International Journal of Productivity and Performance Management

659

Productivity in motion: a structuration theory lens and inductive analysis of MTM in engineering consulting firms

Khalil Rahi
College of Engineering, Abu Dhabi University, Abu Dhabi, United Arab Emirates
Mira Thoumy
Lebanese American University, Beirut, Lebanon, and
Muhammad Saqib
College of Engineering, Abu Dhabi University, Abu Dhabi, United Arab Emirates

Received 22 February 2024
Revised 1 July 2024
Accepted 7 July 2024

Abstract

Purpose – This paper explores the impact of multiple team membership (MTM) on the productivity of team members in engineering consulting firms. MTM refers to employees participating concurrently in multiple teams, a concept closely linked to projectification. Despite the fact that this concept can enhance collaboration, it also introduces coordination challenges that may negatively affect productivity.

Design/methodology/approach – Through an inductive approach involving 12 semi-structured interviews with engineering consulting professionals specializing in water and energy infrastructure projects, this paper examines the factors affecting team member productivity in an MTM setting. Following the interviews, a Delphi technique was employed, engaging 16 experts to rank the factors and sub-factors identified from the interview data. This two-stage approach ensured a comprehensive and validated assessment of productivity factors.

Findings – This study develops 8 factors process model grounded in structuration theory to explain the socio-technical mechanisms by which multiple team membership shapes productivity outcomes in engineering consulting firms specialized in water and energy infrastructure projects. Key findings surface micro-foundations, tensions in technology provisions, planning processes, and career development that inform theoretical advances and practical improvements.

Originality/value – This research contributes empirically insights into managing MTM in expert service contexts. Applying Giddens' structuration theory, this study reveals how agency and structures shape productivity across organizational, team, and individual levels. In practice, this study provides recommendations for improving productivity within projectified environments, mainly for team members working in an MTM environment in engineering consulting firms specializing in water and energy infrastructure projects.

Keywords Multiple team membership, Projectification, Productivity, Inductive approach, Engineering consulting firms

Paper type Research paper

1. Introduction

In today's dynamic business landscape, the concept of "projectification" has become increasingly relevant, as it has transformed the way organizations structure and manage their work (Jensen *et al.*, 2016).

Human participants: This study describes research on humans. Therefore, this study received approval from the Institutional Review Board of Abu Dhabi University (file number: CE– 000003).

Data availability statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

International Journal of Productivity and Performance Management
Vol. 74 No. 2, 2025
pp. 659-682

1741-0401
DOI 10.1108/IJPPM-02-2024-0086

Christophe Midler's coining of the term "projectification" marked a turning point in the understanding of how organizations adjust to shifting business environments (Midler, 1995). Numerous publications, including works by Lundin and Söderholm (1998), Maylor *et al.* (2006), Packendorff and Lindgren (2014), and Henning and Wald (2019), have incorporated this terminology into their studies, which has reinforced the concept of projectification in the field of project management research.

MTM is a concept in which employees are assigned to multiple teams simultaneously (Bertolotti *et al.*, 2015). It is used more frequently by organizations to assemble experts from various fields into their project teams to address complex problems (Van De Brake *et al.*, 2020). This concept is also used to effectively utilize organizational resources by assigning multiple projects to each team member (Margolis, 2020).

While projectification and MTM – a concept closely linked to projectification – offer advantages such as flexibility and cross-functional collaboration, they also raise challenges in terms of task management, coordination, and their implications for team productivity (Midler, 1995). Much of the literature focuses on projectification and MTM from the project manager's perspective, with limited empirical research on how MTM impacts team members, particularly in the service sector (Alfaro, 2015). This is an important gap, as services are highly labor intensive and depend critically on human resource productivity (Li and Prescott, 2009).

This article argues that multiple team membership (MTM) in engineering consulting firms represents a nuanced process in which MTM enhances collaboration across projects while potentially impeding individual productivity. This tension indicates the need for a nuanced and balanced approach to structuration across different organizational, team, and individual levels in order to optimize outcomes in this context. Drawing on structuration theory and adopting a multi-level perspective, we propose a conceptual model to unpack the complex interplay between MTM, collaboration, and productivity. We seek to move beyond simple binaries by carefully disentangling the myriad mechanisms through which MTM may influence member productivity (Fodor *et al.*, 2021).

So, the current study adopts an inductive approach using semi-structured interviews with engineering consulting professionals to elicit perspectives on MTM and team productivity. The paper analyses the results using Giddens (1984) structuration theory lens to examine how structures shape behaviors and how agents' practices can transform structures. The findings reveal key factors affecting MTM productivity at the organizational, team, and individual levels, leading to the proposal of a conceptual model.

In the subsequent sections, this paper is meticulously structured to provide a comprehensive understanding of the research. The next section reviews the relevant literature on team productivity, projectification, MTM, and structuration theory. This is followed by an explanation of the methodology. The subsequent two sections present the results of the interviews and a discussion analyzing the findings using structuration theory. To conclude, the paper succinctly addresses theoretical and practical implications and limitations and outlines potential avenues for future research.

2. Literature review

2.1 Team productivity

Productivity is linked to effectiveness and efficiency, which are very closely related to productivity. Efficiency is defined as doing things correctly while optimizing resources and is associated with the input, while effectiveness is defined as doing the correct things and is associated with the output (Günter and Gopp, 2022). In the context of service industries, the definition of productivity highlights two important characteristics: the proper use of available resources to provide services and value creation through the provision of high-quality services (Tangen, 2005).

Engineering consulting companies provide engineering solutions to clients by offering them services in the form of engineering deliverables in return for an agreed-upon fee, which varies based on the characteristics of the engineering discipline and required tasks (Wang, 2022). The resources used in the service sector include tangible or operand resources and intangible or operant resources, which are labor intensive and more dependent on human resources (Agya Yalley and Singh Sekhon, 2014; Li and Prescott, 2009). Thus, team productivity in engineering consulting firms could be defined as the collective ability of a team to use resources, skills and knowledge efficiently and effectively to achieve the firm's goals, which in turn is instrumental in sustaining the competitive level of the firm (Dunford *et al.*, 2001; Huang and Hsueh, 2007; Pantic-Dragisic, 2015; Reihlen and Nikolova, 2010; Seboru *et al.*, 2016; Voordijk *et al.*, 2005).

The process of producing a service requires the participation of employees and customers, who then coproduce a service by utilizing both organizational and customer resources as inputs throughout the delivery of the service (Agya Yalley and Singh Sekhon, 2014). The customer provides input elements and has feedback on the output, and the organization has to take into consideration those inputs and outputs that are highly heterogeneous in the service sectors (Li and Prescott, 2009). An organization can increase the productivity performance of its employees if a proper productivity performance measurement is in place along with the use of innovative technologies, which allows for the development of appropriate schedules (Karim *et al.*, 2021; Vallo and Mashau, 2020). Factors that affect the ability of employees to perform tasks (Bortoluzzi *et al.*, 2018).

The literature shows a range of approaches to quantifying productivity, which include self-assessments by employees themselves using standardized performance tests that include tests related to emotional states, biophysical states, employee behavior, and job statistics such as the absenteeism rate and billable hours. However, no single key performance indicator (KPI) can be used to define optimum performance due to the challenges in quantifying employee productivity (Bortoluzzi *et al.*, 2018).

Team productivity in consulting engineering firms is measured by analyzing the project profitability index and client satisfaction, pertaining to the delivery of projects within the scheduled time, meeting quality standards and adhering to budget constraints (Voordijk *et al.*, 2005; Wang *et al.*, 2016). Moreover, the team's intellectual, structural and relational capital (Huang and Hsueh, 2007) as well as its knowledge development and interaction with clients are also crucial factors in measuring productivity (Fosstenløkken *et al.*, 2003; Pantic-Dragisic, 2015; Reihlen and Nikolova, 2010).

2.2 Projectification and multiple team membership

To minimize cost and enhance effectiveness, organizations often assign their workers to more than one team concurrently (Dijkstra, 2021; Margolis, 2020). More recently, there has been a burgeoning adoption of such strategy in modern companies, exploiting the diversified expertise from diverse areas by individuals in project teams to confront intricate problems (Van De Brake *et al.*, 2020). This practice is also beneficial to the organizations in that it enables them to use their resources more efficiently, hence minimizing redundancy in the allocation of work (Soyemi, 2018). However, it should be noted while this is true for many organizations, it is hardly a universal practice.

Such teams have the capacity to draw knowledge from multiple sources and multiple tasks, thus saving time and enhancing performance (Moe *et al.*, 2021). MTM offers flexibility and adaptability while focusing on temporary and goal-oriented work, two main characteristics of projectification that align with the dynamic nature of organizations, especially within the consulting sector (Fodor *et al.*, 2021).

As organizations move toward projectification, they experience an increase in demand for specialized skills spanning multiple projects, which drives the engagement of individuals across multiple teams concurrently (Pluut *et al.*, 2014). Contrary to the assertion that this approach stems solely from the necessity to access specific expertise, this practice can also be motivated by cost-saving imperatives and optimizing resources. In fact, rather than hiring multiple individuals with these requisite abilities directly, organizations often opt to involve existing personnel in multiple teams as a strategic means of resource management and cost efficiency (Bortoluzzi *et al.*, 2018).

Thus, it is imperative for individual employees to take ownership of managing their own learning, time allocation, and attention, in order to effectively adapt to the dynamic nature of project-based work (O'Leary *et al.*, 2011). Contrarily, while the emphasis lies on individual responsibility, some scholars have identified productive interrelationships between collaborative groups within MTMs that facilitate effective coordination in project-based environments (Matthews *et al.*, 2011). This apparent contradiction highlights the complexity of navigating the interplay between individual autonomy and collaborative dynamics within multifaceted work settings. In fact, while embracing projectification principles, consultancy firms could better navigate the uncertainties of their client-driven work and address a broad spectrum of challenges, from market shifts to evolving client demands, including the enhancement of their employees' productivity (Fred and Mukhtar-Landgren, 2019). MTM has been shown to enhance the performance of teams by adding flexibility in directing employees to different projects, thereby increasing employees' individual learning and creating an opportunity for knowledge transfer from one team to another (Gibson *et al.*, 2021).

In addition, team members engaged in MTM are exposed to a diverse array of inputs that have the potential to contribute to their personal advancement (Chan *et al.*, 2021). Other researchers have shown that having team members join and leave different projects affects the functioning of organizational teams (Trainer *et al.*, 2020), which could negatively impact knowledge sharing between groups in project-based settings (Bogenrieder and Baalen, 2007). Additionally, unanticipated turnover of team members creates challenges that could result in negative outcomes for overall teams (Gibson *et al.*, 2021). In contrast to simple tasks, MTM includes a wide range of switches that include different roles, tasks, and technologies, which further makes the process of switching between tasks more difficult and demanding of effort (Margolis, 2020). Task switching often necessitates the presence of attention residue, which is a constant thought of a previous project task preventing the team member from working on the present project's task, which negatively affects the performance of team members (Bertolotti *et al.*, 2015), and could increase a person's stress level, leading to burnout after working excessive hours to meet project demands (Chan, 2014).

In general, projectification can have implications for defining tasks and regulating hierarchy and organizational structures, which leads to challenges in managing MTMs (Midler, 1995). Although MTM across various disciplines is critical in today's multiteam environment (Margolis, 2020), it involves complex interplay of individual and team-level factors, as such multilevel factors influence individuals' multiple team identities and affect their performance-based outcomes associated with each membership (Rapp and Mathieu, 2019).

To summarize, although MTM provides opportunities for personal advancement and flexibility, it also presents unique challenges, including task switching, attention residue, and potential burnout among team members. As organizations adopt projectification principles, managing MTMs becomes ever more intricate, necessitating careful consideration of both individual and team-level factors when overseeing MTMs in contemporary work environments. Such multifaceted discussion underlines the necessity for a nuanced approach when understanding and overseeing MTM.

2.3 Impact of the MTM on team productivity

MTM could positively affect team productivity through enhanced responsiveness and reconfiguration of teams based on performance requirements (Marks *et al.*, 2005), development of efficiency-enhancing practices in teams (Pluut *et al.*, 2014), divergent thinking and creative production as a result of the fluidity of team membership, which stimulates discussion within the team (Trainer *et al.*, 2020), and effective collaboration and coordination in project-based environments. However, MTM can also have negative effects on team productivity. For instance, it is negatively associated with unit performance – overall productivity and effectiveness of a specific unit or team within an organization –, which is exacerbated by task complexity, leading to reduced team productivity (Crawford *et al.*, 2019).

In an MTM perspective, constant changes of teams members between projects often result in employees experiencing identity conflicts (Chen *et al.*, 2020; Margolis, 2020; Ramadhani and Yuniawan, 2021), and decrease familiarity within teams (Dibble and Gibson, 2017). In fact, these changes can lead to cognitive and emotional spillovers across teams, negatively impacting productivity (Wimmer *et al.*, 2019).

In addition, project overload (i.e. working on too many projects concurrently) is an expected collateral effect of MTM and was found to have a negative impact on performance (Engwall and Jerbrant, 2003; Zika-Viktorsson *et al.*, 2006), as it increases stress levels for employees, causing a loss of focus and limiting employees' capacity for all projects (Ramadhani and Yuniawan, 2021). Likewise, an MTM environment brings a higher level of complexity to interpersonal processes and a greater perception of conflict between team members (Pluut *et al.*, 2014). It was also found to have a negative effect on work engagement and job satisfaction and a strong correlation with employee burnout, negatively affecting productivity (Schoper and Ingason, 2019).

Research on the impact of MTM on productivity yields conflicting findings. While MTM initially correlates positively with productivity, this relationship tends to diminish over time, eventually leading to a negative correlation. This suggests that the adoption of MTM in a team setting initially encourages the adoption of more efficient work practices (Bertolotti *et al.*, 2015). However, when the number of team memberships exceeds a certain threshold, productivity begins to decline. This decline is attributed to team members spending more time managing tasks across multiple teams rather than directly engaging in productive work (Alfaro, 2015). Therefore, identifying the factors influencing productivity within an MTM context remains an intriguing area for further research.

2.4 Structuration theory lens

Considering the literature review, there is a lack of consensus on the impact of MTM on productivity, especially within the service sector, and the factors that could drive productivity. This gap highlights the urgency of examining the implications of projectification for consulting companies to adopt a project-based approach to their work, foster cross-functional collaboration, and temporary, and goal-oriented initiatives while maintaining or enhancing their employees' productivity. Using the structuration theory lens (Giddens, 1984), we explored how structures influence behavior and how structures are adapted through agents' practices. Thus, we analyzed how MTM affects team members' productivity within a specific context.

Structuration theory provides a model for understanding the interplay between structures—that is, the rules and resources that shape social systems—and human agency—the capacity of individuals to act independently and make choices within social systems (Giddens, 1984). In the context of MTM and its impact on team productivity in the service sector, structuration theory can be applied to understand how the structures of teams, such as communication protocols, decision-making processes, and role expectations,

influence the behavior and productivity of team members. The theory allows for an examination of how the structures of teams enable or constrain the actions of team members and how these actions, in turn, contribute to the reproduction or transformation of team structures, emphasizing the duality of structure, which is both the medium and the outcome of individuals (Giddens, 1984).

The adaptation of these structures through the practices of team members, such as communication patterns, coordination mechanisms, and knowledge sharing, can be analyzed using structuration theory. Additionally, Giddens' structuration theory provides a lens through which to understand how entrepreneurial agency interacts with the structures of multiple teams, influencing the productivity of team members; that is, the recursive exchanges between an entrepreneur's agency and their embedded social settings are relevant for understanding how team members navigate their roles within multiple teams and how their practices shape the structures that, in turn, influence productivity (Coad *et al.*, 2015).

3. Methodology

3.1 Semi-structured interviews

An inductive approach was used to meet the study's objectives and identify the impact of MTM on team productivity in engineering consultancy companies. This approach is mainly used "*when the conceptual basis for a construct may not result in easily identifiable dimensions for which items can then be generated*" (Hinkin, 1998, p. 6), making it appropriate for this study's context. Therefore, semi-structured interviews were conducted (Yin, 1994) with professionals who were working in an MTM environment in engineering consulting companies specializing in water and energy infrastructure projects.

The open-ended questions in the semi-structured interviews allowed the participants to provide detailed responses from their experiences. Semi-structured interviews were conducted with senior professionals working in engineering consulting companies who were responsible for managing a team or projects in an MTM setting.

The interviewees had a background in water, energy, and environmental business areas and provided professional services in those areas. We started with an initial sample and stopped when data saturation was reached by one researcher who was involved in the data collection and another who was not (Belotto, 2018). Accordingly, we ultimately interviewed 12 people. The goal of the interviews was to understand the productivity concept of team members from the manager's perspective and the obstacles in ensuring high productivity.

The interview questions were developed based on the findings of the literature review conducted in the previous section. The questions were related to the notion of productivity in the engineering consultancy industry and the resources used to perform consultancy projects. In addition to elements influencing productivity, current practices can improve such productivity. Moreover, indicators are used to measure individual performance and provide feedback for such performance. Furthermore, multiple team membership environments should be implemented in engineering consulting companies through discussion on obstacles and ways to mitigate those obstacles.

To ensure that our interview questions were closely aligned with structuration theory, we designed them to explore key elements of the theory, such as communication protocols, decision-making processes, and role expectations (Giddens, 1984). For instance, the question "How do you describe productivity within the consulting industry?" addresses the broad concept of productivity within the consulting industry, providing a foundation for understanding how team members perceive productivity structures. The question "How do employees overcome the obstacles to ensure high productivity, and how do you help them in this quest?" investigates how team members navigate and transform constraints to maintain productivity, which ties into the theory's concept of the duality of structure.

Additionally, the question "What role does technology play in enhancing staff productivity in the consulting industry?" explores the enabling role of technology in productivity, reflecting how structures can facilitate actions.

Therefore, by linking our interview questions directly to the core concepts of structuration theory, we ensured that our data collection would yield insights into the reciprocal relationship between team members' actions and the organizational structures in which they operate (Coad *et al.*, 2015). This approach allows us to comprehensively analyze how MTM environments impact productivity and how these impacts are mediated by social structures.

It is important to mention that the term MTM was avoided because it is a fairly new term; rather, phrases such as "working on multiple projects simultaneously" were often used to communicate with the interviewee.

Our qualitative analysis followed a systematic approach to ensure rigor and depth (Belotto, 2018). We began by transcribing all interviews verbatim and engaging in thorough familiarization with the data. Using open coding, two researchers independently coded the transcripts to identify key themes and sub-themes. The initial codes were then grouped into 8 main themes that affect the productivity of team members working in an MTM environment in the engineering consulting firms. These codes were then refined collaboratively to develop a thematic framework aligned with the structuration theory. This iterative process ensured that the final themes were deeply rooted in the interview data while being informed by theoretical constructs (Belotto, 2018). Table 1 below shows the list of people and their professional backgrounds who agreed to participate in the interviews.

3.2 Delphi study

Following the development of the conceptual framework, a Delphi study was conducted to validate and rank the identified factors and their respective sub-factors (Diamond *et al.*, 2014). Sixteen experts with extensive knowledge and experience in MTM environment, from different sectors, participated in the study. These experts were invited to participate in the Delphi study through social network platforms such as LinkedIn. The researcher's connections as well facilitated the access to a pool of experts that worked in an MTM environment. A questionnaire was developed using surveyhero.com to facilitate the ranking of the factors and their respective sub-factors. The Delphi process consisted of two rounds:

(1) *Initial Round:* Experts ranked the main factors and sub-factors influencing productivity in MTM environments. They were also encouraged to provide comments and suggestions to improve the conceptual framework. These comments were carefully collected and analyzed.

(2) *Feedback and Refinement:* The initial rankings were summarized, and expert comments were incorporated into the questionnaire. This enhanced version, which included statistical summaries, anonymized comments, and refined factor descriptions based on expert input, was then shared with the participants. Experts reviewed the comprehensive feedback and completed the refined questionnaire, allowing them to reconsider their rankings in light of the collective expertise and additional insights provided by their peers.

The Delphi study reached saturation after two rounds, providing a consensus on the importance of various productivity-enhancing factors in an MTM environment (McPherson *et al.*, 2018). The integration of expert comments between rounds was crucial in refining the conceptual framework and ensuring that the final rankings reflected a thorough, peer-reviewed understanding of productivity factors in MTM environments. The demographic of the experts who participated in the Delphi study are presented in Table 2.

Interviewee No.	Position	Years of experience in engineering consultancy	Industry/ business sector	Range of project schedules	Type of professional services offered
1	Engineering Manager	11	Wet utilities design	1–4 years	Design services for wet utilities
2	Wet Utilities Team Leader	22	Wet utilities design	1–2 years	Design services for wet utilities
3	Design Manager	15	Wet utilities design	6 months to 5 years	Design services for wet utilities
4	Water Department Manager	12	Water and Energy	1–7 years	Design services, Project management, Construction supervision
5	Project Manager	11	water and energy; mainly in water	2 years	Design review of electrical works, and Project Management for water Reverse osmosis plants
6	Senior Project Manager	16	Water	6 months to 7 years	Feasibility studies, Design, Project Management, hydraulic modeling, construction supervision, technical advisory
7	Senior Project Manager	17	Water treatment project delivery	8–12 years	Manage engineering and construction of new water treatment plants. Coordinate contractors and oversee schedule, budget, and quality
8	Program Manager	12	Water resources planning	2–5 years	Develop long-term plans for supply, storage, treatment, and distribution of drinking water. Coordinate with stakeholders
9	Project Controls Manager	16	Water project controls	4–8 years	Lead development of budgets, schedules, forecasts, and performance metrics for stormwater infrastructure projects. Track progress and take corrective actions
10	Resources Planning Manager	13	Water resources planning and project management	7–12 years	Oversee long-term water supply planning initiatives. Coordinate internal resources and external partnerships to deliver projects on time and budget

Table 1.
Interviewee professional background information

(*continued*)

Interviewee No.	Position	Years of experience in engineering consultancy	Industry/ business sector	Range of project schedules	Type of professional services offered
11	Senior Project Manager	13	Water pipeline project delivery	8–10 years	Lead cross-functional teams delivering new water transmission pipelines. Ensure safety, quality, sustainability, and community engagement
12	Senior Project Manager	15	Water	5–10 years	Develop and manage initiatives to reduce water demand through education, incentives, regulations and efficient technologies. Coordinate stakeholder involvement

Source(s): Authors' own work

Table 1.

4. Results

Based on the responses gathered from the interviewees, understanding productivity in an engineering consultancy environment is associated with the efficiency of performing tasks and providing services while taking into consideration time, quality, and cost. The link between efficiency and effectiveness and productivity has already been shown multiple times in the literature (Agya Yalley and Singh Sekhon, 2014; Günter and Gopp, 2022). The findings from the interviews also showed the importance of time spent completing the task, the cost impact, and the quality of the outcome. Based on the results of the study, productivity in the engineering consultancy sector is defined as the number of tasks completed or the quantity of service that is delivered in the specified time, quality, and cost.

The importance and use of MTM, as highlighted by Margolis (2020), was validated by the interview responses, and it was observed that the concept of MTM is actively used in engineering consultancy companies throughout projects, as team members are involved in more than one project at the same time as multiple project managers are involved. Due to multiple memberships, there are chances of a decrease in productivity due to various factors, which have been explored further by correlating the responses from professionals and summarizing them.

The analysis revealed several key themes related to productivity in MTM environments. For instance, participants frequently mentioned the critical role of communication protocols in facilitating efficient project coordination. One senior consultant noted, "*Clear communication channels are vital. Without them, it's easy for tasks to fall through the cracks*". This sentiment was echoed by others, highlighting the centrality of structured communication in managing multiple projects.

Another theme that emerged was the impact of role expectations on productivity. Participants described varying experiences based on their roles, with one project manager stating, "*Understanding my role and responsibilities clearly helps me prioritize my tasks better*". These insights illustrate the duality of structure, as described by Giddens (1984), where the clarity of roles both enables and constrains individual actions within the team dynamics.

Demographic profiles		
Gender		
Male	9	56.25%
Female	7	43.75%
Total	*16*	
Expert age		
20–30	0	0%
31–40	8	50%
41–50	8	50%
51–60	0	0%
61 and above	0	0%
Total	*16*	
Highest level of education		
Bachelor's Degree	5	31.25%
Master's Degree	8	50%
Doctorate (Ph.D., DBA)	3	18.75%
Other	0	0%
Total	*16*	
Years of experience in MTM environments		
Less than 5 years	0	0%
5–10 years	7	43.75%
11–15 years	5	31.25%
More than 15 years	4	25%
Total	*16*	
Current position/Role		
Academic (Professor, Researcher, etc.)	2	12.5%
Industry Professional (Manager, Engineer, etc.)	11	68.75%
Consultant	3	18.75%
Other (Please specify)	0	0%
Total	*16*	
Industry sector		
Manufacturing	2	12.5%
IT and Software	5	31.25%
Healthcare	1	6.25%
Finance	3	18.75%
Other (Please specify)	5	31.25%
- Architecture		
- Aerospace		
- Architecture		
- Construction		
- Transportation		
Total	*16*	

Table 2. Experts' demographic for the Delphi Study

Source(s): Authors' own work

It was also noted that the project managers were not involved in assessing the performance of the team members, as they utilized only the team members assigned by the respective team leaders or line managers of the specific disciplines. The respective line managers assess the performance of their subordinates and perform appraisals. One project manager mentioned, "*I do not collect the feedback from them; I manage in a way that I see fit and as required for the project to run smoothly and, most importantly, the agreement between the company and the client. Agreement between the company and client is the driver for determining the workflow of*

the project. In terms of employees, I think that is a different topic which is handled by HR. My work is executing the contract between us and the client." Eight factors are proposed after analyzing the responses from the interviews and identifying the similarities between the individual interviewee responses. Considering that individuals, also known as agency and organizational structures are two sides of the same coin as per the structuration theory, we can argue that each of the factors found in the results could be classified as resources or rules provided by the organization at the macro level to influence the productivity of individuals, or individual actions that could shape the organizational structure at the micro level, or a team modality materialized in between at the meso level. This classification and its interpretation keep the agency and structure intertwined in the spirit of the theoretical lens used. Table 3 presents the factors affecting productivity and the key points from the interview responses. In the following sections we will elaborate each of those factors.

4.1 Availability and knowledge of tools

The availability of resources such as engineering tools and software is crucial to projects, and the unavailability of any such tools, which are required to complete a task, can significantly affect the productivity of team members and cause delays. One senior project manager and a design manager mentioned that "*even if the tools are available, the user often does not know how to use the tool or is not aware of its importance; thus, they use it incorrectly, which can cause problems later*".

Such improper use of tools or resources will not be efficient and will not be an economical use of resources, as already highlighted by Günter and Gopp (2022), thus, it will negatively affect productivity. As mentioned by a senior manager "*The best technology is of no use if people are not aware of how to use it. People need to be trained for the tools they are using. If people do not understand why they are using the tool and its importance, then they are not going to use it or support it.*"

This concurs with the explanation of productivity provided by Tangen (2005), who emphasizes that the proper use of resources is required to provide high-quality service and value creation to the client. It was also highlighted by one senior project manager that "*the concerned line managers of the team members are responsible for the development and training of the employees, and the project managers only utilize the human resources on their projects*". However, while line managers may focus on broader skill development and career progression, project managers often contribute by aligning individual talents with project objectives, providing project-specific training, and facilitating opportunities for professional growth within project contexts (Engwall and Jerbrant, 2003). Using the lens of structuration, we can see that the availability of knowledge and tools is a resource that sets the stage for agency to perform their task productively. At the same time, the proper use of this resource can impact the norms and procedures put by the organization. Productivity may be impacted by this interplay between structure and agency.

4.2 Task planning and prioritization

Proper planning of tasks is crucial while working in an MTM environment, both from the project managers' end and the team members' end. If the tasks are not properly planned, that itself will disrupt the productivity of the team, as it will create issues while working. Second, the roles assigned to team members should be clearly defined, and team members should have a clear understanding of the purpose of the task and the required expectations.

As Van De Brake *et al.* (2020) highlighted, team members can categorize their tasks into sequences based on predictions to avoid excessive task switching; therefore, having a clear definition and expectation of the task is very important for obtaining an overview of the

Factor rank[a]	Factor affecting productivity	Factor description	Sub-factor rank[a]	Sub-factors	Sub-factor description
1	Task Planning and Prioritization	Developing a strategic approach to task management by setting clear goals, using prioritization frameworks, and distributing workloads evenly. This helps in maintaining focus and ensuring that important tasks are completed on time	1	Software and Hardware	Having the necessary software and hardware available for all team members to complete their tasks
			2	Tools' Accessibility	Ensuring that the tools are accessible to all team members, regardless of location or device
			3	Training and Support	Providing adequate training and support for team members to learn and use the tools effectively, including training on how to utilize AI tools
2	Communication	Promoting clear, open, and regular communication among team members and leaders to ensure that everyone is informed, understood, and aligned. This involves active listening and setting clear expectations about deadlines and availability	1	Open and Transparent Communication	Encouraging open and transparent communication between team members and leaders
			2	Clear and Concise Communication	Ensuring that all communication is clear, concise, and easy to understand
			3	Regular Communication	Establishing regular communication channels and meeting schedules to keep everyone informed
3	Time Management	Implementing practices that help in scheduling tasks, minimizing distractions, and optimizing work hours to ensure that team members can work efficiently and meet deadlines consistently	1	Scheduling	Creating realistic deadlines and schedules for completing tasks
			2	Time Management Skills	Encouraging team members to develop good time management skills, such as time estimation and task scheduling
			3	Minimizing Distractions	Creating a work environment that minimizes distractions, including reducing task switching, to maintain efficiency and concentration

Table 3.
Factors affecting productivity derived from the qualitative study and the results of the Delphi study

(*continued*)

Factor rank[a]	Factor affecting productivity	Factor description	Sub-factor rank[a]	Sub-factors	Sub-factor description
4	Availability and Knowledge of Tools	Ensuring that all team members have access to the necessary software, hardware, and training to effectively perform their tasks, regardless of their location. This includes providing technical support and making tools user-friendly to enhance productivity	1	Software and Hardware	Having the necessary software and hardware available for all team members to complete their tasks
			2	Tools' Accessibility	Ensuring that the tools are accessible to all team members, regardless of location or device
			3	Training and Support	Providing adequate training and support for team members to learn and use the tools effectively, including training on how to utilize AI tools
5	Relationships Between Team Members	Building a culture of trust, respect, and collaboration among team members to enhance teamwork and effectively resolve conflicts. This leads to a more cohesive and productive work environment	1	Trust and Respect	Building trust and respect among team members
			2	Collaboration	Encouraging collaboration and teamwork among team members
			3	Conflict Resolution	Having effective mechanisms for resolving conflict within the team
6	Work Environment	Creating a supportive and comfortable physical and psychological workspace that fosters team well-being and productivity. This includes providing ergonomic workspaces and promoting a culture of psychological safety and social interaction	1	Psychological Safety	Creating a work environment where team members feel safe to take risks, ask questions, and make mistakes, including aspects of appreciation and recognition, and considering employee benefits such as loyalty, job security, compensation, and work flexibility
			2	Social Interaction	Facilitating opportunities for social interaction and team building among team members
			3	Physical Workspace	Providing a comfortable and functional physical workspace that meets the needs of the team

(*continued*)

Table 3.

Factor rank[a]	Factor affecting productivity	Factor description	Sub-factor rank[a]	Sub-factors	Sub-factor description
7	Documentation and Work Templates	Utilizing standardized and accessible templates for common documents and work products to streamline processes, save time, and ensure consistency across the team	1	Standardized Templates	Developing and using standardized templates for common documents and work products
			2	Accessibility of Templates	Ensuring that templates are easily accessible to all team members
			3	Template Training	Providing training on how to use the templates effectively
8	Training and Career Development	Offering continuous learning opportunities and career advancement paths to keep the team skilled, motivated, and prepared for future challenges. Regular performance feedback is also a critical component of this factor	1	Performance Feedback	Providing regular performance feedback to help team members identify areas for improvement
			2	Skills Development	Providing opportunities for team members to develop new skills and knowledge relevant to their roles
			3	Career Advancement	Supporting team members in their career development goals

Note(s): [a]The ranking is based on the Delphi study results
Source(s): Authors' own work

Table 3.

tasks. As a senior project manager mentioned "*People need to understand what they are doing and why they are doing, and this encourages the questioning and knowledge transfer*."

Therefore, the project manager and the line manager of the discipline team should agree about the projects that the team member will undertake and the prioritization of the tasks so that there is no conflict with the other project managers. This approach ensures that the workload of the employee is properly balanced and that tasks are delivered on time. If the tasks are not prioritized, then there is a very high chance that the team member will switch between tasks when the project manager starts chasing the team member, which affects productivity and disrupts all the projects. Using structuration, task planning and prioritization has two independent facets of the same coin. The organization sets the norms for prioritization and individuals use agency in planning for tasks.

4.3 Time management

Effective time management is crucial throughout projects because team members rely on each other, and a delay in one task affects the other tasks along the critical path, which eventually delays delivery. The importance of time is evident in the literature, and as mentioned by O'Leary *et al.* (2011), the offered services shall be delivered in a specified set of time to ensure that the client meets his or her expectations. The project manager should

ensure that sufficient time is provided to complete the tasks, and the team member should ensure the timely delivery of the tasks. As mentioned by a team leader "*Efficient time management strategies are implemented through various avenues in the workplace to promote productivity and cohesion among team members. In addition, it is important to allocate time for employees possessing specific competencies to share their expertise because this will foster knowledge dissemination, and enrich the collective skill set of the team.*" Effective time management materializes the exercise of employees of their agency to interact in teams within organizations. As individuals navigate working in a MTM setting, they draw upon the time resource available to manage their time in a productive way.

4.4 Work environment

The office work environment plays a role in creating a positive working environment. This is governed by the behavior of the managers toward the team members and the behavior between the team members. Flexibility in work timing and flexibility in working from home positively affect the productivity of team members, as mentioned by one team leader and two project managers. Flexibility and a positive environment were the factors identified from the study and are in line with the contributing factors to workplace productivity (Bortoluzzi *et al.*, 2018). In fact, as one team leader mentioned "*Promoting a friendly office environment entails regular communication, fostering strong relationships with team members to identify issues, and offering one-on-one discussions to help individuals recognize and address potential challenges.*". A friendly work environment impacts productivity in its organizational facet with all the resources and social norms given by the organization to teams to create such an environment and at the same time each individual through their agency fosters a friendly workplace and team environment.

4.5 Communication

The importance of communication has been emphasized both by the design manager and by a senior project manager. Effective communication is important, and to ensure proper collaboration between team members on multiple projects, a positive working environment should be promoted. Based on the definition of effectiveness from Günter and Gopp (2022), effective communication ensures that the communication is properly performed and that the deliverables are achieved.

Discussions should be encouraged to allow team members to speak up and identify any issues or problems that could be discussed with the respective line managers and the project managers. The team members should also ensure proper communication and timely response to the queries of the managers and the team members. A design manager mentioned that covering up for a colleague's mistake and mitigating the situation by coming up with a solution created respect for that team member and allowed greater collaboration in the future. From one side, having communication channels could be considered an organizational structure shaped by norms governing the communication modalities within teams and between individuals. From another perspective, communication patterns are fostered by individuals through actions and skills, thus, impacting productivity.

4.6 Training and career development

There should be some incentives for team members in terms of their career path and professional development. Training should be organized according to their requirements, which will add value to the projects in the company. Line managers should conduct performance appraisals and feedback for team members to identify the required performance developments and accordingly facilitate training to increase the productivity of team

members. As discussed by a project manager and a team leader "*Training and career development incentives are crucial, ensuring team members are equipped with skills and supported in their professional growth*". Organizations' provision of training programs and career development opportunities is a part of the structure that supports productivity. Employees development strategies, programs for professional growth. Individuals draw upon those resources and rules to develop their skills which increase their productivity, which is in line with the duality of structure.

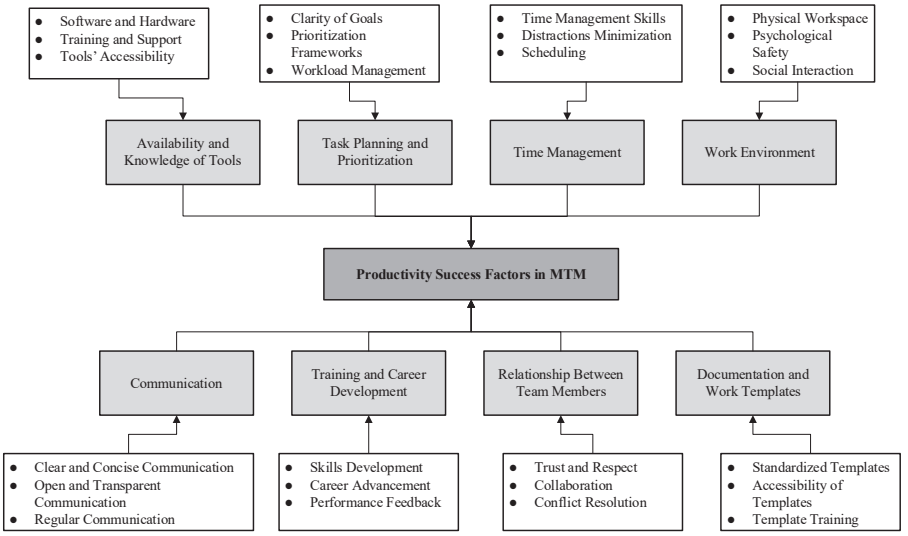
4.7 Relationships between team members

Professional yet friendly relationships must be maintained to ensure good relationships with team members by managers to be able to identify any issues. Motivation is important. If the team members are not motivated or not motivated enough, then the projects collapse. It is also important for team members to be open and transparent about any issues to avoid larger mistakes. It is best for managers to lead by example and encourage an active and collaborative environment among the team. As discussed by one team leader "*Strong relationships and collaboration among team members are essential for effective coordination in infrastructure projects involving multiple utilities. Seamless communication and mutual understanding are paramount for navigating complex tasks and ensuring project success.*" Another senior project manager emphasized the importance of building an identity for the team. He mentioned that "*strengthening relationships among team members and with managers fosters a cohesive team identity – focusing on specific traits of the team - which allow a balanced project tasks for optimal performance*." From the structuration lens, this factor affecting productivity pertains to the effort to build good relationships by individuals as well as the interpersonal skillset. However, this is also tied to the organizational norms and rules of social interaction and collaboration.

4.8 Documentation and work templates

In engineering consultancy projects, it is important to have documents and work templates prepared for the tasks, as this allows the team members to avoid redoing something that has already been done. Letter templates for specific uses should be used instead of preparing a new template every time. The location of such templates should be shared with all the team members in a common folder that is accessible to all. As mentioned by one senior project manager "*I place a strong emphasis on using specific technologies (e.g., SharePoint) effectively to seamlessly share knowledge, design templates, and produce high-quality documents. Moreover, we value the insights gained from past projects through lessons learned to ensure that our documents and templates remain current while we continually strive for improvement.*" The standardized documentation is a resource provided by the organizational structures guided by rules on updating and maintaining those tools. This exemplifies the structuring effect of artifacts on actions within teams. Individuals' adoption and continuous update of the templates make them more useful for increased productivity.

Based on this analysis, 8 factors process model is proposed in Figure 1 for the main and the contributing factors affecting productivity. This conceptual model will help engineering consulting firms, which are specialized mainly in water and energy infrastructure projects, increase the productivity of their team members who are working in an MTM environment while considering how structure and agency are linked in each of them. The proposed model highlights the factors proposed based on interview feedback from managerial-level professionals in engineering consulting firms. If these factors are properly measured and tracked on an ongoing basis, the productivity of team members can improve. Table 3 presents the definitions and the rankings of the factors and their respective sub-factors.



Source(s): Authors' own work

Figure 1. Proposed conceptual model

5. Discussion

The analysis of the interview responses through the lens of structuration theory yielded valuable insights that can be categorized into three levels: the organizational level, the team level and the individual level. At the organizational level, the availability of adequate tools and resources is crucial for success. However, negative conditions such as insufficient proper tools/resources, failure to ensure tool availability, lack of knowledge about tools, and inappropriate tool use can hinder employees' productivity in an MTM environment. At the team level, a lack of collaboration, failure to establish a collaborative environment, reluctance to facilitate discussions, absence of one-to-one issue identification, and delayed responses can hinder team effectiveness.

Therefore, effective communication and collaboration among team members are pivotal. Finally, at the individual level, effective task management and prioritization are key. Nevertheless, issues such as unclear roles and tasks, team members' inadequate understanding of tasks, neglect of task prioritization, inefficient workload distribution, difficulty managing task switching, overcommitment, and skills mismatch can impede individual performance. Although some factors are impacted more by structure or agency, each of them epitomizes how the duality of structure affects productivity. Productivity is influenced by the organizational context, resources and norms as well as the actions and skills of individuals.

This empirical exploration allowed us to identify and articulate the dynamics at play, bringing to light the negative and positive effects of MTM on productivity. The findings from our study enrich the literature by not only acknowledging these challenges but also proposing eight success factors for productivity in the engineering consultancy sector. These factors, presented in the conceptual model developed in this research, offer actionable recommendations to engineering consulting firms seeking to optimize their team members' productivity within an MTM environment.

Projectification, as a driving force reshaping organizational structures, underscores the need for engineering consulting companies to adapt and innovate continuously. This study

serves as a bridge between the focus on productivity challenges and the contemporary organizational paradigm of projectification. This study demonstrates the relevance of projectification in the engineering consultancy sector and provides a roadmap for organizations seeking to navigate the evolving landscape while enhancing their team members' productivity in an MTM environment.

Engineering companies have limited resources and budgets because they focus on efficiently utilizing resources to deliver projects on time per the client's expectations. Due to this arrangement, employees are assigned to more than one project as a multiple-team membership.

This research focused on studying productivity and multiple team memberships in the engineering consulting sector by conducting a literature review of existing research and undertaking an inductive approach by conducting interviews with professionals in the industry. Based on the feedback from the interviews and the points highlighted, a correlation was identified, and 8 influencing factors were proposed to improve the productivity of the consulting engineering companies. The results of this study will enable engineering consultancy companies to focus on the factors that affect the productivity of team members who participate in multiple team memberships.

From a theoretical perspective, this study contributes to the identification of factors that improve the productivity of team members participating in MTM using the structuration lens. This paper also reviews the literature on the concepts of productivity and MTM in the service industry overall. Since prior studies on the subject are very limited, the review of the literature and the findings of the study will add to the literature on the service industry; more specifically, they will add to the literature on the engineering consultancy sector. The findings from the study are in line with the literature on MTM and productivity in the service sector. A theoretical implication of the study is that the conceptual model proposed in Figure will allow researchers to develop a detailed set of indicators and further aid in the development of more robust factors for improving productivity in the service sector. However, the proposed indicators are based on limited literature, and further empirical research is required to strengthen the proposed indicators.

Apart from the theoretical implications, the study also provides practical implications for project managers and discipline line managers in engineering consulting companies that deal with MTM in their projects. The study is more applicable to managers and team members working in infrastructure projects; however, it would also benefit other types of engineering consultancy projects.

The proposed conceptual model in Figure 1 has practical implications, and the factors are proposed mainly from the results of the semi-structured interviews and the Delphi study conducted where extensive feedback from professionals, including project managers and line managers, was obtained. Therefore, managers can benefit from this study because it will provide them with the factors that affect the productivity of their team members. This approach allows them to take these factors into consideration while managing their projects and leading their teams. Managers and team leaders should have a project and team productivity checklist, respectively, where they can check if these required factors are being addressed. This approach will ensure that managers are taking specific measures to work on those factors and provide the right environment and necessary support for team members.

Second, the conceptual model proposed will also allow engineering companies to consider these factors in their staff appraisals and identify the weakness and strength of their employees in the context of the productivity factors proposed. This approach allows companies to understand the specific needs and requirements of employees, which enables them to match the right employees to the right teams based on their individual strengths. This approach will allow the companies to ensure that these factors are addressed at the

management level and that the right support and assistance are provided to ensure increased productivity while operating in MTM.

From an economic and commercial perspective, the results of this study can help engineering consulting firms enhance efficiency and reduce costs. Implementing the identified factors and by considering their respective factors can lead to more effective use of human resources and improve their productivity which can directly translate to higher project profitability and client satisfaction (Chen *et al.*, 2019). These actions can enhance the firm's competitive edge in the market.

On the other hand, this study can provide important insights for academics to help them improve their courses in project management, organizational behavior and human resource management (Chen, 2022). The identified factors and sub-factors can be integrated into curricula to educate future professionals about the complexities of MTM and strategies for managing productivity in such settings. Case studies based on the research can be used to illustrate real-world applications of theoretical concepts, thereby enriching the learning experience.

This research can also influence public policies. Policymakers can use these insights to develop guidelines and standards for workforce management in sectors heavily reliant on MTM, such as engineering, IT, and consulting (Park *et al.*, 2021).

Furthermore, the results of this study, if well implemented and considered by organizations, can enhance the quality of life for the employees working in MTM environment. Organizations can implement better support systems, such as mental health resources and more flexible work arrangements, to mitigate the negative impacts of MTM. These improvements can enhance overall job satisfaction and work-life balance, contributing to better mental and physical health outcomes for employees (Wright *et al.*, 2001).

In addition to the contributions of this study, it has several limitations and potential for future research. One of the limitations is related to the fact that the literature review was conducted in the overall service sector and focused on engineering consultancy companies; however, this study was limited to professionals working in the water and energy sector in engineering consultancy projects. So, this study could be expanded to other business areas within the engineering consultancy sector, and it could investigate further corresponding factors and develop robust indicators to measure the productivity of team members in MTM.

Second, 12 participants were chosen for the qualitative study to determine the success factors of productivity. The results obtained from the study are quite valuable; however, it is suggested that quantitative analysis be conducted to test and validate these proposed factors in engineering consulting companies. Such quantitative analysis shall also weigh these factors based on their degree of importance in affecting the productivity of team members while working in an MTM environment. This approach validates the current list of proposed factors and weights them based on importance.

Third, one other limitation is related to the development of a measurement approach for measuring productivity in engineering consulting companies. The study explored the literature on the measurement of productivity in the service sector and identified some related literature; however, no specific literature has evaluated the measurement of productivity in the engineering consultancy sector. Bortoluzzi *et al.* (2018) identified KPIs and metrics to measure productivity in an office environment; however, these methods do not take into consideration the specific nature of the engineering consultancy sector. Future research could develop metrics that consider the indicators proposed in this study. Future research could convert the factors proposed in this study into indicators and propose an assessment template for managers to test the productivity of their team members.

Finally, another limitation is that the research limits the perspective of only the managers, as all the selected participants in the study were team leaders or managers. Future research should also take into consideration the perspectives of team members to better understand

the obstacles that are faced by team members themselves and how they are approaching these obstacles while working in an MTM environment. The perspectives of team members will further enhance and add to the factors proposed in this study.

It is suggested that these productivity factors be validated in other business sectors within the engineering consultancy environment to determine more robust success factors for productivity in engineering consultancy projects where team members work in MTM. Further research is suggested to identify key performance indicators and develop a comprehensive model to measure the productivity of team members who are working simultaneously on multiple projects in engineering consultancy companies. This approach will enable engineering consultancy firms to track the performance of their team members and improve the productivity of the team members in an MTM environment.

6. Conclusion

This research examined the impact of multiple team membership (MTM) on the productivity of team members working in engineering consultancy companies and reviewed the literature on MTM and team member productivity in the context of engineering consultancy companies. An inductive approach was used by conducting 12 semi-structured interviews. This approach provided a better understanding of the issues that affect the productivity of team members working in an MTM environment in the context of engineering consultancy companies. The responses from the interviewees were analyzed, and based on the patterns observed from the responses, corresponding factors were identified.

These corresponding factors were grouped into 8 main factors based on the patterns observed, and correlations with the literature were performed for these factors. Accordingly, a conceptual model was developed with these factors for engineering consultancy companies to help them improve productivity. The study proposed the following factors: availability and knowledge of tools, task planning and prioritization, effective time management, friendly office work environment, effective communication, training and career development, good relationships between team members, and efficient use of documentation and templates. Future research should include quantitative analysis to validate these factors and weigh them based on importance in the engineering consultancy sector.

The findings from this study add to the understanding of MTM and its effect on productivity in engineering consulting companies. The findings from this study will support future research for preparing comprehensive key performance indicators for evaluating the performance of team members working in engineering consulting firms.

References

Agya Yalley, A. and Singh Sekhon, H. (2014), "Service production process: implications for service productivity", *International Journal of Productivity and Performance Management*, Vol. 63 No. 8, pp. 1012-1030, doi: 10.1108/ijppm-10-2012-0113.

Alfaro, I. (2015), "The impact of multiple team membership on individual creativity", Thesis, University of Illinois at Chicago.

Belotto, M.J. (2018), "Data analysis methods for qualitative research: managing the challenges of coding, interrater reliability, and thematic analysis", *Qualitative Report*, Vol. 23 No. 11, doi: 10.46743/2160-3715/2018.3492.

Bertolotti, F., Mattarelli, E., Vignoli, M. and Macrì, D.M. (2015), "Exploring the relationship between multiple team membership and team performance: the role of social networks and collaborative technology", *Research Policy*, Vol. 44 No. 4, pp. 911-924, doi: 10.1016/j.respol.2015.01.019.

Bogenrieder, I. and Baalen, P.J. (2007), "Contested practice: multiple inclusion in double-knit organizations", *Journal of Organizational Change Management*, Vol. 20 No. 4, pp. 579-595, doi: 10.1108/09534810710760090.

Bortoluzzi, B., Carey, D., McArthur, J.J. and Menassa, C. (2018), "Measurements of workplace productivity in the office context: a systematic review and current industry insights", *Journal of Corporate Real Estate*, Vol. 20 No. 4, pp. 281-301, doi: 10.1108/jcre-10-2017-0033.

Chan, K.-Y.A. (2014), "Multiple project team membership and performance: empirical evidence from engineering project teams", *South African Journal of Economic and Management Sciences*, Vol. 17 No. 1, pp. 76-90, doi: 10.4102/sajems.v17i1.875.

Chan, K.-Y., Oerlemans, L. and Meslec, N. (2021), "The impact of multiple project team membership on individual and team learning: a micro-meso multi-level empirical study", *International Journal of Project Management*, Vol. 39 No. 3, pp. 308-320, doi: 10.1016/j.ijproman.2020.11.002.

Chen, Y. (2022), "The relationship of students' blended learning ability and students' willingness to learn a blended course: the mediating role of teachers' blended teaching competency", *Creative Education*, Vol. 13 No. 09, pp. 2799-2810, doi: 10.4236/ce.2022.139177.

Chen, Y., Yin, Y., Browne, G.J. and Li, D. (2019), "Adoption of building information modeling in Chinese construction industry: the technology-organization-environment framework", *Engineering, Construction and Architectural Management*, Vol. 26 No. 9, pp. 1878-1898, doi: 10.1108/ECAM-11-2017-0246.

Chen, H., Jiao, J., Yang, N. and Wang, X.-H. (2020), "How identity conflict and identity synergy influence innovative performance of employees with multiple team membership", *Psychological Reports*, Vol. 124 No. 2, pp. 792-808, doi: 10.1177/0033294120916863.

Coad, A., Jack, L. and Kholeif, A.O.R. (2015), "Structuration theory: reflections on its further potential for management accounting research", *Qualitative Research in Accounting and Management*, Vol. 12 No. 2, pp. 153-171, doi: 10.1108/qram-01-2015-0013.

Crawford, E., Reeves, C., Stewart, G. and Astrove, S. (2019), "To link or not to link? Multiple team membership and unit performance", *Journal of Applied Psychology*, Vol. 104 No. 3, pp. 341-356, doi: 10.1037/apl0000381.

Diamond, I.R., Grant, R.C., Feldman, B.M., Pencharz, P.B., Ling, S.C., Moore, A.M. and Wales, P.W. (2014), "Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies", *Journal of Clinical Epidemiology*, Vol. 67 No. 4, pp. 401-409, doi: 10.1016/j.jclinepi.2013.12.002.

Dibble, R. and Gibson, C. (2017), "Crossing team boundaries: a theoretical model of team boundary permeability and a discussion of why it matters", *Human Relations*, Vol. 71 No. 7, pp. 925-950, doi: 10.1177/0018726717735372.

Dijkstra, R.W. (2021), "Investigating the relation between Multi team membership & individual performance and the possible moderating effect of personality traits".

Dunford, B., Snell, S. and Wright, P. (2001), "Human resources and the resource based view of the firm", *CAHRS Working Paper Series*, Vol. 27 No. 6, pp. 701-721, doi: 10.1177/014920630102700607.

Engwall, M. and Jerbrant, A. (2003), "The resource allocation syndrome: the prime challenge of multi-project management?", *International Journal of Project Management*, Vol. 21 No. 6, pp. 403-409, doi: 10.1016/S0263-7863(02)00113-8.

Fodor, O.C., Curşeu, P.L. and Meslec, N. (2021), "Multiple team membership, performance, and confidence in estimation tasks", *Frontiers in Psychology*, Vol. 12, 658827, doi: 10.3389/fpsyg.2021.658827.

Fosstenløkken, S., Løwendahl, B. and Revang, Ø. (2003), "Knowledge development through client interaction: a comparative study", *Organization Studies*, Vol. 24 No. 6, pp. 859-879, doi: 10.1177/0170840603024006003.

Fred, M. and Mukhtar-Landgren, D. (2019), "Agents, techniques, and tools of projectification", in Hodgson, D., Fred, M., Bailey, S. and Hall, P. (Eds), *The Projectification of the Public Sector*, 1st ed., Routledge, Routledge, New York, | Series: Routledge Critical Studies in Public Management, pp. 189-208, 2019, doi: 10.4324/9781315098586-11.

Gibson, H.O., Staats, B.R. and Raman, A. (2021), "Multiple team membership, turnover, and on-time delivery: evidence from construction services".

Giddens, A. (1984), *The Constitution of Society. Outline of the Theory of Structuration*, University of California Press, California.

Günter, A. and Gopp, E. (2022), "Overview and classification of approaches to productivity measurement", *International Journal of Productivity and Performance Management*, Vol. 71 No. 4, pp. 1212-1229, doi: 10.1108/ijppm-05-2019-0241.

Henning, C.H.C.A. and Wald, A. (2019), "Toward a wiser projectification: macroeconomic effects of firm-level project work", *International Journal of Project Management*, Vol. 37 No. 6, pp. 807-819, doi: 10.1016/j.ijproman.2019.04.002.

Hinkin, T.R. (1998), "A brief tutorial on the development of measures for use in survey questionnaires", *Organizational Research Methods*, Vol. 1 No. 1, pp. 104-121, doi: 10.1177/109442819800100106.

Huang, C.-F. and Hsueh, S.-L. (2007), "A study on the relationship between intellectual capital and business performance in the engineering consulting industry: a path analysis", *Journal of Civil Engineering and Management*, Vol. 13 No. 4, pp. 265-271, doi: 10.1080/13923730.2007.9636446.

Jensen, A., Thuesen, C. and Geraldi, J. (2016), "The projectification of everything: projects as a human condition", *Project Management Journal*, Vol. 47 No. 3, pp. 21-34, doi: 10.1177/875697281604700303.

Karim, N.H., Abdul Rahman, N.S.F., Md Hanafiah, R., Abdul Hamid, S., Ismail, A., Abd Kader, A.S. and Muda, M.S. (2021), "Revising the warehouse productivity measurement indicators: ratio-based benchmark", *Maritime Business Review*, Vol. 6 No. 1, pp. 49-71, doi: 10.1108/mabr-03-2020-0018.

Li, X. and Prescott, D. (2009), "Measuring productivity in the service sector", *International Journal of Productivity and Performance Management*, Vol. 54 No. 1, pp. 34-46, doi: 10.1108/17410400510571437.

Lundin, R.A. and Söderholm, A. (1998), "Conceptualizing a projectified society discussion of an eco-institutional approach to a theory on temporary organisations", in Lundin, R.A. and Midler, C. (Eds), *Projects as Arenas for Renewal and Learning Processes*, Springer US, Boston, MA, pp. 13-23, doi: 10.1007/978-1-4615-5691-6_2.

Margolis, J. (2020), "Multiple team membership: an integrative review", *Small Group Research*, Vol. 51 No. 1, pp. 48-86, doi: 10.1177/1046496419883702.

Marks, M.A., DeChurch, L.A., Mathieu, J.E., Panzer, F.J. and Alonso, A. (2005), "Teamwork in multiteam systems", *Journal of Applied Psychology*, Vol. 90 No. 5, pp. 964-971, doi: 10.1037/0021-9010.90.5.964.

Matthews, T., Whittaker, S., Moran, T. and Yuen, S. (2011), "Collaboration personas: a new approach to designing workplace collaboration tools".

Maylor, H., Brady, T., Cooke-Davies, T. and Hodgson, D. (2006), "From projectification to programmification", *International Journal of Project Management*, Vol. 24 No. 8, pp. 663-674, doi: 10.1016/j.ijproman.2006.09.014.

McPherson, S., Reese, C. and Wendler, M.C. (2018), "Methodology update: Delphi studies", *Nursing Research*, Vol. 67 No. 5, pp. 404-410, doi: 10.1097/NNR.0000000000000297.

Midler, C. (1995), "Projectification' of the firm: the renault case", *Scandinavian Journal of Management*, Vol. 11 No. 4, pp. 363-375, doi: 10.1016/0956-5221(95)00035-T.

Moe, N.B., Šmite, D., Paasivaara, M. and Lassenius, C. (2021), "Finding the sweet spot for organizational control and team autonomy in large-scale agile software development", *Empirical Software Engineering*, Vol. 26 No. 5, p. 101, doi: 10.1007/s10664-021-09967-3.

O'Leary, M.B., Mortensen, M. and Woolley, A.W. (2011), "Multiple team membership: a theoretical model of its effects on productivity and learning for individuals and teams", *Academy of Management Review*, Vol. 36 No. 3, pp. 461-478, doi: 10.5465/amr.2011.61031807.

Packendorff, J. and Lindgren, M. (2014), "Projectification and its consequences: narrow and broad conceptualisations", *South African Journal of Economic and Management Sciences*, Vol. 17 No. 1, pp. 7-21, doi: 10.10520/EJC148771.

Pantic-Dragisic, S. (2015), "Swift transition and knowledge cycling: a study of knowledge transfer in technical consulting", *Department of Management and Engineering, Business Administration*, Linköping University Electronic Press: Linköping University Sweden.

Park, G., Lee, S.-K. and Choi, K. (2021), "Evaluating the service operating efficiency and its determinants in global consulting firms: a metafrontier analysis", *Sustainability*, Vol. 13 No. 18, 10352, doi: 10.3390/su131810352.

Pluut, H., Flestea, A. and Curşeu, P. (2014), "Multiple team membership: a demand or resource for employees?", *Group Dynamics Theory Research and Practice*, Vol. 18 No. 4, pp. 333-348, doi: 10.1037/gdn0000016.

Ramadhani, J. and Yuniawan, A. (2021), "Multiple team membership (MTM) implementation in the construction industry at D.K.I Jakarta, Indonesia; a case study analysis", *Petra International Journal of Business Studies*, Vol. 4 No. 2, pp. 142-155, doi: 10.9744/ijbs.4.2.142-155.

Rapp, T.L. and Mathieu, J.E. (2019), "Team and individual influences on members' identification and performance per membership in multiple team membership arrangements", *Journal of Applied Psychology*, Vol. 104 No. 3, pp. 303-320, doi: 10.1037/apl0000344.

Reihlen, M. and Nikolova, N. (2010), "Knowledge production in consulting teams", *Scandinavian Journal of Management*, Vol. 26 No. 3, pp. 279-289, doi: 10.1016/j.scaman.2010.05.004.

Schoper, Y. and Ingason, H. (2019), "Projectification and the impact on societies", *International Journal of Managing Projects in Business*, Vol. 12 No. 3, pp. 517-521, doi: 10.1108/ijmpb-09-2019-288.

Seboru, M., Sabina, M., Kyalo, D. and Rambo, C. (2016), "Acquisition of materials and performance of road construction projects in Kenya: a case of Nairobi County", *European Scientific Journal*. doi: 10.19044/esj.2016.v12n32p221.

Soyemi, O. (2018), "A multi-level study of perceived multiple team membership variety and its effects on the outcomes of productivity and innovation", Thesis, Aston University, Birmingham.

Tangen, S. (2005), "Demystifying productivity and performance", *International Journal of Productivity and Performance Management*, Vol. 54 No. 1, pp. 34-46, doi: 10.1108/17410400510571437.

Trainer, H.M., Jones, J.M., Pendergraft, J.G., Maupin, C.K. and Carter, D.R. (2020), "Team membership change 'events': a review and reconceptualization", *Group and Organization Management*, Vol. 45 No. 2, pp. 219-251, doi: 10.1177/1059601120910848.

Vallo, N. and Mashau, P. (2020), "The impact of working hours on employee productivity case study of Sabertek Ltd, South Africa", *Academy of Entrepreneurship Journal*, Vol. 26 No. 4, pp. 1-18.

Van De Brake, H.J., Walter, F., Rink, F.A., Essens, P.J.M.D. and Van Der Vegt, G.S. (2020), "Multiple team membership and job performance: the role of employees' information-sharing networks", *Journal of Occupational and Organizational Psychology*, Vol. 93 No. 4, pp. 967-987, doi: 10.1111/joop.12326.

Voordijk, H., Stegwee, R. and Helmus, R. (2005), "ERP and the changing role of IT in engineering consultancy firms", *Business Process Management Journal*, Vol. 11 No. 4, pp. 418-430, doi: 10.1108/14637150510609435.

Wang, S.-H. (2022), "Engineering productivity and unit price assessment model", *Journal of Management in Engineering*, Vol. 38 No. 1, 04021076, doi: 10.1061/(asce)me.1943-5479.0000983.

Wang, T., Hamann, A., Spittlehouse, D. and Carroll, C. (2016), "Locally downscaled and spatially customizable climate data for historical and future periods for North America", *PLoS One*, Vol. 11 No. 6, e0156720, doi: 10.1371/journal.pone.0156720.

Wimmer, J., Backmann, J. and Hoegl, M. (2019), "In or out? Exploring the inconsistency and permeability of team boundaries", *Small Group Research*, Vol. 50 No. 6, pp. 699-727, doi: 10.1177/1046496419851842.

Wright, P.M., Dunford, B.B. and Snell, S.A. (2001), "Human resources and the resource based view of the firm", *Journal of Management*, Vol. 27 No. 6, pp. 701-721, doi: 10.1177/014920630102700607.

Yin, R.K. (1994), *Case Study Research Design and Methods: Applied Social Research and Methods Series*, Sage Publications, Thousand Oaks, CA.

Zika-Viktorsson, A., Sundström, P. and Engwall, M. (2006), "Project overload: an exploratory study of work and management in multi-project settings", *International Journal of Project Management*, Vol. 24 No. 5, pp. 385-394, doi: 10.1016/j.ijproman.2006.02.010.

About the authors

Dr Khalil Rahi, Assistant Professor of Engineering and Project Management at Abu Dhabi University, brings 16 years of global experience and a diverse background. With a Ph.D. in industrial engineering, an MBA in IT management, and a Bachelor degree in Electrical Engineering, his expertise lies in project resilience and management. Beyond academia, Dr Rahi has successfully managed multiple projects for corporations like ADP, Ceridian, and Eaton, leading software development and implementing technology-powered solutions. As a PMP certification holder, lecturer, researcher, and mentor, he modernizes the project management curriculum, emphasizing project management, innovation and entrepreneurship, and organizational resilience. With several published papers in top journals and the supervision of master's and Ph.D.'s students in cutting-edge research areas, Dr Rahi actively contributes to the academic field. He also volunteers in several regional and international competitions and reviews articles for project management journals, showcasing his commitment to nurturing the next generation of inventors, and advancing academic research.

Dr Mira Thoumy is an associate professor in management at the Lebanese American University. She has more than ten years of professional experience in various sectors such as manufacturing, healthcare, public administration and NGO. She is a certified project management professional (PMP) and Master Black Belt in the Six Sigma methodology. Her fields of research include project management, operations management and strategic management. Mira Thoumy is the corresponding author and can be contacted at: mira.thoumy@lau.edu.lb

Muhammad Saqib currently works as a Civil and Water Engineer at ILF Consulting Engineers in the UAE. He holds a bachelor's degree in Civil Engineering and a master's degree in Project Management, both from Abu Dhabi University. Saqib's professional expertise lies in hydrology, urban water systems, and project management, developed through hands-on involvement in water and wastewater infrastructure projects. Motivated by a keen interest in wet utilities design and management, he aims to utilize his expertise to address critical water challenges efficiently and contribute significantly to sustainable solutions in his field.