Getting Everyone on Board: The Role of Inspirational Leadership in Geographically Dispersed Teams

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A rich body of research in the area of leadership has examined the influence of transformational/charismatic forms of leadership on employees' motivation, attitudes, and behaviors. This research is based on the assumption that leaders are able to influence followers based on close, sustained, and personalized contact with them. However, new organizational realities are challenging this assumption. Drawing on the intersections between social identity theory and leadership research, this study highlights the importance of inspirational leaders who, by developing socialized relationships with team members, can foster attitudes that are critical for team effectiveness in geographically dispersed settings. Findings support the role of this form of leadership in dispersed settings. Inspirational leadership emerged as a significant predictor of individuals' trust in team members and commitment to the team. Further, the positive relationship between inspirational leadership and individuals' commitment to the team and trust in team members was strengthened in teams that were more dispersed suggesting that inspirational leaders are important in all contexts but that their importance is underscored in highly dispersed contexts. Finally, shared perceptions of trust and commitment predicted performance at the team level.

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A rich body of research in the area of leadership has examined the influence of transformational/charismatic forms of leadership on employees' motivation, attitudes, and behaviors (e.g., Bass 1985, Conger and Kanungo 1998, House 1971, House et al. 1991, Podaskoff et al. 1990). This research is based on the assumption that leaders are able to influence followers based on close, sustained, and personalized contact with them. However, new organizational realities involving the routine employment of advanced informational technologies and dispersed work arrangements, are challenging this assumption (Avolio et al. 2000, Bell and Kozlowski 2002, Malhotra et al. 2007). In these contexts, a sense of identification with a work group or collective organizational entity is often problematic and leaders have to rely on infrequent and technology-mediated communications to motivate team members to achieve collective team goals (Fiol and O'Connor 2005, Katz and Te'eni 2007, Malhotra et al. 2007). This paper aims at redirecting attention to the role of leaders in these newly evolving organizational contexts and considers the role of a specific form of leadership in developing attitudes that reflect identification with a collective team entity.

Recent extensions of leadership theory have drawn on additional insights from social identity theory to distinguish between personalized versus socialized relationships between leaders and followers (Howell and Shamir 2005, Ellemers et al. 2004). Personalized relationships are based on close affect-based dyadic ties between the leader and follower, rely on personal identification with the leader, and may be suited more for achieving personal goals of the leader such as self-aggrandizement or personal rewards. Socialized relationships, on the other hand, emphasize the individual's connection to a collective entity based on an acceptance of the leader's message and are conducive to positive outcomes directed at the collective entity such as commitment or citizenship behaviors directed toward the team (Howell and Shamir 2005, Shamir et al. 1993). Leaders who engage in socialized relationships are able to provide followers with a "clear set of values [and] a means of expressing these vales within the framework of collective action" (Howell and Shamir 2005, p. 98). The follower identifies with and derives a sense of direction from the *message* that the leader delivers and is less dependent on the leader's personal attributes. In geographically dispersed teams that represent mixed-motive settings, iden-

tification with a collective team entity is challenged by lack of physical proximity, fewer possibilities for face-to-face interactions with group members, and competing local demands (see Fiol and O'Connor 2005, Kiesler and Cummings 2002, Wiesenfeld et al. 2001). Based on the theoretical considerations discussed above, we surmise that leaders who are able to create a collective identity orientation among followers by drawing on socialized relationships are critical in these settings.

We propose that inspirational leadership, a subfactor of transformational leadership, which focuses on communicating a compelling vision for the team, expressing confidence in team members, and energizing the team (Bass 1985), is particularly suited for developing socialized relationships that may manifest in outcomes of relevance to the *team entity*; it is this leadership role that is at the center of our study. By communicating a vision, inspirational leaders can reinforce the common goals of the team; by expressing confidence in group members, they can enhance the group's distinctiveness and prestige; and by energizing group members, they can encourage more interpersonal interaction among team members. We integrate Bass's (1985) conceptualization of inspirational leadership with Howell and Shamir's (2005) theorizing to propose that inspirational leadership would be especially relevant for developing a collective identity orientation because of its focus on a collective message rather than personal attributes of the leader. Theoretically, we can therefore propose that inspirational leadership may be an antecedent of team member attitudes that reflect a collective orientation such as trust in team members and commitment to the team.

We further argue that a geographically dispersed context, defined in terms of spatial and temporal dispersion among team members, poses specific contingencies that can enhance the importance of inspirational leaders for developing socialized relationships. Geographic dispersion weakens the development of a shared context and reduces possibilities for informal and spontaneous communications essential for the development of social ties between team members (Kiesler and Cummings 2002). Also, the lack of physical presence and related access to face-to-face communications with team members can thwart a "direct and easy way to cooperation" between team members (Kiesler and Cummings 2002). In these dispersed settings, the leader may have the potential to "replace" the physical, social, and psychological markers of team membership and shape attitudes directed at the team (Avolio et al. 2000, Bell and Kozlowski 2002, Kayworth and Leidner 2002). We propose below that geographic dispersion represents a contextual influence on the relationship between inspirational leadership and trust/commitment.

The role of situational effects on the influence of leadership on subordinates' attitudes and behaviors is a fundamental part of many contingency approaches to leadership (Howell et al. 1986, Podsakoff et al. 1995). For example, Kerr and Jermier (1978) proposed a model of substitutes for leadership, and suggested that task, organization, and subordinate characteristics may act as "neutralizers of" or "substitutes for" leader behaviors. Leadership neutralizers "make it effectively *impossible* for . . . leadership to make a difference" (p. 396), and leadership substitutes are a special set of neutralizers that render leadership "not only *impossible* but also *unnecessary*" (p. 396, emphases added). Howell et al. (1986) further suggested specific criteria that define leadership substitutes (see Howell et al. 1986 for a detailed discussion). Specific features of team colocation (such as physical proximity, shared context and spontaneous communication) satisfy the criteria that Howell et al. (1986) propose for leadership substitutes. Extending this logic further we also surmise that, in the absence of colocation (a leadership substitute), the role of inspirational leadership is enhanced in geographically dispersed teams. Based on these theoretical considerations, we argue below that inspirational leadership is especially relevant in dispersed settings for enhancing individual's trust in team members and commitment to the team.

We choose to focus on trust and commitment because of their role in facilitating effective group functioning in dispersed settings. A vast body of research has considered these two variables as antecedents of team effectiveness. We define an individual's commitment to the team as the identification with and affective attachment to the team (Allen and Meyer 1990). We define trust in team members as an individual's belief that work group members are competent and can be relied upon to complete their responsibilities toward the group (McAllister 1995). Both commitment and trust hold a unique position in research on dispersed groups. On the one hand, both have been discussed as the usual "casualties" of geographic dispersion (e.g., Armstrong and Cole 1996, Jarvenpaa et al. 1998). On the other hand, researchers have considered these variables as the "glue" or the "gel" that binds individuals dispersed across several locations together (Avolio et al. 2000, Fiol and O'Connor 2005) and motivates them to engage in collective effort. Trust in team members and commitment to the team can help overcome "sub-group parochialism" (cf. Brewer and Kramer 1986) often associated with dispersed team settings and enhance overall team level performance (Armstrong and Cole 1996, Cramton and Hinds 2005, Martins et al. 2004, Brewer 1979, Tajfel and Turner 1985).

Based on these theoretical arguments, we examine if and how the individual-level relationship between perceptions of inspirational leadership and attitudes toward the team is influenced by the team-level context of geographic dispersion. Further, we examine whether these attitudes aggregated to the team level indeed translate into overall improved team performance. In the next sections we present theoretical arguments and related empirical evidence to test the relationships proposed by our

Figure 1   Theoretical Framework
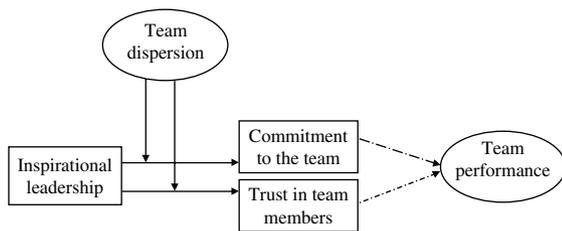
Notes. Variables represented within circles were measured at the team level and those within rectangles at the individual level. Dotted arrows represent team-level relationships that were measured by aggregating individual responses.

theoretical framework (represented in Figure 1). We then report the results based on data from 171 employees organized in 41 geographically dispersed groups of a Fortune 500 software and hardware multinational company.

Effects of Inspirational Leadership on Commitment to the Team in a Dispersed Context

We define commitment to the team as one's identification with and involvement in the team (Allen and Meyer 1990). Drawing on social identity theory, researchers have suggested that leaders who display inspirational behaviors can build enduring linkages between an individual's self-concept and a social group, thereby enhancing identification with the social group (Ellemers et al. 2004, Turner and Haslam 2001). Because of their emphasis on building socialized (as opposed to personalized) relationships, these leaders draw attention to the team's mission, shared values and ideology, and the correspondence between followers' individual interests and team interests (Shamir et al. 1993). Thus, inspirational leaders can provide team members with opportunities to appreciate team accomplishments and other team members' contributions, and build a broad basis for identification with the team (Kark and Shamir 2002). Some researchers have termed such leaders as the "entrepreneurs of identity" who "achieve their impact largely through an ability to redefine a team's objectives and hence both the self-concept of its members and their own relative influence" (Turner and Haslam 2001, p. 48). These theoretical insights suggest that inspirational leadership can have a direct and positive impact on an individual's commitment to the team.

Based on insights from situational theories of leadership, outlined above, in the case of geographically dispersed teams, the lack of shared context, physical proximity, and spontaneous communication with group members can be viewed as situational variables that enhance the salience of inspirational leadership for fostering commitment in dispersed teams. By building socialized relationships with followers, inspirational

leaders can redirect attention to a common vision for the group and encourage group members to transcend sub-group differences. In the absence of proximity or face-to-face contact with other group members, inspirational leaders may potentially become the representations for the group (i.e., group prototypes) and facilitate the identification with and attachment to the group as a whole (Kark and Shamir 2002, Howell and Shamir 2005).

Limited laboratory research in the broader area of transformational leadership also suggests that these leaders are more likely to enable positive outcomes in virtual as opposed to in face-to-face groups (Lea and Spears 1992, Sosik et al. 1997). Based on situational theories of leadership, social identity theory, the unique characteristics of dispersed teams, and existing empirical evidence, we propose:

HYPOTHESIS 1. *Team geographic dispersion will moderate the relationship between individual's perceptions of inspirational leadership and commitment to the team; the positive relationship between inspirational leadership and commitment to the team will be weakened in teams that are less dispersed and strengthened in teams that are more dispersed.*

Effects of Inspirational Leadership on Trust in Team Members in a Dispersed Context

Trust in team members is another essential yet elusive component of team functioning in dispersed contexts and has received a lot of attention in research on dispersed teams (Jarvenpaa et al. 1998, Wilson et al. 2006). While trust consists of both cognitive and affective components (McAllister 1995), cognitive trust is more salient in geographically dispersed work groups. Cognitive trust is also more consistent with ideas of "swift trust" that is often created in geographically dispersed settings (Jarvenpaa et al. 1998, Jarvenpaa and Leidner 1999). To that end, Jarvenpaa et al. (1998) also suggest that trust in virtual teams is a form of depersonalized action with less emphasis on feelings and more emphasis on task. Cognitive forms of trust reflect the perceived reliability, integrity, honesty, and fairness of the referent. These aspects of trust may be more relevant to the individual's motivation to contribute effort toward team goals (Wilson et al. 2006). We therefore focus on cognitive aspects of an individual's trust in team members.

In the past, research has considered the impact of inspirational leadership on specific targets of trust such as trust in management or in the leader (Dirks and Ferrin 2001). We extend this logic to understanding the role of inspirational leaders in enhancing trust in team members. Trust in team members may be viewed as a reflection of the socialized relationship between an individual and the leader that is conducive to meeting the *team's* rather than the leader's goals (Howell and Shamir 2005). Bass's (1985) extensive discussion of inspirational leadership

suggests that while emphasizing the team's collective mission, these leaders also express confidence regarding the team's ability to accomplish this mission. Thus, these leaders may instill trust in other team members by using their socializing influence to draw attention to the collective skills, expertise, achievements, and contributions of team members (Bass 1985).

Research on the role of leadership in dispersed settings also highlights the role of inspirational leaders in facilitating the formation of trust by enhancing the confidence that team members feel in their own and each others' abilities (Jarvenpaa et al. 1998, Malhotra et al. 2007). To that point, Avolio et al. (2000) have argued that leaders can enhance trust among team members by affecting perceptions of other members' abilities and integrity. Moreover, research on trust in virtual teams indicates that communicating and generating enthusiasm plays a central role in creating trust in team members (Jarvenpaa and Leidner 1999). Malhotra et al. (2007) have recently also noted that leaders can establish trust by establishing communication norms that make progress explicit and rejuvenate and energize team members. Creating enthusiasm and optimism and steering team members toward accomplishing a common goal are key aspects of inspirational leadership (see Bass 1985) and may therefore have implications for the emergence of trust in dispersed work settings.

Further, in dispersed settings, as discussed earlier, lack of physical proximity to other team members, reliance on lean media, and absence of a shared context, may strengthen the role of inspirational leaders in enhancing trust in team members. Absent dense context-rich interactions and physical cues, team members are less likely to form interpersonal bonds that can serve as conduits for the development of trust directly with each other (Wilson et al. 2006). Thus, situational theories of leadership discussed earlier would suggest that, in more geographically dispersed teams, inspirational leaders may play a key role in facilitating trust in team members. Therefore, we propose:

HYPOTHESIS 2. *Team dispersion will moderate the relationship between individual's perceptions of inspirational leadership and cognitive trust in team members; a positive relationship between inspirational leadership and trust in team members will be weakened in teams that are less dispersed and strengthened in teams that are more dispersed.*

Shared Perceptions of Commitment and Trust in Relation to Team Performance

So far we have argued that inspirational leaders can play a key role in facilitating key attitudes directed at the team in dispersed contexts. We now consider whether shared perceptions of trust and commitment at the team level can translate into team performance. A significant body of past research has suggested that commitment to the team will have an overall positive influence on how the team functions as a whole, and more specifically, on how the team performs (e.g., Allen and Meyer 1990, Cooper-Hakim and Viswesvaran 2005). The key theoretical argument regarding the impact of members' commitment on team performance is rooted in social identity theory (Tajfel 1982). Commitment to the team can create a network of psychological connections among distant team members that serve to overcome the physical distance that otherwise separates them (Fiol and O'Connor 2005). When a shared team identity is salient, team members tend to be more concerned about accomplishing shared team goals and about the overall welfare of the team. Their desire to maintain their shared identity provides them with the intrinsic motivation to exert efforts on behalf of the team (see Hinds and Mortensen 2005). Ellemers et al. (2004) have argued that identification with collective entities can energize individuals to work for the group instead of striving to achieve individual objectives and rewards. They argue that social loafing is less prevalent in tightly knit groups (such as friendship groups characterized by high levels of commitment) than in groups comprised of strangers or mere acquaintances. Ellemers et al. (2004) further argue that the salience of collective identity can contribute to the motivation to maximize team performance. When team members' self-concept shifts from the "I" to the "we," they will be more likely to pursue shared goals and behave in ways that are normative for their shared group identity and contribute to the team's performance (Hinds and Mortensen 2005).

Turning to the relationship between trust in team members and team performance, trust in group members is considered an essential precursor of interpersonal relationships and team functioning (Wilson et al. 2006). A recent review by Dirks and Ferrin (2001) indicated that trust has been associated with a number of behavioral and attitudinal/perceptual outcomes. The literature has reported generally moderate positive relationships with behaviors such as organizational citizenship behavior, cooperation, information-sharing efforts, negotiation behaviors, and individual and unit performance (Dirks and Ferrin 2001). Research on dispersed teams suggests that trust also has a key role for creating positive interactions among team members (Jarvenpaa et al. 1998, Jarvenpaa and Leidner 1999).

Additional support for the role of trust for effective group performance comes from experimental research on social dilemmas (i.e., the decision whether to contribute to a common good while overlooking self-interest). Studies have suggested that lack of trust in the motivations of other group members may act an obstacle to the transformation of self-interest from the personal to the collective level (De Cremer and Van Vugt 1999). Individuals are more likely to overlook their self-interest and expend emotional and physical resources in

the interest of the group when they are sure that other group members will also contribute (De Cremer and Van Vugt 1999, Tajfel and Turner 1985, Kramer et al. 1996). Thus, trust in team members is vital for motivating individuals to contribute to the collective team-level entity and transforming an individual's self-orientation from individual-based toward a group-based orientation (Brewer and Kramer 1985). Based on these theoretical and empirical insights we propose:

HYPOTHESIS 3. *Team-level commitment and trust will positively predict team performance.*

Method

We conducted a Websurvey of service employees working in geographically dispersed teams in a single Fortune 500 hardware and software multinational company. The choice of research setting and target sample was based on several considerations. First, teams participating in the study performed similar tasks in terms of overall interdependence and complexity. Second, teams represented varying levels of dispersion in terms of number of locations, countries, time zones, and presence of telecommuters. Finally, each of the teams included in this study reported to a single leader and coordinated their tasks to accomplish common goals. More details regarding the research setting are discussed below.

Research Setting

The company that served as the research site for this study is based in the United States, but has locations in over 40 countries. In the late 1990s it launched a business strategy that involved the reorganization of employees in core business areas into dispersed teams. The purpose of this effort was to utilize expertise regardless of employees' location and enhance responsiveness to customer needs. Based on this strategy, teams were structured around specific product lines and staffed by employees in various locations based on specific expertise pertaining to a product line. Teams included in this sample belonged to the organization's customer service division, represented a single functional domain, and consisted of senior engineers with specializations in computer science or electronics engineering. Teams were involved in resolving defects and implementing quality control with respect to a range of hardware and software products. Specific issues or problems pertaining to a specific product were brought to the attention of a team leader whose team specialized in that product line. Under the direction of the team leader, team members were required to collectively decide each other's roles and responsibilities and were accountable for their individual goals at weekly phone meetings. During these weekly meetings, the team as a whole reviewed past progress and prioritized tasks for the following week. Individual team members' tasks and goals for the week

were determined at this meeting. Team leaders were assigned by the organization based on seniority and expertise. Because in all teams team members were required to attend weekly meetings, coordinated tasks and shared information, and were accountable to each other and to a common leader to accomplish their tasks, we surmised that all teams included in the sample represented a high level of task interdependence. While the specific skills and product related tasks varied across teams, interviews with the HR manager, team leaders, and team members indicated that the level of task interdependence did not vary across teams.

Sample and Procedure

We administered Websurveys to 700 employees of the customer services division. These employees were organized into 91 teams and each team reported to a formally assigned leader. We sent out e-mail invitations to all employees with a link to the Websurvey. After two rounds of reminder e-mails, 247 individuals responded to our surveys resulting in a response rate of 35%. Respondents had an average of five years of organizational tenure and two years of tenure with the team. Of the sample, 73% was male, and 63% was located within the United States. Outside of the United States, employees were located in France, Germany, the United Kingdom, The Netherlands, Italy, Japan, Korea, and Australia. In terms of geographic location, the profile of respondents matched those of nonrespondents. Among the nonrespondents, 65% were located in the United States and 35% outside of the United States. We included an individual's survey responses only if a majority of team members (60%) had participated in the study and following the conventions of past research (e.g., Hinds and Mortensen 2005) when at least three employees from a team had responded to the survey. This reduced our sample to 171 individuals organized into 41 teams. In the total sample, teams ranged from 2 to 16 members with an average team size of 7.83. In the teams that were included in the analyses, sizes ranged from 3 to 10 members with an average team size of 6. On average the response rate within teams was 65%, ranging from 60% to 70% per team.

Independent Variables

Inspirational Leadership. We used the six-item version of Bass's (1985) *inspirational leadership* questionnaire adapted by Spreitzer et al. (1999) to measure *individual perceptions of inspirational leadership*. Team members reported their level of agreement with the following statements on a 5-point scale (1 = Strongly disagree; 5 = Strongly agree): "My leader makes everyone in the team enthusiastic about the team's assignments," "My leader encourages me to express my ideas and opinions," "My leader has a sense of mission that he/she transmits to me," "My leader is an inspiration to me,"

"My leader excites us with his/her visions of what we may accomplish if we work together as a team," and "My leader makes us believe we can overcome anything if we work together as a team." Cronbach alpha for this scale was 0.92. ICC 1 for this measure was 0.05 and median $r_{wg(j)} = 0.19$; mean $r_{wg(j)} = 0.20$, justifying our measurement of inspirational leadership at the individual level.

We implemented a pilot study to ascertain the construct and criterion related validity of the inspirational leadership measure. Two trained research assistants administered surveys over the phone to 107 members of 38 software development teams. These respondents were a different group of employees from the ones that later responded to our main Websurvey based study. Respondents in the pilot study had spent 6.3 years with the organization and 2 years on average in the team; 83% were male. Of the respondents, 60% were located within the United States and the remainder were located in Western Europe, Russia, Asia, New Zealand, and Australia.

We first examined the dimensionality of the *inspirational leadership* measure in a principle factor analysis and found that only one factor had an eigenvalue that was larger than one emerged. Therefore, as expected we obtained a one-factor solution. The items also had an internal consistency alpha of 0.71. Theoretically, we would expect this measure to be closely related to positive and close interactions with followers. In the pilot test we measured whether perceptions of inspirational leadership were indeed correlated with constructs such as quality of relationship with followers and perceived value similarity with leader that we would theoretically expect to be associated with inspirational leadership. We measured *quality of relationship with followers* using a seven-item measure (Janssen and Van Yperren 2004, Cronbach alpha = 0.92). We measured *perceived value-based similarity with leader* using a version of the five-item work value congruence scale used by Jehn et al. (1999) (Cronbach alpha = 0.81). Responses were obtained on a 5-point scale (1 = Strongly disagree; 5 = Strongly agree). We found that quality of relationship with leader was correlated significantly with inspirational leadership ($r = 0.86$, $p < 0.01$). Perceived value similarity with leader was also significantly and positively correlated with inspirational behavior ($r = 0.70$, $p < 0.05$).

Based on our theoretical arguments, inspirational leadership fosters desired attitudes and behaviors from team members by developing enthusiasm for the collective entity and differs from monitoring and control types of leadership that aim at securing compliance to rules and procedures. As such, we would expect inspirational leadership to be more weakly correlated with compliance and monitoring-based leadership. *Compliance and monitoring-based leadership* was measured using the Denison et al. (1993) scale. Inspirational leadership was positively but weakly correlated with this measure of monitoring and control-based leadership ($r = 0.23$,

$p < 0.1$) providing evidence for the discriminant validity of this measure. In the pilot test we also assessed whether inspirational leadership was associated with other *team focused* attitudinal and behavioral outcomes. Specifically, we measured the following outcomes: *helping behaviors* (MacKenzie et al. 1993, Cronbach alpha = 0.71) and *goal commitment* (Klein et al. 2001, Cronbach alpha = 0.68). Providing evidence for the criterion related validity of this measure we found that inspirational leadership was significantly and positively correlated with helping behaviors ($r = 0.28$, $p < 0.05$) as well as goal commitment ($r = 0.32$, $p < 0.05$).

Team Dispersion. To measure team dispersion we obtained company records indicating the country and city locations *for all employees and their managers* ($n = 700$ employees and 91 managers). Our measure of team dispersion tapped into the spatial, temporal, and configural dimensions of dispersion discussed elsewhere (see O'Leary and Cummings 2007, Hinds and Mortensen 2005). In the present research setting a significant aspect of dispersion in work groups was an ongoing telecommuting program. Therefore, we also included the proportion of telecommuters in a team as an aspect of team dispersion. Because some team members were located outside the United States, we included the number of global locations to account for any cultural or nationality based differences among team members. For each team of employees reporting to the same team leader we obtained the following data: number of telecommuters, country, and city location of all members. Based on this information we calculated the number of time-zones represented in the team (the temporal component of dispersion) as well as the proportion of team members in each location represented in the team (configural dimension), the number of different office building locations in a team (spatial dimension), as well as the number of global locations (cross-national dimension) and proportion of telecommuters in the team (telecommuting dimension).

On average the percentage of telecommuters in a team was 29%. The number of telecommuters within a team ranged from 0% to a 100%. Among the teams we studied, six were located in a single-city location. Out of these six teams, all had at least one telecommuter. Among the remainder of the teams the number of global locations ranged from two to five with an average number of two global locations per team. Of the teams, 44% represented at least one global (outside United States) location. The number of domestic (within United States) locations within a team ranged from two to five with an average of three domestic locations within a team. The number of time zones within a team ranged from one through four with an average of three time zones within a team. We conducted an exploratory factor analysis to examine the dimensionality of these multiple constructs (see Hinds

and Mortensen 2005, for a similar approach). A principal components analysis revealed that all five measures loaded on to a single factor (Cronbach alpha $= 0.71$). To conserve degrees of freedom and enhance ease of interpretation of our results, we computed z-scores for each of these measures and combined them into single-team dispersion index.

Dependent Variables

Commitment to the Team. We used eight items based on Allen and Meyer's (1990) affective commitment scale to measure an individual's commitment to the team. Reliability for this measure was 0.70. Responses were obtained on a 5-point scale (1 = Strongly disagree; 5 = Strongly agree). Example items include "I really feel as if this team's problems are my own" and "I would be happy to spend the rest of my career with this team." For testing Hypothesis 1, individual commitment to the team served as an individual-level outcome variable. For testing Hypothesis 3, individual members' commitment to the team was aggregated to the team level as a predictor of team performance; tests of aggregation yielded acceptable values (ICC 1 = 0.12; $F_{(40,169)} = 2.13$, $p < 0.05$; median $r_{wg(j)} = 0.89$; mean $r_{wg(j)} = 0.94$).

Trust in Team Members. Individual trust in team members was measured using three items from McAllister's (1995) cognition-based interpersonal trust scale. These items displayed the highest factor loadings in the original measure. Recall that we define cognitive trust in team members as an individual's belief that work group members are competent and can be relied upon to complete their responsibilities toward the group. The items included in the survey tap into an individual's perceptions of trust in the competence and abilities of other team members, and represent the cognitive aspects of trust, which is the focus of the present study. These items included "I can rely on my team members not to make my job more difficult with careless work," "My team members' approach their job with professionalism and dedication," and "Given my team members' track record I see no reason to doubt their competence and preparation for the job." In the present study the reliability for this scale was 0.68. In testing Hypothesis 2, we used the individual-level variable. For testing Hypothesis 3, individual members' trust in team members was aggregated to the team level as a predictor of team performance; tests of aggregation yielded acceptable values (ICC 1 = 0.14; $F_{(40,169)} = 2.26$, $p < 0.05$; median $r_{wg(j)} = 0.88$; mean $r_{wg(j)} = 0.91$).

Team Performance. Team performance was measured based on managerial responses to a separate survey. Based on Mortensen and Hinds's (2001) scale, managers rated their teams' performance using a five-point scale on the following dimensions: efficiency, quality,

technical innovation, adherence to schedule/budget, and work excellence in comparison to other teams with which they had worked or were familiar with (Cronbach alpha $= 0.72$). For the 41 teams represented in our sample 28 managers (68%) provided the team performance data. Only this subset of teams was included in the team-level analysis.

Control Variables

At the individual level we controlled for employee tenure in the organization as well as tenure in the team since these variables might influence individual's overall attitudes toward team members and the organization. We also controlled for employee age and gender to account for any differences in overall experiences in the organization or in the team. At the team level, we controlled for overall team size because the size of the team may influence individual's attachment to the team. This measure was obtained from company records. The level of face-to-face interaction in the team has been considered a significant predictor of team-level performance and identification (Kirkman et al. 2004, Mortensen and Hinds's 2001). Therefore, we controlled for face-to-face team interactions. Responses were obtained on a 5-point scale (1 = Less than once or twice a year, 5 = More than once a month). Individual team-member responses were aggregated to the team level. A majority of teams (70%), regardless of the level of geographic dispersion, indicated that they met their team members face-to-face less than six times a year. Checks for aggregation to the team level yielded acceptable values (Median within-group agreement or $r_{wg(j)} = 0.83$, mean $r_{wg(j)} = 0.76$; ICC 1 = 0.10; $F_{(40,170)} = 2.10$, $p < 0.01$). In the past, studies have considered other control variables such as interdependence and task ambiguity (Hinds and Mortensen 2005, Kirkman et al. 2004). We did not include these variables as controls in our analyses because in this particular division teams performed comparable tasks. Furthermore, past research has not reported significant effects of interdependence or ambiguity in dispersed settings. Therefore, to limit the length of the survey and conserve degrees of freedom, these variables were not included in the study. Also as we discussed earlier, since we focused on only one type of team, task-related confounds are less of an issue in this study.

Analysis Strategy

The dependent variables in this study (i.e., commitment to the team and trust in team members) were operationalized at the individual level of analysis while the independent variables were measured at both the team (Level 2) (i.e., team dispersion) and individual (Level 1) (i.e., inspirational leadership) levels of analysis. To account for this research design, hierarchical linear modeling (HLM) was used to test the Hypotheses 1 and 2. HLM can simultaneously estimate the impact of factors at different levels on

individual-level outcomes, while maintaining appropriate levels of analysis for these predictors (Raudenbush et al. 2000). OLS regression does not take into account the interdependence of individual-level observations nested within work units hence generating biased estimates of standard errors and invalid test statistics. HLM explicitly accounts for the nested nature of the data and can simultaneously estimate the impact of factors at different levels on the individual level outcome, while maintaining appropriate levels of analysis for these predictors. A within-group (or Level 1) analysis is used to estimate two separate parameters that represent the relationship between independent and dependent variables: the within group intercept term ($B0$) and a within-group slope term (Bij). These intercept and slope terms serve as the dependent variables in the equations used for the between-group or Level 2 analysis. A significant cross-level interaction (i.e., test of Hypotheses 1 and 2) is suggested by the presence of a significant parameter estimate (gamma coefficient, $\hat{\gamma}ij$) for the Level 2 predictors of the Level 1 slopes (see Hofmann et al. 2000, for a detailed discussion).

We first estimated the null models (with no predictors involved) for the main outcome variables in this study—individual's commitment to the team and trust in team members—and found significant Level 2 variance. This is a necessary condition that must be satisfied before further analysis can be undertaken and demonstrates that there is sufficient between-group variance in the outcome measures. To facilitate interpretation of the results, we followed past conventions and grand-mean centered all Level 1 predictors except for the dummy-coded gender variable (see Hofmann and Gavin 1998). In the Level 1 model we regressed the outcome measure trust/commitment on individual-level predictors (i.e., individual-level control variables and inspirational leadership). The intercepts and slope terms generated by this model served as dependent variables at Level 2. Team-level control variables (team size and face-to-face interactions) were included as predictors of the Level 1 intercept term ($B0$) to account for the effects of these variables on average trust/commitment across teams. Support for Hypotheses 1 and 2 was indicated if the Level 1 slope term $B5$ was significantly predicted by the Level 2 independent variable—team dispersion ($\hat{\gamma}11$). Following is our model specification:

Level 1 Model

$$Y = B0 + B1 * (AGE) + B2 * (GENDER) + B3$$
$$* (ORG\ TENURE) + B4 * (TEAM\ TENURE)$$
$$+ B5 * (INSPLEAD) + R$$

Level 2 Model

$$B0 = \hat{\gamma}00 + \hat{\gamma}01 * (TEAMSIZE) + \hat{\gamma}02$$
$$* (FACE\ TO\ FACE) + \hat{\gamma}03 * (DISPERSION) + U0$$

$$B1 = \hat{\gamma}10$$
$$B2 = \hat{\gamma}20$$
$$B3 = \hat{\gamma}30$$
$$B4 = \hat{\gamma}40$$
$$B5 = \hat{\gamma}50 + \hat{\gamma}11 * (DISPERSION) + U5,$$

where R represents within-team residual variance in the outcome variable for which the Levels 1 and 2 variables are accounted. We also leave the random effect of $U0$ to be freely estimated to account for the between-team variance in the outcome variable. $U5$ is the between-team residual variance in slopes. Because in HLM variance is partitioned into within- and between-group components the analysis does not provide an overall R square of F test for the model. Therefore, we used the deviance index reported in HLM analysis to assess model fit. The deviance index is defined as the $-2 \times$ log likelihood of maximum-likelihood estimate. The smaller the deviance value, the better the model fits.

We generated our interaction terms based on HLM results using two continuous measures as predictors (inspirational leadership and dispersion). Following the conventions of past research using HLM, the values for interaction plots were generated by holding other variables at the grand mean and examining the value of the outcome measure when the two independent variables included in the interaction term were one standard deviation above and/or below the mean. In the present study, the significant coefficient for the interaction term suggests that the relationship between the independent and dependent variable is significantly different in the two subgroups (i.e., high versus low condition) and the figures represent the direction of the relationship. Further analysis revealed that multicollinearity was not an issue (inspirational leadership × dispersion with dispersion, $r = -0.11$, $p > 0.1$; inspirational leadership × dispersion with inspirational leadership, $r = -0.04$, $p > 0.1$). In the appendix we have included results of a confirmatory factor analysis to examine the factor structure of the measures included in the study and address concerns associated with common-method variance.

For testing Hypotheses 3 concerning the impact of, aggregated team-level commitment and trust on team performance, team-level analyses were conducted using OLS regressions on a smaller subset of teams for which we obtained manager-rated performance data.

Results

Tables 1 and 2 represent the mean, standard deviations, and intercorrelations for the main variables considered in this study at the individual and team levels, respectively.

Table 3 represents the results from HLM analyses to test Hypotheses 1 and 2. Hypothesis 1 proposed that team-level dispersion would moderate the relationship

Table 1   Individual-Level Descriptive Statistics and Intercorrelations

Variable	Mean	SD	1	2	3	4	5	6
1. Age	41.12	8.54						
2. Gender	0.24	0.43	−0.04					
3. Organizational tenure	6.09	3.92	0.30	0.25				
4. Team tenure	2.88	2.38	0.15	0.06	0.21			
5. Inspirational leadership	3.53	0.84	−0.06	−0.04	−0.02	−0.10		
6. Trust in team members	4.05	0.73	−0.07	0.00	−0.01	−0.05	0.31	
7. Commitment to the team	3.90	0.67	0.02	0.03	−0.02	0.03	0.42	0.57

Notes. Coefficients greater or equal to 0.10 are significant at the 0.05 level; Gender: 1 = Female, 0 = Male; $N = 171$.

Table 2   Team-Level Descriptive Statistics and Intercorrelations

	Mean	S.D.	1	2	3	4	5
1. Team size	4.15	1.65					
2. Face-to-face team interactions	1.58	0.35	−0.13				
3. Team-dispersion index	0.00	0.75	0.20	−0.21			
4. Team-level commitment	3.90	0.40	−0.32	0.05	−0.05		
5. Team-level trust	4.07	0.44	−0.11	0.00	−0.09	0.58	
6. Team performance	3.82	0.86	0.38	0.11	0.00	0.31	0.33

Notes. Coefficients greater or equal to 0.30 are significant at the 0.05 level; $N = 28$.

between individual perceptions of inspirational leadership and commitment to the team. As reported in Table 3's Model 1b and illustrated in Figure 2(a), the relationship between individual perceptions of inspirational leadership and individual's commitment to the team was

Table 3   Results of Hierarchical Linear Modeling Analysis Testing Hypotheses 1 and 2

	Commitment to the team		Trust in team members	
Variable	Model 1a	Model 1b	Model 2a	Model 2b
Intercept	4.31**	4.36**	4.33**	4.48**
Level 1				
Age	0.00	0.00	0.00	0.00
Gender	−0.05	−0.10	−0.19	−0.22
Organizational tenure	0.00	−0.01	0.01	0.00
Team tenure	0.00	0.00	−0.01	−0.01
Inspirational leadership	0.27**	0.29**	0.20**	0.24**
Level 2				
Team size	−0.08**	−0.08	−0.05	−0.06
Face-to-face team interactions	−0.06	−0.05	−0.03	−0.07
Team-dispersion index	0.04	0.05	−0.07	−0.03
Level 1 × Level 2 interactions				
Inspirational leadership × team dispersion index		0.14*		0.20*
Deviance statistic	342.23	241.62	343.42	223.34

Notes. N (Level 1) = 171; N (Level 2) = 41; Gender: 1 = Female, 0 = Male; *$p < 0.05$; **$p < 0.01$.

Figure 2(a)   Graph of the Moderating Effect of Team Dispersion on the Relationship Between Inspirational Leadership and Commitment to the Team
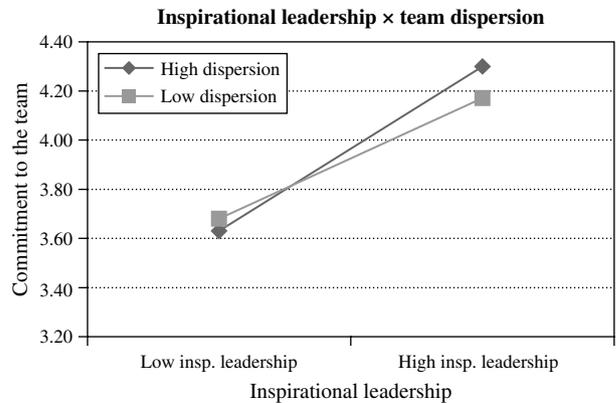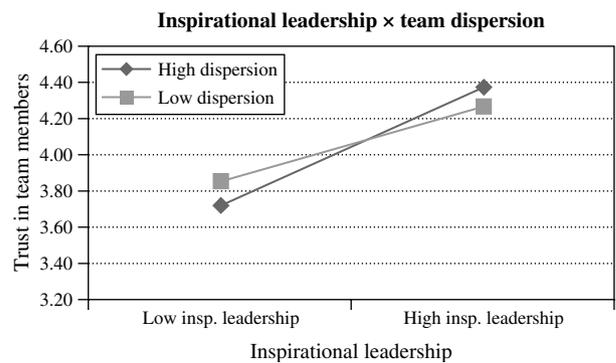

Inspirational leadership × team dispersion

Figure 2(b)   Graph of the Moderating Effect of Team Dispersion on the Relationship Between Inspirational Leadership and Trust in Team Members

Inspirational leadership × team dispersion

significantly more positive in teams that were more dispersed ($\hat{\gamma} = 0.14$, $p < 0.05$). Further, Hypothesis 2 proposed that team-level dispersion would moderate the relationship between perceptions of inspirational leadership and trust in team members. Results reported in Table 3's Model 2b supported this hypothesis ($\hat{\gamma} = 0.20$, $p < 0.05$). As shown in Figure 2(b), the relationship between individual perceptions of inspirational leadership and trust in team members was significantly more positive in teams that were more dispersed. Thus, Hypothesis 1 and 2 were both supported by the data.

Hypothesis 3 proposed that team-level commitment and trust would be positively related to team performance. In support of this hypothesis, our results represented in Table 4 indicate that team-level commitment positively predicts team performance ($\beta = 2.67$, $p < 0.01$). In addition, in support of Hypothesis 2b, our results also indicate that team-level trust positively predicts team performance ($\beta = 1.96$, $p < 0.05$). Thus, Hypothesis 3 was supported.

Table 4   Team-Level OLS Regression Results Predicting Team Performance

Variable	β
Intercept	3.71**
Team size	−1.29
Face-to-face team interactions	−1.43
Team-dispersion index	1.25
Team-level commitment	2.67**
Team-level trust	1.96*
F	8.27*
Adjusted R^2	0.27
df	(5, 27)

$*p < 0.05$; $**p < 0.01$.

Discussion

Technology-enabled and geographically dispersed settings provide several exciting opportunities to extend theory and research on leadership in teams. Drawing on the rich intersections between social identity theory and leadership research, this study highlights the importance of leaders who can develop socialized relationships to foster attitudes that are critical for team effectiveness. Our findings support the contention that by cultivating socialized relationships with team members, which rely on a collective message and emphasize the mission and goals of the team, inspirational leaders are able to foster attitudes directed at the collective team entity (Bass 1985, Howell and Shamir 2005). Further, we build a contingency framework around this form of leadership by recognizing the contextual influence of geographic dispersion at the team level. Overall, our findings suggest that inspirational leaders are important in all contexts but are more important in highly dispersed contexts.

We conceptualized the overall geographic configuration of the team as the embedding context in which leaders can make specific efforts to engender commitment and trust among individuals. Based on situational theories of leadership, we argued that dispersed contexts represent "situational enhancers" that strengthen the role of inspirational leadership. In highly dispersed settings, lack of physical proximity, shared context, and spontaneous communications with team members reduce the salience of a team identity. In these settings inspirational leaders can serve as representatives for the group as a whole by providing individuals with a vision and mission for the team.

In the broader domain of organizational behavior research there has been a call for greater attention to cross-level organizational phenomena that explicitly consider the nested nature of individual behaviors and attitudes within larger units such as organizational divisions, work groups, and teams (Hackman 2003, Johns 2006). Furthering this agenda, we proposed that individuals' perceptions regarding their leaders and the team entity are nested within a specific group context that can shape their attitudes and perceptions. Our unique cross-level approach explicitly acknowledges the nested nature of an individual's experiences in the broader dispersed team context. This cross-level approach contributes to extant leadership research that has attempted to identify specific situational variables that can influence the relationship between leadership and criterion variables (see Podaskoff et al. 1995 for a detailed review). Our findings reveal that in highly dispersed settings, due to the absence of physical proximity to other team members, leaders can be the critical "missing link" for facilitating commitment and trust in dispersed work settings. These findings are also corroborated by recent research that has suggested that leaders can enhance trust among team members by functioning as third parties (Ferrin et al. 2006). Drawing on social network theory, Ferrin and colleagues found that social information provided by third parties may be used to develop beliefs about the competence and abilities of other individuals in the organization. Our findings suggest that in dispersed settings inspirational leaders may be viewed as a salient "third party" that can influence attitudes such as trust in other team members.

We also considered whether the attitudinal outcomes of inspirational leadership, commitment, and trust can influence critical team-level outcomes such as team performance. Companies implement geographically dispersed work arrangements to leverage skills in different locations and enhance the overall efficiency and effectiveness of their operations. Despite the potential benefits of geographically dispersed teams, various aspects of dispersion have been viewed as challenges that may act to diminish individual efforts to contribute to the team goals (Armstrong and Cole 1996). Researchers have suggested that trust and commitment may be key mechanisms by which individuals can overcome physical distance and work toward accomplishing shared team goals and enhance team effectiveness (see Fiol and O'Connor 2005, Hinds and Mortensen 2005, Wilson et al. 2006). Our findings provide support for this theoretical rationale and emphasize the critical relevance of team-level trust and commitment in dispersed work settings. Further, since inspirational leadership was found to facilitate these outcomes in dispersed work settings, developing critical leadership behaviors that may be considered inspirational is clearly an imperative in global and dispersed work settings. We also propose that future research incorporate the role of individual-level attributes and dispositions as moderators for further understanding the effects of inspirational leadership. For instance, team members' self-concept (i.e., clarity regarding identity and values) or collectivistic orientation (propensity to work in groups) may influence the extent to which they are susceptible to inspirational leaders and may be considered as moderating influences on the relationship between inspirational leadership and outcomes (see also Howell and Shamir 2005).

From the standpoint of managerial practice, the results discussed above have some clear implications. Though the importance of self-management in teams is often emphasized, the results of this study imply that certain aspects of leadership may have a pivotal role for influencing important outcomes in geographically dispersed settings. In most organizations the configuration of teams, in terms of the various locations represented and involvement of multiple sites, is driven by customer needs, staffing requirements, and budgetary constraints. As such, the level of dispersion represented within a team may be beyond the control of managers charged with leading these teams. Within the context of a team and given the contingencies associated with dispersed groups, our findings draw attention to inspirational leadership as a specific set of leader behaviors that can enhance group members' engagement in the group and, hence, overall group performance. Behaviors associated with inspirational leadership may provide a template for developing a preliminary set of competencies that managers would need to effectively manage dispersed teams. Specific training modules may be designed for team leaders that take into account the particular aspects of the group's configuration. Further, online resources for dispersed team leaders might provide continuing support and reinforce these behaviors (see also Joshi and Lazarova 2006 for a detailed discussion of these behaviors).

In terms of future research, the limitations of this study represent avenues for further inquiry. Although a Web-survey represented the most effective method for data collection across multiple company locations, it meant that we had to rely on a self-report measure for several of our study variables. In particular, inspirational leadership, trust in team members, and commitment to the team were measured in a single survey; thus, common method variance may have inflated the observed relationships among these variables. This limitation is offset with regard to our measures of team dispersion, an important variable in this study. Team dispersion was measured using company records regarding the location of managers and employees in the participating units in the organization. In addition, common-source bias is not a concern for testing the third hypothesis because we used data provided by both team members (commitment and trust) and team leaders (team performance).

Our study employed a cross-sectional design, thus no inferences about causality are prudent. We call for more longitudinal research that can highlight the critical roles for leader behaviors at various points in time in the evolution of a group's dynamics. This is especially important in view of recent findings that time is an important factor in developing positive attitudes and eliciting cooperative behaviors in dispersed teams (Wilson et al. 2006). This particular concern is not that salient in our study as the teams we investigated had been together for long periods of time (average team tenure was over two years).

What would be interesting to investigate, however, is whether inspirational leadership behaviors matter more or less earlier or later in a team's life. Thus, while inspirational leader behaviors may be more critical in the early stages of the team's formation, other leader behaviors such as performance management may become more important as a group progresses in its life span. Also, we made an effort to reduce the influence of task-related confounds by selecting only one type of team for our study sample (see Mowday and Sutton 1993, for a discussion of the suitability of this approach), and extensive interviews with company informants showed that the teams in our sample had similar levels of task interdependence and complexity. Nonetheless, future research is needed to examine geographically dispersed teams with different task characteristics and to explicitly assess how these contextual factors affect the functioning and the effect of leadership in these teams.

In the present study, the company's privacy related policies in multiple overseas locations did not allow us to access individual performance records. Although we obtained manager-rated team performance measures, future research should consider objective measures of individual and team performance and examine the relationship between identification-based outcomes and performance measures such as customer satisfaction. We also suggest that additional aspects of leadership behaviors be examined in dispersed contexts. We propose that future research incorporate these leadership behaviors in relation to relevant outcomes at the team and individual levels of analysis. Finally, we note that although we obtained data on multiple dimensions of dispersion, our results did not support a multidimensional dispersion measure (see O'Leary and Cummings 2007). We propose that future research incorporate and test the effects of dispersion along multiple dimensions on individual- and team-level outcomes and consider the distinct contingencies that various dimensions of dispersion may impose on leadership.

Geographically dispersed settings represent a novel context to test theoretical propositions that have identified the critical role of leadership in enhancing linkages between an individual's self-identity and identification with the team. Our findings underscore the importance of inspirational leaders in developing team-identification-related outcomes—trust and commitment—in dispersed settings. Further, our study also suggests that trust and commitment are associated with team-level performance. Our cross-level research design highlights the importance of considering varying degrees of team dispersion in relation to the influence of leaders on critical individual-level attitudes among team members. Our research suggests several avenues to further probe into the role of geographically dispersion in shaping the outcomes of leadership in organizations.

Appendix. CFA Results

We included the 6 inspirational leadership items, the 3 trust in team members items, and the 6 items pertaining to the commitment to the work group—a total of 15 items measuring 3 latent constructs. Each specific indicator (i.e., scale item) was set to load on its respective construct and the latent constructs were allowed to covary (Byrne 2001). In contrast to EFA where eigenvalues, indicators of dimensionality, and factor loadings are emphasized, the key statistics to interpret in a CFA are the goodness of fit statistics. Our data provided a good overall fit to the model. The chi-square statistic we obtained was significant ($\chi^2 = 151.77$, df $= 87$, $\underline{p} > 0.01$). Because of the high sensitivity of the chi-square statistic to sample size various indications of fit have been proposed, each with advantages and disadvantages. This has lead to a general recommendation to always consider several indexes providing complementary information, rather than to rely on one index alone (Byrne 2001). Among the most commonly used indexes are the comparative goodness of fit (CFI), the normed fit index (NFI), the Tucker Lewis index, the parsimony ratio, and the mean square error of approximation (RMSEA). Our model's statistics were

- CFI $= 0.956$ (values of 0.95 or above are considered acceptable).
- NFI $= 0.905$ (values above 0.90 are acceptable; values above 0.95 are desirable; however, the NFI has been shown to underestimate fit in small samples, as is the case here).
- *Tucker-Lewis index* $= 0.954$ (values of 0.95 or above are considered acceptable).
- *Parsimony ratio* $= 0.829$ (generally values of above 0.90 are preferred, but values under 0.90 are acceptable in cases where the CFI is above 0.95, as is the case here).
- RMSEA $= 0.066$ (values less than 0.05 indicate an excellent fit, and values as high as 0.08 represent reasonable errors of approximation; values above 0.10 represent poor fit).

These indices suggest that the data fit our measurement model well, confirming the discriminant validity of our measures. We also tested a one-factor model whereby all items loaded on one latent variable. We found that the fit indices were substantially poorer for the one-factor model (chi-square $= 760.72$, df $= 90$, $\underline{p} > 0.01$; CMIN/DF $= 8.453$; CFI $= 0.549$, TLI $= 0.474$; RM$\underline{S}$EA $= 0.210$).

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