Connectivity in the Virtual Office Space:

Catalyst or Impediment to TMT Agility?

ABSTRACT

In today's fast-paced and uncertain business landscape, coping with technology developments, increased demand for innovative products, and competitive shifts require top management teams (TMTs) to respond to these challenges with increasingly higher levels of agility. Given the recent rise of ICT in business communication, in this conceptual paper we build on the attention-based view of the firm to shed light on the impact of ICT in shaping the TMT agility. We discuss how ICT can either enhance or impair TMT agility, and identify TMT- and firm-level contingencies that boost the interplay between the two concepts.

Keywords:

TMT agility; information technology; communication technologies; decision-making

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INTRODUCTION

TMTs play the pivotal role in leading organizations. Their tasks include identifying growth opportunities (Penrose, 1980), planning and organizing resources (Whitley, 1989), and making critical decisions regarding acquisitions (Nadolska et al., 2014), research and development investments (Kor, 2006), organizational reorientations (Tushman and Rosenkopf, 1996) or new product launches (Boeker, 1997). The design and implementation of such strategic actions hinge on access to accurate, up-to-date information about the business environment (Eisenhardt, 1989). Nevertheless, accelerated social change (Rosa and Scheuerman, 2009), and, in particular, technology developments, increased demand for innovative products, novel regulation and competitive shifts (Schiavone, 2011; Tushman and Murmann, 2003) often make information *"inaccurate, unavailable, or obsolete"* (Bourgeois and Eisenhardt, 1988, p. 816). Coping with these high-velocity environments requires TMTs to identify weak change signals and respond to them (Brown and Bessant, 2003; Eisenhardt and Martin, 2000; Krotov, Junglas, and Steel, 2014; Sharifi and Zhang, 2001) with increasingly higher levels of agility.

However, TMT agility remains an underexplored research area. This circumstance seems surprising, given the TMT's centrality to firm strategy (Cho and Hambrick, 2006; Eggers and Kaplan, 2009) and how much research attention has been paid to related phenomena. Research streams relevant for understanding TMT agility exist, but they are

disconnected and targeted at other levels of analysis. For instance, prior research has analyzed agility at the organizational level, as a feature that companies foster to succeed in changing environments (Dove, 2001; Goldman, Nagel, and Preiss, 1995; Lu and Ramamurthy, 2011), blackboxing the role of the TMT in this process. Other researchers have analyzed the way ICT affects team communication and performance (Bailey, Leonardi, and Barley, 2012; Maznevski and Chudoba, 2000), yet we still have a limited understanding of how ICT shapes TMTs' strategic agendas relative to traditional communication (Ocasio et al., 2018) and of its effects on TMT agility. Mixed conclusions also predominate regarding the impact of communication technologies on decision-making in teams: some researchers find that ICT enhances responsiveness to uncertain conditions (Lu and Ramamurthy, 2011), and others conclude that it discourages team collaboration and leads to disagreement and conflict (Levina and Vaast, 2008).

The purpose of this conceptual paper is to shed light on how ICT shapes TMT agility. To do so, we build on the attention-based view (ABV) theory (Ocasio, 1997, 2011; Ocasio and John, 2005; Ocasio, Laamanen and Vaara, 2018) and discuss how ICT directs TMT's attentional orientation and agility, depending on specific characteristics of the TMT and of the organization's environment.

We contribute to existing literature in several ways. First, we extend ABV research by presenting a theoretical framework on how communication technologies influence the attentional engagement of TMTs, thereby facilitating or impeding TMT agility. Second, we contribute to TMT research by developing and analyzing the notion of TMT agility, which we propose as a determinant of organizational agility. Third, we propose and analyze a series of factors that frame the relation between ICT and TMT agility. Specifically, based

on Eisenhardt (1989), we identify and discuss the following factors: TMT interdependence; homogeneity; polychronicity; technological inclination; managerial competency; and firm internationalization. Finally, we show that the particular conditions of the TMT and the firm's environment are critical in using ICT for successful decision-making. In the last section of this paper, we describe the implications of our analysis for theory and practice, and propose paths that future research may take in order to advance this research.

TMT AGILITY AND ICT CAPABILITIES

An Attention-Based View on TMT Agility

TMTs constitute the 'dominant coalition' (Cyert and March, 1963) of senior executives, who provide the interface between the firm and its environment (Hambrick, Finkelstein and Mooney, 2005) by making strategic decisions (Amason, 1996; Hambrick et al., 1996; Amason and Sapienza, 1997; Simons et al., 1999; Carpenter and Fredrickson, 2001). A TMT's distinctive knowledge base and degree of flexibility and responsiveness to changing environments will inherently affect the team's decision-making process. This implies that agility is critical for TMTs.

Since strategic decisions are usually higher in importance, urgency, complexity, relevance and uncertainty than those made by lower-level organizational actors (Amason, 1996; Eisenhardt, 1989; Clark and Maggitti, 2012), TMTs' tasks and skills differ from those of other organizational teams. TMTs' tasks are highly fluid and changeable, mostly unstandardized, context-specific and interdependent (Whitley, 1989). Therefore, we need to distinguish TMT agility from its organizational counterpart – which has received most of the attention in prior research.

In turn, research has extensively analyzed the ways in which TMTs' decision-making ability influences firms' success (Hambrick and Mason, 1984; Raes, Heijltjes, Glunk, and Roe, 2011). In this sense, TMT agility is a condition for organizational agility: if TMTs are the catalyst for change in the organization (Hambrick and Mason, 1984), facilitating their agility is essential in a fast-paced business environment – and a first step in this process is understanding which factors enable it.

A TMT's attention to various stimuli shapes the way in which its members collaborate, share information, and act, ultimately influencing TMT agility. Simon (1947) introduced the concept of attention as a limited capability whose allocation shapes decision-making. Continuing his reasoning, Ocasio (1997) proposes that decision-makers' actions depend on what issues and answers they focus their attention on. TMTs' attentional orientation depends on the objective reality that managers face (Cialdini et al., 1990), and managerial attention to environmental stimuli influences the strategic response of the organization (Strandholm, Kumar and Subramanian, 2004). Thus, attention and communication structures connect individual information processing with the organizational context.

Ocasio (1997) advances three premises that explain attention distribution. First, decision-makers' actions depend on their focus of attention. Individual attentional processes focus the cognitive efforts on a limited set of issues at any given time, to the detriment of other issues. Focused attention can be either controlled by the individual (i.e., an individual's intentional and mindful effort), or automatic, in which case environmental stimuli directly attract the individual's attention and trigger their action. Second, the focus of attention depends on the rules and norms particular to the situation in which decision-

makers find themselves. Third, this specific situation depends on how social relationships, communication, activities and procedures distribute decision-makers' attention.

In line with the ABV theory, we define attention as *"the noticing, encoding, interpreting, and focusing of time and effort by organization decision-makers"* (Ocasio, 1997, p.189). Although Ocasio's (1997) focus is on organizational attention, he acknowledges that decision-makers' attention influences their actions. Other researchers have also studied how ABV applies specifically to top management teams and concluded that TMTs' attention affects firm performance (Cho and Hambrick, 2006; Li et al., 2013).

ABV research generally studies how environmental stimuli that trigger strategic change affect attention engagement (Barnett, 2008; Joseph and Ocasio, 2012). In a recent review of the literature, Ocasio et al. (2018) note that while the traditional ABV underlines the importance of the information-processing capacity and the structural distribution of attention, future research should focus on how communication practices shape TMT attention. The authors propose that communication channels represent not just a measure of attention allocation, but arenas for sharing opinions, developing solutions, and brainstorming ideas, affecting managers' attention and actions (Cornelissen, Durand, Fiss, Lammers, and Vaara, 2015). As such, Ocasio et al. (2018) recommend examining how ICT generates, directs and transforms decision-makers' attentional engagement, particularly in geographically distributed organizations. Our conceptual model responds to this call for research.

We propose that when technological developments define top managers' work and interactions, it is likely that managerial attention will be shaped by ICT (Cho and Hambrick, 2006; Eggers and Kaplan, 2009). Hence, it is only natural that we raise the

following question: how do ICT affect TMTs' decision-making and, consequently, their agility? We turn to this issue in the following section.

The Impact of ICT on TMT Agility

Digital systems have produced time- and location-flexible work environments, challenging the classical concept of the office as physical space (Chung, Lee, and Kim, 2014). According to Gillam and Oppenheim (2006, p. 160), "*networks, relationships and globalization typify this era. […] Electronic space, which coexists with geographical space, must be managed in order to maximize the opportunities it offers*." The creation of this geographic dispersion-digital space couplet led many teams to become partially or completely virtual (Cohen and Gibson, 2003; Kirkman, Gibson, and Kim, 2012). Most teams now communicate and coordinate through e-mail, messaging and web-conferencing applications without needing to be in the same place (Bailey, Leonardi, and Barley, 2012; Maznevski and Chudoba, 2000).

In high-velocity environments, where constant change requires rapid response and flexibility, efficient communication (Smith, Smith, Olian, Sims Jr., O'Bannon and Scully, 1994) is critical to the strategic, high-stakes decisions TMTs make. Recent ABV research has evolved to propose communication not simply as a measure of relative attention (Cho and Hambrick, 2006; Tuggle et al., 2010), but as a factor that itself affects attention distribution (Ocasio, 2011). The specific content and practices of communication allow decision-makers to jointly decide upon strategic changes in initiatives and actions (Ocasio et al., 2018). Designing and applying these strategies require attentional engagement, or a mindful and intentional allocation of cognitive resources towards planning, problem-

solving and decision-making (Ocasio, 2011; Ocasio et al., 2018). Subject to the resulting allocation of cognitive resources, communication practices – and ICT in particular – may either enable or constrain TMT agility. Next, we discuss each of these alternatives.

ICT as catalyst to TMT agility

In many ways, ICT allows teams to replace in-person meetings with virtual interactions. While face-to-face meetings used to be seen as the standard practice in decision-making (Pinto, Pinto, and Prescott, 1993), they have shortcomings. Research shows that in physical meetings, the risks associated with taking a minority position relative to other team members are higher than in virtual settings (Tan, Wei, Watson, Clapper, and McClein, 1998). Conversely, ICT is likely to shift participants' attention towards the most meritorious ideas, irrespective of who their proponents are. By directing the team's controlled attention and intentional cognitive efforts towards the best solutions, ICT may facilitate complex problem-solving and high-stake decision-making (Ocasio, 2011), thereby providing a more leveled, agile communication platform.

ICT could free up meeting time by allowing TMT members to contact each other briefly whenever necessary via enterprise social networks, video chat applications or e-mail, instead of allocating long time slots to discuss all issues at once. Research has also found that new information – critical for TMT agility – is often ignored in face-to-face meetings (Stasser and Titus, 1987). ICT could help overcome this impediment by facilitating quick, timely communications to TMT members, mitigating the challenges imposed by task complexity (Kock and Lynn, 2012) and facilitating the connections for adaptive enterprises (Haeckel, 1999) *via* digital systems (Sambamurthy et al., 2003).

Two aspects of team communication facilitate fast decision-making: informality

(i.e., spontaneous conversations and unstructured meetings) and frequency (i.e., the amount of interaction among team members) (Smith et al., 1994). ICT can help TMTs' brainstorming and joint development of new ideas in a timely manner. For instance, chatting applications (e.g., Slack) allow team members to share updates with each other casually at will. Videoconference tools allow distributed teams to meet frequently and informally so that team members may stay aligned and informed. In sum, ICT may focus TMT members' attention towards urgent and important issues by enabling real-time communication (Chae, Koh, and Prybutok, 2014; Gillam and Oppenheim, 2006; Gilson et al., 2015; Hertel, Geister, and Konradt, 2005; Lu and Ramamurthy, 2011; Lucas and Olson, 1994).

Virtual information distribution through ICT could also enhance agility *via* reduced social isolation (Gilliam and Oppenheim, 2006) and better task distribution between TMT members. For instance, e-mail communications could help scheduling and storage of individual and team information. Likewise, videoconferences may facilitate fast exchanges of information, building trust and close relationships between TMT members, and live chatting applications encourage cheap, spontaneous and informal conversations. Other groupware technologies, such as forums or shared networks, encourage collaboration and transparent information sharing, breaking down communication barriers (Gillam and Oppenheim, 2006).

Research has found that ICT reduces social loafing and increases perception of other team members' competence and satisfaction (Gilson et al., 2015). As a result, in recent decades, researchers have tried to conceptualize and test explanations of the formation and evolution of agile teams and organizations in the context of new ICT. This

research concludes that if ICT helps TMTs design a management system that adopts and implements 'routines' of agility (Winby and Worley, 2014), it can facilitate a more timely and effective response to changing circumstances.

ICT as impediment to TMT agility

Whereas – as shown in the previous section – ICT may foster TMT agility, it may also block it (Overby et al., 2006; Weill et al., 2002), becoming a double-edged sword (Lu and Ramamurthy, 2011).

First, disagreeing on ICT usage can lead to suboptimal compromises, poor strategic decisions, and likely, poor TMT agility (Bailey et al., 2012). ICT offer a wide range of communication tools differing in richness, channels, and collaboration synchronicity (Chen et al. 2013; Daft and Lengel, 1984; Lu and Ramamurthy, 2011; Riopelle et al., 2003). As a result of their often-different views and experiences, TMT members might differ in their preference for, and ability to use various means of communication. To illustrate, some TMT members may prefer to discuss issues solely in face-to-face meetings, which may impede TMTs' access to real-time information, constraining agility.

Similarly, different opinions regarding the functionality of ICT media may lead TMT members to disagree about the utility of its features (Leonardi, 2011). Moreover, the choice of certain ICT tools may lead to different outcomes. For instance, stimuli from ICT notifications may involuntarily direct the attention of TMT members towards timely, albeit sometimes irrelevant information, shifting their attentional engagement and distracting them from dealing with important issues. Also, depending on the situation, using e-mail communication instead of videoconferencing tools could hamper information transmission due to the lack of non-verbal communication cues (Leonardi, 2010). Absent non-verbal

cues, the likelihood of conflict increases, impeding communication (Cramton, 2001) and leading to negative consequences in high-risk circumstances.

The relatively fixed characteristics of ICT (Lucas and Olson, 1994; Overby et al., 2006; Weill et al., 2002; Allen and Boynton, 1991; Galliers, 2007) might also generate disruptions in information exchange, a higher frequency of misunderstandings and lack of message coherence. For example, communication tools used for virtual meetings may shift participants' focus of attention by notifying them of an issue irrelevant to the meeting, but relevant to some other area of their concern. In addition, information overload caused by the availability of ICT media may lead TMT members to feel confused and absent, contributing to poor strategic decision making. Kahneman (2011) suggests that information flooding may also lead to interminable debates and an exaggerated appreciation for empirical evidence over intuitive thinking.

A further potential issue may issue from the taken-for-grantedness of ICT. The fact that information *may be* distributed at any time does not mean that *it will be*, but TMT members may expect all the relevant information to be available. However, TMT members may fail to provide access to critical data on which all members depend (Levina and Vaast, 2008) and even fail to respond to TMT members' messages (Cramton, 2001). When team members are forced to interact via virtual media, they are also more likely to encounter trust issues (Bailey, Leonardi, and Barley, 2012). Lack of trust among team members poses difficulties for their interaction, discouraging information sharing and collaboration (Jarvenpaa and Leidner, 1999), all of which impede TMT agility.

While the above studies provide ample evidence of the relation between ICT and TMT, we propose that the mixed findings of prior research can be reconciled by the

specific contexts in which TMTs operate. In the following section we discuss how specific TMT- and organization-level contingencies may help enhance the relation between ICT and TMT agility.

THE LINK BETWEEN ICT CAPABILITIES AND TMT AGILITY: EXPLORING CONTINGENCIES

Based on ABV, we suggest that one reason for the mixed effects ICT have on TMT agility may stem from contingencies that facilitate an efficient use of ICT for some top teams. Certain characteristics of communication (i.e., form, frequency, length, etc.) direct managers' attention to specific issues, leaving other matters unattended (Ocasio et al., 2018). How TMTs engage with ICT leads to them paying attention to a specific set of issues, and this selection process determines why some teams thrive and others fail in highly digitalized environments.

Depending on the context, communication practices elicit attention processes, which in turn determine the allocation of tasks and activities, and trigger the way managers select the issues they pay attention to. Examples of such decisions could be: 'What information needs to be shared?' 'What ICT tool is the most efficient in this situation?' 'How long should the communication be?'. To achieve agility, TMTs need to make such decisions promptly. Eisenhardt (1989) identified five levers to accelerate decision-making: two-tier advice process, multiple simultaneous alternatives, decision integration, real-time information, and consensus with qualification.

Insert Table 1 about here

We integrate ABV theory and Eisenhardt's (1989) findings to identify the set of relevant contingencies enhancing the relation between ICT and TMT agility (see Table 1). Both TMT- and organizational-level characteristics generate the specific situation confronting top managers when they make high-stake decisions, as we discuss below.

First, centralized power drains information from the common pool, hindering decision-making. The opposite happens in a two-tier advice process, where more than one person attends to an issue. Similarly, having multiple simultaneous alternatives enhances fast decision-making, by allowing managers to shift rapidly between options if the first solution does not work (Eisenhardt, 1989). When TMT members work closely together and their tasks are interrelated, they exchange information efficiently and engage in critical interactions. This pattern, labeled as *TMT interdependence* (Hambrick et al., 2015), is likely to enhance brainstorming and allow TMT members to consider multiple alternatives creatively. We therefore expect TMT interdependence to relate to both the two-tier decision-making process and to the generation of multiple simultaneous alternatives.

Second, TMTs at international firms possess deeper experience and network ties (Ancona and Caldwell, 1992), allowing them to obtain information from a variety of sources and develop various solutions to problems. As a result, we expect *firm internationalization* to also enhance fast decision-making by developing multiple simultaneous alternatives.

Third, decision integration consists of merging multiple strategic decisions with one another and developing alternative plans (Eisenhardt, 1989). Considering various opinions and agreeing on a solution for each potential issue requires a homogenous TMT group, as

we explain in more detail in the designated subsection regarding contingencies. We therefore argue that *TMT homogeneity* is an important contingency factor for our model.

Fourth, concerning the time dimension, Eisenhardt (1989) finds that firms that rely on real-time information incurred little or no time lag between event occurrence and reporting, and made faster decisions. Hambrick and Mason (1984) find that polychronous teams (i.e., whose members engage in multiple tasks at once) share timely and relevant information informally, most of the time spontaneously. We argue then that real-time information sharing is enhanced by *TMT polychronicity*. Also, the success of TMTs with high technological inclination – understood as TMT members' easiness in adopting new communication technologies – likely depends on their ability to produce and share real-time information. Thus, we propose that *TMT's technological inclination* facilitates real-time information sharing.

Finally, consensus with qualification refers to taking an active approach to decision-making by involving all team members, with diverse experiences and knowledge, in the process. The quality of these decisions ultimately depends on managerial competency, understood as TMT's key abilities and potential capabilities (Furnham, 1990). To make fast decisions, TMT members use their superior skills to reach a consensus (Eisenhardt, 1990).[1] Therefore, we propose that *managerial competency* facilitates TMTs reaching consensus and agile decision-making.

In the following section, we explain in depth the proposed interaction effects, which are summarized in Figure 1.

[1] Eisenhardt's (1990) study also suggests that in few cases when TMTs did not reach consensus, the fastest decisions were made when the CEO uses information generated in the debate to make a final decision.

Insert Figure 1 about here

TMT Interdependence

TMT members need to coordinate their work to meet their common targets. For teams to achieve more of their goals and improve firm performance (Gully et al., 1995; Barrick et al., 2007), effective communication is critical. This is especially true in high-velocity environments, where TMT members need to make high-stake decisions quickly (Smith, Smith, Olian, Sims Jr., O'Bannon and Scully, 1994).

Barrick, Bradley, Kristof-Brown, and Colbert (2007) define team interdependence as the extent to which members rely on one another to complete projects and tasks. The authors propose that efficient coordination efforts may result from an improvement in TMT members' behaviors and attitudes when performing tasks that require them to cooperate, learn from each other, and motivate one another. They conclude that TMTs with high interdependence had higher team and firm performance when the team had more communication. Since ICT facilitates frequent communication, we expect it to improve the operational aspects of TMT decision-making, transactions, negotiations and information sharing in interdependent teams. By allowing TMT members to rapidly access and exchange information, schedule last-moment meetings or organize and synchronize agendas, we propose that in interdependent teams, ICT improves TMT agility.

Proposition 1: The impact of ICT use on TMT agility will be positively moderated by the degree of interdependence among TMT members.

TMT Homogeneity

We define TMT homogeneity as the extent to which TMT members are demographically and cognitively similar (Simons et al., 1999). Researchers have studied the impact of cultural differences on a firm's strategic decisions (Barkema and Shvyrkov, 2007; Carpenter, 2002; Hambrick and Mason, 1984; Hambrick, Cho, and Chen, 1996; Heyden, Sidhu, and Volberda**,** 2015; Miller, Burke, and Glick, 1998). The literature shows that team demographic homogeneity can reduce emotional conflicts, thus enhancing team agility. Similarly, shared knowledge and processes among team members improve decision-making and employee satisfaction (Raes, Bruch, and Jong, 2013; Standifer et al., 2014). TMT member homogeneity implies similar learning curves and experiences, which likely results in ICT platforms being similarly understood and adopted by all TMT members. TMT members' preference for similar communication methods may improve communication and facilitate achieving consensus. Thus, we expect that homogeneity among TMT members improves TMT communication when working together and enhances the relation between ICT and TMT agility.

Proposition 2: The impact of ICT use on TMT agility will be positively moderated by the degree of demographic homogeneity of the TMT.

TMT Polychronicity

'Polychronicity' is *"the extent to which team members mutually prefer and tend to engage in multiple tasks simultaneously or intermittently instead of one at a time"* (Souitaris and Marcello Maestro, 2010, p. 652). From an attention-based perspective, TMT polychronicity can be interpreted as an attention structure that leads to attending unscheduled interpersonal interactions rather than planned tasks (Souitaris and Marcello Maestro, 2010).

Decisions made by polychronous teams revolve around constant, continuous communication of timely information. Hambrick and Mason (1984) find that members of such teams share timely and relevant information informally, most of the time spontaneously. These teams obtain an information advantage via timely and relevant informal interactions between team members, most of the time casual rather than planned, which expedite decision-making (Eisenhardt, 1989) and promote agility. Since ICT facilitates such rapid and spontaneous exchanges of information, we propose that TMT polychronicity has a positive impact on the relationship between ICT and TMT agility.

Proposition 3: The impact of ICT use on TMT agility will be positively moderated by the degree of TMT polychronicity.

TMT Technological Inclination

We understand technological inclination as the ease with which TMT members become familiar with new technologies. Research reveals that while teams in general have increasingly adopted and used ICT (Daniels, Lamond, and Standen, 2001), TMTs in particular have been slower to do so (Lederer and Mendelow, 1988), partly due to TMT members' lack of familiarity with technology. Lederer and Mendelow's (1988) survey also finds that TMT members were reluctant to gain the necessary knowledge for an efficient use of ICT tools. Things have not changed much today: when asked how prepared they are to meet the demands of a digitally disrupted business environment, more than 80% of executives responded that they felt underprepared.[2]

This lack of familiarity with new technologies could be explained by TMT members' daily tasks. As discussed earlier, given that they constantly have to respond to

[2] Based on IMD's 2017 survey *"Redefining Leadership for a Digital Age"*. Available at: https://www.imd.org/contentassets/25fdd7355de14eb3a157d3b712222ef1/redefining-leadership.

urgent matters and make high-stake decisions, top managers might have limited time to keep up with the high-paced evolution of new technologies. Naturally, managers' attention to ICT is higher in firms in technological industries (Eggers and Kaplan, 2009). Also, Marcel (2009) shows that managers' age affects their flexibility in information search and interpretation, and determines the manager's openness to innovation and reaction to change.

Research shows that the relative differences among team members in speed of accessing information via computer-mediated communication determines the speed of the firm's operations (Cramton, 2001). For instance, the author explains that when some team members rarely check their e-mail, the lack of interaction between team members slows the pace of the entire team, thus impairing its agility. Therefore, we expect TMT technological inclination to enhance the relation between ICT and TMT agility.

Proposition 4: The impact of ICT use on TMT agility will be positively moderated by the degree of TMT technological inclination.

TMT Managerial Competency

The impact of managerial characteristics and experience on strategic decision-making has been extensively analyzed in the context of the TMT literature showing that firm behavior is ultimately shaped by the quality of managerial decisions (Latukha and Panibratov, 2015; Ridge, Aime, and White, 2015). Researchers have defined competency as the behavioral and personal characteristics, key abilities and potential capabilities that influence efficiency (Furnham, 1990; Menz, 2012; Spencer et al., 1999).

TMT competency has a high cognitive dimension and comprises *"a group's total pool of task-related skills, information, and perspectives"* (Simons et al., 1999, p.663). In

the context of TMT behavior, competency consists of dimensions such as the degree to which team decisions improve organizational performance, the members' ability to make team decisions and collaborate in the future, and the extent to which team processes satisfy members' needs for growth and satisfaction (Latukha and Panibratov, 2015; McClelland and Brodtkorb, 2014).

Bantel and Jackson (1989) found that executives' prior experiences make them more flexible, and help them develop creative cognitive approaches to problem-solving. Clark and Maggitti (2012) find that experienced teams are better equipped to deal with uncertainty and ambiguity in highly competitive environments. TMT competency leads to a higher degree of cohesion between team members, translating into their ability to commit to mutual goals, efficient role distribution and leadership skills (Carpenter, Sanders, and Gregersen, 2001), and producing superior results when dealing with complex problems. These findings connect the concept of TMT competency to TMT agility.

At the same time, the need for staying up to date of competent TMTs likely incentivizes them to adopt quickly new communication technologies to share information instantly. Thus, members of highly competent TMTs are more likely to see the potential that agility provided by ICT. We propose that managerial competency will positively influence the relation between ICT capabilities and TMT agility:

Proposition 5: The impact of ICT use on TMT agility will be positively moderated by the degree of managerial competency.

Firm Internationalization

A prerequisite of TMT agility is access to valuable information. Research has shown that TMTs of international firms have a broad understanding of international environments.

They have large external networks and relational capital (Hitt et al., 2002), which offer a critical source of information and shape TMT members' views about major organizational issues. Importantly, the vast set of experiences, knowledge and perspectives of international TMTs (Ancona and Caldwell, 1992) help top managers spawn creative, novel solutions to complex issues in a timely manner (Sharfman and Dean, 1997). TMTs with international exposure develop the flexibility needed to reconcile the different perspectives that are likely to occur when making high-stake decisions (Arino and Reuer, 2002; Lee and Park, 2008).

Jointly taken, these features allow TMTs with international exposure to adjust quickly to changes in the environment, particularly in settings of high uncertainty (Lee and Park, 2008). In this sense, they possess the skills and cognitive characteristics to realize the potential that new communication technologies represent for their agility. At the same time, for geographically dispersed organizations, ICT provides an essential communication platform that allows instant communication. Therefore, we propose that TMTs with members based in different locations are more likely to benefit from ICT.

Proposition 6: TMT agility is more likely to benefit from the use of ICT when the firm operates in international markets.

DISCUSSION AND CONCLUSIONS

To date, researchers have analyzed TMT strategic decision-making by exploring the impact of team homogeneity and environmental conditions on TMT and firm output. Despite the barriers and challenges highlighted by previous work on the impact of digital capabilities on TMT decision-making, research remains divergent on the dual role of ICT capabilities, as they can both facilitate and obstruct TMT agility (Blaise, Erich, and Phillip, 2008; Rosen

et al., 2007). In this paper, we address this issue by exploring two main questions: (1) does the use of ICT capabilities enhance or reduce TMT agility? And, (2) under which conditions is the impact of ICT capabilities on TMT agility more likely to be positive?

Regarding our first question, we build on previous theoretical and empirical work derived from the ABV theory to study how the ICT used at the TMT level shapes attention and agility. Based on prior research, we explain that ICT can be a double-edged sword: on the one hand, ICT capabilities could enhance TMT agility, as they facilitate communication, increase work volume and division, reduce social isolation, and improve responsiveness to uncertain conditions and decision-making speed. On the other hand, ICT could impair TMT agility by disrupting information exchanges and allowing a higher frequency of misunderstanding among team members.

Our second research question helps distinguish between these opposites according to specific contingency factors likely to affect the relation between ICT and TMT agility. To select these factors, we integrate the ABV approach with Eisenhardt's (1989) fast decision-making conditions. We discuss how TMT interdependence, TMT homogeneity, TMT managerial competency and TMT polychronicity, as well as firm-level contingencies such as the degree of firm internationalization, enhance the relation between ICT and TMT agility.

Implications for Theory and Practice

Our propositions add novel insight to the literature on organization and TMT decision-making. We present a theoretical framework to understand the relation between the use of ICT and its impact on TMT agility, and integrate research on the conditions that may enhance this relation. This approach advances our understanding of the role played by ICT

systems in providing organizations with a platform that enables collaboration between TMT members, regardless of their geographic location and availability.

Our theoretical framework has several implications for research on TMT and ICT. First, we conceptualize the notion of agility in the context of TMTs by discussing its multiple dimensions and its importance for strategic decision-making. Previous research has studied agility in a general organizational trait, considering it a source of competitive advantage (Brown and Bessant, 2003; Dove, 2001; Goldman, Nagel, and Preiss, 1995; Horney, Pasmore, and O'Shea, 2010; Krotov, Junglas, and Steel, 2014; Lu and Ramamurthy, 2011; Sharifi and Zhang, 2001; Winby and Worley, 2014). In this study, we emphasize the way TMTs focus their attention to set goals, develop corresponding strategies, and commit to their execution. We explore TMTs' ability to respond to changes and uncertainty by keeping a balance between the implementation of already existing managerial models and the adoption of more novel and efficient managerial practices.

Second, we build on previous theoretical and empirical work on digital capabilities to highlight the role of ICT as a critical input for firm activity (Gillam and Oppenheim, 2006; Gilson et al., 2015; Hertel, Geister, and Konradt, 2005). In particular, we analyze the role ICT plays in altering TMT virtuality and cohesion by exploring how ICT capabilities enable TMT agility (such as the capacity to speed up decision-making, team communication, and its responsiveness to uncertainty), as well as its role in simplifying task complexity and reducing isolation through the removal of spatial barriers. By focusing specifically on TMT agility, our arguments add nuance to previous research on the more general impact of technology on team output.

Many companies recognize the benefits of giving the right use to ICT and thus are

increasingly moving towards virtuality. Take for example GitLab, a software-development startup: the company has no headquarters and everyone, including the CEO, works remotely. The company's co-founders, Sid Sijbrandij and Dmitriy Zaporozhets, lived in the Netherlands and Ukraine respectively, and used Skype to communicate.[3] This trend towards virtuality illustrates the urgency to understand the ICT's impact on TMTs' decision-making processes.

Given the nature of a top executive's job, which prioritizes decision-making efficiency, ICT can facilitate communication among TMT members. Interestingly, top executives are amongst the slowest groups to adopt virtuality: their schedules are notoriously filled with face-to-face meetings (Porter and Nohria, 2018), where most decisions are made. Despite this kind of meetings' undeniable benefits, they might not need to be so frequent – anecdotal evidence flares with cases of executives stating that meetings consume a significant portion of their time. ICT can help TMT members communicate more efficiently, and our reasoning suggests that given the potential for ICT to help optimize TMTs' agendas, becoming proficient in virtuality is of paramount importance.

Limitations and Future Research

This conceptual study opens the discussion on an issue ever more prevalent among organizations, namely the role of ICT in shaping the attention of TMTs and influencing TMTs' agility. We propose that, as ICT becomes even more critical to strategic decision-making, its impact on TMT agility will be strongly influenced by contingencies from the internal and external environments.

3 "*The Office of the Future is No Office at All, Says Startup*" (Wall Street Journal , May 15, 2019), available at this link: https://www.wsj.com/articles/the-office-of-the-future-is-no-office-at-all-says-startup-11557912601

Nevertheless, this paper leaves some points unanswered and suggests avenues for future research. First, as a conceptual piece, it does not empirically address the propositions. An empirical analysis could also identify the optimal frequency for ICT usage among team members and reveal additional contingency factors relevant for the studied relationship.

Also, we do not study separately the impact of the various types of technologies, and whether their effectiveness may lead to different outcomes in terms of TMT agility. Anecdotal evidence suggests that some tools are more efficient than others, but their direct impact is yet to be estimated. Research could next analyze whether TMTs need to keep a balance between following an established managerial model – based on physical meetings – and the novel usage of more recent ICT platforms, which facilitate instant information sharing for distributed team members in order to develop agility. We also encourage future research to further examine the impact of technology on the "millennial generation" (Gorman, Nelson, and Glassman, 2004; Lu and Ramamurthy, 2011), arguing that the impact of ICT on the millennials' behavior may differ substantially relative to that on previous generations. Members of more recent generations may feel more comfortable using ICT and thus may be able to accomplish a wide range of tasks in a quicker and more efficient way, contributing to a more agile TMT. On the contrary, previous-generation individuals' reluctance or fear to use ICT may have a more negative impact on TMT's agility.

Lastly, as information accumulation becomes ubiquitous, many organizations and team members are at risk of getting distracted by the considerable amount of available information, and thus engage in biased decision-making. While we call attention to the

importance of this research topic for better understanding managerial decision-making, further research on these potential side effects is needed. Overall, empirical research should investigate what makes the impact of ICT on TMT agility more likely to be positive or negative.

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TABLE 1.
Dimensions of fast decision-making (Eisenhardt, 1989) and selected contingency factors.

Fast decision-making dimension	Related contingency factor
Real-time information	TMT polychronicity; TMT technological inclination
Multiple simultaneous alternatives	TMT interdependence; Firm internationalization
Two-tier advice process	TMT heterogeneity
Consensus with qualification	TMT managerial competency
Decision integration	TMT interdependence; TMT heterogeneity.

FIGURE 1.
The Link Between ICT Use and TMT Agility: Exploring Contingencies