MSc Thesis Business Administration

Unlocking Individual Performance: Exploring the Role of Team Communication Platforms in Multi-Team Membership

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Academic year 2024/2025

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Acknowledgments

The process of writing this thesis, perhaps the most challenging yet also the most rewarding chapter of my master's journey, and the completion of my studies would not have been possible without the invaluable support, guidance, and encouragement of many. To all of you, I extend my heartfelt gratitude.

My deepest appreciation goes to my supervisor, Dr. Matthias De Visser, whose insightful guidance and stimulating support were paramount to this research. Your invaluable mentorship throughout the entire writing process, combined with the freedom to explore my ideas while always receiving clear feedback, made all the difference. I am particularly thankful for your consistent availability and willingness to always make time for my questions, which greatly facilitated my progress.

I am also immensely grateful to my second supervisor, Dr. Lara Carminati. Your constructive feedback and dedicated time in reviewing my work were invaluable, as was your support for me and the other double-degree students throughout the year at the University of Twente. What truly stood out was your genuine care, helpfulness, and concern for us. You truly have been a reference figure to us.

I extend my appreciation to both the University of Trento and the University of Twente for providing the opportunity to engage in such enriching international experiences, which have been precious for my personal and academic growth.

Beyond the academic sphere, I am eternally grateful to my family for their unconditional love, understanding, and support. To my parents, your belief in me and your sacrifices have been the foundation of my aspirations. To you and to my sister, thank you for your constant presence and patience, even across distances, for the daily calls, for driving over 10 hours to pick me and all my belongings up in the Netherlands, and above all, for always encouraging me to pursue my goals.

To my boyfriend, Thomas, I owe a special thank you. Beyond your love, your tireless support, and constant presence, and beyond your patience in answering all my questions about my thesis and using LaTeX, your dedication and passion for yourown research have been a powerful source of inspiration. You have been a guiding example throughout my university journey.

Last but not least, is the thank you I owe to all my friends. In particular, to my incredible friends – Bianca, Jessica, Sabrina, Tamara, and Veronica – thank you for your cherished companionship, the much-needed distractions, and, as always, for being a constant source of support and laughter. Your friendship has been a vital lifeline during the demanding periods of this journey. Thank you for always being just "a call away" from me. To my wonderful friend Francesca, with whom I had the fortune to share my experience abroad and also to share a home for a few months, my experience in the Netherlands would not have been the same without you. I am grateful for all the dinners we cooked together, and especially your amazing risotto, for the nights spent talking. Thank you for every memory we have created together. To my friends from uni, Arianna, Eleonora, and Sofia. I am grateful to have met you during the first days of class, for all the group projects we carried out together, but above all for the laughter, "aperitivi" after our exams, and the trips we did together. To Veronica, my valuable friend and colleague, whose partnership in tutoring students has been essential.

To all those who dedicated their time to participate in my survey, without your contribution, I would not have been able to write this thesis.

Thank you all.

Abstract

Multiple Team Membership (MTM) is an increasingly common practice that offers benefits such as enhanced knowledge transfer and flexible resource allocation. However, it also introduces challenges, including coordination difficulties, attention fragmentation, and cognitive overload for individuals. Although Team Communication Platforms (TCPs) are often developed to address some of these challenges, their specific impact on individual performance (IP) within MTM contexts remains underexplored. Existing literature usually focuses on specific technologies or team-level dynamics, overlooking the individual-level implications. This thesis aims to bridge this gap by investigating how the utilization of TCPs moderates the relationship between MTM and IP. Drawing on the Job Demands-Resources (JD-R) theory, this study explores how TCPs utilization might mitigate MTM's demands and enhance its resources. The study employed a quantitative, cross-sectional design, utilizing survey data collected from 219 professionals. The data were analyzed using hierarchical multiple regression to test the hypotheses. We uncovered an unexpected U-shaped relationship between MTM and both IP. This suggests an initial dip in performance with increasing team involvement, likely due to coordination challenges, followed by an improvement at higher MTM levels as individuals develop coping mechanisms and efficiency. Contrary to our initial hypothesis, the moderating role of TCPs utilization in this relationship was not supported, potentially because their demands (e.g., notifications) offset their resource benefits when individuals take part in multiple teams simultaneously. However, TCPs utilization and the utilization of specific features demonstrated a direct positive impact on individual performance, particularly on contextual performance. In practical terms, organizations should anticipate initial dips in performance when individuals participate in multiple teams simultaneously and focus on providing robust support during early MTM experiences. Furthermore, organizations should continue to encourage the use of TCPs for their direct benefits on individual performance.

Keywords: Multiple team membership (MTM), Team communication platforms (TCPs), Collaborative technologies, Team communication, Individual performance.

Contents

1 Introduction

Today's work environment is becoming increasingly complex and interconnected as technological progress, globalization, and deregulation combine to reshape how, where, and when work is performed and managed (Holland & Brewster, 2020). To achieve complex and innovative goals, companies are increasingly relying on teams to drive success. This reliance has led to the emergence of multiple team membership (MTM) as a prominent feature of organizational design, where individuals simultaneously participate in various teams (O'Leary et al., 2011). In fact, up to 71 million employees in the United States are multi-teamers, and it has been observed that 81% of managers working in teams in global firms operated on more than one concurrently (Chen et al., 2019; Mortensen & Gardner, 2017). This phenomenon has attracted academic interest, particularly following O'Leary et al. (2011), who examined the consequences of MTM for individual and team learning and productivity. Seminal works in this area investigated the impact of specific MTM structures, such as team and individual (employee) effectiveness, given the number of concurrent teams in which employees are involved (Rishani et al., 2024). Subsequent studies have focused on different outcomes, including employee well-being and role behavior (Margolis, 2020; Van De Brake et al., 2020). MTM offers potential advantages to organizations, such as improved knowledge transfer, flexible resource allocation, and accelerated innovation cycles (Bertolotti et al., 2013, 2015; Gibson et al., 2021; Gupta & Woolley, 2018; Mortensen et al., 2007). However, the benefits are often accompanied by challenges in managing multiple work streams, which include coordination difficulties, attention fragmentation, and potential overload for individual team members (Altschuller & Benbunan-Fich, 2017; Bertolotti et al., 2013, 2015; Gupta & Woolley, 2018; Mortensen et al., 2007; Pluut et al., 2014; Zika-Viktorsson et al., 2006). Understanding how to mitigate these challenges and leverage the potential benefits of MTM is beneficial for both individual effectiveness and organizational success. Existing works have examined different factors that influence MTM outcomes, focusing on individual characteristics and organizational strategies (Rishani et al., 2024). Regarding individual characteristics, Bertolotti et al. (2013), for example, reported that individuals with higher polychronicity (i.e., preference for multitasking) may experience a weaker negative relationship between MTM and team performance. Regarding organizational strategies, existing research suggests that team communication platforms (TCPs) could play a critical role in moderating these challenges (Bertolotti et al., 2013, 2015; Gupta & Woolley, 2018; Incerti et al., 2020).

TCPs, exemplified by platforms like Slack, represent a convergence of various communication technologies that integrate features of enterprise social media, instant messaging, and collaborative workspaces and have the potential to address key challenges of MTM and enhance its benefits (Anders, 2016). Organizations can provide teams with technologies that facilitate communication and coordination processes, thereby supporting MTM (Pluut et al., 2014). For example, TCPs facilitate the creation of persistent communication records, allow for flexible interaction styles based on individual preferences, and provide seamless integration with workflows, potentially streamlining coordination and knowledge sharing across multiple teams (Cardon & Marshall, 2015). Several studies have explored the impact of MTM settings on individual performance. Among them, Bertolotti et al. (2015) focused on instant messaging and found that it enhances team performance in R&D teams with low levels of MTM but harms performance in teams with high MTM due to attention fragmentation and increased task switching. Gupta and Woolley (2018) studied the impact of dashboards, finding that providing team members with access to dashboards that display each other's skills enhances team performance in situations where team members are working on multiple projects with a wide variety. However, they also found that this approach hurts performance in teams with low variety in multi-teaming. Furthermore, Incerti et al. (2020) found that while collaborative technologies are necessary for virtual teams to function, navigating different communication rules for different virtual teams can overload individuals and impair their ability to manage knowledge resources. These studies suggest that collaborative technologies moderate the relationship between MTM and team performance, amplifying its benefits in some cases and worsening its challenges in others.

Despite these findings, the impact of communication platforms on individual performance in MTM contexts remains underexplored. Existing studies (Bertolotti et al., 2013, 2015; Gupta & Woolley, 2018; Incerti et al., 2020) predominantly focus on specific technologies (e.g., instant messaging or dashboards) or the team-level dynamics without considering individual-level implications or distinct contexts (e.g., virtual teams). This oversight is problematic for several reasons (Bertolotti et al., 2015; Incerti et al., 2020). While there is evidence suggesting that specific communication technologies affect performance in MTM scenarios, our understanding of how communication technologies affect the performance of individuals working in multiple teams concurrently remains limited. The lack of understanding hinders our ability to design and implement strategies that optimize the use of technology in MTM settings. Without such insights, organizations risk incurring the consequences of improper use of communication tools, which can worsen issues such as cognitive overload, task-switching costs, and coordination challenges (Bertolotti et al., 2015; Incerti et al., 2020). Consequently, they can undermine individual performance through errors and reduced focus, as well as team effectiveness through coordination friction (Bertolotti et al., 2015; Gupta & Woolley, 2018; Incerti et al., 2020). Therefore, addressing this gap is critical to advance both theory and practice in MTM research.

This thesis aims to address this research gap by investigating the following research question: "*How does the use of team communication platforms (TCPs) moderate the impact of multiple team membership (MTM) on individual performance?*". This question examines the moderating influence of TCPs on the relationship between MTM and individual performance. Specifically, a positive moderating effect is hypothesized, building on the Job Demands–Resources theory (Bakker & Demerouti, 2017) and the findings from previous studies (Bertolotti et al., 2015; Gupta & Woolley, 2018; Incerti et al., 2020). By addressing this research question, this thesis aims to make several contributions to the existing literature on MTM and technology-mediated communication. It will provide a nuanced understanding of how the affordances of different TCPs shape individual performance in the context of MTM, investigating in which cases they amplify their benefits and in which cases they exacerbate their challenges. Such insights could prove valuable to organizations seeking to effectively use technology to support employees in navigating the complexities of MTM. Understanding how TCPs impact individuals in MTM enables managers and team leaders to make informed decisions about which technologies to adopt and how to use them. By bridging the gap between technology-mediated communication and individual performance in MTM, this thesis seeks to contribute to both academic understanding and organizational practices. Ultimately, this research contributes to the creation of more effective and fulfilling work environments for individuals engaged in the increasingly complex world of multi-team collaboration.

2 Theoretical Background

2.1 Multiple Team Membership (MTM)

Multiple Team Membership (MTM) can be defined as a work organization form in which individuals belong simultaneously to more than one team (O'Leary et al., 2011). This organizational structure is increasingly common as businesses adapt to dynamic environments and strive to optimize human resource utilization (Bertolotti et al., 2013; Milgrom & Roberts, 1992; Zika-Viktorsson et al., 2006). O'Leary et al. (2011) identified two MTM's key dimensions: number of teams and variety of team membership. The number of teams refers to the total number of teams an individual is a member of concurrently, while the variety of team membership dimension refers to the diversity of those teams in terms of tasks, technologies, locations, and other characteristics. Alternatively, we can define the variety of teams as a form of diversity resulting from composition differences in kind, source, or category of relevant knowledge or expertise among team members (Harrison & Klein, 2007). Pluut et al. (2014) argued that time fragmentation across teams is a more accurate measure of the challenges and opportunities associated with MTM than simply using the number of teams as an indicator, where time fragmentation is defined as the percentage of time individuals spend on each team, with the total amount adding up to 100%.

MTM presents both opportunities and several challenges. In organizations, structured networks of interconnected teams improve the use of resources, facilitating resource sharing and preventing teams from engaging in overlapping or redundant activities (Mortensen et al., 2007; O'Leary et al., 2011; Pluut et al., 2014). Furthermore, MTM enables managers to design effective teams by leveraging the complementary individual expertise and skills among team members (Pluut et al., 2014). From an individual perspective, MTM can foster creativity and skill development through exposure to varied perspectives and learning opportunities (Chan, 2014; Chen et al., 2019; O'Leary et al., 2011). Despite the mentioned benefits, studies indicate that MTM presents several challenges, including increased coordination difficulties, role conflict, stress, cognitive overload, and attention fragmentation. These factors can undermine individual and team performance (e.g., Bertolotti et al., 2013, 2015; O'Leary et al., 2011; Pluut et al., 2014).

2.1.1 MTM Key Theoretical Perspectives

Theoretical perspectives provide the foundation for understanding the implications of MTM. According to Margolis' (2020) literature review, the key theoretical perspectives used are attention theory, social network theory, and job demands-resources (JD-R) theory. The attention perspective, drawing from Ocasio's (1997) Attention-Based View, in the context of MTM, highlights the critical role of limited individual attentional resources in understanding the dynamics and outcomes of employees working on multiple teams simultaneously (O'Leary et al., 2011). This perspective suggests a complex relationship between MTM and productivity. While some level of MTM might bring diverse perspectives and knowledge that could enhance productivity, excessive MTM can fragment attention, increase switching costs, and lead to decreased individual and team productivity (Margolis, 2020). The social network perspective applied to MTM contexts suggests that an employee's connections with coworkers across different teams entail valuable interpersonal resources such as knowledge, information, and support, which can impact their experiences and performance (Van De Brake et al., 2017).

The present study will build upon the JD-R perspective to investigate the moderating role of TCPs in the MTM context, particularly on individual performance. The JD-R theory was introduced in the international literature around 2001 and is a prominent theoretical model used to understand job stress and employee well-being (Bakker & Demerouti, 2017). The theory posits that it is possible to distinguish two broad categories of working conditions for any job: job demands and job resources (Demerouti et al., 2001). Job demands are defined as the physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with specific physiological and/or psychological costs. Conversely, job resources refer to the physical, psychological, social, or organizational aspects of the job that are functional in achieving work goals, reducing job demands and the associated costs, or stimulating personal growth, learning, and development. According to the JD-R theory, job demands and resources instigate two very different yet parallel processes (Bakker & Demerouti, 2017):

- The Health-Impairment Process: Job demands primarily drive this process, leading to job strain, such as burnout. High job demands consume employees' energy and can lead to exhaustion over time (Bakker & Demerouti, 2017).

- The Motivational Process: Job resources primarily drive this process, leading to work engagement, motivation, and organizational commitment. Job resources foster motivation, personal growth, and the achievement of work goals (Bakker & Demerouti, 2017).

Studies have employed this theoretical framework to understand the implications of MTM for employees (e.g., Pluut et al., 2014; Van De Brake et al., 2020). Specifically, we can conceptualize MTM as a work design feature that functions as both a job demand and a job resource (Pluut et al., 2014). From a demand perspective, MTM can increase workload (task load, team process load, interpersonal conflict), leading to job strain and exhaustion due to the need for frequent context switching and the division of finite resources, such as time and attention. Conversely, from a resource perspective, MTM can provide access to a broader social network, increased social support, and more opportunities for learning and autonomy. Pluut et al. (2014) posited that the fragmentation of time across multiple teams can lead to an increase in team-related demands and conflict, resulting in heightened job strain. While MTM can increase social support (a job resource), the overall impact in some studies leans towards the role strain perspective, indicating that MTM might negatively impact well-being by increasing demands associated with teamwork. However, the perception of MTM as a challenge or hindrance and its impact can also depend on an employee's access to organizational resources, which may be influenced by various factors, such as organizational tenure (Van De Brake et al., 2020).

2.2 Individual Performance in MTM Context

Campbell and Wiernik (2015) defined individual work performance as the actions individuals take that directly contribute to achieving organizational goals. In the study, the authors also emphasized the importance of distinguishing performance itself from its determinants and outcomes. Performance focuses solely on behaviors and actions rather than the factors that drive them or the results they produce. It is a dynamic concept that is subject to change over time. Such changes may be attributed to shifts in the level of performance required, individual development through training or interventions, and/or situational conditions such as coworker constraints.

According to Sackett and Lievens (2008), there are three primary domains of job performance: task performance (proficiency in central job tasks), contextual performance (behaviors related to the organizational, social, and psychological environment), and counterproductive work behavior (behaviors harmful to the organization's well-being). Later, Koopmans et al. (2011) proposed a heuristic model that categorizes individual performance into four dimensions, adding adaptive performance (proficiency in adapting to changes) to Sackett and Lievens' (2008) framework. However, subsequently, Koopmans et al. (2013, p. 113) reported: "Factor analyses showed that a three-dimensional individual work performance (IWP) framework was generalizable across occupational sectors. In this framework, IWP consisted of the dimensions of task performance, contextual performance, and counterproductive work behavior (CWB)." Following these findings, we consider adaptive performance as an aspect of contextual performance rather than a separate dimension.

Furthermore, individual performance can be influenced by a variety of factors, which can be categorized as organizational, team, and individual-level factors. At the organizational level, incentive systems and policies can shape motivation and focus, thereby pushing individuals to align their efforts with organizational goals (O'Leary et al., 2011). Team-level factors, including geographic dispersion and communication structures, can impact coordination, role clarity, and team dynamics (Gupta & Woolley, 2018). Individual factors, including traits such as cognitive abilities and personality, as well as states such as skills and knowledge, are critical determinants of performance. These factors can influence role-specific knowledge, task execution, and effort allocation (Campbell & Wiernik, 2015).

Previous studies on MTM have revealed a complex relationship between MTM and individual performance, which is often described as an inverted U-shaped relationship (Bertolotti et al., 2015; Chan, 2014). At low levels of MTM, individuals may not experience sufficient challenges to stimulate innovation and productivity improvements. They may have adequate resources and time to complete their tasks, making them less likely to seek ways to improve efficiency (Bertolotti et al., 2013). Conversely, as the number of MTMs increases, individuals may develop better teamwork practices and allocate their time more efficiently. Exposure to diverse information and knowledge across different teams may also contribute to initial improvements in individual performance (Bertolotti et al., 2015; Gibson et al., 2021). However, as MTM levels become too high, individuals may experience fragmentation of their attention and cognitive resources, leading to a decline in productivity and performance (Bertolotti et al., 2013; Gibson et al., 2021). The optimal number of MTMs may vary depending on individual factors (e.g., experience, cognitive skills, emotional skills, and polychronicity), task complexity, and support systems (Bertolotti et al., 2015; Chan, 2014; Margolis, 2020; Rishani et al., 2024). While some studies have provided specific numbers, these are often highly context-dependent. For example, Bertolotti et al. (2015) identified nine teams in R&D as the optimal point.

2.3 Team Communication Platforms and Individual Performance in MTM Context

Team Communication Platforms (TCPs) play an influential role in multi-team membership (MTM) settings by influencing how individuals communicate, collaborate, and manage their work across multiple teams (Bertolotti et al., 2013, 2015). Anders (2016) provided an in-depth explanation of TCPs. The study asserted that these platforms integrate features from various communication technologies, including enterprise social media (ESM) and instant messaging (IM), thereby offering a centralized hub for team interaction. Examples include Slack, Trello, and Asana, which combine messaging, task tracking, and knowledge sharing into a unified workspace ("10 virtual collaboration tools to boost productivity and engagement", 2023).

Instant messaging (IM) is a core component of many team communication tools (Anders, 2016). IM enables real-time, text-based communication, enables multitasking, and is frequently employed for rapid information exchange in dynamic environments where individuals operate in multiple teams simultaneously (Bertolotti et al., 2015; Incerti et al., 2020; Pazos et al., 2013). IM's primary affordances encompass silent interactivity, presence awareness, polychronic communication, and ephemeral content (Dennis et al., 2010). Moreover, the confidentiality enabled by IM fosters more informal communication styles, potentially bypassing traditional social norms (Anders, 2016).

Enterprise social media (ESM) refers to web-based platforms that facilitate communication among colleagues, enable the sharing and editing of files, and provide access to all shared content (Leonardi et al., 2013). ESM platforms exhibit numerous features in common with widely used social networking sites (e.g., Facebook), yet they are designed specifically for utilization within professional environments (Cardon & Marshall, 2015). Examples of such platforms include SharePoint, Oracle Social Network, and Chatter (Leonardi et al., 2013). In addition, Leonardi et al. (2013) highlighted that, unlike IM or email, ESM platforms record all activities and ensure information is persistently available to all users in the organization. Furthermore, Dittes and Smolnik (2019) identified various functionalities of ESM platforms that support the task dimension of work environments. These include document management tools that enable the creation and sharing of documents, as well as chats and virtual group spaces for team organization. The study also mentioned functionalities supporting the social dimension, such as individual profile pages where employees can post content, comment, and like features.

In addition to these functionalities, TCPs generally support integrations with various third-party technologies, including specialized ICTs (Anders, 2016).

This thesis adopts a broadened definition of TCPs in comparison to the one provided by Anders (2016). To ensure a comprehensive study, this thesis will consider all communication platforms that may facilitate team collaboration. For instance, we will include video-conferencing platforms such as Zoom in the definition. This choice stems from the observable surge in the utilization of these communication tools, particularly since the COVID-19 pandemic (Suduc et al., 2023). Moreover, while some argue that video-conferencing platforms are distinct from other types of enterprise social media, platforms like Zoom are progressively integrating social media features, making them more similar to platforms like Slack (Kordova & Hirschprung, 2023).

2.4 How TCPs impact Individual Performance in MTM context: Hypotheses

To analyze the relationship between multiple team membership (MTM) and individual performance, we use the JD-R theory. This perspective underscores the dynamic interplay between the resources generated by MTM and the demands it imposes (Margolis, 2020; Pluut et al., 2014). Employees engaged in multiple teams can benefit from greater learning opportunities, diversified knowledge, and enhanced flexibility in resource allocation (O'Leary et al., 2011). Nevertheless, as the number of teams increases, individuals may encounter augmented coordination complexity, cognitive strain, and time fragmentation, which can potentially diminish their effectiveness (Pluut et al., 2014). These dynamics suggest a curvilinear relationship between MTM and individual performance. Specifically, at intermediate levels of MTM, individuals may experience benefits as they develop more efficient practices and acquire diverse knowledge (Bertolotti et al., 2013, 2015; Van De Brake et al., 2020). However, at very high levels, the demands of MTM can overwhelm cognitive resources and attention, leading to decreased performance (Rishani et al., 2024). Following this, the first hypothesis posits that:

Hypothesis 1. *The relationship between multiple team membership (MTM) and individual performance is curvilinear, resembling an inverted U, such that individuals who are engaged simultaneously in a few or many teams experience lower performance.*

TCPs can play a significant role in the context of MTM, which can also be analyzed through the lens of the JD-R perspective. As mentioned above, MTM itself can function both as a job demand and a job resource: working in multiple teams simultaneously can be both stressful (a demand) and advantageous (a resource). TCPs can mitigate the complexities of working across multiple team structures and can also leverage the resources at their disposal to enhance the benefits that MTM offers. TCPs can achieve this by enhancing coordination, a factor widely recognized by scholars in the field as key to the success of MTM (Margolis, 2020). Indeed, functioning as technological enablers, TCPs help mitigate coordination difficulties and facilitate knowledge sharing, thereby also influencing the job resources available to individuals in MTM contexts (Anders, 2016; Leonardi et al., 2013). Further, while employees navigate the resource-demand trade-offs inherent to MTM, TCPs can assist in better attention allocation and workload management, thereby enhancing the benefits of MTM once again (Anders, 2016; Bertolotti et al., 2013).

More in detail, the intricate dynamics between inter-team and intra-team coordination can generate countervailing effects. For instance, practices that seem beneficial at one level (e.g., between team members) may hinder performance at another level (e.g., between teams) (Rico et al., 2018). Studies have identified several influential individual-level factors that affect these intricate dynamics. These include time efficiency (Crawford et al., 2019), cognitive load (Gupta & Woolley, 2018), personal multitasking preferences (Bertolotti et al., 2013), and role ambiguity (Rapp & Mathieu, 2019). The utilization of TCPs, equipped with features designed to enhance coordination, has the potential to mitigate the adverse impacts of individual-level factors. Centralized communication tools offer a shared space for communication and documentation sharing, thereby reducing the need for repetitive information requests (Anders, 2016). These tools facilitate team members' search for information and access to previous discussions, thereby streamlining coordination efforts (Leonardi et al., 2013). TCPs, in particular, have been shown to help individuals understand the broader context of their work by enabling access to ongoing discussions, shared files, and project updates (Leonardi et al., 2013). These affordances can help mitigate the issues caused by role ambiguity. Furthermore, TCPs can help individuals improve time efficiency by offering affordances for attention allocation, such as project and topic-based organization of communication, which simplifies compartmentalization and focus switching (Anders, 2016). Additionally, communication platforms can facilitate constant communication and information exchange, enhancing efficacy of teamwork and individual performance. For instance, Pazos et al. (2013) noted that instant messaging (IM) enables real-time communication and rapid information retrieval, thereby supporting multitasking in high-tech work environments. The facilitation of multitasking may enhance polychronicity, making individuals better suited to work in MTM settings, consistent with the findings of Bertolotti et al. (2013). Accordingly, we formulate the following hypothesis:

Hypothesis 2. *The use of team communication platforms (TCPs) positively moderates the effect of multiple team membership (MTM) on individual performance.*

Specifically, the positive effect of MTM on individual performance is more substantial, and the negative effect of excessive MTM on performance is weaker when TCPs frequency of utilization is high compared to when it is low.

Furthermore, the characteristics of the TCPs themselves count, as not all TCPs provide support for MTM in the same way (Bertolotti et al., 2015; Gupta & Woolley, 2018). For in-

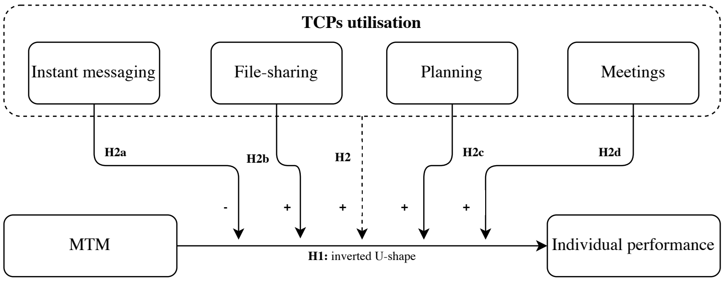

FIGURE 1: Hypothesized Relationships.

stance, the incorporation of instant messaging functionality within TCPs has the potential to accelerate communication across multiple teams. When used frequently, this beneficial effect can be negated by the increasing workload resulting from constant notifications and context switching, thereby turning instant messaging more into a job demand rather than a resource, potentially leading to job strain and negatively impacting individual performance (Incerti et al., 2020). Conversely, file-sharing and knowledge management features can act as job resources by providing easy access to information and facilitating knowledge transfer across teams, potentially boosting work performance (Gupta & Woolley, 2018; Li et al., 2021). Similarly, the integration of planning and task management systems can function as a resource by facilitating organization and prioritization across a multitude of team tasks. For example, the visibility of project timelines and milestones can facilitate the anticipation of possible conflicts arising from involvement in multiple teams (Rapp & Mathieu, 2019). Moreover, the feature that allows employees to participate in meetings through video conferencing, along with the associated services (e.g., screen sharing and room subdivision), is a valuable resource. For individuals with demanding schedules across multiple teams, the ability to join virtual meetings from any location is advantageous, allowing them to save time (Anders, 2016; Mortensen et al., 2007). Hence, we propose the following hypotheses:

Hypothesis 2a. *The frequent use of instant messaging features in team communication platforms (TCPs) negatively moderates the relationship between multiple team membership (MTM) and individual performance, such that the negative effects of excessive MTM on performance are exacerbated when instant messaging use is high.*

Hypothesis 2b. *The frequency of use of file-sharing features in team communication platforms (TCPs) positively moderates the relationship between multiple team membership (MTM) and individual performance, such that the positive effects of MTM on performance are strengthened when these features are highly utilized.*

Hypothesis 2c. *The frequency of use of planning and task management features in team communication platforms (TCPs) positively moderates the relationship between multiple team membership (MTM) and individual performance, such that the positive effects of MTM on performance are strengthened when these features are highly utilized.*

Hypothesis 2d. *The frequency of use of meeting features in team communication platforms (TCPs) positively moderates the relationship between multiple team membership (MTM) and individual performance, such that the positive effects of MTM on performance are strengthened when these features are highly utilized.*

In summary, the frequency of use of TCPs may moderate the inverted U-shaped relationship between MTM and individual performance, enhancing coordination and reducing cognitive strain. Figure 1 illustrates the described hypotheses.

3 Methodology

The present study employed a quantitative, cross-sectional research design to investigate the moderating effect of team communication platforms (TCPs) use on the relationship between multiple team membership (MTM) and individual performance. We gathered empirical data through a structured online survey sent to professionals from various sectors involved in team-based environments. Data were analyzed using hierarchical multiple regression to test the hypotheses.

3.1 Data Collection and Sample Characteristics

Data collection occurred over approximately six weeks in early 2025. The survey was hosted on Qualtrics (2025) and distributed to workers, employing a combination of convenience and snowball sampling techniques to obtain a diverse sample of professionals. The survey's distribution occurred through the researchers' network of friends and professional connections, specifically by sharing the link to access the survey. The questionnaire comprised three sections: general questions, utilization of TCPs, and an individual performance assessment section. Individual performance was assessed over a three-month period; participation in the survey required being actively working during the three months preceding the completion date. The general questions included demographic questions, job-related questions, and a self-reported count of the MTM. Participants were informed about the purpose and scope of the study and provided informed consent at the beginning of the survey. Responses were collected anonymously, ensuring confidentiality and compliance with ethical research standards.

A total of 246 individuals completed the survey. Among these, 27 incomplete responses were discarded, resulting in a final sample of 219 individuals. Of the total sample, 59.8% of the subjects were female, 93.7% had obtained at least a high school diploma, and the majority of subjects worked in either private services (30.1%) or the education and research sectors (23.7%). Furthermore, 29.7% of the individuals had been working for the current company for less than one year, 24.2% for more than one year but less than two years, 21.9% for more than five years, and 24.2% for more than two years but less than five years. The final sample had a mean age of 29.8 years ($SD = 10.4$), while the mean number of concurrent teams (MTM) was 2.1 ($SD = 1.6$). The majority of the subjects in the total sample utilized Microsoft Teams for work (52.5%), with WhatsApp ranking second (37.9%), followed by Google Meet (29.2%). Of the final sample, 10.5% of individuals did not utilize any platform at work. See 6 for the complete set of descriptive statistics.

3.2 Measurement

To evaluate the impact of TCPs on the relationship between MTM and individual performance, this thesis incorporated well-established measures, along with control variables for demographic and job-related factors.

Multi-Team Membership (MTM) To measure MTM, participants were requested to indicate the number of teams they have been active in concurrently in the last three months (Q6 - In the past three months, how many teams have you been active on at the same time?), following prior works (e.g., Chan, 2014; Pluut et al., 2014).

Team Communication Platforms (TCPs) Three aspects of TCPs utilization were assessed: frequency, type, and purpose. As a first step, participants identified the TCPs they used during a typical workday from a comprehensive list (which included common platforms like Asana, Slack, and Zoom) and had the option to specify any other platforms not listed. Adapting the approach from Bertolotti et al. (2013), participants reported their frequency of use for four distinct purposes on each identified platform: instant messaging, file-sharing, planning, and participating in meetings. These frequency ratings were collected using a five-point Likert scale, ranging from 1 (never) to 5 (all of the time). Based on the responses, two types of TCPs utilization variables were derived for the hypotheses:

- **Overall TCPs Utilization (Hypothesis 2)** This variable was built as a composite score for each individual, calculated by averaging all their frequency ratings across the four listed purposes and all the TCPs they reported using.
- **Specific TCP Features Utilization (Hypothesis 2a-2d)** To test the hypotheses related to specific TCP features, separate composite variables were created. Each variable represented the average frequency of use for a specific purpose: instant messaging (Hypothesis 2a), file-sharing (Hypothesis 2b), planning (Hypothesis 2c), and taking part in meetings (Hypothesis 2d). These scores were computed by averaging the frequency for that specific purpose across all platforms used by the respondent.

Individual Performance (IP) Individual performance was assessed using the validated Individual Work Performance Questionnaire (IWPQ) developed by Koopmans et al. (2014). Following this framework, individual performance consisted of three dimensions: task performance (TP), contextual performance (CP), and counterproductive work behavior (CWB). Participants indicated their level of agreement for 18 questions employing a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Specifically:

- The task performance dimension comprised six items (e.g., "Over the past three months, I managed to plan my work so that it was done on time"). Cronbach's alpha was equal to 0.82.
- The contextual performance dimension comprised eight items (e.g., "Over the past three months, I took on extra responsibilities"). Cronbach's alpha was equal to 0.81.
- The counterproductive work behavior dimension comprised five items (e.g., "Over the past three months, I complained about unimportant matters at work"). Cronbach's alpha was equal to 0.83.

For each dimension, mean scores were computed and then averaged together to obtain the overall individual performance dimension. For this purpose, the scores of counterproductive work behavior were reverse-coded so that higher scores on all dimensions would indicate better performance.

Control Variables Research on MTM and job performance suggests that several control variables should be included to minimize confounding effects and enhance the credibility of the findings. Consequently, we incorporated the following demographic variables:

- Age, measured in years, was included to examine the variance in the efficacy of the use of TCPs that could be attributed to the different levels of digitization exhibited by different generations (Billon et al., 2010).
- Gender, coded as a binary variable (i.e., 0 = Male, 1 = Female), was included because men tend to overestimate their performance, while women seem to be more self-critical in self-evaluations (Beyer, 1990).

- Educational level, measured using an ordinal scale (ranging from 1 = "below high school" to 5 = "PhD"), was included as being relevant because it may affect individual performance (Medoff & Abraham, 1980). Using it as a numeric variable, rather than creating dummy variables, was chosen for model parsimony and a more straightforward interpretation of the coefficient.

- Organizational tenure, measured in years, was included due to its potential influence on job performance. For example, studies have found that longer tenure can lead to higher job performance due to the accumulation of experience and expertise (Ng & Feldman, 2010; Steffens et al., 2014).

- Organizational sectors, measured using the list of sectors of the International Labour Organization (2024), were included as dummy variables to examine variance in the use of TCPs that may be related to specific sectors.

3.3 Data Analysis

3.3.1 Analytical Strategy

The collected data were analyzed using R statistical software (Version 4.4.2). To test the hypotheses outlined in the conceptual framework, hierarchical multiple regression analysis was employed. This approach is well-suited to test hypotheses, as it allows for a choice of a particular sequence of independent variables dictated by the purpose and logic of the research (Cohen et al., 2003). Specifically, it enables the assessment of whether newly added variables or blocks of variables significantly improve the model's explanatory power beyond the variance accounted for by variables entered in previous steps.

3.3.2 Variable Preparation

Before conducting the regression analysis, we performed specific data preparation steps. Predictor variables intended for inclusion in interaction terms—namely, Multiple Team Membership, its squared term, and Overall Team Communication Platforms Usage- were mean-centered. This transformation involved subtracting the mean of the variables for each observation, which helps to reduce potential multicollinearity between main effects and interaction terms and facilitates the interpretation of the main effect coefficients as the effect at the average level of the interacting variable (Aiken et al., 1991).

3.3.3 Hierarchical Regression Procedure

The predictor variables were entered into the regression equation in successive steps following Janssen (2001). The analysis proceeded in the following hierarchical steps, predicting Individual Performance:

1. **Model 1 (Baseline):** Control variables were entered first to account for their potential influence on IP.

$$\begin{aligned} \text{IP} = \beta_0 &+ \beta_1(\text{Age}) + \beta_2(\text{Gender}) + \beta_3(\text{Education}) \\ &+ \beta_4(\text{OrgSec}_2) + \beta_5(\text{OrgSec}_3) + \beta_6(\text{OrgSec}_4) + \beta_7(\text{OrgSec}_5) \\ &+ \beta_8(\text{OrgSec}_6) + \beta_9(\text{OrgSec}_7) + \beta_{10}(\text{OrgSec}_8) \\ &+ \beta_{11}(\text{OrgTenure}) + \epsilon \end{aligned} \tag{1}$$

Interpretation Note: β_1, β_3, and β_{11} represent the change in IP for a one-unit increase in Age, Education level, and Organizational tenure, respectively. β_2 represents the difference in mean IP between the coded genders. β_4 to β_{10} represent the difference in mean IP between Organizational Sector levels 2-8 and the reference level (Level 1 = "Agriculture, food and forestry"), holding all other variables constant.

2. **Model 2 (Testing H1: Curvilinear MTM Effect):** The centered mean effect of MTM and its centered quadratic term were added to the baseline model. Hypothesis 1, positing an inverted U-shaped relationship between MTM and IP, was tested by examining the statistical significance and the sign (expected to be negative) of the coefficient for the quadratic term of MTM ($\beta_1 3$).

$$\begin{aligned} \text{IP} = \beta_0 &+ \beta_1(\text{Age}) + \ldots (\text{Controls as in Eq } 1) \cdots + \beta_{11}(\text{OrgTenure}) \\ &+ \beta_{12}(\text{MTM}) + \beta_{13}(\text{MTM}^2) + \epsilon \end{aligned} \tag{2}$$

3. **Model 3 (Adding TCPs Main Effect):** The centered main effect of overall TCPs utilization was added to Model 2 to test the direct relationship between overall TCPs usage and IP after accounting for control variables and the MTM's effects.

$$\begin{aligned} \text{IP} = \beta_0 &+ \beta_1(\text{Age}) + \ldots (\text{Controls as in Eq } 1) \cdots + \beta_{11}(\text{OrgTenure}) \\ &+ \beta_{12}(\text{MTM}) + \beta_{13}(\text{MTM}^2) \\ &+ \beta_{14}(\text{TCPs\_Overall}) + \epsilon \end{aligned} \tag{3}$$

4. **Model 4 (Testing H2: Moderation effect by Overall TCPs Usage):** The final step involved adding the two-way interaction terms representing the moderation effect proposed in Hypothesis 2. These terms were calculated as the product of the centered MTM variables and the centered Overall TCPs Usage variable.

$$\begin{aligned} \text{IP} = \beta_0 &+ \beta_1(\text{Age}) + \ldots (\text{Controls as in Eq } 1) \cdots + \beta_{11}(\text{OrgTenure}) \\ &+ \beta_{12}(\text{MTM}) + \beta_{13}(\text{MTM}^2) \\ &+ \beta_{14}(\text{TCPs\_Overall}) \\ &+ \beta_{15}(\text{MTM} \times \text{TCPs\_Overall}) \\ &+ \beta_{16}(\text{MTM}^2 \times \text{TCPs\_Overall}) + \epsilon \end{aligned} \tag{4}$$

   Hypothesis 2 states that overall TCPs usage moderates the relationship between MTM and IP. Testing this hypothesis involved two components:

   (a) **Overall Moderation Effect:** Assessing the statistical significance of the change in R-squared (ΔR^2) upon adding the two interaction terms (comparing Model 4 to Model 3). We also used the F-test, derived from an ANOVA comparison of the nested models, to test the hypothesis more formally. A significant F-change ($p < 0.05$) indicates that TCPs usage significantly moderates the MTM-IP relationship overall.

   (b) **Specific Interaction Effects:** Examining the individual coefficients of the interaction terms. A significant β_{15} ($p < 0.05$) would indicate that overall TCPs usage significantly alters the linear component of the MTM-IP relationship. A significant β_{16} ($p < 0.05$) would indicate that overall TCPs usage significantly alters the quadratic component (the curvature) of the MTM-IP relationship.

The signs of these coefficients further specify the nature of the moderation (e.g., strengthening or weakening the relationship, changing the shape of the curve).

3.3.4 Extension to Purposes of TCPs Utilization

To test Hypotheses 2a, 2b, 2c, and 2d, which propose differential moderating effects for various TCPs features, we conducted separate hierarchical multiple regression analyses. The first two steps for each feature-specific regression model were the same as described in the previous section (respectively, Model 1 and Model 2). While Model 3 used the centered main effect of the specific TCPs' purpose utilization (e.g., $TCPs\_IM$ for instant messaging, $TCPs\_FS$ for file sharing), Model 4 added the centered two-way interaction terms, representing the moderating effect of the different features.

3.3.5 Extension to Performance Dimensions

To further refine the understanding of how MTM and TCPs utilization impact individual performance, we conducted separate hierarchical multiple regression analyses for the three distinct dimensions of individual work performance (task performance, contextual performance, and counterproductive work behavior). Specifically, the hierarchical regression analyses, as detailed in the previous two sections, were systematically replicated for each of these three performance dimensions serving as the dependent variable.

3.3.6 Model Diagnostics

For every regression model estimated in the hierarchical sequences, standard diagnostic procedures were conducted to assess the underlying assumptions of linear regression. This diagnostic procedure included the visual inspection of residual plots (e.g., Residuals vs. Fitted, Normal Q-Q, Scale-Location) generated by R to verify basic assumptions, such as linearity of relationships, normality of residuals, and homoscedasticity (constant variance of errors). Additionally, Variance Inflation Factors (VIF) were calculated for the predictors to evaluate the potential impact of multicollinearity on the stability and interpretation of the regression coefficients. Generalized VIF (GVIF) was considered for the factor variable (Organizational Sector), using the recommended adjustment $GVIF^{(1/(2\times df))}$ for comparison against standard VIF thresholds (Fox & Monette, 1992).

4 Results

4.1 Descriptive Statistics and Correlations

Table 16 in Appendix 6 reveals that the mean number of teams in which participants were simultaneously members was 2.1 ($SD = 1.6$), with a range of 0 to 13 teams. The distribution of MTM was non-normal, exhibiting a strong positive skew (2.62) and high leptokurtosis (11.09), indicating that the data are concentrated at lower values, with a long tail extending towards higher values (data reported in Table 11). Regarding the primary predictor variables, the mean frequency of TCPs utilization was 1.3 ($SD = 0.2$). This variable exhibited a moderate positive skew (1.23) and positive kurtosis (1.63), indicating deviations from normality. The frequencies of TCPs usage for specific purposes presented similar values. For instance, the mean usage of TCPs for instant messaging was 1.4 ($SD = 0.3$), the means for file-sharing, planning, and meetings were 1.3 ($SD = 0.3$), while the mean for other purposes was 1.1 ($SD = 0.2$). The distributions of these dimensions generally exhibited positive skewness and kurtosis, indicating deviations from normality (see Table 14). The dependent variables associated with individual performance exhibited diverse distributions. The mean of Overall Individual Performance was 3.4 ($SD = 0.4$). This variable showed an approximately normal distribution (skewness = -0.13, kurtosis = -0.22). The mean score of Task Performance was 3.6 ($SD = 0.8$), Contextual Performance was 3.0 ($SD = 0.6$), and Counterproductive Work Behavior (before reverse coding for IP calculation) was 2.4 ($SD = 0.9$).

Table 16 also shows that several significant correlations were observed among the control, predictor, and dependent variables. Figure 2 displays the correlations between the predictor and dependent variables. For instance, a significant positive correlation was observed between Education level and both MTM ($r = 0.3$, $p < .001$) and overall TCPs usage ($r = 0.2$, $p < .001$). MTM exhibited a significant positive correlation with overall TCPs usage ($r = 0.3$, $p < .001$), suggesting that individuals involved in more teams tend to utilize these platforms more frequently. MTM also showed a significant positive correlation with the use of TCPs for various purposes, particularly for instant messaging ($r = 0.2$, $p < .01$) and meetings ($r = 0.3$, $p < .001$). Examination of the relationships between the predictor and dependent variables revealed a positive correlation between overall TCPs usage and Contextual Performance (CP, $r = 0.2$, $p < .001$). The utilization of TCPs for specific purposes also showed notable correlations. For example, TCPs employed for file sharing demonstrated a significant correlation with Contextual Performance ($r = 0.2$, $p < .01$). Interestingly, MTM showed a negative correlation with Individual Performance (IP, $r = -0.2$, $p < .05$). Notably, among the performance dimensions, Contextual Performance and Counterproductive Work Performance were strongly positively correlated (CWB, $r = 0.6$, $p < .001$). Task Performance showed the highest correlation with IP (TP, $r = 0.9$, $p < .001$), while CWB showed a significant negative correlation with Individual Performance (IP, $r = -0.5$, $p < .001$), as expected.

4.2 Main Analyses: Predicting Overall Individual Performance (IP)

To test Hypothesis 1, which posits an inverted U-shaped relationship between MTM and overall IP, and Hypothesis 2, which suggests that overall TCPs utilization positively moderates this relationship, we conducted a four-step hierarchical regression analysis. Table 1 displays the comprehensive results of this analysis, including regression coefficients, standard errors, and model fit statistics for each step.

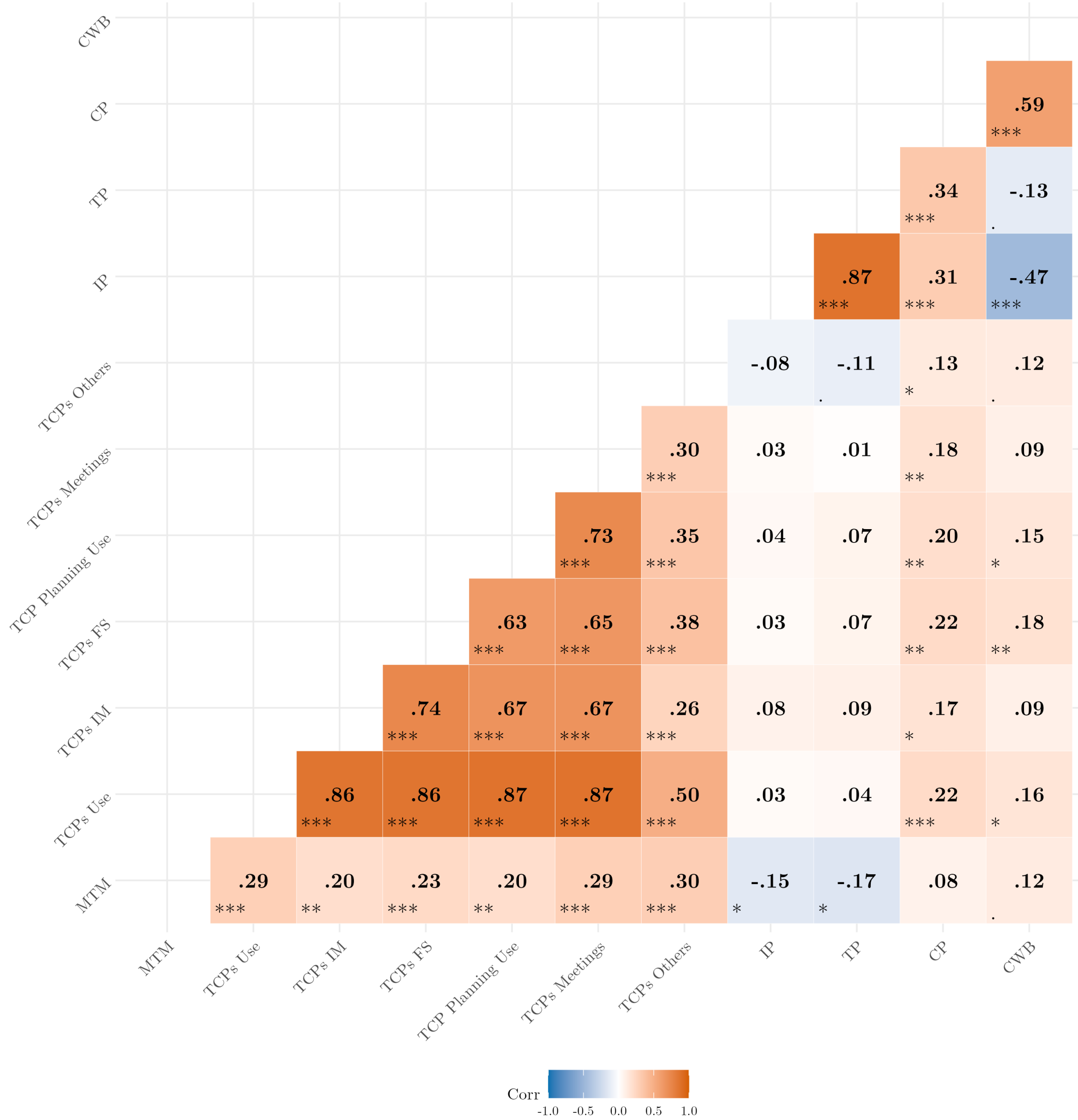

FIGURE 2: Correlation matrix of dependent and independent variables. Coefficients are Pearson's r. Significance levels: . p < 0.1; * p < .05; ** p < .01; *** p < .001.

The control variables alone (Model 1) failed to explain a significant portion of the variance in overall IP in this sample. The demographic and organizational context variables collectively accounted for only 2.6% of the variance in IP ($R^2 = 0.026$), and this contribution was not statistically significant ($F(11, 207) = 0.5$, $p = .902$).

Model 2 introduced the centered linear and quadratic terms of MTM. Their inclusion increased explained variance by 2.5% ($\Delta R^2 = .025$), which was marginally significant ($\Delta F(2, 205) = 2.69$, $p = .071$). These results suggest that MTM may have some relevance to IP. In more detail, the linear MTM term exhibited a significant negative influence of MTM on IP ($entry\ \beta = -0.09, p = .036$), indicating that as MTM increased, IP tended to decrease in this sample. Regarding the quadratic MTM term, it was not significant in this model (entry $\beta = 0.01$, $p = .134$); therefore, hypothesis 1 was not supported. The overall fit of the model was also non-significant ($F(2, 205) = 0.8$, $p = .613$).

The addition of the centered overall TCPs utilization in Model 3 resulted in a further increase in the explained variance by 1.3% (ΔR^2 =.013), a marginally significant change ($\Delta F(1, 204)$ = 2.88, p = .091). Overall, TCPs utilization exhibited a positive and marginally significant relationship with IP (*entry* β =0.24, p = .091), suggesting that higher utilization of TCPs is associated with slightly higher IP. It is noteworthy that, in this model, the quadratic MTM term became marginally significant and turned into a positive value ($beta$ = 0.01, p = .090). These results indicate a possible U-shaped relationship between IP and MTM rather than the hypothesized inverted U-shape. Despite these individual predictor effects, Model 3, in its totality, did not achieve overall significance ($F(14, 204)$ = 1.0, p = .458).

The interaction terms were introduced in Model 4 to test hypothesis 2. The incorporation of these interaction terms did not result in a significant improvement in the model's explanatory capability ($DeltaR^2$=.009, ΔF (16, 202) = 0.95, p = .389). Examination of the individual interaction terms revealed that neither of the two reached statistical significance ($\beta_{MTM\_x\_TCPs}$ = 0.21, p = .392; $\beta_{MTM^2\_x\_TCPs}$ = -0.04, p = .251). Hypothesis 2 did not find support: the relationship between MTM (both linear and quadratic components) and IP was not significantly different across varying levels of TCPs utilization. In this model, the significant positive MTM quadratic term ($final\ \beta$ = 0.01, p = .037) and significant negative MTM linear term ($final\ \beta = -0.11, p = .013$) provide evidence for a U-shaped relationship between MTM and IP when considering the average level of TCPs utilization. The results suggest that IP initially decreases as MTM increases but then begins to increase at higher levels of MTM. Overall TCPs utilization remained marginally significant ($final\ \beta$ = 0.24, p = .097). Despite these significant individual predictors, Model 4 was not statistically significant overall ($F(2, 202)$ = 1.0, p = .469).

TABLE 1: Results of hierarchical regression analysis for TCPs Usage on Individual Performance (IP).

predictor	entry β	final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.00	0.03	0.50	0.03	-0.03	0.50	11, 207
Gender	-0.04	-0.03						
Education	-0.04	-0.03						
Energy and mining	-0.06	-0.08						
Manufacturing	-0.07	-0.07						
Private services	-0.12	-0.16						
Infrastructure, construction and related sectors	-0.04	-0.08						
Education and research	-0.09	-0.09						
Public service, utilities and health	-0.07	-0.08						
Maritime and transport	0.00	-0.13						
Organizational tenure	-0.02	-0.01						
Step 2: MTM Effects								
MTM	-0.09*	-0.11*	0.02	2.69.	0.05	-0.01	0.84	13, 205
MTM^2	0.01	0.01*						
Step 3: TCPs Overall Usage								
TCPs	0.24.	0.24.	0.01	2.88.	0.06	-0.00	1.00	14, 204
Step 4: Interactions								
MTM_x_TCPs	0.21	0.21	0.01	0.95	0.07	-0.00	0.99	16, 202
MTM^2_x_TCPs	-0.04	-0.04						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

To investigate whether the moderating effect of TCPs utilization varies according to the purpose for which they are used (Hypotheses 2a-2d), separate hierarchical regression analyses were conducted for Model 3 and Model 4 (results reported in Appendix 6).

The utilization of TCPs for instant messaging (IM) showed a significant positive effect

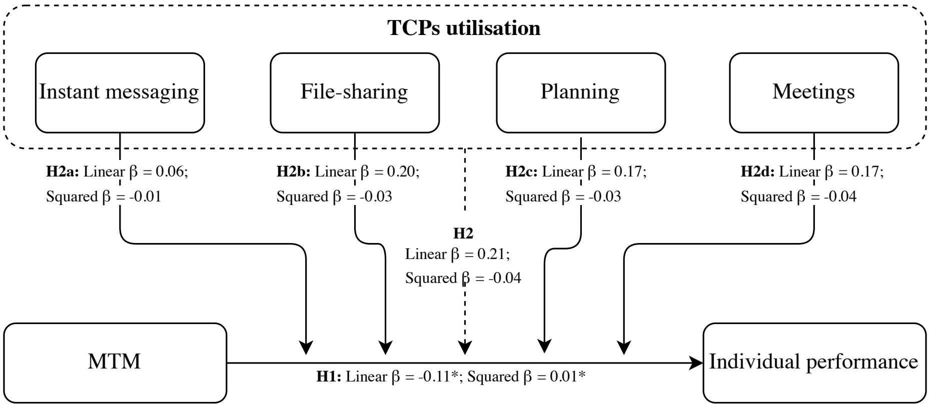

FIGURE 3: Hypothesized Relationships Results.
Note: * p $<$ .05. β values are *final* β, see Tables 1,17,18,19,20.

on IP (*entry* $\beta = 0.21$, $p = .044$), suggesting that higher IM utilization is associated with higher IP, controlling for the MTM effect. However, when the interaction terms were included (Model 4), neither of the two interactions (linear and quadratic) was significant ($\beta_{MTM\_x\_TCPs\_IM} = 0.06$, $p = .683$, $\beta_{MTM^2\_x\_TCPs\_IM} =$ -0.01, $p = .700$). The incorporation of these terms did not significantly improve the model's explanatory power ($\Delta R^2 =$.000, ΔF (2, 202) $= 0.08$, $p = .920$). The model remained non-significant ($F(2, 202)$ $= 0.95$, $p = .509$). Consequently, hypothesis 2a, which theorizes that the use of TCPs for IM moderates the MTM-IP relationship, was not supported (see Table 17).

On the other hand, TCPs utilization for file-sharing and planning did not have a significant direct effect on IP (*entry* $\beta = 0.14$, $p = .175$ and *entry* $\beta = 0.13$, $p = .176$, respectively). Similarly, the interaction terms were also non-significant for both models ($\beta_{MTM\_x\_TCPs\_FS} = 0.20$, $p = .327$, $\beta_{MTM^2\_x\_TCPs\_FS} =$ -0.03, $p = .319$ and $\beta_{MTM\_x\_TCPs\_Pl} = 0.17$, $p = .367$, $\beta_{MTM^2\_x\_TCPs\_Pl} =$ -0.03, $p = .321$). Adding the interaction terms did not significantly improve the model for either file-sharing or planning ($\Delta R^2 =$.005, ΔF (2, 202) $= 0.51$, $p = .604$ and $\Delta R^2 =$.005, ΔF (2, 202) $= 0.50$, $p = .608$, respectively). Therefore, Hypothesis 2b and Hypothesis 2c were not supported; the utilization of TCPs' file-sharing and planning features was not demonstrated to moderate the MTM-IP relationship (see Tables 18 and 19).

The utilization of TCPs for meetings exerted a marginally significant positive influence on IP (*entry* $\beta = 0.19$, $p = .065$), indicating that IP was slightly higher when the frequency of utilization of TCPs for meetings was elevated. In Model 4, the interaction terms were not significant ($\beta_{MTM\_x\_TCPs\_M} = 0.17$, $p = .403$, $\beta_{MTM^2\_x\_TCPs\_M} =$ -0.04, $p = .220$), and their inclusion in the model did not significantly impact the explanatory power (ΔR^2 $=$.012, ΔF (2, 202) $= 1.31$, $p = .273$). These findings suggest that hypothesis 2d was not supported; the utilization of TCPs for meetings did not moderate the MTM-IP link (see Table 20).

Figure 3 shows the results of the hypothesized relationships.

4.3 Analyses of Individual Performance Dimensions

For a more nuanced understanding, Hypotheses 1, 2, and 2a-2d were further tested, through hierarchical regression, on the three distinct dimensions of individual performance: Task Performance, Contextual Performance, and Counterproductive Work Behavior.

4.3.1 Task Performance (TP)

Table 2 shows that when predicting TP, the second model revealed a significant negative linear MTM term (*entry* β = -0.23, p = .003) and a significant positive quadratic MTM term (*entry* β = 0.02, p = .011), consistent with the findings from the previous analysis. The addition of these two terms significantly improved the model fit over the control-only model (ΔR^2 =.04, ΔF (2, 205) = 4.64, p = .011). In this case, the model was statistically significant ($F(2, 205)$ = 1.9, p = .037). Regarding the second hypothesis, it was also not supported in this analysis. Neither of the interaction terms was significant ($\beta_{MTM\_x\_TCPs}$ = 0.36, p = .408, $\beta_{MTM^2\_x\_TCPs}$ = -0.07, p = .242), and their addition did not contribute significantly to the improvement of model fit (ΔR^2=.01, ΔF (2, 202) = 1.10, p = .333). The hypotheses regarding the moderation effect of the utilization of TCPs for specific purposes on the TP-MTM relationship were also not supported. The tables in Appendix 6 show these results. Interestingly, there was also a significant positive direct effect of utilizing TCPs for IM (*entry* β =0.39, p = .036); in this case, the model was significant ($F(1, 204)$=2.07, p = .015). Regarding the control variables, a marginally significant negative relationship between TP and Gender was noted (*entry* β =-0.21, p = .055), meaning that, in this sample, females tended to have slightly lower scores on self-reported TP compared to males.

Table 2: Task Performance: Hierarchical Regression with TCPs Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.00	0.06	1.30	0.06	0.02	1.30	11, 207
Gender	-0.21.	-0.20.						
Education	-0.07	-0.05						
Energy and mining	0.16	0.12						
Manufacturing	0.12	0.11						
Private services	0.01	-0.08						
Infrastructure, construction and related sectors	0.13	0.07						
Education and research	-0.22	-0.20						
Public service, utilities and health	0.05	0.04						
Maritime and transport	0.49	0.24						
Organizational tenure	-0.02	-0.02						
Step 2: MTM Effects								
MTM	-0.23**	-0.26***	0.04	4.64*	0.11	0.05	1.86*	13, 205
MTM^2	0.02*	0.03**						
Step 3: TCP Overall Usage								
TCPs	0.40	0.41	0.01	2.52	0.12	0.06	1.92*	14, 204
Step 4: Overall Interactions								
MTM_x_TCPs	0.36	0.36	0.01	1.10	0.13	0.06	1.82*	16, 202
MTM^2_x_TCPs	-0.07	-0.07						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

4.3.2 Contextual Performance (CP)

For CP (see Table 3), neither hypothesis 1 nor hypothesis 2 was supported. In this case, both the linear MTM term and the squared term were not significant (*entry* β_{MTM} = -0.05, p = .400, *entry* β_{MTM^2} = 0.01, p = .210); furthermore, adding these two variables to the model did not significantly improve the fit (ΔR^2 =.01, ΔF (2, 205) = 1.04, p = .356). In Model 4, neither of the interaction terms was significant ($\beta_{MTM\_x\_TCPs}$ = -0.19, p = .609, $\beta_{MTM^2\_x\_TCPs}$ = 0.02, p = .683) and their inclusion did not significantly improve the model fit (ΔR^2 =.00, ΔF (2, 202) = 0.16, p = .850). However, in Model 3, it is interesting to note that a significant positive relationship was found between the use of TCPs and CP (*entry* β = 0.68, p = .002). The addition of this term to the model significantly improved the explanatory power (ΔR^2 =.05, ΔF (1, 204) = 10.83, p = .001), and the model was also significant ($F(1, 204)$ = 2.08, p = .014). Furthermore, in the model with only control variables, there was a positive significant relationship between CP and Organizational Tenure (*entry* β = 0.10, p = .028) as well as between CP and the organizational sectors Public service and Utilities & Health (*entry* $\beta_{Org\_sector\_7}$ = 0.42, p = .024). Analyses of TCPs utilization for different purposes (see Appendix 6) confirmed the positive relationship between CP and TCPs when these were used for IM (*entry* β = 0.41, p = .009), FS (*entry* β = 0.47, p = .003), Planning (*entry* β = 0.39, p = .007) and also for Meetings (*entry* β = 0.38, p = .012). However, none of the interaction terms were significant; therefore, hypotheses 2a - 2d were not supported, also in the case of CP.

Table 3: Contextual Performance: Hierarchical Regression with TCPs Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-0.01	-0.00	0.07	1.39	0.07	0.02	1.39	11, 207
Gender	0.05	0.05						
Education	0.07	0.04						
Energy and mining	0.02	-0.04						
Manufacturing	0.31	0.25						
Private services	0.17	0.08						
Infrastructure, construction and related sectors	0.32	0.25						
Education and research	0.19	0.16						
Public service, utilities and health	0.42*	0.38*						
Maritime and transport	0.36	0.03						
Organizational tenure	0.10*	0.10*						
Step 2: MTM Effects								
MTM	-0.05	-0.10	0.01	1.04	0.08	0.02	1.34	13, 205
MTM^2	0.01	0.01						
Step 3: TCP Overall Usage								
TCPs	0.68**	0.70**	0.05	10.83**	0.12	0.06	2.08*	14, 204
Step 4: Overall Interactions								
MTM_x_TCPs	-0.19	-0.19	0.00	0.16	0.13	0.06	1.82*	16, 202
MTM^2_x_TCPs	0.02	0.02						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

4.3.3 Counterproductive Work Performance (CWB)

Hypotheses 1 and 2 were also not supported when analyzing CWB (see Table 4). It is interesting to note that different control variables were related to CWB. Age had a slightly negative, significant relationship with CWB (*entry* β = -0.02, p = .015), indicating that younger individuals in the sample scored higher in CWB. Several sectors (manufacturing, private services, infrastructure, construction and related sectors, public service, utilities, health and maritime and transport) showed a positive link with CWB (*entry* $\beta_{Org\_sector\_3}$ = 0.63, p = .035; *entry* $\beta_{Org\_sector\_4}$ = 0.54, p = .019; *entry* $\beta_{Org\_sector\_5}$ = 0.58, p = .048; *entry* $\beta_{Org\_sector\_7}$ = 0.68, p = .007; *entry* $\beta_{Org\_sector\_8}$ = 0.84, p = .049), as well as organizational tenure (*entry* β =0.13, p = .033). In this case, Model 1 was statistically significant ($F(11, 207)$ = 1.89, p = .042). From the tables in Appendix 6, it is possible to see that also for CWB, the hypotheses about the moderation effect of TCPs utilization for different purposes (hypotheses 2a - 2d) were not supported; all the interaction terms were not significant, and the addition of the interaction terms in Model 4 did not lead to a statistically significant improvement in model fit. Regarding possible direct relationships between CWB and the utilization of TCPs for specific purposes, only the utilization for planning showed a marginally significant positive relationship when interaction terms were included (β=0.35, $p = .091$).

TABLE 4: CWB: Hierarchical Regression with TCPs Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-0.02*	-0.01*	0.09	1.89*	0.09	0.04	1.89*	11, 207
Gender	-0.04	-0.06						
Education	0.11	0.09						
Energy and mining	0.35	0.33						
Manufacturing	0.63*	0.57.						
Private services	0.54*	0.48*						
Infrastructure, construction and related sectors	0.58*	0.56.						
Education and research	0.25	0.21						
Public service, utilities and health	0.68**	0.64*						
Maritime and transport	0.84*	0.67						
Organizational tenure	0.13*	0.12.						
Step 2: MTM Effects								
MTM	-0.01	-0.03	0.02	1.91	0.11	0.05	1.91*	13, 205
MTM^2	0.01	0.01						
Step 3: TCP Overall Usage								
TCPs	0.36	0.39	0.01	1.61	0.11	0.05	1.89*	14, 204
Step 4: Overall Interactions								
MTM_x_TCPs	-0.46	-0.46	0.00	0.49	0.12	0.05	1.71*	16, 202
MTM^2_x_TCPs	0.07	0.07						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 5 summarizes the main findings. This table outlines whether each hypothesis was supported for overall individual performance and its distinct dimensions—Task Performance, Contextual Performance, and Counterproductive Work Behavior—as well as other notable direct effects and relationships with control variables. See Appendix 6 for the plots of the relationships between MTM and IP and between MTM and IP dimensions.

TABLE 5: Summary of Key Findings

Hypothesis/Analysis Area	**Outcome for Individual Performance (IP)**	**Outcome for Task Performance (TP)**	**Outcome for Contextual Performance (CP)**	**Outcome for Counterproductive Work Behavior (CWB)**
H1: Curvilinear (inverted U-shape) MTM-IP relationship	Not supported. Instead, a U-shaped relationship was found: IP initially decreases with MTM, then increases at higher MTM levels.	Not supported. A significant U-shaped relationship was found: TP initially decreases with MTM, then increases at higher MTM levels.	Not supported. No significant linear or quadratic MTM effect.	Not supported. No significant linear or quadratic MTM effect.

Continued on next page

Table 5 – continued from previous page

H2: Overall TCPs Usage moderates the MTM-IP relationship	Not supported. The relationship between MTM and IP did not significantly differ across varying levels of TCP utilization.	Not supported.	Not supported.	Not supported.
H2a: TCPs Usage for Instant Messaging (IM) moderates MTM-IP	Not supported.	Not supported.	Not supported.	Not supported.
H2b: TCPs Usage for File-Sharing (FS) moderates MTM-IP	Not supported.	Not supported.	Not supported.	Not supported.
H2c: TCPs Usage for Planning moderates MTM-IP	Not supported.	Not supported.	Not supported.	Not supported.
H2d: TCPs Usage for Meetings moderates MTM-IP	Not supported.	Not supported.	Not supported.	Not supported.
Direct Effect of TCPs Usage	TCPs Usage showed a positive, marginally significant relationship with IP. Utilization of IM showed a significant positive effect on IP.	Utilization of TCPs for IM usage showed a significant positive direct effect.	TCP Usage showed a significant positive relationship. Utilization for IM, FS, Planning, and Meetings each showed significant positive direct effects.	Utilization of TCPs for Planning showed a marginally significant positive relationship when interaction terms were included.
Significant Control Variables	Control variables did not explain a meaningful portion of the variance for overall IP.	Gender showed a marginally significant negative relationship.	Organizational Tenure and working in the "Public service, Utilities and Health" sector showed a positive and significant relationship.	Age showed a slightly significant negative link. Several organizational sectors and organizational tenure showed positive links. Model 1 was statistically significant.

4.4 Additional Exploratory Analyses

Beyond the primary hypothesis testing for IP and its dimensions using TCPs utilization frequency, we conducted several other analyses to provide a more comprehensive understanding of the data and check the robustness of the findings.

4.4.1 Alternative Measures of TCPs Utilization

To test whether the observed relationship differed according to the specific measure of TCPs utilization (i.e., frequency of utilization), the main hierarchical regression models were reevaluated using two alternative measurements of TCPs utilization. For this purpose, we measured TCPs in terms of the number of TCPs used by each individual (TCPs Count) and in terms of utilization as a binary variable (TCPs Binary; 1 = Yes, 0 = No). Table 33 shows that both the alternative approaches produced weaker results. When using TCPs Count, there was a much smaller effect for the TCPs predictor (*entry* β = 0.04, p = .096), and the interaction effects were also considerably smaller ($\beta_{MTM\_x\_TCPs}$ = 0.03, p = .424, $\beta_{MTM^2\_x\_TCPs}$ = -0.01, p = .290). The binary approach showed even weaker effects. The TCPs predictor was not significant and smaller than the one reported using the frequency approach (*entry* $\beta = 0.10$, $p = .289$). Similarly, in this case, neither the interaction terms was significant and smaller than the ones obtained using the frequency approach; the signs were also opposite ($\beta_{MTM\_x\_TCPs}$ = -0.04, p = .836, $\beta_{MTM^2\_x\_TCPs}$ = 0.01, p = .745). While the conclusions regarding the hypotheses did not change with these approaches, these alternative approaches suggest that if TCPs utilization is measured differently, its association with performance and its interaction with MTM are substantially weaker compared to when measured by frequency. These results highlight the sensitivity of the observed impact of TCPs in this study to the chosen measurement approach.

4.4.2 Analyses of "Extreme" Subgroups

We performed additional analyses to investigate whether the relationships observed in the sample were particularly pronounced or attenuated in specific subgroups. Three subgroups were defined from the full sample (N=219) using the bottom and top quartiles: Extreme MTM Cases (N=161; MTM $\leq$ 1 or $\geq$ 3), Extreme TCPs Usage Cases (N=117; TCPs Overall Usage $\leq$ 1.12 or $\geq$ 1.38), and Combined Extreme MTM & TCPs Cases (N=97). Table 34 in Appendix 6 details these findings. Notably, for the "Extreme MTM Cases" subset, the impact of adding MTM terms was more pronounced and statistically significant ($\Delta R^2 = 0.039, \Delta F = 3.09, p = .048$), with the linear MTM term remaining significant (β = -0.09, p = .029). The results of this analysis suggest that for individuals who were either in no or one team vs many teams, MTM had a more clearly detectable (negative linear) relationship with IP. Across all subgroups - Extreme MTM Cases (ΔF = 0.68, p = .519), Extreme TCPs Usage Cases (ΔF = 1.11, p = .333), and Combined Extreme MTM & TCPs Cases (ΔF = 1.03, p = .621) - the addition of interaction terms did not significantly improve the model's explanatory power. The interaction coefficients themselves were not statistically significant. These results reinforce the finding from the primary analysis that Hypothesis 2 was not supported, even when examining these more specific subgroups.

5 Discussion

This thesis investigated the moderating role of team communication platforms (TCPs) on the relationship between multiple team membership (MTM) and individual performance (IP), drawing upon the Job Demands-Resources (JD-R) theory. The study also examined the moderating impact of TCPs when used for specific purposes and the direct relationship between MTM and IP. In addition, the investigations were executed using the single dimensions of IP: task performance (TP), contextual performance (CP), and counterproductive work behavior (CWB). This section presents the key findings, their theoretical and practical implications, as well as the study's limitations and future research avenues. The research question was: "How does the use of TCPs moderate the impact of MTM on IP?". The results reveal a more complex reality than the one initially hypothesized.

5.1 Theoretical Contributions

This study's findings offer several new contributions to the theoretical understanding of multiple team membership (MTM), team communication platforms (TCPs), and individual performance (IP). While we found no significant relationship between MTM and contextual performance (CP) or counterproductive work behavior (CWB), the results revealed a significant U-shaped relationship between MTM and individual performance, as well as between MTM and task performance (TP). These findings suggest that performance initially decreases as an individual's team count increases from a low level but then begins to improve at higher levels of MTM. This dynamic is counterintuitive to the more commonly proposed inverted U-shape relationship, where performance benefits from MTM up to an optimal point before declining (Rishani et al., 2024). For example, Chan (2014) found a negative curvilinear relationship between individual MTM numbers and innovative performance. However, it is important to note that findings across studies vary in both direction and magnitude. Some research has indicate a positive relationship between MTM number and individual effectiveness outcomes, such as service quality (Rishani et al., 2024), while others reported a negative relationship, where an increase in MTM number is associated with lower job performance, for example, caused by project overload (Margolis, 2020; Zika-Viktorsson et al., 2006). These inconsistent results may be attributed to a variety of factors that introduce variance in how MTM affects individual performance. For example, the mediating processes and emergent states linking MTM to performance can differ widely, involving mechanisms such as knowledge sharing and learning, job demands and resources, identity dynamics, and leadership (Rishani et al., 2024). From a Job Demands-Resources (JD-R) perspective, MTM can act as both a demand and a resource (Pluut et al., 2014). The U-shape relationship observed in this study may reflect this duality: at lower MTM levels, the demands, such as coordination difficulties and attention fragmentation (O'Leary et al., 2011; Pluut et al., 2014) may outweigh the benefits, leading to decreased performance. However, as individuals join more teams, they may develop coping mechanisms and adaptation strategies (O'Leary et al., 2011). Over time, they may manage their time, attention, and workload more effectively. Additionally, higher MTM may grant individuals access to a broader range of resources, including diverse knowledge, skills, and perspectives, which can foster innovation and enhance problem-solving (Margolis, 2020). From a social network perspective, each new team membership expands an individual's network, providing greater access to critical resources such as information, support, and collaboration opportunities (Van De Brake et al., 2017). As these resources accumulate, they may help offset the initial demands imposed by MTM.

TCPs were expected to mitigate the inherent demands of MTM, such as coordination complexities, or to enhance the resource aspects of its resource-related benefits by facilitating knowledge sharing (Leonardi et al., 2013) and workload management (Anders, 2016). The utilization of TCPs for instant messaging However, the results showed that TCPs utilization did not significantly moderate the relationship between MTM and IP. From a JD-R perspective, this may imply several possibilities. While TCPs are typically viewed as resources, their use in high-MTM contexts may also introduce or intensify job demands. For instance, the use of instant messaging may increase workload through constant notifications and context switching, turning a potential resource into a demand (Bertolotti et al., 2015; Incerti et al., 2020). Similarly, switching between platforms or adhering to different communication norms across teams can become an additional burden (Incerti et al., 2020). These factors may counterbalance the expected buffering effect of TCPs, consistent with studies reporting mixed or context-dependent effects of collaboration technologies in MTM settings (Bertolotti et al., 2015; Gupta & Woolley, 2018; Incerti et al., 2020).

Although neither overall TCPs utilization nor the utilization of specific features moderated the MTM-IP relationship, several notable direct effects on IP and its dimensions emerged. The utilization of TCPs showed a positive, marginally significant effect on IP and a significant positive effect on CP. The utilization of TCPs for instant messaging had a significant positive direct effect on IP, TP, and CP. Similarly, the utilization of file-sharing, planning, and meeting features showed a positive significant direct effect on CP. Notably, the utilization for planning purposes also had a significant positive effect on CWB when we included interaction terms in the model. These findings support the theoretical proposition that TCPs can serve as independent job resources, contributing to improved performance outcomes. The strong association between TCPs utilization and CP, in particular, suggests that these platforms may facilitate behaviors that strengthen the social and organizational environment. This finding aligns with broader research indicating that enterprise social media, which can be seen as a type of TCPs, has a significant positive impact on task performance for employees (Yee et al., 2021). Likewise, research on online and offline communication networks in the work environment has found a direct, significant, and positive relationship between online ties and job performance (Zhang & Venkatesh, 2013).

Finally, while demographic and organizational context variables explained relatively slight variance, they yielded findings with theoretical relevance. For example, organizational tenure, often assumed to enhance performance (Ng & Feldman, 2010; Steffens et al., 2014), was positively associated not only with CP but also, unexpectedly, with CWB. This dynamic challenges the simplistic view that longer tenure is uniformly beneficial. As Ng and Feldman (2010) suggested, longer-tenured employees may feel more freedom to express discontent or push boundaries, potentially leading to higher CWB. Additionally, some organizational sectors demonstrated a significant influence on both CP and CWB, highlighting the importance of incorporating the macro-level industry contexts into micro-level theories of individual work performance. Different sectors, characterized by distinct cultural norms, shared values, and operational demands, shape what constitutes effective performance and how it is enacted (Johns, 2006).

5.2 Practical Implications

These findings offer several actionable insights for organizations and managers. The U-shaped MTM-IP (and MTM-TP) relationship suggests that simply assigning individuals to a few more teams might lead to an initial decline in performance. Organizations should be mindful of this and provide support and delineate roles with clarity during early MTM experiences. The explicit definition of roles within teams (e.g., whether a member has a consultancy role or is a major contributor) can help employees prioritize their time and set clear participation expectations across the different teams (O'Leary et al., 2011). Furthermore, managers should actively support employees during the initial stages, for example, employing coaching or mentoring to assist individuals in overcoming challenges and ultimately achieving better performance (Van De Brake et al., 2017). Regarding individuals involved in a high number of teams, where this study found an increase in performance, organizations could benefit from identifying the adaptive strategies employed by these individuals. For instance, employees working in more teams may develop more efficient task and time management practices and use various strategies (e.g., leverage interpersonal relationships) to navigate demands effectively (Van De Brake et al., 2020). However, it is crucial to emphasize that this should not be interpreted as an invitation to encourage high MTM levels without meticulous consideration of the potential for initial overload and burnout effects (Bertolotti et al., 2013, 2015).

In light of the observed direct positive effects of TCPs utilization on IP and, in particular, CP, organizations should continue to invest in and encourage the use of these platforms. The specific benefits of TCPs employed for file-sharing, instant messaging, planning, and meetings on contextual performance suggest that utilizing these platforms can foster a more supportive and collaborative organizational environment. For example, their integration has been demonstrated to strengthen social capital, organizational identity, and commitment (Lane et al., 2024). The positive correlation found between the use of TCPs for instant messaging and task performance further supports its efficacy in facilitating information exchange and work execution (Pazos et al., 2013). However, managers should also be aware that simply implementing TCPs is unlikely to solve all the complexities associated with MTM. A more targeted approach is needed to support employees in MTM contexts. For instance, training initiatives should extend beyond basic platform functionalities and focus more on the effective utilization within MTM arrangements. Team members must possess a common understanding of the established norms (Stray et al., 2019). Also, the development of a comprehensive code of conduct encompassing consistent work practices and communication rules can minimize the complexities of transitioning between different team contexts and potentially diverse TCPs (Incerti et al., 2020; Montrief et al., 2021).

Overall, organizations should acknowledge that various factors influence different dimensions of individual performance, necessitating the implementation of diverse solutions. For instance, fostering CP might benefit from promoting TCPs utilization, while addressing CWB may require attention to organizational tenure insights from this study and particular stressors within specific organizational sectors.

5.3 Limitations and Future Research Avenues

This study, while providing valuable insights, is not without limitations. The study employed a quantitative, cross-sectional research design, which, while advantageous for identifying relationships, imposed limitations on the capacity to infer causality (Cohen et al., 2003; Podsakoff et al., 2003). Future research could benefit from longitudinal designs that track the evolution of the MTM-IP relationship and the impact of TCPs over time. A longitudinal design would provide a more dynamic perspective, similar to approaches used in other studies on MTM (Van De Brake et al., 2017). Furthermore, we collected the data through a structured online survey employing convenience and snowball sampling techniques. These non-probability sampling methods cannot guarantee that the sample observed is representative of the entire population (Cohen et al., 2003). Hence, future studies should aim for more representative samples. The measurement of MTM, TCPs utilization, and individual performance all relied on self-assessment. Consequently, these measures may be vulnerable to common method bias (CMB), where part of the variance is attributable to the measurement method rather than the construct itself (Podsakoff et al., 2003). Future research initiatives would be strengthened by incorporating multi-source data, such as objective performance metrics or supervisor ratings for IP, or system-generated logs for TCPs utilization. The MTM measurement focused on the number of teams, building upon previous studies in this area (e.g., Chan, 2014; Pluut et al., 2014). However, other dimensions of MTM, such as team variety (O'Leary et al., 2011) or time fragmentation across teams (Pluut et al., 2014), were not captured. Investigating these dimensions offers another avenue for future studies. Similarly, the exploratory analyses in this study employing alternative TCPs utilization measures (TCPs Count and TCPs Binary) did exhibit weaker results, thereby suggesting measurement sensitivity. Research focusing on other aspects, such as the effective use of specific TCPs, may be beneficial.

Regarding the theoretical foundations, while JD-R theory provided a robust primary theoretical lens, future research could integrate other perspectives. For example, a deeper exploration of Social Network Theory, acknowledged as a key perspective in MTM (Van De Brake et al., 2017), could offer novel insights into how network structures formed through MTM and TCPs utilization influence outcomes.

A salient finding of this study is the observed U-shaped relationship between MTM and IP. Future studies could further explore the underlying mechanisms driving this pattern, for instance, by investigating the individual factors (e.g., polychronicity, explored by Bertolotti et al., 2015) or situation factors that explain the initial performance dip and subsequent rise in high MTM levels.

6 Conclusion

The objective of this thesis was to examine how team communication platforms (TCPs) moderate the relationship between multiple team membership (MTM) and individual performance (IP), addressing a gap in the literature where individual-level effects of TCPs in MTM contexts remain underexplored. Contrary to the hypothesized inverted U-shaped relationship, the findings revealed a U-shaped relationship between MTM and both overall IP and task performance (TP): performance initially declined with increasing MTM levels. However, it began to improve at higher levels of team involvement. Notably, TCPs utilization did not demonstrate a moderating effect on the MTM-IP link, regardless of the utilization for specific purposes (i.e., instant messaging, file sharing, planning, or meetings). These findings suggest that, for our sample, TCPs did not significantly alter how MTM impacts individual performance. However, TCPs did show direct positive effects. TCPs utilization was positively linked to Contextual Performance (CP), and the use of TCPs for instant messaging positively influenced IP, TP, and CP. Additionally, the use of file-sharing, planning, and meeting features was positively linked to CP. Consequently, while TCPs utilization may not buffer the complexities of MTM as hypothesized, their direct contributions to individual performance are evident. Therefore, organizations should focus on supporting employees through the initial challenges of MTM that impact performance and promote the adoption of TCPs for their direct benefits. Future research could further investigate the mechanisms underlying the U-shaped dynamic of MTM-IP.

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Appendix

Appendix A: Sample characteristics statistics

Table 6: Q1 - How old are you?

average	std dev	min	max	skewness	kurtosis
29.8	1.4	16.0	66.0	1.5	1.5

Table 7: Q2 - What is your gender identity?

	percentage	count
female	59.8%	131
male	4.2%	88

Table 8: Q3 - What is your highest level of education?

	percentage	count
bachelor's degree	35.2%	77
master's degree	29.7%	65
high school	28.8%	63
PhD	4.1%	9
below high school	2.3%	5

Table 9: Q4 - Please select the sector of the organization for which you are working.

	percentage	count
private services	3.1%	66
education and research	23.7%	52
public service, utilities and health	15.1%	33
infrastructure, construction and related sectors	12.3%	27
agriculture, food and forestry	7.8%	17
manufacturing	7.3%	16
maritime and transport	2.3%	5
energy and mining	1.4%	3

Table 10: Q5 - Please indicate the number of years you have worked for your current organization.

	percentage	count
less than 1 year	29.7%	65
more than one year, less than 2 years	24.2%	53
more than 2 years, less than 5 years	24.2%	53
more than 5 years	21.9%	48

Table 11: Q6 - In the past three months, how many teams have you been active on at the same time?

average	std dev	min	max	skewness	kurtosis
2.1	1.6	.0	13.0	2.6	11.1

Table 12: Q7 - What team communication platform do you use for work?

	percentage	count
Microsoft Teams	52.5%	115
WhatsApp	37.9%	83
Google Meet	29.2%	64
Zoom	25.1%	55
I don't use any	12.8%	28
Slack	11.4%	25
Others	1.0%	22
Discord	6.8%	15
Trello	3.7%	8
Asana	3.7%	8
Connecteam	1.4%	3

Table 13: Descriptive Statistics of TCPs Utilization by Platform (5-point Likert scale)

Purpose/Statistic	**Mean**	**SD**	**Min**	**Max**	**N**
Asana					
File sharing	2.6	1.5	1.0	5.0	8
Instant messaging	2.1	1.4	1.0	4.0	8
Planning	3.8	1.3	2.0	5.0	8
Take part in meetings	2.9	1.8	1.0	5.0	8
Others	2.2	1.8	1.0	5.0	8
Overall	2.7	.7	1.8	3.8	8
Connecteam					
File sharing	2.0	1.0	1.0	3.0	3
Instant messaging	3.3	.6	3.0	4.0	3
Planning	2.7	.6	2.0	3.0	3
Take part in meetings	3.7	.6	3.0	4.0	3
Others	1.7	1.2	1.0	3.0	3
Overall	2.7	.3	2.4	3.0	3
Discord					
File sharing	2.7	1.2	1.0	5.0	15
Instant messaging	4.0	1.1	2.0	5.0	15
Planning	2.3	1.3	1.0	5.0	15
Take part in meetings	1.9	1.0	1.0	4.0	15
Others	1.0	.0	1.0	1.0	15
Overall	2.4	.6	1.6	3.6	15
Google Meet					
File sharing	2.4	1.3	1.0	5.0	64
Instant messaging	2.4	1.5	1.0	5.0	64
Planning	2.4	1.3	1.0	5.0	64
Take part in meetings	3.2	1.1	1.0	5.0	64
Others	1.4	.9	1.0	5.0	64

Continued on next page...

TABLE 13: Descriptive Statistics of TCPs Utilization by Platform (continued)

Purpose/Statistic	Mean	SD	Min	Max	N
Overall	2.4	.8	1.2	4.2	64
Microsoft Teams					
File sharing	3.1	1.4	1.0	5.0	115
Instant messaging	3.3	1.5	1.0	5.0	115
Planning	2.8	1.4	1.0	5.0	115
Take part in meetings	3.2	1.3	1.0	5.0	115
Others	1.3	.9	1.0	5.0	115
Overall	2.8	.9	1.0	5.0	115
Slack					
File sharing	3.2	1.3	1.0	5.0	25
Instant messaging	3.7	1.2	2.0	5.0	25
Planning	2.6	1.6	1.0	5.0	25
Take part in meetings	2.0	1.4	1.0	5.0	25
Others	1.2	.6	1.0	4.0	25
Overall	2.5	.9	1.2	4.2	25
Trello					
File sharing	2.4	1.7	1.0	5.0	8
Instant messaging	1.4	.7	1.0	3.0	8
Planning	3.2	1.7	1.0	5.0	8
Take part in meetings	1.2	.7	1.0	3.0	8
Others	1.4	1.1	1.0	4.0	8
Overall	1.9	.7	1.0	3.4	8
WhatsApp					
File sharing	3.0	1.2	1.0	5.0	83
Instant messaging	4.0	.9	2.0	5.0	83
Planning	2.8	1.3	1.0	5.0	83
Take part in meetings	1.8	1.1	1.0	5.0	83
Others	1.4	.9	1.0	4.0	83
Overall	2.6	.7	1.4	4.8	83
Zoom					
File sharing	1.7	1.0	1.0	5.0	55
Instant messaging	1.6	1.0	1.0	5.0	55
Planning	2.0	1.4	1.0	5.0	55
Take part in meetings	3.2	1.2	1.0	5.0	55
Others	1.1	.6	1.0	4.0	55
Overall	1.9	.7	1.2	3.6	55
Other Platforms					
File sharing	2.8	1.5	1.0	5.0	15
Instant messaging	2.6	1.4	1.0	5.0	15
Planning	3.1	1.5	1.0	5.0	15
Take part in meetings	2.0	1.4	1.0	5.0	15
Others	1.3	.8	1.0	4.0	15
Overall	2.3	.7	1.4	3.8	15

Table 14: Overall TCPs utilization statistics by feature/purpose

	average	**std dev**	**min**	**max**	**skewness**	**kurtosis**
File Sharing	1.33	0.29	1	5	1.3	1.9
Instant Messaging	1.38	0.29	1	5	0.7	0.6
Planning	1.31	0.31	1	5	1.4	2.5
Meetings	1.31	0.31	1	5	1.4	2.2
Others	1.06	0.18	1	5	3.7	15.4
Platform utilization overall	**1.28**	**0.22**	**1**	**2.1**	**1.2**	**1.6**

Table 15: Q18-20 - Individual work performance items, 5-item Likert scale

item	**average**	**std dev**	**min**	**max**	**skewness**	**kurtosis**
Task performance (TP)						
I managed to plan my work so that it was done on time.	3.9	1.1	1	5	-0.8	-0.3
My planning was optimal.	3.5	1.0	1	5	-0.5	-0.2
I kept in mind the results that I had to achieve in my work.	3.9	1.0	1	5	-0.7	0.1
I was able to separate main issues from side issues at work.	3.6	1.1	1	5	-0.4	-0.6
I was able to perform my work well with minimal time and effort.	3.3	1.0	1	5	-0.1	-0.7
Collaboration with others was very productive.	3.6	1.0	1	5	-0.4	-0.5
Contextual performance (CP)						
I took on extra responsibilities.	3.2	1.2	1	5	-0.1	-0.9
I started new tasks myself, when my old ones were finished.	3.4	1.2	1	5	-0.3	-0.9
I took on challenging work tasks, when available.	3.5	1.1	1	5	-0.2	-0.9
I worked at keeping my job knowledge up-to-date.	3.5	1.1	1	5	-0.3	-0.6
I worked at keeping my job skills up-to-date.	3.5	1.1	1	5	-0.3	-0.6
I came up with creative solutions to new problems.	3.3	1.1	1	5	-0.1	-0.8
I kept looking for new challenges in my job.	3.2	1.2	1	5	0	-0.9
I actively participated in work meetings.	3.4	1.2	1	5	-0.3	-0.9
Counterproductive work behavior (CWB)						
I complained about unimportant matters at work.	2.4	1.1	1	5	0.5	-0.3
I made problems greater than they were at work.	2.0	1.1	1	5	0.9	0.4
I focused on the negative aspects of a work situation, instead of on the positive aspects.	2.5	1.1	1	5	0.4	-0.4
I spoke with colleagues about the negative aspects of my work.	2.5	1.2	1	5	0.4	-0.7
I spoke with people from outside the organization about the negative aspects of my work.	2.7	1.2	1	5	0.2	-0.7

Table 16: Univariate statistics and Pearson correlations (N=219)

variable	mean	s.d.	min	max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Control Variables																											
1. Age	29.8	1.4	16	66	1.0																						
2. Gender	1.4	.5	1.0	2.0	.2**	1.0																					
3. Education	3.1	.9	1.0	5.0	-.1	-.2**	1.0																				
4. Organizational tenure	2.4	1.1	1.0	4.0	.5***	.2**	-.1	1.0																			
5. Agriculture, food and forestry	-	-	-	-	-.2*	.1	.0	-.1	1.0																		
6. Energy and mining	-	-	-	-	-.1	.0	-.1	-.1	.0	1.0																	
7. Manufacturing	-	-	-	-	.0	-.1	-.1	.0	-.1	.0	1.0																
8. Private services	-	-	-	-	-.1	.0	-.1	-.1	-.2**	-.1	-.2**	1.0															
9. Infrastructure, construction and related sectors	-	-	-	-	.4***	.2**	-.4***	.3***	-.1	.0	-.1	-.3***	1.0														
1. Education and research	-	-	-	-	.0	-.1	.4***	.0	-.2*	-.1	-.2*	-.4***	-.2**	1.0													
11. Public service, utilities and health	-	-	-	-	-.1*	.0	.1	.0	-.1	-.1	-.1	-.3***	-.2*	-.2***	1.0												
12. Maritime and transport	-	-	-	-	.0	.1	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.1	1.0											
Predictor Variables																											
13. MTM	2.1	1.6	.0	13.0	.0	.1	.3***	.0	.0	.0	.0	.0	-.1	.1*	.0	-.1	1.0										
14. TCPs	1.3	.2	1.0	2.1	-.1	-.1	.2***	-.1	-.1	.0	.0	.0	-.1	.0	.0	.2**	.3***	1.0									
15. TCPs_IM	1.4	.3	1.0	2.6	.0	-.1	.2**	-.1	-.1	.0	.0	.0	.0	.1	-.1	.2*	.2**	.9***	1.0								
16. TCPs_FS	1.3	.3	1.0	2.5	.0	-.1	.2**	.0	-.1	.0	.1	.1	-.1	.0	.0	.2**	.2***	.9***	.7***	1.0							
17. TCPs_Pl	1.3	.3	1.0	2.8	-.2*	.0	.2*	-.1	-.1	.0	.0	.0	-.1	.0	.1	.2**	.2**	.9***	.7***	.6***	1.0						
18. TCPs_M	1.3	.3	1.0	2.6	-.1*	-.1	.3***	-.1*	-.1	.0	.0	.0	-.2**	.1	.0	.1	.3***	.9***	.7***	.7***	.7***	1.0					
19. TCPs_Other	1.1	.2	1.0	2.2	-.1	.1	.0	.0	.0	.0	-.1	.0	-.1	-.1	.1	.3***	.3***	.5***	.3***	.4***	.4***	.3***	1.0				
Dependent Variables																											
2. IP	3.4	.4	2.2	4.4	.1	.0	-.1	.0	.0	.0	.0	-.1	.1	.0	.0	.0	-.2*	.0	.1	.0	.0	.0	-.1	1.0			
21. TP	3.6	.8	1.0	5.0	.0	-.1	-.1*	.0	.0	.0	.1	.0	.1	-.2**	.0	.1	-.2*	.0	.1	.1	.1	.0	-.1	.9***	1.0		
22. CP	3.0	.6	1.2	5.0	.0	.0	.1	.1*	-.1	-.1	.0	-.1	.0	.0	.2*	.0	.1	.2***	.2*	.2**	.2**	.2**	.1*	.3***	.3***	1.0	
23. CWB	2.4	.9	1.0	5.0	-.1	.0	.1	.1	-.2*	.0	.0	.1	.0	-.1	.1*	.1	.1	.2*	.1	.2**	.2*	.1	.1	-.5***	-.1	.6***	1.0

Notes: Correlations are Pearson's r. Significance levels: * p $<$ .05; ** p $<$ .01; *** p $<$ .001 (2-tailed).

Appendix B: TCPs Features Effect on Individual Performance (IP)

TABLE 17: H2a: Results of Hierarchical Regression for Instant Messaging (IM) TCPs Utilization on Individual Performance (IP).

predictor	entry β	final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.00	0.03	0.50	0.03	-0.03	0.50	11, 207
Gender	-0.04	-0.02						
Education	-0.04	-0.02						
Energy and mining	-0.06	-0.08						
Manufacturing	-0.07	-0.06						
Private services	-0.12	-0.16						
Infrastructure, construction and related sectors	-0.04	-0.08						
Education and research	-0.09	-0.10						
Public service, utilities and health	-0.07	-0.08						
Maritime and transport	0.00	-0.11						
Organizational tenure	-0.02	-0.01						
Step 2: MTM Effects								
MTM	-0.09*	-0.10*	0.02	2.69.	0.05	-0.01	0.84	13, 205
MTM^2	0.01	0.01.						
Step 3: IM Feature								
TCPs_IM	0.21*	0.21.	0.02	4.10*	0.07	0.01	1.09	14, 204
Step 4: IM Interactions								
MTM_x_TCPs_IM	0.06	0.06	0.00	0.08	0.07	-0.00	0.95	16, 202
MTM^2_x_TCPs_IM	-0.01	-0.01						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

TABLE 18: H2b: Results of Hierarchical Regression for File Sharing (FS) TCPs Utilization on Individual Performance (IP).

predictor	entry β	final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.00	0.03	0.50	0.03	-0.03	0.50	11, 207
Gender	-0.04	-0.03						
Education	-0.04	-0.02						
Energy and mining	-0.06	-0.09						
Manufacturing	-0.07	-0.07						
Private services	-0.12	-0.16						
Infrastructure, construction and related sectors	-0.04	-0.07						
Education and research	-0.09	-0.08						
Public service, utilities and health	-0.07	-0.08						
Maritime and transport	0.00	-0.07						
Organizational tenure	-0.02	-0.02						
Step 2: MTM Effects								
MTM	-0.09*	-0.11*	0.02	2.69.	0.05	-0.01	0.84	13, 205
MTM^2	0.01	0.01						
Step 3: FS Feature								
TCPs_FS	0.14	0.12	0.01	1.85	0.06	-0.01	0.92	14, 204
Step 4: FS Interactions								
MTM_x_TCPs_FS	0.20	0.20	0.00	0.51	0.06	-0.01	0.86	16, 202
MTM^2_x_TCPs_FS	-0.03	-0.03						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 19: H2c: Results of Hierarchical Regression for Planning TCPs Utilization on Individual Performance (IP).

predictor	entry β	final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.01	0.03	0.50	0.03	-0.03	0.50	11, 207
Gender	-0.04	-0.03						
Education	-0.04	-0.02						
Energy and mining	-0.06	-0.06						
Manufacturing	-0.07	-0.05						
Private services	-0.12	-0.14						
Infrastructure, construction and related sectors	-0.04	-0.07						
Education and research	-0.09	-0.08						
Public service, utilities and health	-0.07	-0.08						
Maritime and transport	0.00	-0.07						
Organizational tenure	-0.02	-0.01						
Step 2: MTM Effects								
MTM	-0.09*	-0.10*	0.02	2.69.	0.05	-0.01	0.84	13, 205
MTM^2	0.01	0.01.						
Step 3: Planning Feature								
TCPs_Planning	0.13	0.11	0.01	1.84	0.06	-0.01	0.92	14, 204
Step 4: Planning Interactions								
MTM_x_TCPs_Planning	0.17	0.17	0.00	0.50	0.06	-0.01	0.86	16, 202
MTM^2_x_TCPs_Planning	-0.03	-0.03						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 20: H2d: Results of Hierarchical Regression for Meetings TCPs Utilization on Individual Performance (IP).

predictor	entry β	final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	0.00	0.00	0.03	0.50	0.03	-0.03	0.50	11, 207
Gender	-0.04	-0.03						
Education	-0.04	-0.04						
Energy and mining	-0.06	-0.10						
Manufacturing	-0.07	-0.09						
Private services	-0.12	-0.16						
Infrastructure, construction and related sectors	-0.04	-0.06						
Education and research	-0.09	-0.09						
Public service, utilities and health	-0.07	-0.07						
Maritime and transport	0.00	-0.11						
Organizational tenure	-0.02	-0.01						
Step 2: MTM Effects								
MTM	-0.09*	-0.11*	0.02	2.69.	0.05	-0.01	0.84	13, 205
MTM^2	0.01	0.01*						
Step 3: Meeting Feature								
TCPs_Meetings	0.19	0.17	0.02	3.44.	0.07	0.00	1.04	14, 204
Step 4: Meetings Interactions								
MTM_x_TCPs_Meetings	0.17	0.17	0.01	1.31	0.08	0.01	1.07	16, 202
MTM^2_x_TCPs_Meetings	-0.04	-0.04						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.; . $p < .1$ β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Appendix C: Task Performance - MTM, TCPs Purposes Effect

Table 21: Task Performance - IM Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	.00	.00	.06	1.30	.06	.02	1.30	11, 207
Gender	-.21.	-.19.						
Education	-.07	-.03						
Energy and mining	.16	.12						
Manufacturing	.12	.13						
Private services	.01	-.08						
Infrastructure, construction and related sectors	.13	.05						
Education and research	-.22	-.23						
Public service, utilities and health	.05	.03						
Maritime and transport	.49	.28						
Organizational tenure	-.02	-.02						
Step 2: MTM Effects								
MTM	-.23**	-.25**	.04	4.64*	.11	.05	1.86*	13, 205
MTM^2	.02*	.02*						
Step 3: IM Feature								
TCPs_IM	.39*	.38*	.02	4.44*	.12	.06	2.07*	14, 204
Step 4: IM Interactions								
MTM_x_TCPs_IM	.13	.13	.00	.14	.13	.06	1.81*	16, 202
MTM^2_x_TCPs_IM	-.01	-.01						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 22: Task Performance - FS Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	.00	.00	.06	1.30	.06	.02	1.30	11, 207
Gender	-.21.	-.19.						
Education	-.07	-.04						
Energy and mining	.16	.10						
Manufacturing	.12	.11						
Private services	.01	-.08						
Infrastructure, construction and related sectors	.13	.08						
Education and research	-.22	-.20						
Public service, utilities and health	.05	.03						
Maritime and transport	.49	.33						
Organizational tenure	-.02	-.03						
Step 2: MTM Effects								
MTM	-.23**	-.26***	.04	4.64*	.11	.05	1.86*	13, 205
MTM^2	.02*	.03**						
Step 3: FS Feature								
TCPs_FS	.29	.23	.01	2.45	.12	.06	1.91*	14, 204
Step 4: FS Interactions								
MTM_x_TCPs_FS	.43	.43	.01	.74	.12	.05	1.76*	16, 202
MTM^2_x_TCPs_FS	-.07	-.07						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 23: Task Performance - Planning Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	.00	.01	.06	1.30	.06	.02	1.30	11, 207
Gender	-.21.	-.2.						
Education	-.07	-.03						
Energy and mining	.16	.16						
Manufacturing	.12	.13						
Private services	.01	-.05						
Infrastructure, construction and related sectors	.13	.09						
Education and research	-.22	-.20						
Public service, utilities and health	.05	.02						
Maritime and transport	.49	.31						
Organizational tenure	-.02	-.02						
Step 2: MTM Effects								
MTM	-.23**	-.25**	.04	4.64*	.11	.05	1.86*	13, 205
MTM^2	.02*	.02**						
Step 3: Planning Feature								
TCPs_Planning	.26	.25	.01	2.31	.12	.05	1.90*	14, 204
Step 4: Planning Interactions								
MTM_x_TCPs_Planning	.19	.19	.00	.48	.12	.05	1.71*	16, 202
MTM^2_x_TCPs_Planning	-.04	-.04						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 24: Task Performance - Meetings Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	.00	.00	.06	1.30	.06	.02	1.30	11, 207
Gender	-.21.	-.21.						
Education	-.07	-.05						
Energy and mining	.16	.10						
Manufacturing	.12	.10						
Private services	.01	-.07						
Infrastructure, construction and related sectors	.13	.10						
Education and research	-.22	-.21						
Public service, utilities and health	.05	.05						
Maritime and transport	.49	.33						
Organizational tenure	-.02	-.02						
Step 2: MTM Effects								
MTM	-.23**	-.26***	.04	4.64*	.11	.05	1.86*	13, 205
MTM^2	.02*	.03**						
Step 3: Meetings Feature								
TCPs_Meetings	.27	.22	.01	2.24	.12	.05	1.89*	14, 204
Step 4: Meetings Interactions								
MTM_x_TCPs_Meetings	.37	.37	.01	1.01	.12	.05	1.78*	16, 202
MTM^2_x_TCPs_Meetings	-.07	-.07						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Appendix D: Contextual Performance - MTM, TCPs Purposes Effect

Table 25: Contextual Performance - IM Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.01	-.01	.07	1.39	.07	.02	1.39	11, 207
Gender	.05	.05						
Education	.07	.06						
Energy and mining	.02	-.02						
Manufacturing	.31	.28						
Private services	.17	.10						
Infrastructure, construction and related sectors	.32	.26						
Education and research	.19	.16						
Public service, utilities and health	.42*	.41*						
Maritime and transport	.36	.18						
Organizational tenure	.10*	.10*						
Step 2: MTM Effects								
MTM	-.05	-.11	.01	1.04	.08	.02	1.34	13, 205
MTM^2	.01	.01.						
Step 3: IM Feature								
TCPs_IM	.41**	.40*	.03	6.90**	.11	.05	1.77*	14, 204
Step 4: IM Interactions								
MTM_x_TCPs_IM	-.06	-.06	.00	.44	.11	.04	1.6.	16, 202
MTM^2_x_TCPs_IM	.01	.01						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is “Agriculture, food and forestry”.

Table 26: Contextual Performance - FS Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.01	-.01	.07	1.39	.07	.02	1.39	11, 207
Gender	.05	.05						
Education	.07	.05						
Energy and mining	.02	-.07						
Manufacturing	.31	.22						
Private services	.17	.07						
Infrastructure, construction and related sectors	.32	.24						
Education and research	.19	.17						
Public service, utilities and health	.42*	.37*						
Maritime and transport	.36	.13						
Organizational tenure	.10*	.09*						
Step 2: MTM Effects								
MTM	-.05	-.09	.01	1.04	.08	.02	1.34	13, 205
MTM^2	.01	.01						
Step 3: FS Feature								
TCPs_FS	.47**	.47**	.04	9.35**	.12	.06	1.96*	14, 204
Step 4: FS Interactions								
MTM_x_TCPs_FS	.01	.01	.00	.07	.12	.05	1.71*	16, 202
MTM^2_x_TCPs_FS	.01	.01						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is “Agriculture, food and forestry”.

Table 27: Contextual Performance - Planning Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.01	-.00	.07	1.39	.07	.02	1.39	11, 207
Gender	.05	.04						
Education	.07	.06						
Energy and mining	.02	.05						
Manufacturing	.31	.27						
Private services	.17	.12						
Infrastructure, construction and related sectors	.32	.29						
Education and research	.19	.17						
Public service, utilities and health	.42*	.39*						
Maritime and transport	.36	.14						
Organizational tenure	.10*	.09*						
Step 2: MTM Effects								
MTM	-.05	-.07	.01	1.04	.08	.02	1.34	13, 205
MTM^2	.01	.01						
Step 3: Planning Feature								
TCPs_Planning	.39**	.43**	.03	7.36**	.11	.05	1.81*	14, 204
Step 4: Planning Interactions								
MTM_x_TCPs_Planning	-.27	-.27	.00	.53	.12	.04	1.64.	16, 202
MTM^2_x_TCPs_Planning	.04	.04						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 28: Contextual Performance - Meetings Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.01	-.00	.07	1.39	.07	.02	1.39	11, 207
Gender	.05	.03						
Education	.07	.04						
Energy and mining	.02	-.07						
Manufacturing	.31	.23						
Private services	.17	.09						
Infrastructure, construction and related sectors	.32	.28						
Education and research	.19	.14						
Public service, utilities and health	.42*	.39*						
Maritime and transport	.36	.17						
Organizational tenure	.10*	.10*						
Step 2: MTM Effects								
MTM	-.05	-.09	.01	1.04	.08	.02	1.34	13, 205
MTM^2	.01	.01						
Step 3: Meetings Feature								
TCPs_Meetings	.38*	.42*	.03	6.50*	.11	.05	1.74*	14, 204
Step 4: Meetings Interactions								
MTM_x_TCPs_Meetings	-.11	-.11	.00	.25	.11	.04	1.54.	16, 202
MTM^2_x_TCPs_Meetings	.01	.01						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; . $p < .1$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Appendix E: Counterproductive Work Behavior - MTM, TCPs Purposes Effect

Table 29: Counterproductive Work Behavior - IM Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.02*	-.02*	.09	1.89*	.09	.04	1.89*	11, 207
Gender	-.04	-.07						
Education	.11	.10						
Energy and mining	.35	.34						
Manufacturing	.63*	.59*						
Private services	.54*	.49*						
Infrastructure, construction and related sectors	.58*	.56.						
Education and research	.25	.22						
Public service, utilities and health	.68**	.67**						
Maritime and transport	.84*	.79.						
Organizational tenure	.13*	.12*						
Step 2: MTM Effects								
MTM	-.01	-.05	.02	1.91	.11	.05	1.91*	13, 205
MTM^2	.01	.01						
Step 3: IM Feature								
TCPs_IM	.16	.16	.00	.59	.11	.05	1.81*	14, 204
Step 4: IM Interactions								
MTM_x_TCPs_IM	-.10	-.10	.00	.29	.11	.04	1.61.	16, 202
MTM^2_x_TCPs_IM	.02	.02						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 30: Counterproductive Work Behavior - FS Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.02*	-.01*	.09	1.89*	.09	.04	1.89*	11, 207
Gender	-.04	-.06						
Education	.11	.08						
Energy and mining	.35	.29						
Manufacturing	.63*	.54.						
Private services	.54*	.46*						
Infrastructure, construction and related sectors	.58*	.52.						
Education and research	.25	.22						
Public service, utilities and health	.68**	.63*						
Maritime and transport	.84*	.68						
Organizational tenure	.13*	.12.						
Step 2: MTM Effects								
MTM	-.01	-.03	.02	1.91	.11	.05	1.91*	13, 205
MTM^2	.01	.01						
Step 3: FS Feature								
TCPs_FS	.33	.35	.01	2.54	.12	.06	1.97*	14, 204
Step 4: FS Interactions								
MTM_x_TCPs_FS	-.18	-.18	.00	.14	.12	.05	1.72*	16, 202
MTM^2_x_TCPs_FS	.03	.03						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 31: Counterproductive Work Behavior - Planning Moderation

Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.02*	-.01*	.09	1.89*	.09	.04	1.89*	11, 207
Gender	-.04	-.06						
Education	.11	.10						
Energy and mining	.35	.40						
Manufacturing	.63*	.56.						
Private services	.54*	.50*						
Infrastructure, construction and related sectors	.58*	.59*						
Education and research	.25	.23						
Public service, utilities and health	.68**	.66**						
Maritime and transport	.84*	.67						
Organizational tenure	.13*	.11.						
Step 2: MTM Effects								
MTM	-.01	-.01	.02	1.91	.11	.05	1.91*	13, 205
MTM^2	.01	.00						
Step 3: Planning Feature								
TCPs_Planning	.26	.35.	.01	1.72	.12	.05	1.90*	14, 204
Step 4: Planning Interactions								
MTM_x_TCPs_Planning	-.58	-.58	.01	1.28	.13	.06	1.83*	16, 202
MTM^2_x_TCPs_Planning	.08	.08						

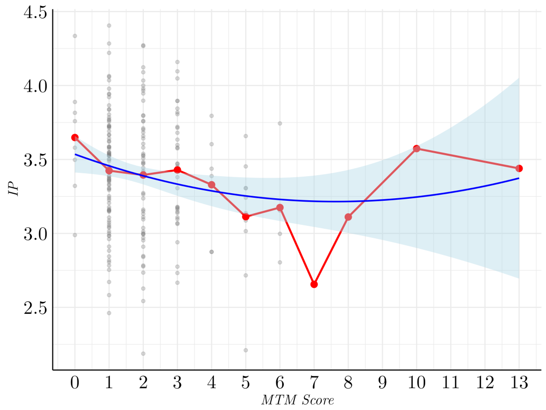
Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Table 32: Counterproductive Work Behavior - Meetings Moderation

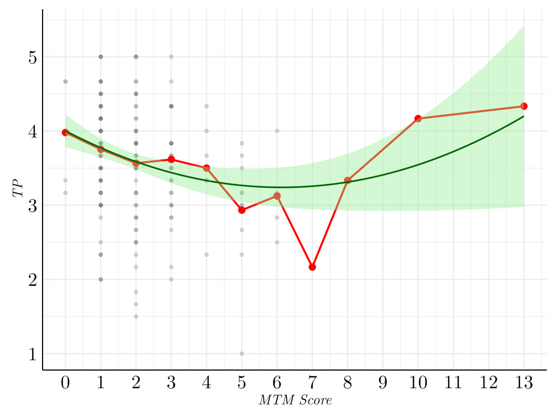
Predictor	Entry β	Final β	ΔR^2	ΔF	R^2	Adj R^2	F	df
Step 1: Controls								
Age	-.02*	-.01*	.09	1.89*	.09	.04	1.89*	11, 207
Gender	-.04	-.07						
Education	.11	.10						
Energy and mining	.35	.33						
Manufacturing	.63*	.59*						
Private services	.54*	.49*						
Infrastructure, construction and related sectors	.58*	.56.						
Education and research	.25	.21						
Public service, utilities and health	.68**	.64*						
Maritime and transport	.84*	.82.						
Organizational tenure	.13*	.12.						
Step 2: MTM Effects								
MTM	-.01	-.01	.02	1.91	.11	.05	1.91*	13, 205
MTM^2	.01	.00						
Step 3: Meetings Feature								
TCPs_Meetings	.09	.12	.00	.18	.11	.05	1.78*	14, 204
Step 4: Meetings Interactions								
MTM_x_TCPs_Meetings	-.26	-.26	.00	.47	.11	.04	1.61.	16, 202
MTM^2_x_TCPs_Meetings	.05	.05						

Note: *** $p < .001$; ** $p < .01$; * $p < .05$. β values are standardized coefficients.
Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

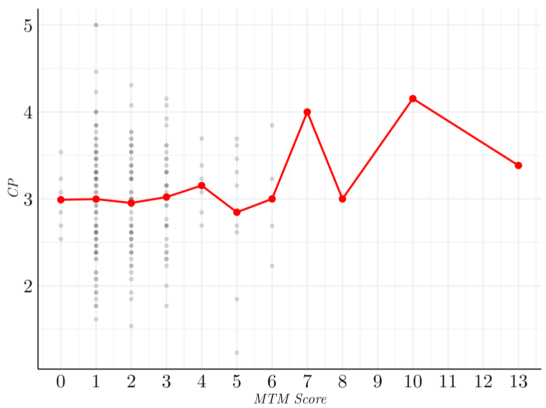
Appendix F: Plots MTM - IP and IP Dimensions



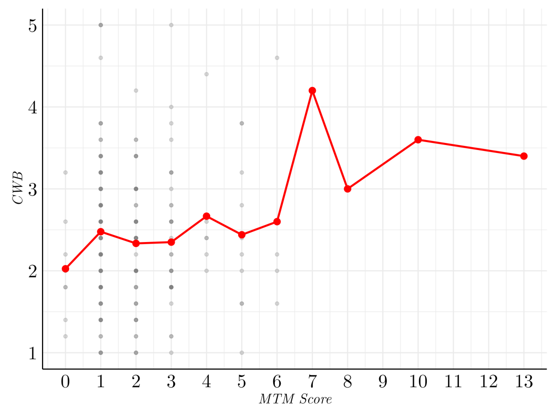
(A) **Individual Performance (IP) vs. MTM.** Observed U-shaped Relationship with Predicted Quadratic Curve.



(B) **Task Performance (TP) vs. MTM.** Observed U-shaped Relationship with Predicted Quadratic Curve.



(C) **Contextual Performance (CP) vs. MTM.** Mean CP by MTM Level.



(D) **Counterproductive Work Behavior (CWB) vs. MTM.** Mean CWB by MTM Level.

FIGURE 4: Scatter plots showing the relationship between Multiple Team Membership (MTM) score and performance dimensions. Plots include mean trend lines and, where applicable, predicted quadratic curves.

Appendix G: Exploratory Analyses Results

TABLE 33: Comparison of Hierarchical Regression Results for IP: Different TCPs Measurement

Metric	Frequency Approach	Count Approach	Binary Approach
Model 2 (Controls + MTM Effects)			
R^2	.051	.051	.051
$Adj.R^2$	-.009	-.009	-.009
Model 3 (Overall TCPs Main Effect Added)			
β (TCPs Predictor)	.24.	.04.	.10
R^2 (Model)	.064	.064	.056
ΔR^2 (from Model 2)	.013	.013	.005
$F for \Delta R^2$	2.88.	2.8.	1.13
Model 4 (Overall TCPs Interaction Effects Added)			
β (TCPs Main Effect - Final)	.24.	.04	.11
β (MTM x TCPs)	.21	.03	-.04
β (MTM$^{\mathbf{2}}$ x TCPs)	-.04	-.01	.01
R^2 (Model)	.073	.070	.057
ΔR^2 (from Model 3)	.009	.006	.001
$F for \Delta R^2$	.95	.69	.09

Note:

[a] Beta (β) values are standardized regression coefficients. Significance: . $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

[b] ΔR^2 is the change in R-squared from the preceding model step, 1st and 2nd models are the same for all measurement approaches of TCPs.

TABLE 34: Comparison of Hierarchical Regression Results for IP: Main Analysis vs. Extreme Subsets (Detailed Betas)

	Main Analysis (Full Data)	Extreme MTM Cases	Extreme TCPs Utilization Cases	Combined Extreme MTM & TCPs
Model 1 (Controls Only)				
β (Age)	.00	.00	.01.	.01
β (Gender)	-.04	-.03	.04	.08
β (Education)	-.04	-.04	-.09	-.08
β (Energy and mining)	-.06	-.07	var missing	var missing
β (Manufacturing)	-.07	-.11	-.23	-.23
β (Private services)	-.12	-.10	-.12	-.13
β (Infrastructure, construction and related sectors)	-.04	-.05	-.19	-.26
β (Education and research)	-.09	-.08	-.03	-.05
β (Public service, utilities and health)	-.07	-.17	-.09	-.17
β (Maritime and transport)	.00	-.12	.02	-.09
β (Organizational tenure)	-.02	-.01	-.04	-.02
R^2 (Model 1)	.026	.029	.063	.078
Adj. R^2 (Model 1)	-.026	-.042	-.026	-.029
F for Model 1	.50	.41	.71	.73
ΔR^2 (vs. Intercept)	.026	.029	.063	.078
F for ΔR^2 (vs. Intercept)	.50	.41	.71	.73
Model 2 (Controls + MTM Effects)				
β (MTM)	-.09*	-.09*	.03	.01
β (MTM^2)	.01	.01	-.01	-.00
R^2 (Model 2)	.051	.069	.074	.092
Adj. R^2 (Model 2)	-.009	-.014	-.033	-.037
F for Model 2	.84	.83	.69	.71
ΔR^2 (vs. Model 1)	.025	.039	.011	.014
F for ΔR^2 (vs. Model 1)	2.69.	3.09*	.64	.65
Model 3 (Overall TCPs Main Effect Added)				
β (TCPs_Overall)	.24.	.25.	.22	.25
R^2 (Model 3)	.064	.087	.089	.114
Adj. R^2 (Model 3)	-.000	-.001	-.026	-.025
F for Model 3	1.00	.99	.78	.82
ΔR^2 (vs. Model 2)	.013	.018	.015	.022
F for ΔR^2 (vs. Model 2)	2.88.	2.87.	1.72	2.04
Model 4 (Overall TCPs Interaction Effects Added)				
β (TCPs_Overall - Final)	.24.	.23	.22	.27
β (MTM_x_TCPs_Overall)	.21	.17	.22	.25
β (MTM^2_x_TCPs_Overall)	-.04	-.03	-.05	-.05
R^2 (Model 4)	.073	.095	.109	.136
Adj. R^2 (Model 4)	-.001	-.005	-.023	-.024
F for Model 4	.99	.95	.82	.85
ΔR^2 (vs. Model 3)	.009	.008	.020	.022
F for ΔR^2 (vs. Model 3)	.95	.68	1.11	1.03

Note:
[a] Beta (β) values are standardized regression coefficients. Significance: . $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.
[b] var missing indicates that the variable was not present in the subset.
[c] ΔR^2 is the change in R-squared from the preceding model step.
[d] Organizational sectors are treated as dummy variables; the reference sector is "Agriculture, food and forestry".

Appendix H: Declaration Use of Artificial Intelligence

During the preparation of this work, the author employed several artificial intelligence tools to enhance specific aspects of the writing and data analysis procedure. The tools and their application are detailed below:

- *Grammarly*: This tool was used to conduct comprehensive checks for spelling, grammar, and punctuation.
- *Gemini*: This tool was employed for the automated conversion of tabular data generated from R outputs into LaTeX format and for assistance with programming tasks and debugging of R code.
- *DeepL Write*: This service was used to refine the style of the text, offering alternative word choices and sentence structures to improve overall readability.

After using these tools/services, the author reviewed and edited the content as needed and takes full responsibility for the content of the work.