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Team and Individual Influences on Members' Identification and Performance per Membership in Multiple Team Membership Arrangements

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Modern-day organizations often utilize team-based designs, and employees increasingly work simultaneously on multiple teams. These working arrangements have been referred to as multiple team memberships, and despite their prevalence, they have been the subject of relatively little research. Applying social identity theory as a theoretical lens, we advance a multilevel conceptual model that suggests both individual and team characteristics predict individuals' performance and satisfaction per membership, as mediated by their team identification per membership. We employed cross-classified effects analyses to model the combined influences of two sets of higher-level factors corresponding to individual ($N = 96$) and team characteristics ($N = 82$) on lower-level individual members' team identification and related outcomes per team membership ($N = 320$). Analyses of multisource temporally lagged data from software development professionals, who were assigned to work in multiple teams, yielded support for the combined influences of individual and team-level factors on individuals' identification with, and ultimately performance in and satisfaction with, their multiple team memberships. Implications for theory and practice are discussed.

Keywords: cross-classified, identification, multilevel, multiple team memberships

It is increasingly common that employees are assigned to multiple work teams simultaneously. In fact, 65% to 95% of knowledge workers report working on multiple teams (Zika-Viktorsson, Sundstrom, & Engwall, 2006), and some estimates suggest that, on average, employees are assigned to three or four teams simultaneously (Mortensen, Woolley, & O'Leary, 2007). This arrangement has been referred to as *multiple team memberships* (MTM; O'Leary, Mortensen, & Woolley, 2011), which, despite their prevalence, have been the subject of little research. Indeed, Mathieu, Maynard, Rapp, and Gilson (2008) highlighted MTMs as an area in team research that warrants attention, noting that little is known about its implications for individuals or teams. When individuals simultaneously belong to multiple teams, how they allocate their time, attention, identity, and so forth are all important, but little understood, issues. In their seminal work, O'Leary et al. (2011, p. 471) highlighted the need for future research on the subject of multiple team identities in MTM contexts, noting that "multiple team membership represents an important context (and cause) in which to understand how individuals identify with multiple, alternative, work-related targets."

Teams are defined as "collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity" (Kozlowski & Bell, 2003, p. 334). Teams represent proximal and salient work contexts for employees, and influence their individual and collective behavior. Team identification refers to the emotional significance that individuals attach to their membership in a given team (Van der Vegt & Bunderson, 2005). Research demonstrates that identifying with a team has powerful effects on individual team members' behavior, attitudes, and performance (Ashforth & Mael, 1989). The concept of identity within the context of MTMs, however, raises interesting questions because individuals may maintain *multiple* team identities.

The notion of multiple identities dates back to James' (1890) view of individuals having as many selves as they have group memberships. Theory and evidence indicate that individuals often concurrently identify with multiple organizational foci such as their work team, department, and organization (e.g., Ashforth & Mael, 1989). Yet, research seldom examines more than one identity at a time (Ramarajan, 2014). It is unknown whether individuals who are assigned to work on multiple teams maintain separate identities with each of them, the factors that influence, or the consequences associated, with MTMs. Thus, we advance a multilevel theory to suggest that both individual and team characteristics influence individuals' performance per membership$_{(pm)}$, and satisfaction$_{pm}$, as mediated by their team identification$_{pm}$.

This work makes three primary contributions. First, we advance a conceptual model of individuals' identification related relations in a multiteam membership context, drawing from

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both the project management and social identity theory (SIT) literatures. In so doing, we extend Ashforth, Harrison, and Corley's (2008) classification of multiple identities to include parallel identities. Second, we examine the intraindividual experience of belonging to multiple teams. Specifically, our model focuses on the antecedents and consequences of multiple team identities (see Figure 1). We predict that antecedent factors residing at the (a) per membership level (percentage of time allocated$_{pm}$), (b) individual level (number of assigned team memberships, role stressors, and project stage variability), and (c) team level (project stage, team cohesion, and project prestige) will influence the degree to which individuals identify with *each* of their multiple teams (team identification$_{pm}$), and thereby their performance$_{pm}$ in, and satisfaction$_{pm}$ with, *each* of those teams. In doing so, we begin to build an understanding of how these factors operate within the context of MTMs. Notably, previous MTM theorizing has focused on individual and team consequences of MTM arrangements (e.g., O'Leary et al., 2011), whereas our focus is upon within-person relationships associated with different team memberships. Whereas some of our focal variables have been examined previously, those studies were lacking for drawing inferences about the impact of MTMs because they (a) focused on single-team membership while ignoring others, (b) ignored MTMs and treated multiple memberships as independent observations, or (c) collapsed across multiple memberships (cf. Cummings & Haas, 2012; Maynard, Mathieu, Rapp, & Gilson, 2012; Meyers & Beretvas, 2006). In contrast, our work focuses on the within person relationships associated with their multiple memberships.

Our third contribution is the introduction of a new approach to conceptualizing and analyzing MTMs. We view multiple team memberships as within-person phenomena and thereby "double nested" (or cross-classified) within both individuals and teams (see Figure 2). We describe the application and benefits of adopting a cross-classified approach (Raudenbush, Bryk, & Congdon, 2004) as a means to explicitly and statistically account for the dynamics associated with *each* of the individual's team memberships. This represents a substantive advance in the study of MTMs, as it enables the inclusion of the full set of an individual's MTMs, rather than limiting the examination to a primary or focal team or aggregating across memberships, which have been the two approaches adopted in MTM research to date (e.g., Maynard et al., 2012). We discuss this approach further in our methodology section. An important boundary condition of this research is that the study was set within a context where individuals were *assigned* (rather than *self-selected*) to work in particular teams.

Theory and Hypotheses

O'Leary et al. (2011) submitted that empirical studies of MTMs should consider the general context and temporal aspects of their settings. Our work was conducted with individuals who worked in a project team based information technology (IT) organization. They were assigned to work simultaneously on between two and 10 different teams. Chiocchio (2015) reviewed and synthesized the literature, and proposed the following definition "A project team unites people with varied knowledge, expertise, and experience who, within the life span of the project but over long work cycles, must acquire and pool large amounts of information in order to define or clarify their purpose, adapt or create the means to progressively elaborate an incrementally or radically new concept, service, product, activity or more generally, to generate change" (p. 54). Working simultaneously on multiple project teams has implications in terms of individuals' identification with each team and thereby their satisfaction with, and performance in, each of those teams (Tremblay, Lee, Chiocchio, & Meyer, 2015). Indeed, Tremblay and colleagues identified a number of contextual factors in project team organizations that may influence individuals' identifications with different teams, including the amount of time individuals spend on different teams, project stage and duration, and team attributes such as cohesion or prestige—all of which align with insights from the SIT literature. Below we advance a model whereby individual differences and project team attributes influence individuals' identification with each of their MTMs and the associated outcomes$_{pm}$.

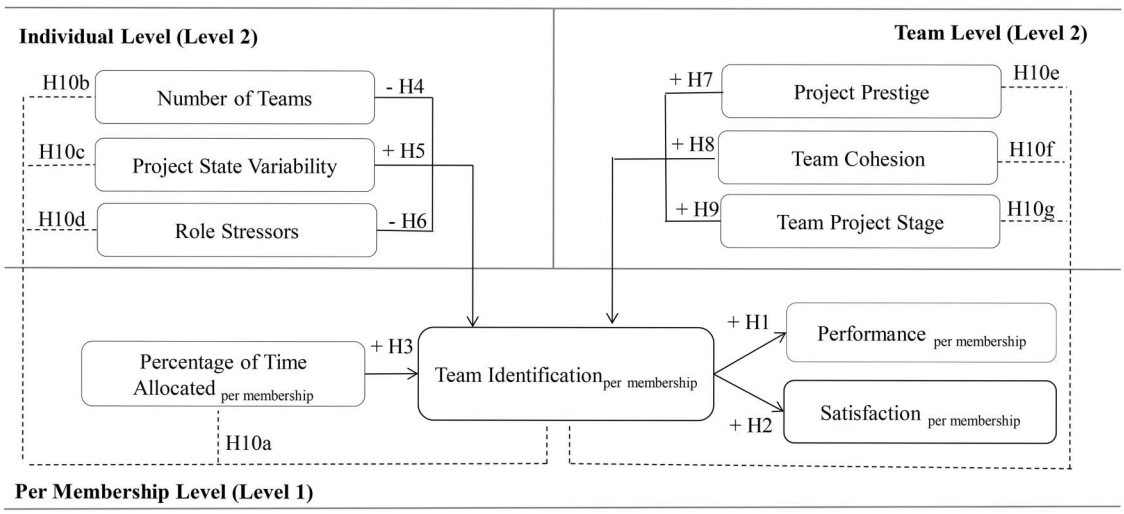

Figure 1. Hypothesized model. Dotted lines represent hypothesized mediated effects.

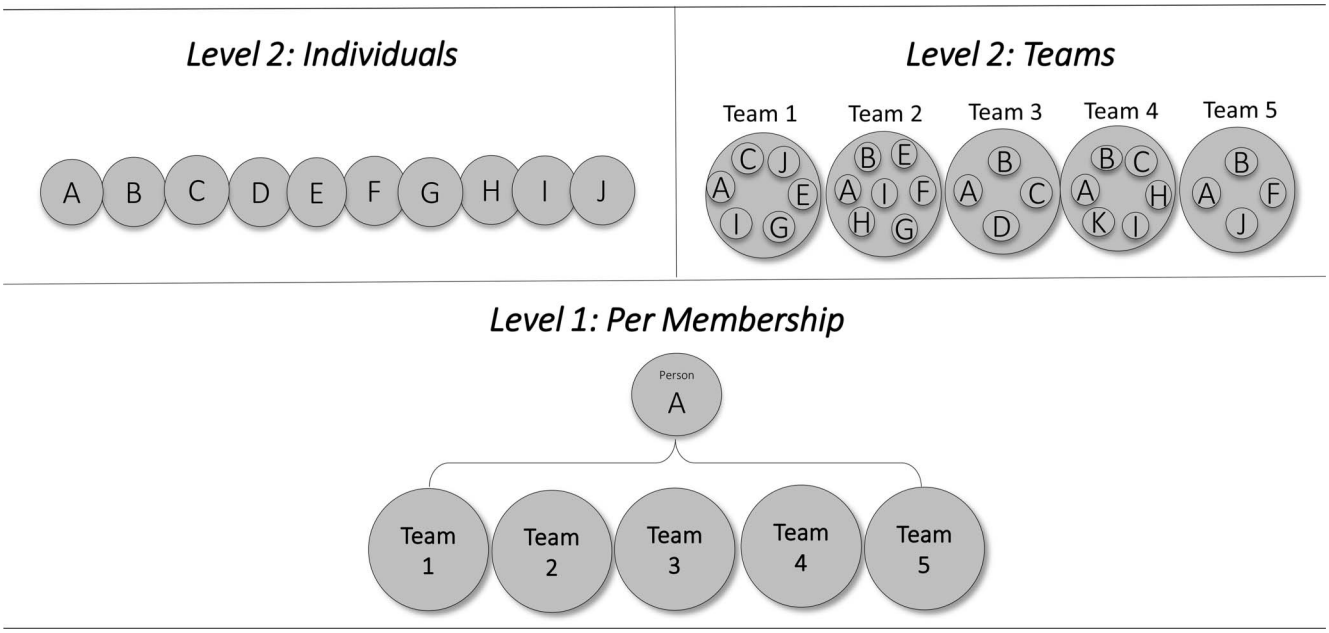

Figure 2. Cross-classified data structure.

Social Identity Theory and Multiple Team Identities

SIT (Tajfel, 1982; Tajfel & Turner, 1979) is a social psychological theory which maintains that individuals may have as many social identities as they have group memberships (Tajfel & Turner, 1979). At a fundamental level, the theoretical model underlying SIT focuses on how antecedent factors (e.g., individual characteristics, group characteristics, and contextual factors) influence an individual's social identities, as well as the cognitive, affective, and behavioral consequences associated with those social identities. A central tenet of the theory is that individuals' multiple social (e.g., team) identities, which vary in their relative importance, mediate the relationship between the larger context and individual behavior and cognitions (Hogg, Terry, & White, 1995). Using SIT as an overarching theoretical framework, we suggest that a set of multilevel antecedent factors residing at the per membership, individual, and team levels of analysis influence individuals' multiple team identities in MTM contexts and thereby their affective and performance-based outcomes associated with each of their memberships.

The concept of social identity has played a prominent role in organizational theories (e.g., Ashforth & Mael, 1989). Scholars widely agree that employees are capable of simultaneously defining themselves in terms of multiple organizational foci, such as their organization (Ashforth & Mael, 1989), business unit (Bartels, Pruyn, De Jong, & Joustra, 2007), and work team (Van der Vegt & Bunderson, 2005). Among these, individuals tend to identify most strongly with their teams because they represent a powerful proximal influence on their day-to-day work (Van Knippenberg & Schie, 2000). To date, multiple individual identities have been conceived of as either *nested* or *cross-cutting* (Ashforth et al., 2008). Whereas nested identities (Ashforth et al., 2008) are hierarchically embedded (e.g., persons nested in teams nested in organizations.), cross-cutting identities refer to individuals' identities in different walks of life, such as concurrently being a member of a work team, union local, or friendship clique (Hernes, 1997). Notably absent is a theory and design that simultaneously considers nested and cross-cutting arrangements. Accordingly, we propose the term *parallel identities* to refer to instances whereby *individuals may identify with multiple work teams that are not themselves hierarchically nested.*

Tajfel (1982) submitted that social identity consists of three components—cognitive, evaluative, and emotional—which represent one's knowledge, value, and emotional significance attached to a group membership. Of these, the emotional component has been shown to be the strongest determinant of in-group favoritism (Bergami & Bagozzi, 2000). Because of this, combined with the fact that our participants were assigned to their teams and thus had clear knowledge of their team memberships, we focus on the emotional component of identification.

Identities → Outcomes$_{pm}$

Most team research focuses on team-level outcomes as the focal level of interest. Considerably less attention has been devoted to influences on individual team *members'* reactions and outcomes (Mathieu et al., 2008). Research focusing on the individuals comprising the team is multilevel in nature, as it considers the cognitions, behaviors, and performance of members as a function of both their personal and team features (cf. Chen & Kanfer, 2006). Such research views the team as an embedding context that influences the individual team members (Hackman, 1992). The logic underlying this perspective is that teams provide contextual stimuli (e.g., team composition, processes, emergent states, norms) that individual team members are exposed to, and influenced by, as they go about completing their team related work. Team contextual factors exert a powerful influence on team members. In fact, Hackman (1992, p. 202) noted "it can be argued that the [teams] to

which a person belongs, together with the tasks that he or she performs, provide more stimuli that directly affect actual work behaviors than do any other aspects of the organizational environment." In sum, individuals' relative identification with the different teams that they are assigned to will be a byproduct of both personal and team characteristics and have intraindividual implications in terms of their relative performance in, and satisfaction with, different team memberships.

Performance$_{pm}$. A theoretical underpinning of SIT is that social identities compel individuals to exert effort on behalf of the collective, and to strive to further the success of that collective (Tajfel & Turner, 1979). This element of SIT is a key driver of organizational scholars' interest in identification, given the strong evidence that organizationally situated social identities are associated with a broad array of desirable work outcomes (Ashforth et al., 2008). Team identification, in particular, has been associated with several beneficial outcomes. Identifying with a team encourages individuals to cooperate with teammates (Lewicki & Bunker, 1996), exhibit citizenship behaviors (Van der Vegt, Van de Vliert, & Oosterhof, 2003), to be concerned about team processes and outcomes (Chen & Kanfer, 2006), and to exhibit higher levels of motivation and task performance (Van Knippenberg, 2000). Indeed, Tremblay et al. (2015, p. 202) submitted "identified project team members are more likely to put in extra effort or to help a project team member in order for the project team to succeed and meet deadlines." Identification should increase an individual's engagement with that team, the effort they exert toward that team's task, and ultimately, the individual's performance on that team. Lower levels of identification may engender less engagement, motivation, and investment in that team's success, and lower performance on that team.

Hypothesis 1: Team identification$_{pm}$ will relate positively to individuals' performance$_{pm}$.

Satisfaction$_{pm}$. The theory focused on social identity within organizations has long recognized that identifying with work-based collectives compels individuals to feel a sense of satisfaction (Ashforth & Mael, 1989). Satisfaction (as it refers to one's experience in a team) reflects the degree to which individuals are happy with and enjoy being part of a team (Janz, Colquitt, & Noe, 1997), and constitutes an affective indicator of team effectiveness (Mathieu et al., 2008). Researchers to date have examined members' satisfaction working in a team at both the individual (e.g., Peeters, Rutte, van Tuijl, & Reymen, 2006) and aggregate team level (e.g., Van der Vegt, Emans, & Van de Vliert, 2001).

From a SIT perspective, identifying with a team fulfills a variety of individual needs, including affiliation, achievement, belonging, and a sense of purpose (Vignoles, Regalia, Manzi, Golledge, & Scabini, 2006). Scholars have long recognized that identifying with a group has important implications for sense of satisfaction individuals derive from that group (Stryker & Serpe, 1982). Identification induces individuals to engage in, and derive satisfaction from, activities congruent with their identity targets (Ashforth & Mael, 1989). Research to date has focused on identification as a basis for an individual's satisfaction with foci including one's organization (e.g., Mael & Tetrick, 1992), job (Riketta & Van Dick, 2005), and role (Stryker & Serpe, 1982). Building from these theoretical and empirical insights, we extend the line of thinking and investigate whether the consequences of team identification apply in MTM contexts. We hypothesize that the degree to which individuals identify with their assigned teams will have implications for their satisfaction with those teams.

Hypothesis 2: Team identification$_{pm}$ will relate positively to individuals' satisfaction$_{pm}$.

Antecedents of Team Identification$_{pm}$

SIT maintains that individual and contextual factors influence the development of social identities (Ellemers & Rink, 2005). These factors have the potential to shape social identities by compelling individuals toward, or away from, developing various identities. In what follows, we draw from the SIT literature to suggest that individual and team factors influence team identification$_{pm}$ by either encouraging (i.e., pressuring toward) or discouraging (i.e., pressuring away from) the construction of various social identities (Vignoles et al., 2006). Below, we integrate insights from social identity and MTM theories to offer a set of hypotheses about the per membership, individual, and team-level antecedents of identification$_{pm}$.

Per Membership Antecedents

Research on social identity construction emphasizes that two key mechanisms drive the development of work-based identities; namely, experience and time (Dutton, Roberts, & Bednar, 2010). Recognizing this, it is likely that the amount of time of individuals devote to multiple teams will play a role in determining the degree to which individuals identify with each of their assigned teams. In the MTM literature, scholars have consistently recognized that the percentage of time individuals devote to their multiple teams may influence a variety of outcomes in MTM settings. To date, the literature has focused solely on the team-level implications of MTM time allocation, finding that teams comprising members who (on average) allocate a higher percentage of time to a focal team report higher levels of identification (Scott, 1997), planning (Maynard et al., 2012), and performance (Cummings & Haas, 2012). Whereas the extant literature has limited its examination to a single, focal team in MTM contexts, we extend this inquiry to examine whether the percentage of time individuals allocate to their teams will influence their identification with each of their assigned teams.

The time an individual devotes to each assigned team can be considered as an antecedent or outcome of identification (Tremblay et al., 2015). For example, in contexts where individuals are free to allocate their time as they prefer, time spent working on particular team activities may reflect how much they enjoy working on, identify with, or care about that team (Cummings & Haas, 2012). In other contexts, individuals are assigned to work a certain number of hours, or percentage of their time, on different teams. Many professions (e.g., lawyers, accountants, consultants, IT specialists) operate in this manner and bill accordingly (Engwall & Jerbrant, 2003). In these instances, being assigned to work a certain amount on each team is better conceived of as an antecedent of identification$_{pm}$. In our context, employees were assigned (by their managers) to work a certain percentage of their time on each team.

Being assigned proportionately more to any given team not only implicitly signals to individuals where their relative priorities should be, but also provides more opportunities for individuals to engage more fully with that team and its task. Therefore, we argue that the greater the percentage of time an individual is allocated to a particular team, the greater the opportunity that person has to interact with and accumulate shared experiences with that team, and the more likely s/he will identify with that team. Individuals who are assigned a lower percentage of time to a particular team have relatively fewer opportunities to engage with that team and develop the type of shared experiences that underlie the formation of a team identity. Support for this notion is echoed throughout SIT. For example, the concept of identity investment suggests that the strength of identification is associated with the time invested in that role (Rothbard & Edwards, 2003). Similarly, Ashforth and Mael (1989) suggest that teammate interaction, shared goals, and common history impact the extent to which individuals identify with a group (Ashforth & Mael, 1989) by cueing the categorization process that underlies social identity in organizations (Hogg & Turner, 1985). Rousseau's (1998) work on identity construction also supports this perspective, emphasizing that developing a team identity requires devoting time and attention toward developing teammate relationships. Building from these insights, we hypothesize the following:

Hypothesis 3: Percentage of time allocated$_{pm}$ will relate positively to individuals' team identification$_{pm}$.

Individual Level Antecedents

Organizational researchers have long recognized that factors relating to individuals' role assignments have the potential to influence identification with organization-based targets (e.g., Greene, 1978; Hogg & Terry, 2000). There are, however, only a few examples of studies that investigate how job-related factors influence organizational identification, including role ambiguity, role conflict, autonomy, and task variety (Greene, 1978; Katrinli, Atabay, Gunay, & Guneri, 2009). Although researchers have not yet explored how the structure of individuals' roles may influence team identification, insights from the project team and MTM literatures align with insights from SIT and suggest that this may be the case. Thus, we advance hypotheses concerning three factors relating to individual role structure that may impact members' team identification$_{pm}$—the number of team memberships, project stage variability, and role stressors.

Number of teams. Social identity theory recognizes that identification is an "attention-ful process" (Abrams, 1996, p. 157), emphasizing that attention is required to trigger the self-categorization processes that drive social identity. Similarly, the MTM literature suggests that the number of team memberships an individual maintains is an important variable to be considered in MTM studies, in part because a greater number of teams strains individuals' attention. Because individuals have a fixed attentional capacity (Kahneman, 1973), each additional team assignment places greater demands on their attentional resources, thus undermining their identification with any given team (O'Leary et al., 2011). Cummings and Haas' (2012) findings echo these insights, reporting that individuals who allocated time to a greater number of teams experienced more attention diffusion across those teams. Similarly, Pluut, Flestea, and Curşeu (2014) found that individuals' fragmentation of time across teams led to higher levels of conflict with teammates. Indeed, with every team assignment comes a myriad of demands (managing and coordinating the workload, information, schedules, and social dynamics) which cause individuals to allocate their attention more thinly in MTM contexts. Because individuals form a team identity by generalizing from their experiences with the team and developing an affinity for it (Ashforth et al., 2008), fostering a team identity requires that individuals devote time, effort, and attention to cultivate interpersonal relationships with teammates (Rousseau, 1998). Thus, we suggest that as the number of team assignments increases, the degree to which individuals identify with each team will likely decrease proportionately as their attention becomes increasingly taxed.

Hypothesis 4: The number of teams an individual works on will relate negatively to their team identification$_{pm}$.

Project stage variability. An underlying premise of SIT is that the clarity of group boundaries plays a role in triggering the social categorization processes that drive the construction of social identities in organizational settings (Ashforth & Mael, 1989). Moreover, preliminary insights suggest that team boundaries may influence team identities$_{pm}$ (Espinosa, Cummings, Wilson, & Pearce, 2003). Team boundaries can be thought of as the invisible lines around the team—the external "edges" of the team—that distinguish one team from others. Researchers describe numerous team boundaries, including geographic, cultural, functional, organizational, as well as those related to expertise, membership, and identities (Espinosa et al., 2003). We propose that project stage represents a salient team boundary that can help individuals differentiate between their assigned teams. Specifically, we introduce the concept of project stage variability, defined as the relative heterogeneity of the stages of the teams that they are assigned to, as an antecedent of individuals' identification$_{pm}$. The inclusion of this variable also follows O'Leary et al.'s (2011) suggestion that MTM researchers consider the variety or variability of team memberships in MTM contexts.

A variety of software project stage models exist, with some emphasizing a linear progression between project stages (e.g., waterfall models) and others emphasizing more dynamic movement (e.g., agile models) between project stages (Dybå, & Dingsøyr, 2008). Our sample organization used a waterfall model that featured five sequential stages: (a) requirements analysis, (b) specification, (c) architecture, (d) design, and (e) deployment. Earlier stages focused on documenting product requirements, middle stages entailed technical work, and later stages featured quality testing/product launch. Because the nature of work done during each project stage varied, individuals' tasks also varied by project stage. Further, a number of studies have reported that different team processes (e.g., mission analysis, coordination, and monitoring progress) and contextual factors (e.g., management support) vary in importance over time within projects, and thus across different project stages (Hoegl, Weinkauf, & Gemuenden, 2004).

Team boundaries are often described according to the degree to which they are clear as opposed to blurry or "fuzzy" (Mortensen, 2008). Scott (1997) observed that team boundaries can be blurred in MTMs, and when this happens those teams become "less

distinctive" from one another. We argue, however, that being assigned to projects that are in different stages will better demarcate team boundaries and lessen the possibility that teams will blur together—which makes developing team identities more difficult. Thus, greater intraindividual project stage variability should correspond to stronger team identification$_{pm}$.

Hypothesis 5: Individuals' project stage variability will relate positively to their team identification$_{pm}$.

Role stressors. Nearly three decades ago, Ashforth and Mael (1989, p. 29) noted that "Given the number of groups to which an individual might belong, his or her social identity is likely to consist of an amalgam of identities, identities that could impose inconsistent demands upon that person." They also emphasized that it is only when individuals are forced to simultaneously don multiple hats that their ability to cognitively manage these role-related demands breaks down. Based on these insights, as well as the preliminary findings regarding the consequences of role expectations in the MTM literature (e.g., Mortensen et al., 2007), we investigate whether role stressors influence team identification$_{pm}$ in an MTM context.

Stressors are external conditions that evoke adverse psychological, behavioral, or physiological responses. Considerable theory and evidence indicate that role stressors evoke adverse reactions in individuals. These include physiological, behavioral (e.g., withdrawal, and reduced job performance), and cognitive/affective reactions (e.g., anxiety, depression, and reduced satisfaction, motivation, and commitment (Jackson & Schuler, 1985; Lepine, Podsakoff, & Lepine, 2005). Role stressors derive from the properties, or work demands, associated with an individual's work role such as role overload (i.e., perception that role demands are overwhelming relative available resources) and interrole conflict (i.e., perceptions of incompatible demands arising from multiple roles (Rizzo, House, & Lirtzman, 1970). Working on multiple teams is associated with role-related stress (Mortensen et al., 2007; Pluut et al., 2014), time pressure (O'Leary et al., 2011), and project overload (Zika-Viktorsson et al., 2006). The implications of role stressors also likely extend to team identities. For instance, Marrone, Tesluk, and Carson (2007) found that role overload related negatively to feelings about the team. Indeed, role stressors represent a job characteristic that negatively influences the degree to which individuals identify with and wish to remain in a collective (e.g., Tremblay et al., 2015). Based on these insights, we hypothesize the following:

Hypothesis 6: Individuals' perceptions of role stressors will relate negatively to their team identification$_{pm}$.

Team-Level Factors

Contextual factors play a central role in determining the relative strength of individuals' multiple social identities (Ellemers & Rink, 2005). Because team characteristics represent contextual factors that influence the individuals comprising the team (Chen & Kanfer, 2006), it is likely that team-level characteristics will influence individuals' identification$_{pm}$. We focus on three team features (i.e., project prestige, team cohesion, and project stage) that are echoed in the project team literature as having the potential to influence team members' identification (Tremblay et al., 2015), and align with key social identity motives (i.e., distinctiveness, belonging, and continuity). Identity motives represent a key mechanism that underlies the social identity construction process (Breakwell, 1993). Identity motives function by pressuring individuals toward (or away from) certain social identities, as individuals strive to self-define with social groups that help to generate positive self-evaluations (Vignoles et al., 2006).

Project prestige. The distinctiveness identity motive taps into individuals' need to be unique by associating oneself with distinctive groups (Vignoles et al., 2006). Project prestige refers to the degree that a project is recognized for its prominence, distinction, or importance within an organizational context. As such, project prestige represents a team characteristic, or contextual factor, that may encourage individuals' team identification$_{pm}$. In the MTM literature, there are indications that a project's perceived importance may influence individuals' reactions to it, which likely extend to their identification (e.g., Patanakul, Milosevic, & Anderson, 2004; Payne, 1995). We argue that prestigious projects are more distinctive and can influence team identification as individuals seek to enhance their sense of self-importance through association (Vignoles et al., 2006). Many studies report that individuals identify more strongly with higher status groups (e.g., Ellemers, Van Knippenberg, & Wilke, 1990). For example, Scott (1997) found that members' identification with a project was partly determined by their perception of top management support for the initiative. We argue that in the interest of enhancing their self-esteem by categorizing themselves as members of distinctive teams, individuals are likely to identify more strongly with teams assigned to more prestigious projects (Abrams & Hogg, 1998).

Hypothesis 7: Team project prestige will relate positively to individuals' team identification$_{pm}$.

Team cohesion. The belonging identity motive refers to the need to maintain feelings of closeness to other people (Vignoles et al., 2006). Cooper and Thatcher (2010) theorized that the belonging motive would also drive team identification, arguing that because teams offer the opportunity to interact and develop relationships with other members, they are likely to fulfill the need for belongingness. Researchers have theorized that team identification may develop as a result of affective bonds among team members (e.g., Henry, Arrow, & Carini, 1999). Team cohesion reflects "the total field of forces which act on members to remain in the group" (Festinger, Schachter, & Back, 1950, p. 164). Although there is considerable evidence that team cohesion plays an important role in single team contexts, it is unknown whether team cohesion functions similarly or differently when an individual belongs to multiple teams. From a social identity perspective, it is likely that teams characterized by a high level of cohesion will help to fulfill individuals' need for belonging, and thus positively influence identification$_{pm}$.

Hypothesis 8: Team cohesion will relate positively to individuals' team identification$_{pm}$.

Project stage. Finally, the continuity identity motive refers to the motivation to maintain a sense of "continuity across time and situation within identity" (Breakwell, 1986: p. 24). Indeed, both SIT and MTM theories recognize that temporal factors may influ-

ence social identity. Thus, we examine how project stage (a temporal factor) may influence team identification$_{pm}$.

Project stage refers to a team characteristic that denotes where a team's project is within the project life cycle (Dybå, & Dingsøyr, 2008). This differs from our earlier conceptualization of project stage variability, which represents the degree of variance existing among the project stages characterizing an individual's MTMs. In the MTM literature, project stage has been recognized as a team-level factor that may have important implications in MTM settings. For example, Mortensen et al. (2007) argued that later-stage projects are more amendable for MTM arrangements because early stage work requires more "spin up" time and engagement. Similarly, SIT acknowledges that like teams, identities also have a length of existence. Further, Scott (1997) argued that in MTM settings, tenure and strength of identities are likely related.

Notably, the focal organization in this study utilized a traditional "waterfall" project stage model (Dybå, & Dingsøyr, 2008), wherein teams' assigned projects progressed through five linear stages. Thus, in this context, project stage provides a proxy for team tenure, given that as project stage progressed so too do individuals' tenure on the associated team. As teams log time together by progressing from early to later project stages, they accrue collective experiences and tend to exhibit more social integration, cohesion, trust, shared values, and ease of communication, as well as reduced goal conflict (Michel & Hambrick, 1992). Although projects may vary in length, we expect that individuals will identify more strongly with teams that have advanced to later project stages. Such teams are more likely to have established trust, cohesion, and shared values, so individuals may feel a greater sense of team identification, relative to teams in early project stages. Further, because teams in later project stages provide individuals with a sense of stability across time and situation, it is likely that project stage will encourage team identification$_{pm}$ by fulfilling the continuity motive. Therefore, we hypothesized:

Hypothesis 9: Team project stage will relate positively to individuals' team identification$_{pm}$.

Finally, we hypothesize that team identification$_{pm}$ will mediate the relationships between our per membership, individual, and team antecedent variables and performance$_{pm}$ and satisfaction$_{pm}$ outcomes. Indeed, Hogg et al. (1995) noted that SIT depicts social identity as a construct that mediates the relationship between contextual factors and a variety of outcomes, such as individual behavior and cognitions. In the above sections, we hypothesized that our focal per membership, individual, and team antecedent variables influence team identification$_{pm,}$ which in turn, will enhance team performance$_{pm}$ and satisfaction$_{pm}$ by encouraging individuals to exert effort on behalf of the team as a way to further the success of that the team (Tajfel & Turner, 1979; Van Knippenberg, 2000) and to enhance their support for and commitment to the team (Ashforth & Mael, 1989), respectively. Thus we suggest that the influence of our focal antecedent variables upon performance$_{pm}$ and satisfaction$_{pm}$ occurs through team identification$_{pm}$. Accordingly, and as depicted in Figure 1, we advance a mediational model with team identification$_{pm}$ serving as a full mediator of lower-level and cross-level relationships.

Hypothesis 10: Team identification$_{pm}$ will mediate the relationships between the percentage of time allocated$_{pm}$ (a), individual level [number of teams (b), project stage variability (c), role stressors (d)], and team level [project prestige (e), team cohesion (f), project stage (g)] factors, as related to performance$_{pm}$ and satisfaction$_{pm}$.

Method

Organizational Setting and Participants

Our sample organization was a private, medium-sized Russian IT firm. Participants were members of software development project teams. All 198 employees of the focal department were sent an e-mail asking for their voluntary participation, which involved completing surveys on three different occasions. Participants were informed that the purpose of the study was to understand how balancing multiple team memberships impacts team- and job-related attitudes, as well as performance in the workplace. For our first employee survey, we received responses from 113 employees (57%). Those responses were used to index the team-level antecedents. For our focal sample, however, we eliminated five individuals because they were assigned to only one team at the time of data collection and 13 others who failed to respond to later surveys. This resulted in a final focal sample of 96 individuals who were assigned to a minimum of two teams and responded to all three surveys. These individuals were members of 82 teams. Nonrespondents did not differ systematically from respondents on the variables we had available for comparison (i.e., number of teams, project industry, project stage). Data presented in this article were part of a broader data collection effort, and a previous version of this article has been published as conference proceedings (Rapp, 2016). We obtained IRB approval for this study from the University of Connecticut (H06-230, The Psychological Dynamics that Underlie Individuals' Responses to Working in Multiple Project Teams: An Intraperson and Interperson Investigation).

Our focal sample was 40% female, age 24 to 60 years (M = 35.1; SD = 6.99). They were assigned to an average of 3.33 teams (SD = 1.70; $Min.$ = 2, $Max.$ = 10), and reported their job titles as: System Analyst (9.4%), Business Analyst (6%), Developer (39%), Database (9%), Tester (10%), Project Manager (15%), Graphic (5%), and Network (6%). All participants reported being Russian. On average, four individuals provided information about each team ($Min.$ = 1.0, $Max.$ = 13, SD = 2.60). The average within-team team response rate was 57% (Min = 25%, Max = 100%), and a response rate of ≥50% was obtained for 63 of the 82 teams.[1]

Teams developed software products for clients (i.e., organizationally relevant task) and were expected to do so on-time, on-budget, and to the client's satisfaction (shared common goals). Members interacted, both informally and in meetings where they coordinated and discussed project requirements, timelines, prob-

[1] Although we are aware of no published guidelines regarding response rate cut-offs, there is accumulating evidence that the advantages of including low-response rate groups outweigh the potential negatives associated with eliminating such groups, which include inflated standardized effect size estimates, decreased statistical power (Hirschfeld, Cole, Bernerth, & Rizzuto, 2013), and lower reliability (Biemann & Heidemeier, 2012; Maloney, Johnson, & Zellmer-Bruhn, 2010). Accordingly, we followed the recommendations of Biemann and Heidemeier (2012); Maloney et al. (2010), and Stanley, Allen, Williams, and Ross (2011), and did not drop lower response rate groups from the analysis.

lems, and hand-offs (interacted socially). Because software development is a complex task that requires a high level of interaction (Kraut & Streeter, 1995), members relied on each other to develop a shared understanding of the software being built, constantly share information, diagnose problems, adjust to uncertainties (e.g., changing client requirements, fixing bugs), and coordinate their actions in a way that allowed the precise integration of modules for the software to operate properly (interdependence). Teams regularly interacted with others stakeholders and teams (managing boundaries) to address resource needs (e.g., personnel, time allocations), constraints, and timelines (e.g., delays in one project impact others). Accordingly, these units met Kozlowski and Bell's (2003) definition of a *team*. Further, because these teams consisted of members from different functional units (e.g., development, project management) who applied specialized expertise to produce a one-time output, and disbanded upon their project's completion so members could move on to other projects, these teams also met the definition of *project team* (Cohen & Bailey, 1997).

Data Collection Procedure

Because the focal company engages in concurrent development (Krishnan & Ulrich, 2001), numerous projects were underway simultaneously at a various stages of completion. The timing of our data collection was based on insights gained from the focal company's management. Managers noted that project durations ranged from a month to several years, with most projects taking between three and six months. Because projects were loosely organized around calendar quarters, we began our data collection at the start of a quarter to increase the likelihood that teams would still be intact for later surveys at the end of the quarter. The time lags between measurement points allowed members to become familiar with their assigned teams and for team properties to emerge (Carter, Carter, & DeChurch, 2018), thus permitting members to provide meaningful assessments of team characteristics. Time 1 included an archival data collection (project team assignments, project stage). Time 2 occurred two weeks later and involved a web-based survey of members' demographics, percentage of time allocated$_{pm}$, role stressors, project prestige, and team cohesion. Time 3 was one month later and involved another survey of individuals regarding their team identification$_{pm}$. Time 4 occurred one month later and included a survey of (a) members concerning their satisfaction$_{pm}$ and (b) managers' ratings of members' performance$_{pm}$. Two months later (Time 5), we collected an archival measure of individual overall job performance that we used as a covariate. This 2-month lag permitted the firm to complete its end-of-year performance appraisals. The language translation of all materials conformed to accepted procedures (Brislin, 1980).

Measures

Unless otherwise noted, all measures were answered using a 7-point Likert-type scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Scale scores were computed by averaging individuals' item responses per variable. For clarity, we present our measures grouped by their corresponding level of analysis.

Per membership level 1 measures. Per membership variables represent level-1 data (N = 320), which averaged 3.3 observations per individual, and 3.9 observations per team. The *percentage of time allocated*$_{pm}$ was indexed as the percentage of an individual's time that s/he was assigned to each of his or her teams. This practice is common in project-based organizations, where functional/project managers typically make employee time allocation decisions (Engwall & Jerbrant, 2003; Patanakul, 2013). Because the focal organization did not maintain records of the number of hours employees were assigned to each team, we had participants report the percentage of their time devoted to each team (totaling 100%).

Team identification$_{pm}$ was indexed using three items (α = .91) from Van der Vegt et al.'s (2003) team identification scale (e.g., "I strongly identify with the other members of this work team"). This scale has demonstrated good reliability and validity (e.g., Van der Vegt & Bunderson, 2005), and emphasizes the emotional component, which is known to be the strongest determinant of identity (e.g., Bergami & Bagozzi, 2000). Participants completed this index for each of their teams.

Team managers (N = 6)[2] rated individual member *performance* on the team(s) they oversaw using a 4-item scale (α = .74) from Campbell, McCloy, Oppler, and Sager (1995): (a) *level and consistency of effort*, (b) *demonstration of core or technical skills*, (c) *support of and cooperation with teammates*, and (d) *overall effectiveness*. The rating scale ranged from 1 = *Far less than could be reasonably expected* to 5 = *Far more than could be reasonably expected*.

Individuals rated their *satisfaction*$_{pm}$ with each team using Gladstein's (1984) scale (three items, α = .96): A sample item is "I am pleased with the way my teammates and I work together."

Level 2 individual measures. Individuals' *number of teams* was an archival measure of the total number of teams to which each person was assigned (*Min* = 2, *Max* = 10). We used four items from Brown, Jones, and Leigh's (2005) role overload measure (e.g., "The amount of work I do interferes with how well the work gets done"), and four items from Rizzo et al.'s (1970) interrole conflict measure (e.g., "I receive incompatible requests from two or more people") as measures of *role stressors*. The two scales were highly correlated (r = .75, $p < .001$) so we combined them to form an index of role stressors (8 items, α = .94).

We calculated *project stage variability* (PSV) using archival data from company records. The company categorized projects as falling into five stages: (a) requirements, (b) specification, (c) architecture, (d) design, and (e) deployment. PSV represents the degree to which an individual's different team memberships were at different stages of work. Calculating the PSV index involved three steps. First, two SMEs from the focal company determined which stages of a project are the most similar to, and different from, one another for each job position. Different jobs have

[2] Individuals in our sample were also nested in supervisors who provided the performance evaluations which raises the question of whether there are significant rater effects. Therefore, we conducted a three-level hierarchical cross-classified model (see Raudenbush et al., 2004) where individuals' team memberships were doubly nested in individuals and teams, and individuals were in turn nested in supervisors. This allows us to decompose the membership level variance into that which is attributable to memberships, teams, individuals, and supervisors. These analyses revealed that little nonsignificant variance was attributable to supervisors (i.e., performance = 2%, satisfaction = 1%, identification = 0%). Therefore, there do not appear to be systematic rater effects.

different tasks over the course of a project, with some stages involving similar and others different tasks. SMEs developed a list of primary tasks typical of each job (e.g., Developer, Project Manager) for each project stage. For each job, SMEs then assigned each project stage a weight ranging from 0 (*no similarity*) and 1.0 (*identical),* for the (dis)similarity of tasks, using the first project stage as a referent. Analyses indicated a high degree of correlation between the two raters (r_{xx} = .93), so we used the average SME ratings. A repeated measures ANOVA confirmed a significant project stage effect, $F(3) = 114.46$, $p < .001$, job title effect, $F(7) = 35.10$, $p < .001$, and a project stage-by-job title interaction effect, $F(21) = 30.91$, $p < .001$, for these ratings. The final step involved calculating a mean Euclidean distance index (Harrison & Klein, 2007). Lower levels of project stage variability were indicative of individuals working on projects that were in similar project stages. Project stage variability was indexed within two weeks of members' responses about their team variables, and ranged from 0 to .37.

We used members' *overall job satisfaction and job performance* as covariates to control for their relationships with our per membership-level outcomes (Riketta, 2002). Included in the third survey was a three-item scale of overall job satisfaction (α = .91) from Cammann, Fichman, Jenkins, and Klesh (1983). An example item is "All and all, I am satisfied with my job."

Job performance was recorded in company archives as an overall composite item rated on a five-point scale from participants' annual performance evaluations. For a subset of 24 participants, the company provided full performance evaluation data which consisted of 18 items (α = .95) representing five dimensions of job performance (*technical skills, personal skills, work quality, work quantity, and work style*). The correlation between the multidimensional and single-item performance ratings was r = .89 ($p < .001$), indicating that the single-item index was an acceptable representation of the more complete performance evaluations.

Level 2 team measures. Participants assessed each of the teams they were a member of on three team-level variables (project prestige, project stage, and team cohesion). In this case, we sorted their responses in terms of which team membership they were referring to as one would in a traditional nested multilevel investigation (cf., Mathieu & Chen, 2011). The lack of independence of their multiple responses is accounted for in later cross-classified analyses.

We indexed team cohesion using four items (α = .96) from Seashore (1954; e.g., "Team members are likely to defend each other from criticism by outsiders"). To assess the suitability of aggregating individual scores to a team cohesion index, we estimated within-group agreement using $r_{wg.}$ (James, Demaree, & Wolf, 1984). We used intraclass correlation (ICC) coefficients to assess the reliability of responses among raters. The ICC1 represents the proportion of the total variance explained by group membership (Raudenbush et al., 2004), whereas the ICC2 provides an estimate of the reliability of group means (James, 1982). Acceptable levels of within group agreement (*Median* r_{wg} = .84) and reliability (ICC1 = .61; ICC2 = .86, $p < .001$) were evident. No doubt the ICCs were relatively large as compared to most teams research (cf., LeBreton & Senter, 2008) because members rated the multiple teams that they were members of, thereby serving to control somewhat for rater variance.

We used Scott's (1997) scale to index *project prestige* (four items, α = .94). We adapted items to reference management (rather than top management; e.g., "Management recognizes the importance of the project to the organization"). Acceptable within group agreement (*Median* r_{wg} = .68) and reliability (ICC1 = .72; ICC2 = .91, $p < .001$) were evident.

Project stage was indexed using the 1–5 archival measure described above concerning project stage variability. Early project stages focused on clarifying and documenting client requirements/product specifications; middle phases on technical work (writing software code, building database architecture, quality testing, fixing "bugs"), and later phases on deploying the software the software product to the customer. Lower (higher) scores represented that a project that was in the earlier (later) project stages.

Confirmatory Factor Analyses

We conducted a confirmatory factor analysis (CFA) for data aligned with each level of analysis using AMOS 16.0 (Arbuckle, 2009). To gauge model fit, we report a pair of fit indices that were advocated by Mathieu and Taylor (2006)—the comparative fit index (CFI) and standardized root-mean-square residual (SRMR). The CFI has been identified as the best approximation of the population value for a single model, with CFI <.90 suggesting deficient fit, CFI ≤.90 to <.95 indicative of acceptable fit, and CFI ≥.95 indicative of excellent fit (Mathieu & Taylor, 2006). SRMR is a measure of the standardized difference between the observed covariance and predicted covariance. According to Mathieu and Taylor (2006), SRMR values >.10 are considered deficient, SRMR >.08 <.10 acceptable, and SRMR <.08 excellent fit. The *Level 1 CFA* included all per membership variables (i.e., percentage time allocated_{pm}, $\text{identification}_{pm}$, performance_{pm}, and satisfaction_{pm}) and exhibited excellent fit indices, $\chi^2(39) = 103.79$, $p < .001$; CFI = .97, SRMR = .06, with all indicators loading significantly ($p < .001$) and >.49 on their intended latent factors.

Given that model fit indices can be deficient when modeling items with relatively few cases, we used parcels for the Level 2 individual variables CFA (Little, Cunningham, Shahar, & Widaman, 2002). We formed parcels for the role stressor variables by averaging pairs of the highest/lowest loading items for each subdimension, resulting in two 2-item parcels each for role overload and interrole conflict. The Level 2 individual variables CFA (number of teams, project stage variability, and role stressors) exhibited excellent fit indices, $\chi^2(8) = 27.45$ $p < .001$; CFI = .95, SRMR = .04, with the role stressor parcels loading significantly ($p < .001$) and >.82 on their latent factors. The Level 2 team variables CFA (team cohesion, project prestige, and project stage) also exhibited excellent fit indices, $\chi^2(25) = 64.92$, $p < .001$; CFI = .95, SRMR = .04, with all items loading significantly ($p < .001$) and >.82 on their intended factors.

Analysis

The conventional design in teams research is to model the influence that higher-level factors (e.g., team, organization) have on individual team members (individuals nested within a team). We used an innovative design by viewing multiple teams as nested

within an individual. When individuals are members of the same team, there is a lack of independence that must be taken into account when modeling relationships (Mathieu & Chen, 2011). In the case of modeling individuals' multiple team memberships, there is a second form of interdependence, as an individual's different memberships are nested within the person. Thus, there is an *interindividual* form of nonindependence among members of the same team, as well as an *intraindividual* form of nonindependence among each individual's multiple team memberships. Moreover, because different people are members of different teams, individuals are not cleanly nested in teams in the conventional manner. Rather, as noted above, individuals' per team memberships are cross-classified by individuals and teams (Raudenbush et al., 2004).

The structure of our data, therefore, was (a) Level 1 = individuals' multiple team memberships (N = 320), (b) one Level 2 classification = individual differences (N = 96), and (c) the second Level 2 classification = teams (N = 82). To properly accommodate this dual nesting we employed cross-classified random effect models to conduct our analyses, using the HCM function of HLM 7.0 (Raudenbush et al., 2004). Cross-classified models have the statistical advantage of being able to simultaneously account for multiple non-nested contextual effects (Raudenbush et al., 2004). Further, our analyses permitted the modeling of within-person variation in our Level 1 factors (percentage allocated, team identification, team performance, and team satisfaction). This afforded direct insight into individuals' multiple, distinct team identities (for each of their assigned teams), as well as their performance and satisfaction with those teams. Our analyses consisted of running separate HCM models for each of our endogenous variables (team identification$_{pm}$, team performance$_{pm}$, and team satisfaction$_{pm}$). We standardized all variables at their respective levels prior to the analysis to facilitate the interpretation of results, which in effect, grand mean centers our predictors (Hofmann & Gavin, 1998).

Results

Table 1 presents the means, standard deviations, and correlations for all study variables. Table 2 provides a summary of the HCM models and results. We reported fixed-effects analyses because slopes did not exhibit significant variability across Level 2 factors. Our first three hypotheses were tested by modeling Level 1 per membership relationships. Baseline (i.e., null) models revealed that 30% of the performance$_{pm}$ variance resided at the per membership level, whereas 48% ($p < .001$) occurred between individuals and 22% ($p < .001$) between teams. Because both the individual and team sources of nonindependence were significant, the cross-classified design and analysis are clearly warranted. The corresponding baseline percentages for satisfaction$_{pm}$ were 67%, 2% (*ns*), and 32% ($p < .001$), whereas for identification$_{pm}$ they were 61%, 5% (*ns*), and 34% ($p < .001$), respectively.[3]

Hypotheses 1 and 2 concern the relationship between individuals' team identification$_{pm}$ with performance$_{pm}$ and satisfaction$_{pm}$. Regressing performance onto team identification$_{pm}$ ($\beta = .22$, $SE = .04$, $p < .001$), overall job performance ($\Gamma = .58$, $SE = .05$, $p < .001$), and overall job satisfaction ($\Gamma = -.03$, $SE = .05$, *ns*) yielded support for Hypothesis 1. Regressing satisfaction$_{pm}$ onto team identification$_{pm}$ ($\beta = .59$, $SE = .05$, $p < .001$), overall job performance ($\Gamma = .02$, $SE = .05$, *ns*), and overall job satisfaction ($\Gamma = -.04$, $SE = .05$, *ns*) yielded support for Hypothesis 2. Although effect size estimates are tenuous in multilevel models, we calculated pseudo $\sim R^2$ estimates (cf. Snijders & Bosker, 1999), which suggested that these analyses accounted for 39% and 35% of the variance in performance$_{pm}$ and satisfaction$_{pm}$, respectively.

Hypothesis 3 suggested that the percentage of time individuals were allocated$_{pm}$ would positively predict their team identification$_{pm}$, although our results were nonsignificant ($\beta = -.03$, $SE = .06$, *ns*). We next added the hypothesized Level 2 predictors to the team identification$_{pm}$ equation. Among the *Individual predictors*, number of teams ($\Gamma = -.006$, $SE = .05$, *ns*) was not significant, although role stressors ($\Gamma = -.11$, $SE = .05$, $p < .05$) and project stage variability ($\Gamma = .12$, $SE = .05$, $p < .01$) were. These results do not support Hypothesis 4 but are consistent with Hypotheses 5 and 6. Among the *Team predictors*, project prestige ($\Gamma = .22$, $SE = .06$, $p < .001$), team cohesion ($\Gamma = .38$, $SE = .06$, $p < .001$), and project stage ($\Gamma = .14$, $SE = .05$, $p < .01$) were all significant and consistent with Hypotheses 7, 8, and 9, respectively. The combined predictor set accounted for a pseudo $\sim R^2 = .34$.

Finally, we tested whether team identification$_{pm}$ mediated the antecedent relationships with performance$_{pm}$ and satisfaction$_{pm}$ (Hypotheses 10a–10g). We applied a Monte Carlo bootstrapping procedure developed by Selig and Preacher (2008), which uses the parameter estimates and standard errors associated with the antecedent—team identification$_{pm}$ relationships, together with the team identification$_{pm}$—outcome relations, and generates 20,000 versions of their product terms. As summarized in Table 3, the 95% confidence intervals of these distributions excluded zero for all variables except number of teams, as related to both performance$_{pm}$ and satisfaction$_{pm}$. Our findings with regard to individuals' time allocation$_{pm}$ (Hypothesis 10a) failed to exhibit an indirect effect. Thus, Hypothesis 10 received partial support as five (H10c, 10d, 10e, 10f, 10g) of the six of the higher-level antecedents exhibited significant cross-level indirect effects on performance$_{pm}$ and satisfaction$_{pm}$, as mediated by team identification$_{pm}$.

Our hypothesized model, in effect, implied that team identification$_{pm}$ would fully mediate the relationships between time allocation$_{pm}$, and higher-level individual and team variables and with performance$_{pm}$ and satisfaction$_{pm}$. An inference of full mediation also implies that there will be no direct effects beyond that accounted for by the mediator and should be verified (see Mathieu & Taylor, 2006). Accordingly, we ran supplemental analyses adding all predictors as direct influences on performance$_{pm}$ and satisfaction$_{pm}$ as summarized in Table 2.

Adding the seven additional predictors to the performance$_{pm}$ model produced a significant, $\Delta\chi^2(7) = 41.94$, $p < .001$, $\sim \Delta R^2$ increment = 10% that was attributable to positive relationships with the percentage of time allocated$_{pm}$ ($\beta = .13$, $SE = .04$, $p <$

[3] Mathieu and Taylor (2007, p. 28) note that "the presence of a significant χ^2 is reassuring and signifies that there is significant variance to be modeled, yet the lack of a significant χ^2 does not preclude the presence of a cross-level effect." Accordingly, we followed their recommendations that researchers go ahead and test a priori hypothesized relationships even if the associated omnibus base χ^2 was not significant.

Table 1
Means, Standard Deviations, and Correlations Between Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
Level 1 (per membership)														
1. % Time allocated$_{pm}$	29.83	22.25	—	−.03	−.02	.13	−.09	.15	−.86	−.54	−.43	.10	.09	.11
2. Team identification$_{pm}$	4.83	1.38	−.02	—	.30	.49	.28	.18	−.02	.13	−.15	−.01	.44	.40
3. Performance$_{pm}$	3.61	0.61	−.09	.31	—	.32	.78	.15	.05	−.05	.08	−.05	−.07	.11
4. Satisfaction$_{pm}$	5.05	1.52	.08	.59	.35	—	.23	.07	−.14	.03	−.07	−.14	.32	.31
Level 2 (individual)														
5. Overall job performance	3.38	0.63	−.08	.12	.62	.10	—	.22	.12	−.15	.03	−.03	.03	.17
6. Overall job satisfaction	5.26	1.27	.06	.15	.10	.03	.17	—	−.07	−.09	−.59	.05	.14	.23
7. Number of teams	3.33	1.74	−.53	−.06	.09	.08	.18	−.02	—	.43	.39	−.15	−.14	−.07
8. Project stage variability	0.00	0.17	−.30	.10	−.06	.02	−.15	−.06	.37	—	.24	−.16	.23	.12
9. Role stressors	3.46	1.46	−.26	−.12	.10	−.03	.09	−.60	.40	.22	—	−.11	−.19	−.15
Level 2 (team)														
10. Project stage	2.98	1.22	.17	−.04	−.06	−.07	−.00	.04	−.21	−.24	−.10	—	.11	.10
11. Team cohesion	4.56	1.41	.10	.23	−.03	.16	.08	.06	−.06	.08	−.06	.17	—	.55
12. Project prestige	5.11	1.21	.14	.27	.08	.22	.13	.12	−.05	.04	−.06	.16	.58	—
N			320	320	320	320	96	96	96	96	96	82	82	82

Note. Lower left diagonal represents cross-level operator correlations based on assigning Level 2 variables to lower-level cases, so significance levels should be interpreted cautiously (correlations $\geq |.12|$, $p < .05$). Upper right diagonal presents correlations such that Level 1 (per membership) variables were aggregated to the individual and team levels (correlations $\geq |.22|$, $p < .05$). Individual–team correlations are at the team level of analysis (correlations $\geq |.23|$, $p < .05$).

.01) and project prestige ($\Gamma = .20$, $SE = .05$, $p < .001$). In other words, although being assigned a greater number of hours to a particular team was not associated with greater identification with that team, it was associated with relatively higher member performance. Moreover, beyond reporting relatively higher identification with more prestigious teams, employees were also rated as performing relatively higher in them. All earlier reported indirect effects remained significant in this equation. Moreover, no evidence of any significant cross-level interactions of individual- or team-level variables as moderators of the team identification$_{pm}$ → performance$_{pm}$ relationship were evident.

Adding the seven additional effects to the satisfaction$_{pm}$ model produced a nonsignificant, $\Delta\chi^2(7) = 9.66$, *ns*, $\sim\Delta R^2$ increment = 3%, although the unique effect associated with team cohesion was significant ($\Gamma = .15$, $SE = .07$, $p < .01$). Thus, relative team cohesion generated higher member satisfaction$_{pm}$, both directly and as mediated by identification$_{pm}$. Once again, all earlier reported indirect effects remained significant in this equation, and there was no evidence of any individual- or team-level variables as significant moderators of the team identification$_{pm}$ → satisfaction$_{pm}$ relationship.

Discussion

Although organizations increasingly assign employees to multiple teams, surprisingly little research aims to understand the consequences of these work arrangements. Drawing from social identity theory, we advanced a multilevel model focused on the antecedents and consequences of multiple team identities in MTM

Table 2
HCM Results of Predictors of Per Membership Performance and Satisfaction

Predictor	Identification$_{pm}$	Performance$_{pm}$	Performance$_{pm}$	Satisfaction$_{pm}$	Satisfaction$_{pm}$
Level 1 (per membership)					
% of time allocated$_{pm}$	−.03 (.06)		.13 (.04)**		−.04 (.05)
Team identification$_{pm}$	—	.22 (.04)***	.15 (.04)***	.59 (.05)***	.52 (.05)***
Level 2 (individuals)					
Job performance		.58 (.05)***	.57 (.06)***	.02 (.05)	.03 (.06)
Job satisfaction		−.03 (.05)	.03 (.07)	−.04 (.05)	−.02 (07)
Number of teams	−.006 (.05)		.01 (.06)		−.07 (.06)
Role stressors	−.11 (.05)*		.13 (.07)†		.04 (.07)
Project stage variability	.12 (.05)**		.00 (.06)		.02 (.06)
Level 2 (teams)					
Project prestige	.22 (.06)***		.20 (.05)***		.04 (.06)
Team cohesion	.38 (.06)***		.09 (.05)†		.15 (.07)**
Project stage	.14 (.05)**		.03 (.04)		.02 (.05)
$\sim R^2$	.34	.39	.49	.35	.38

Note. Table entries represent hierarchical cross-classified model (HCM) parameter estimates with standard errors in parentheses. *N* (Level 1) = 320; *N* (Level 2, Individuals) = 96; *N* (Level 2, Teams) = 82.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 3
Monte Carlo Bootstrapped Indirect Effects Tests

Predictor	Performance$_{pm}$		Satisfaction$_{pm}$	
	Lower	Upper	Lower	Upper
Individual level				
Number of teams	−.02	.02	−.06	.06
Role stressors	−.05	−.002	−.13	−.008
Project stage variability	.005	.05	.01	.13
Team level				
Project prestige	.02	.08	.06	.21
Team cohesion	.05	.13	.15	.31
Project stage	.01	.06	.02	.14

Note. Values represent the lower and upper range of the 95% confidence intervals of the bootstrapped indirect effects estimates.

contexts. Our findings indicate that when individuals are assigned to multiple teams, they develop unique team identities with each. Relationships between individual (role stressors, project stage variability) and team-level factors (team cohesion, project stage, and project prestige) and individuals' team performance$_{pm}$ and satisfaction$_{pm}$ were mediated by team identification$_{pm}$. Direct effects of project prestige on job performance$_{pm}$ and team cohesion on satisfaction$_{pm}$ were also evident in our exploratory follow-up analyses. Below, we describe our contributions to theory and research, including (a) our cross-classified approach to study MTMs, (b) the consequences of team identification$_{pm}$, (c) the multilevel antecedents of team identification$_{pm}$, and (d) the nature of multiple team identities.

Cross-Classification Approach to Studying MTM

We leveraged a multilevel perspective to advance theory regarding the nature of multiple social identities. To date, multiple identities have been classified as being nested or cross-cutting (Ashforth et al., 2008). Notably absent from this conceptualization is a classification that simultaneously considers both nested and cross-cutting arrangements. Accordingly, we extended the classification of multiple identities to incorporate this combined arrangement. We introduced the notion of *parallel* identities, which describes instances whereby *individuals may identify with multiple work teams that are not themselves hierarchically nested.* Although multilevel theory traditionally views multiple individuals as being nested within teams, we introduced the idea of viewing multiple teams as nested within an individual. By extension, an individual's multiple team memberships (what we refer to as per team memberships) can be viewed as being cross-classified by (or "double nested" within) both individuals and teams.

Our cross-classification approach to studying MTMs advances the literature in two ways. First, our approach enabled us to simultaneously model influences on MTM relationships per membership. Although past MTM research has taken place in MTM settings, it has been limited by the prevailing tendency to study only one of an individual's MTMs. In contrast, the cross-classified approach we used permitted a more robust and realistic examination of MTMs because the study included and modeled multiple team memberships. Our study is one of the first to focus on within-person relationships associated with MTMs, and to model an integrated view of the individual- and team-level influences of per membership level outcomes.

Second, the cross-classified approach enabled us to model per team membership factors in a manner that does not violate the assumption of independence in multilevel modeling. If MTM researchers adopt the conventional view of individuals being nested within teams, they face a methodological dilemma. Such a view violates the assumption of independence, which suggests that each lower-level unit (a person) is a member of one and only one upper-level unit (a team), which is not the case in MTM settings. Facing this, researchers have typically included only *one* of an individual's teams in their analysis (e.g., Bertolotti, Mattarelli, Vignoli, & Macrì, 2015; Cummings & Haas, 2012; Maynard et al., 2012; Scott, 1997), or simply controlled for the average number of teams (e.g., Carton & Cummings, 2013). The cross-classified approach overcomes that limitation, and avoids the problems related to ignoring a cross-classified factor, which include underspecified models, biased standard error estimates, inflated Type I errors, and inaccurate variance component estimation (Meyers & Beretvas, 2006).

Our approach is amenable to including additional (or other) membership level, as well as individual- and team-level predictors. Further still, this design can be expanded to include further nesting, such as whether an individual might simultaneously work on multiple teams that are in turn nested in different organizations. For instance, many health care professionals, programmers, trades people, and many other professions often work simultaneously on multiple teams in multiple organizations. Utilizing the designs and analyses outlined herein permits future investigators to differentiate influences attributable to individual differences, team, and organizational effects—as well as potential interactions among them. This, in turn, may also prompt new theoretical insights that traditional designs and analyses do not afford.

Consequences of Team Identification$_{pm}$

The current results provide preliminary evidence that the relative degree that individuals identify with each of their assigned teams is positively related to their satisfaction with and performance in those teams. Our results provide the first evidence that team identification$_{pm}$ influences individuals performance$_{pm}$ and satisfaction$_{pm}$ in MTM contexts. These results align with what is currently known about the consequences of team identification in single team environments. We must emphasize that it is important for researchers to continue to examine whether and to what extent what is known about single team memberships applies to MTMs. These findings do, however, highlight several promising avenues for future research.

First, we call upon future MTM research to examine whether high levels of team member performance will translate into high levels of team performance, as evidence points to a positive relationship between the two levels of analysis (Chen & Kanfer, 2006). Second, given the known implications that satisfaction has for a variety of outcomes (e.g., turnover, absenteeism, citizenship behavior; Hanisch & Hulin, 1991), future studies should explore whether the beneficial consequences of satisfaction$_{pm}$ extend to MTMs. Another promising avenue for research concerns how directing time, attention, and effort toward one team may engender high levels of identification and performance for that team, but

may simultaneously negatively impact other teams. This idea is highlighted by James' (1890, p. 403) note that attention "implies withdrawal from some things in order to deal effectively with others." Investigating the dependencies that exist among multiple identities is an interesting area for future work (Wageman, Gardner, & Mortensen, 2012). Future longitudinal studies might seek to understand how the addition (or conclusion) of team assignments impacts the degree to which individuals identify with each team, as well as their effort and performance in each team.

Multilevel Antecedents of Team Identification$_{pm}$

Although we predicted that the percentage of time individuals allocated$_{pm}$ would relate positively to their team identification$_{pm}$, our findings failed to support this hypothesis, yet evidence a direct impact on members' performance$_{pm}$ in our exploratory analyses. Espinosa, Cummings, Pearce, and Wilson (2002) noted that how much time members invest into a team might reveal their stake in it and by extension, the strength of their identification. However, they cautioned that time commitment is not a perfect proxy for team salience, and our findings echo their insight. Future research should more thoroughly investigate the relationships between being assigned or choosing to devote certain percentages of one's efforts to different MTMs.

At the individual-level, two out of three of our cross-level hypotheses were supported. We found that project stage variability exhibited a positive relationship with team identification$_{pm}$. We argued that project stage represented a form of team boundary (Espinosa et al., 2003) that would help to distinguish teams from one another and keep team boundaries from blurring (Mortensen, 2008). Also as hypothesized, we found a negative relationship between role stressors and team identification$_{pm}$, suggesting that in MTM contexts, perceptions of role stressors exert an overall dampening effect on team identification$_{pm}$. Together, these two findings suggest that how individuals' roles are structured in an MTM setting has important implications for their identification. Finally, we did not find support for our prediction that the number of team assignments would negatively relate to team identification$_{pm}$. There are reasons, such as cognitive load and task switching (Altmann & Gray, 2008), to expect costs to arise when balancing multiple teams. However, given O'Leary et al.'s (2011) argument that the number of teams may be a double-edged sword, and Cummings and Haas' (2012) finding that teams comprised of members who participated on more teams exhibited superior performance, it is clear that this relationship is complex. Whereas Bertolotti et al. (2015) reported a curvilinear relationship between the number of teams and team-level performance, we ran supplemental analyses found no evidence of a curvilinear relationship in our data. More research is needed on the implications of the number of team assignments.

All three of our hypothesized team-level factors exhibited cross-level relationships with team identification$_{pm}$. Drawing from the literature on identity motives, we argued that individuals would tend to identify more strongly with teams characterized by high levels of team cohesion and project prestige. This finding paves the way for future research to explore the team features that might drive other identity motives, such as efficacy (Breakwell, 1993) and task significance (Stewart, 2006). We also uncovered a positive relationship between project stage and team identification$_{pm}$, suggesting that individuals tend to identify more strongly with teams working on projects in more advanced project stages. This finding, which aligns with the continuity identity motive (Vignoles et al., 2006), suggests that as teams make progress on their assigned projects—and thereby evolve to more advanced project stages—they are able to accrue the types of experiences and interactions that drive team identity. Future research might investigate the nature of this relationship to shed light on the mechanisms underlying it, such as the development of trust (Costa, 2003) or transactive memory systems (Wegner, 1987). There is also an opportunity for future research to explore contextual implications. In our focal organization, individuals' time allocations$_{pm}$ were decided by managers. In other contexts where individuals have more discretion to allocate their time, it is possible that the presumed ordering of these variables may be reversed, such that identifying strongly with a team may prompt an individual to allocate more time to it. It is also possible that the density of the network structure (i.e., overlap in team composition) may impact individual and team behavior such as knowledge sharing (Choi, Lee, & Yoo, 2010) and learning (O'Leary et al., 2011).

Finally, our results provided partial support for our hypothesis that team identification$_{pm}$ mediated the relationships between both the individual- and team-level factors on the individual-level outcomes (satisfaction and performance$_{pm}$). We found support for team identification$_{pm}$ as fully mediating the relationships from individuals' role stressors and project stage variability, as well as team project stage on both outcomes. In contrast, team identification$_{pm}$ only partially mediated the positive influences of team project prestige on individuals' performance$_{pm}$, as well as the positive influences of team cohesion on individuals' satisfaction$_{pm}$. These results suggest that team features play a role in the extent to which individuals are satisfied with, and perform well in, different team assignments. They also underscore the value of examining cross-level influences on individual outcomes across memberships as our cross-classified design affords. Numerous related future research opportunities exist. Research might explore the role of other individual (e.g., effort), team (e.g., team processes, shared cognitions, team size, membership fluidity, temporary versus permanent teams), and organizational level (e.g., climate) factors to more fully understand the nature of these relationships. Although we focused on individuals' performance$_{pm}$ and satisfaction$_{pm}$, there is clearly a need for future research that both considers the full set of an individuals' multiple teams (as opposed to a focal team) *and* examines team-level outcomes such as overall team performance. Finally, future MTM research should also examine whether individual members' team performance$_{pm}$ and satisfaction$_{pm}$ can aggregate to affect team and organizational level performance (cf. Ployhart, 2004).

Study Limitations

As with all empirical studies, there are limitations that deserve note. One such limitation is that because of the correlational nature of this study, we are unable to make causal conclusions about the observed relationships. Although the design of our study was temporally lagged, future research should consider examining the focal relationships using more rigorous designs such as experimental studies that include team identification manipulations.

Another limitation relates to the complexity associated with studying MTM arrangements and temporal cycles (Marks, Mathieu, & Zaccaro, 2001). The focal company was a multiproject environment (Engwall & Jerbrant, 2003), with many projects in progress at any point in time, and at various project stages. Accordingly, at the start of our data collection, some teams were just forming, while others were in later project stages. This also represents a complexity that we did not model. We engaged management in discussions about the issue in our effort to establish a study timeline that would increase the probability that teams would be intact at the end of the study, and to allow members sufficient time to become familiar enough with their assigned teams to provide meaningful assessments of team variables. These temporal issues highlight that the dynamic nature of MTM settings introduces challenges not inherent in the study of traditional teams (Mathieu et al., 2008), and represents an important future challenge for researchers (Mathieu & Chen, 2011). On a related point, although we focused on project stage (which represented a proxy for team tenure), future research should also investigate the dynamics associated with team/project durations.

A third limitation of the current study concerns its sample size. Although Level 1 represented 320 teams memberships nested within individuals and teams, individual and team sample sizes were more limited at 96 and 82, respectively. Although Maas and Hox (2005) reported that only small sample sizes of less than 50 at Level 2 leads to biased estimates of the second-level standard errors, a larger sample would have been preferable.

A fourth limitation concerns the measures that we utilized. For example, the role stressor measures we collected were standard, established measures, yet items did not specify whether role stressors were specifically caused by MTMs. Although role conflict may exist within any particular team membership, we feel strongly that it is more likely to be an issue at the individual-level where one needs to manage multiple memberships across teams. In a related vein, we used brief scales to index our constructs because of our concerns about survey fatigue and response bias, as well as the focal organization's concerns about survey length (i.e., they were asking employees to complete several measures for each team membership, and managers to assess every participant's performance per membership). Although we had to work within those constraints, lengthier scale measures would certainly have been preferable.

A final limitation relates to how our findings might generalize to other MTM contexts. In particular, members were assigned to spend certain percentages of their time to different team memberships, whereas in other settings employees may have more freedom as to how much time they devote to different MTMs. We anticipate that our results will generalize to other project-based settings that maintain and draw from a pool of human resources to configure teams to address a particular tasks or projects and allocate their time accordingly (e.g., accounting, advertising, new product development, IT). It is less clear how our results would generalize to MTM contexts that extend across organizational boundaries, such as researchers who may be collaborating with different labs, universities, or organizations. In such distributed contexts, a variety of factors would differ, including the member familiarity and time allocation discretion. Our project stage related variables were also specific to our research setting as they were grounded in the project life cycle model utilized in the focal company. Future research that examines the implications of project stage in other types of teams (e.g., accounting teams) will help to determine whether our results are generalizable across teams types.

Practical Implications

Although managers often search out evidence-based recommendations to inform their managerial practices, there exists little in the way of sound managerial advice for effectively managing MTMs. Two decades ago, Payne (1995) reviewed the academic and practitioner literature on multiproject management and lamented the lack of sound recommendations for the practice of MTMs. For example, on the matter of assigning individuals to multiple teams, he notes that "there is still no common agreement upon the algorithms used . . . for resource scheduling" (p. 167). Others have noted that recommendations concentrate on routine organizations rather than more dynamic settings such as those that utilize MTMs (Huemann, Keegan, & Turner, 2007) and that the existing methodologies for personnel assignment "are not practical" for MTMs (Patanakul et al., 2004). Thus, we offer the following recommendations.

First, because team identification$_{pm}$ has beneficial consequences for performance and satisfaction$_{pm}$, managers should be cognizant of factors that influence it in MTM contexts. Knowing that individuals' performance on their teams is likely to "bubble up" and contribute to team effectiveness, managers should actively cultivate team identification in MTM settings. This might include, for example, enhancing the prestige associated with particular projects or targeted team-building efforts to enhance members' cohesion. A second implication concerns the fact that MTM arrangements are common in project-based settings, which often have an employee pool that they draw from when staffing projects (Mathieu et al., 2008). As a result, in MTM settings, individuals will likely be placed at various points in time, into teams with similar teammate configurations. When teams are reconfigured, a prior satisfactory experience working together can allow teams to develop effective transactive memory systems (Wegner, 1987), shared mental models (Klimoski & Mohammed, 1994), and avoid process losses that plague newly configured teams. By the same token, however, negative previous experiences with certain members may spill over and contaminate current team relationships. Third, our findings with regard to individual-level antecedents suggest that managers should be mindful of how individuals' roles are structured in MTM settings and strive to align them across assignments to minimize role overload and interrole conflict. Managers should leverage available project tracking technology that permits monitoring teams' project milestones as overlaid with individual team assignments. Managers can monitor how closely projects keep to their schedules, and track the impact of missed deadlines or timeline changes to highlight conflicts that arise for individuals and teams alike. This allows managers to monitor team cycles (cf. Marks et al., 2001) to avoid conflicts and unanticipated "pinch points" where multiple project demands converge. Managers can also encourage open communication between employees, project leaders, and other managers to clarify priorities, role expectations, make adjustments, and minimize conflicts.

Finally, these recommendations highlight the importance not only of considering the within-person level of analysis for MTMs, but also of getting the level of analysis "right." It is reported that

65% to 95% of knowledge workers work on multiple teams today (Zika-Viktorsson et al., 2006), which represents an enormous number of individuals and organizations around the world. However, the nascent literature on MTMs yields very few insights into the practical implications associated with managing individuals who work on multiple teams simultaneously. To date researchers have only examined team identification at the between-person level of analysis. Therefore, the lack of research on the within-person effects associated with identification in MTM settings obscures the many possible relationships that are associated with multiple simultaneous team identities. Our findings offer a first step toward understanding some of the factors that influence team identification at the per membership, individual-, and team-levels of analysis, such as how an individual's role is structured as well as the features characterizing each of an individual's teams. We hope that future research will continue build upon the within-person perspective of MTMs that we offer here to develop a more complete understanding of the managerial practices that can support individual, team, and organizational performance in MTM settings.

Conclusion

In summary, scholars are beginning to coalesce around the idea that the ecology of organizational teams is changing in fundamental ways. One of these changes is reflected in the increasing likelihood that individuals will be assigned to multiple teams simultaneously. As team arrangements change, the science and practice of teams must follow suit to remain relevant and meaningful. Recognizing the increasing prevalence of MTM arrangements in organizations, the current study offers a preliminary step toward developing an understanding of the phenomena associated with the multiple team identities that emerge as a result of MTM, and provides a foundation upon which future research can build.

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