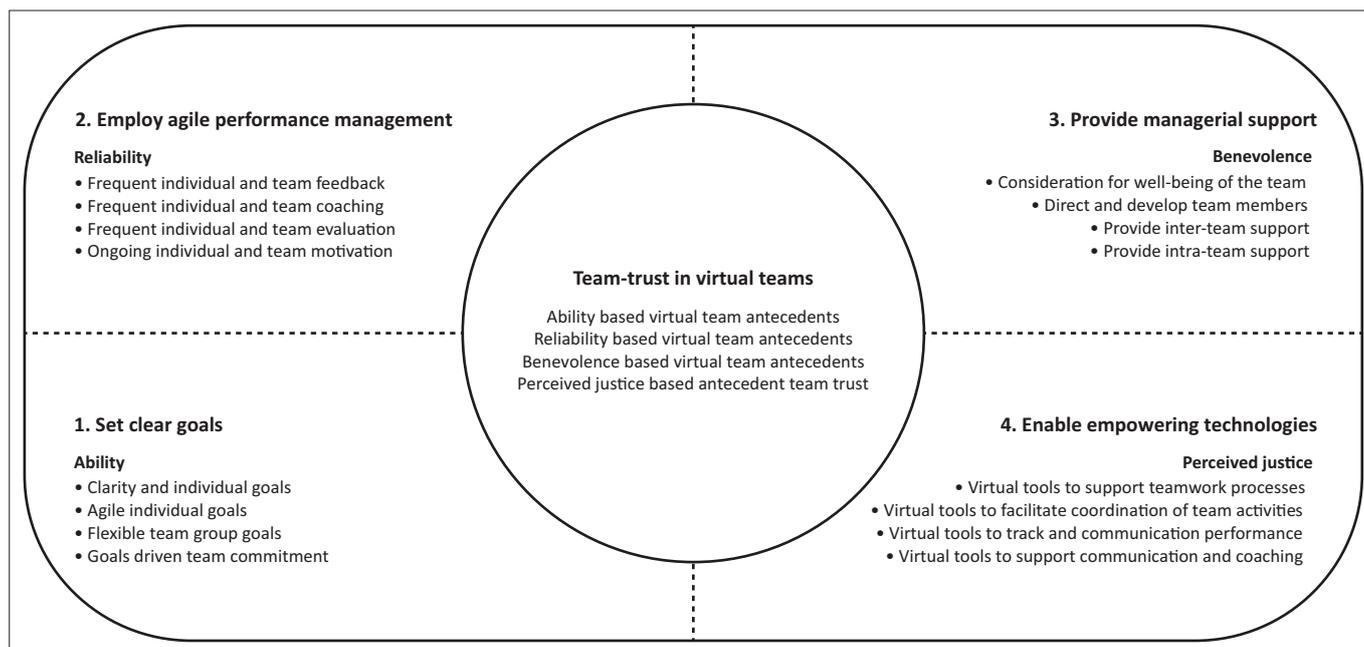


FIGURE 1: The virtual team performance management framework.

of literature that integrates organisational justice and trust. Such literature asserts that trust develops gradually over time and through repeated interactions. It follows, therefore, that perceptions of justice are antecedents of trust.

The Virtual Team Performance Management Framework is premised on the understanding that team trust is isomorphic to interpersonal trust (Alves et al., 2022). We therefore embrace the core antecedents of interpersonal trust. Moreover, we highlight practices within the virtual team context that operationalise the established antecedents of team trust in virtual teams. Importantly, too, we argue for the explicit acknowledgement of perceived justice as a crucial antecedent of team trust in virtual work contexts (Farndale et al., 2011; Flavian et al., 2019). This serves to ameliorate the negative effects of a work–life imbalance in a rapidly virtualising work environment.

Conclusion

Implications for research and practice, and further areas of study

This study has demonstrated how PM practices, enabled by team trust, clarified through HR practices relevant to virtual contexts and extended by the explicit acknowledgement of perceived justice as an antecedent of trust, can be used to drive greater performance in a virtual context. The Virtual Team Performance Management Framework integrates the five main themes that emerged from this study. These translate into five important contributions that the study makes to the literature.

Firstly, goal setting (at both an individual level and a team level) is identified as an antecedent of PM. Specifically, team trust facilitates agile goal setting (Cappelli & Tavis, 2018; Joshi et al., 2009). Attaching goals to smaller components of

larger tasks allows for agility within the setting of goals (Flavian et al., 2019). Agility and responsiveness are heavily reliant on an individual's belief that team members are competent and will complete assigned tasks (Joshi et al., 2009). As such, trust in team members and in the manager is critical for effective team performance in dispersed settings and for agile goal setting.

Secondly, this study revealed the importance of agile, developmental PM practices in a virtual context. The importance of *feedback* is regularly highlighted in the PM literature, with many scholars stressing that the provision of regular feedback through both informal and formal channels leads to more effective PM (Gregory et al., 2008; Kirkland & Manoogian, 2007). Feedback can be used to enhance elements such as employee engagement, motivation and job satisfaction.

This supported Eaidgah et al.'s (2016) study, which concluded that frequent feedback could drive performance and enhance interpersonal trust as well as team trust and cohesion in a virtual environment. This is consistent with literature that emphasises the accretive role of leaders who proactively forge socialised relationships in geographically dispersed teams (Flavian et al., 2019; Joshi et al., 2009).

Also emerging from this study was the need for managers to adopt an agile approach to performance assessment. The study showed that the virtual environment is more agile and team-focused than a traditional working environment, which explains why managers are able to adopt a more ad hoc approach to PA. Pulakos and O'Leary (2011) note that, by leveraging performance data and analytics, managers can deliver real-time feedback and correct employees' actions in a timeous fashion. Moreover, the findings from the present study showed that even though the broader organisation

may still be using traditional rating scales and formal, annual performance evaluations, individual managers heading up virtual teams typically leverage technology and provide more dynamic feedback to their team members, thus giving them a current view of their performance.

Thirdly, we contribute to the PM literature by spotlighting the respective support roles that top managers and middle managers must play in driving the performance of virtual teams. Some studies suggest that a shared leadership approach – which involves shifting some management responsibility (Hertel et al., 2005) to team members – may be the best way of improving virtual team performance (Hoch & Kozlowski, 2014). However, other studies suggest that a single leader is required to manage both individual team members and the team as a whole and to guide and develop team members so that they can achieve stated goals (Ford et al., 2017; Liao, 2017).

The present study strengthens the PM literature by proposing that the role of the manager is vital - not only to engage in PM practices that enhance team performance but also to create a supportive environment for the team. The findings from the study support Liao's (2017) suggestion that managers need to be considerate towards their team and address team members' personal needs. Moreover, the study showed that managers need to set boundaries for their team members in the interest of inducing a positive work-life balance. Although Eaidgah et al. (2016) and Hertel et al. (2005) mention how leadership can assist PM practices in a virtual context, these authors' models do not provide any indication of the value of supportive management. A finding from the present study was that managerial support plays an important role in driving virtual team performance.

Fourthly, this study adds to the virtual team literature by offering new insights into how modern technology and processes can be used to drive performance in virtual teams. Apart from highlighting the benefits of collaboration and communication and stressing that technology needs to fit a team's particular context (Ford et al., 2017), the latter can be enhanced to enhance perceptions of organisational justice (Flavian et al., 2019). Extant literature provides little differentiation between the various types of technology that are used in virtual settings and how such technologies can be used to empower or control. Clearly, this area is under-researched.

The present study addressed this gap by investigating how new types of technology are being used to aid online working and to facilitate PM when there is limited face-to-face contact. The findings from the study revealed four distinct functions in which managers adopt technical tools to drive performance and enable PM practices: performance tracking; collaboration; communication; and knowledge sharing and social interaction.

From a practitioner perspective, this study has implications for organisations' quest to support their virtual teams with

the correct tools, processes and policies aimed at driving performance. Hertel et al. (2005) suggest that adopted technologies should fit the tasks performed by virtual teams. A team cannot perform optimally if the technology is not 'reliable, rich and fast' (Ford et al., 2017, p. 28). There is thus a strong case for organisations formulating sound technology plans to optimise their employees' performance.

Fifthly, much of the existing literature on virtual team microprocesses is centred on the challenges associated with working with a globally dispersed team with some attention given to microprocesses like interpersonal trust and PM in virtual teams. In contrast, the findings from the present study highlighted the significance of interpersonal and team trust in virtual teams, with some scholars considering trust to be the key to virtual teams' success (Flavian et al., 2019; Ford et al., 2017). Therefore, the study builds on virtual team literature by introducing the concept of team trust, elucidated with context-specific processes and the addition of perceived justice as an antecedent of concern.

Our study is also informed by the De Jong et al. (2016) meta-analysis that sought to integrate the fragmented literature on intra-team trust and team performance, especially in a virtual team context. This meta-analysis is important because, as argued, 'trust helps team members to suspend uncertainty about vulnerability towards their fellow teammates as if this uncertainty and vulnerability were favourably resolved' (p. 1136). In a virtual team context, as illustrated by Joshi et al. (2009), a lack of trust contributes to team members losing sight of their team goals and increasingly focusing on their personal interests instead, making it more difficult to develop shared contexts and norms.

Limitations of the study

The qualitative research method can be subjective and qualitative interviews risk being influenced by personal biases. The sample we chose for this study consisted of executives and managers only, and we made no attempt to learn about the experiences of virtual team members. Since PM is a two-way process between managers and employees (Pulakos et al., 2019), it may be beneficial to gather insights from team members who work virtually to uncover any blind spots that may have been missed in the study.

Since the interviewees managed virtual teams that straddled different regions, we anticipated that cultural and language differences might prompt some misunderstandings during the interviews. However, all participants were proficient in English and no language barriers were experienced. In addition, we expected – based on the literature review (Eaidgah et al., 2019) – that cultural barriers would complicate participants' experiences of PM and the management of virtual teams. However, this issue was raised by only one participant in the study. Similar studies could be conducted in the future with a broader geographical reach to draw out the cultural dimension.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

L.M. conceptualised the study including doing the original research, deciding on the methodology, and undertaking investigation, analysis and drafting of the manuscript initially submitted in partial fulfilment of requirement to qualify for a Master's degree at GIBS. H.P. supervised the entire research process undertaken by L.M. and worked with L.M. and M.M. to convert the manuscript to publication level. To that end, H.P. and M.M. contributed additional literature, conceptualisation, drafting, visualisation, editing and project administration of the final manuscript submitted for publication.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Gordon Institute of Business Science Research Ethics Committee.

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Data availability

The data that support the findings of this study are available from the corresponding author, M.M., upon reasonable request.

Disclaimer

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