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The Influence of leaders' promotion of sensemaking on team metacognitions, adaptation and performance: A mediation model

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Master in Management

Supervisor:
PhD Ana Margarida Soares Lopes Passos, Associate Professor,
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Resumo

Nos contextos altamente competitivos e dinâmicos de hoje, torna-se essencial compreender os fatores que contribuem para níveis elevados de performance em equipas. Nesta dissertação, a adaptação de equipas e a metacognição são analisadas como mediadores da relação entre a promoção de sensemaking por parte do lider e a performance das equipas. Um total de 55 equipas que prestam serviços de auditoria e consultora responderam a dois questionários, um para os lideres e outro para os membros da equipa, para verificar a hipótese anteriormente formulada. Os resultados mostram resultados positivos, que dão suporte à hipotese que a adaptação de equipas e a metacognição mediam a relação entre a promoção de sensemaking por parte do lider e a performance das equipas. Futuras investigações devem considerar um maior número de equipas inseridas em diferentes ambientes, para analisar se os resultados se mantém igualmente fortes e são aplicáveis a outras indústrias e contextos.

Palavras-chave: Liderança de Equipas, Performance de equipas, Sense-Making, Metacognição, Adaptação de equipas.
Classificação JEL: D23 Organizational Behavior; O15 Human Development.

Abstract

In today's competitive and highly dynamic organizational context, it is vital to understand what factors contribute to high levels of performance in teams. In this dissertation, team adaptation and metacognition are analysed as mediators of the relationship between the leaders' promotion of sensemaking and team performance. A total of 55 teams in audit and consulting services answered two questionnaires, one for leaders and one for members to verify the previously formulated hypothesis. Results show positive effects, supporting the hypothesis that team adaptation and metacognition mediate the relationship between the leaders' promotion of sensemaking and team performance. Further research should consider a higher number of teams inserted in more diverse settings, to identify if the results are equally strong and applicable to other industries and different contexts.

Keywords: Team Leadership, Team Performance, Sense-Making, Metacognition, Team Adaptation

JEL Classification System: D23 Organizational Behavior; O15 Human Development.

Index

Table Index

x

Figure Index

I.   Introduction

As work has become increasingly more complex and difficult to be performed just by one individual, working in teams has become critical to ensure success in most organizations (Mathieu et al., 2000). Particularly in the recent times, teams must work together and adapt quickly and effectively to be able to achieve the high levels of performance that teams are expected (Zaccaro et al., 2001). This ability to adapt quickly allows teams to be more successful in very dynamic contexts (Mathieu et al., 2000).

The literature suggests that leadership, specifically the way the leader promotes discussion and the delivery of key information to the tasks at hand, assumes a critical role in the promotion of more adaptive and creative teams. However, this aspect has not been studied empirically in the literature.

At the same time, team cognitions have proven to be one of the main predictors of team adaptation (Hinsz, 2004). Notwithstanding, most studies have been focusing on a specific type of team cognition, the mental models, not exploring other cognitive variables, such as metacognition.

Taking this in consideration, by studying this variable that has not been subject to much research, new insights on this topic will arise. Zaccaro et al. (2001) already brought to light the importance of this cognitive variable, by mentioning its crucial impact on team performance, especially in terms of the influence it has in the quality of decision making by the teams.

This study focuses on addressing these gaps by providing additional data into this increasingly recognized team cognition model, while also focusing on understanding the impact it has on team adaptation and both as mediators of the relationship between the leaders' promotion of sensemaking in team performance.

Thus, giving a clearer idea of how promoting sense-making in teams stimulates the development of metacognitions and team adaptation and in which way this increases performance in teams.

II. Literature Review

In the beginning of times, work was performed individually, with each person having very specific tasks. As time progressed and the world kept evolving, specifically in the most recent times with the appearance of technology, dividing the work became pivotal in ensuring continued evolution and adaptation to the environment, facilitating the development of teams (Kozlowski & Ilgen, 2006), which nowadays are present and essential in all organizations (Morgeson et al, 2010) .

A team is defined by Kozlowski and Bell. (2003) as a group of over two individuals who were created to perform organizationally relevant tasks, while sharing one or more goals, interacting socially, exhibiting task dependencies, maintaining and managing boundaries, and embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity.

In a simpler way, teams are groups of individuals that together can achieve far more than by working alone, being the definition of successful teamwork (Marks et al., 2001). Teams are seen as being more capable of solving complex tasks, since they split the work among themselves, keep track of the performance and evolve in their skill and expertise (Mathieu et al., 2000).

The term team is important, as it differs from groups. Groups consist on two or more people who do not share accountability, work individually and produce separate outputs that are compiled in a later phase. On the other hand, teams are in it together, sharing common a goal, with every input being key to the outcome (Katzenback & Smith, 1993). A critical distinction is the ability to work effectively as a team.

Teamwork consists on individuals working together to fulfill a given goal, which is not possible to achieve by working alone (Zaccaro et al., 2001). Nowadays, this has become paramount to a team's success (Hollenbeck et al., 2012), particularly in this most recent context of uncertainty, threatened by an invisible enemy and obligated to work from home, being a constant test of leadership (Grint, 2020).

Teamwork is characterized by recurring cycles of mutually dependent interactions. These cycles can be divided in two different phases: the transition and the action phases. The first is where teams undertake planning and evaluation of activities focused on the goals of the team. In the latter, the activities are performed and directly promote the achievement of the proposed goals. Teams are constantly changing between these cycles, being where team action occurs (Morgeson et al, 2010).

As complexity in the workplace keeps growing, with quick and constant environmental changes, helping teams becoming more adaptive and maintaining or even increasing the performance is becoming hugely important. It's imperative that teams can perform in today's highly dynamic and complex environments (Zaccaro et al., 2001), and are able to effectively manage this complex new reality and successfully adapt (Rosen et al., 2011).

A team that is successful in doing this, is seen as more effective, which, in the most recent times, has grown in importance for companies, and to society. This ability to produce and maintain effective teams is highly sought after and critical to organizational success (Kozlowski & Ilgen, 2006).

Recently, research has been focusing on finding the reasons that make some teams become more effective than the rest (Ilgen et al., 2005).

Team effectiveness is commonly defined in the literature by using the I-P-O model (Input-Process-Outcome), where team effectiveness is measured as a group outcome. In this model, time is a key component. Teams cycle between transition and action phases. The outcome of each cycle gives several inputs for the next one (Marks et al., 2001).

Team processes are independent acts of the members which convert inputs to outputs, the means by which teams can produce relevant outcomes, using several activities/processes to organize taskwork (Marks et al., 2001), serving as instruments that aid teams in combining their skills and actions (Kozlowski & Bell, 2013). An effective team has four main processes: Cognitive, Affective, Motivational and Coordination. Team leadership affects effectiveness through these processes. When a leader promotes and encourages idea exchange, constructive criticism and mutual support, the team is more likely to feel more empowered and be more effective and efficient in the performed tasks (Zaccaro et al., 2001). Outcomes are the products or by-products of activities performed by the team, which are valued by one or more members (Mathieu et al., 2000). Across every organization, there are teams that consistently produce better outcomes, being therefore more effective (Kozlowski & Bell, 2013).

In the literature, there have been several discussions regarding the distinction between emergent states and team processes. Team emergent states differ from team processes, as explained by Marks et al. (2001). This lies on the fact that emergent states are dynamic team characteristics that may vary in time and according to the context, inputs, processes and outcomes. An example of team emergent state which will be covered later in this literature review are the shared mental models (SMM).

As previously mentioned, the I-P-O model is considered the most popular way of defining team effectiveness (Marks et al., 2001). However, there are other models that are getting some

popularity. In the recent times, there has been a higher focus on the mediating processes that enlighten the reasons for some inputs having a more significant effect in team effectiveness (Ilgen et al., 2005).

Ilgen et al. (2005) suggests that the I-P-O model is not enough to give an accurate description of teams, for three main reasons. First, several of the mediating factors that have an impact on the relationship between input and output are not necessarily processes, they can also be emergent, cognitive or affective states (Marks et al., 2001). Second, it does not take into consideration the possible and likely feedback loops that happen in between each stage of the model. Lastly, it fails to explain the dynamic relationships between each category, suggesting a linear progression, while research shows there is more to it, that there are several interactions between each category.

Thus, taking into consideration all the limitations previously mentioned, a different model to define team effectiveness was created by Ilgen et al. (2005), the IMOI model, which stands for input-mediator-output-input. In this model, the M was introduced, substituting the P, to give the required value to the mediating factors that impact effectiveness. The I at the end was added to give an emphasis to the cyclical feedback that was mentioned as a limitation previously. The hyphen was removed to suggest a nonlinear relationship between the different cycles rather than a straight linear connection like the I-P-O model. Feedback occurs in between cycles and the nature of team IMOI relationships is similar among different types of teams (Mathieu et al., 2008).

Regardless of the model used, literature refers to leadership as a main variable in the promotion of team effectiveness (Graça & Passos, 2012). In every team there is an individual or individuals who are responsible for connecting the dots, that is, ensuring that all the members are rowing towards the same destination. This is where leadership takes place (Zaccaro et al., 2001).

2.1. Functional Leadership

By being a very popular topic in literature, leadership has been studied by many authors and in several levels: Individual, interpersonal, team and organization levels (Kozlowski & Bell, 2003). When considering the individual level, most theories focus on the leader and his characteristics, whereas in the interpersonal level, the focus is on the relationship between the leader and the members (Graça & Passos, 2012). Team level theories are based around team leadership, which will be investigated in more detail in this dissertation. Teams connect the

gaps between the individual and the organizational systems, that is, teams are the crucial point that connects the human and the system (Kozlowski & Bell, 2003). As leadership is an area that is constantly changing with the passing of time, there is a need for more research in this area, to stay updated and keep up with this change (Horner, 1997).

As mentioned by Bass (2008), early principles of leadership can be traced back as the emergence of the civilization. Leadership models and empirical research show that leadership is a relevant factor that has an impact in the processes and outcomes of teams, (Graça & Passos, 2012) being considered the most critical factor in the success or failure in organizations (Bass, 2008).

Organizations consist on the sum of the several teams that are included thereof. Teams are consistently facing an immense amount of challenges and must be able to properly deal with them, with the leader serving as a guide. Consequently, the impact of leadership in those teams is a factor that is paramount to their success (Bass, 2008).

Team Leadership is seen as promoting team satisfaction while focusing on enhancing team effectiveness (Morgeson et al., 2010). Across any team, there are certain individuals who take responsibility for defining goals, structure and developing the team in order to fulfill the missions/goals, denominated by the leader (Zaccaro et al., 2001). An effective leader guides the members attention to the defined goals and to the best ways to accomplish them (Bass, 2008) A leader who is managing a team, is required to identify problems and create solutions, implementing the most fitting for each situation (Salas et al., 2005).

There are numerous explanations, theories, definitions and models on team leadership in the literature. It was given a huge effort in defining these in the latest years (Kozlowski & Bell, 2003). However, for this dissertation, the theory which will serve as the basis of the research is the functional leadership, considered the most prominent and well known (Morgeson et al., 2010).

As described by Hackman and Walton (1986):

The key assertion in the functional approach to leadership is that [the leader's] main job is to do, or get done, whatever is not being adequately handled for group needs' (McGrath, 962, p. 5) If a leader manages, by whatever means, to ensure that all functions critical to both task accomplishment and group maintenance are adequately taken care of, then the leader has done his or her job well.

Aligned with the definition of the functional leadership theory, the individual that assumes the responsibility of satisfying the needs of the team takes the leadership position. As the usage of teams has become more popular and widespread, research has been focusing on the impact

6

of leadership in the stimulation of team success. The leader is the one person who assumes responsibility for having the needs of the team satisfied (Morgeson et al., 2010).

While coordinating tasks, resources and expertise within the team, leaders can quickly adapt and make decisions to keep the team within its tracks when gaps are found (Zaccaro et al., 2001).

As noted at the beginning of this literature review, there are two main phases where teams are constantly cycling, the transition and the action phases, with the same taxonomy being used in the I-P-O model (Marks et al., 2001).

Following Morgeson et al. (2010), in the transition phase, teams focus on structuring, planning and evaluating activities, with the objective of completing the goals and objectives of a team. The action phase is where teams focus directly on activities that promote goal accomplishment. There are 15 leadership function categories: 7 included in the transition phase (Table 1) and 8 included in the action phase (Table 2).

Table 1. Transition Phase Functions Definition

Transition phase functions	Definition
Compose team	It is defined as how well distributed skills, attributes and characteristics are between the members that constitute the team.
Define mission	After decomposing the performance goals and expectations into tangible and understandable parts, leadership is responsible for defining a purpose/mission.
Establish expectations and goals	Leaders work with the team and individually with each member to define goals and establish expectations.
Structure and plan	In order to achieve the previously established goals and expectations, it is important to determine how to better achieve them, by structuring and planning the upcoming action.
Train and develop team	In order to keep up with the increasingly complex tasks and situations, it is key to train and develop the team members, both in task work and in interpersonal skills.
Sense making	Means interpreting the different situations and environment cues and transmitting it to the members. This helps understanding the significance of those events and how to better react to them.

	The goal of feedback is for teams to understand what happened in the present and in the past, what they did well and/or wrong and adapt the behavior to the next action phase.
Provide feedback	

Source: Morgeson et al. (2010)

Table 2. Action Phase Functions Definition

Action phase functions	Definition
Monitor team	While the action is being performed, it is vital to monitor progress, examining the environment, the performance and processes, giving valuable data to several of the other functions.
Manage team boundaries	It consists of communicating and coordinating with the main external members or units.
Challenge team	If focuses on encouraging team members to think outside the box and find new and better solutions to the problems that are faced and to better perform the given tasks.
Perform team task	It is core to the functional leadership model, focuses on getting done what needs to be done, getting hands on with tasks that are not often performed by the leaders.
Solve problems	It consists on diagnosing and solving any underlying problems that appear in the action phase and keep teams from achieving the defined goals.
Provide resources	As teams require several resources to be able to complete their tasks, the leaders' role is to act and get them, whether financial, informational, material or personnel resources.
Encourage team self-management	It consists on giving the freedom to team members to be responsible by their own tasks, by managing themselves, the team and task work problems.
Support social climate	This function focuses on solving any interpersonal issues between members, that would affect teams' task performance. It consists of managing the emotions of the members of the team.

Source: Morgeson et al. (2010)

2.2. Sense Making

As mentioned in the previous section, and following the functional leadership theory, Sense making is a team leadership function that is part of the transition phase function (Morgeson et al., 2010).

In this time of constant changes, teams face constant pressure from the organizations and the increasing competition. As teams require to be able to adapt and properly understand the continuous overload of information (Kozlowski & Bell, 2013), teams need to be able to effectively organize and make sense of this information to keep moving forward.

Sense making is the process by which individuals/groups attempt to explain novel, unexpected, or confusing events, by developing ways of describing and rationalizing these events, properly organizing them (Maitlis et al, 2013).

The sensemaking perspective was originally developed by Karl Weick, where it appeared first in the literature, in 1969/1979. According to this perspective, the author argues that organizing is taking action, comparing the results with the environment and trying to make sense of this information by splitting it in small relevant bits, categorizing them and linking them together (Sandberg & Tsoukas, 2014). That can be done by placing the items into frameworks, constructing meaning, reacting to surprise and interacting pursuing mutual understanding and patterning (Zaccaro et al., 2001). Thus, individuals act, make sense of that action and using what they have made sense of, will act again, repeating the process, being this endless process the basis of sensemaking (Sandberg & Tsoukas, 2014).

When sensemaking is stimulated within the team, it produces shared mental models, which promote team adaptation in dynamic environments. Leaders stimulate within the team an understanding of the mission, the steps required to fulfill it and the roles of each team member in their joint performance (Zaccaro et al., 2001), providing this information in an easy to understand and accurate fashion (Salas et al., 2005).

Thus, it becomes significant that the teams are in sync when reacting to these dynamic and everchanging environments. This is where mental models have an important role, since they allow members to have a common understanding of the problems and situations, transforming regular mental models in shared mental models (Mathieu et al., 2000). Empirical evidence has showed that when leaders provide clear information, team members develop more precise mental models, similar among each other (Salas et al., 2005).

Mental models are ways of organizing information. They help describing and foreseeing the behavior of the surrounding world, the environment and predict future events (Mathieu et

al, 2000). Shared mental models (SMM) are the collective understanding between members of a team, about relevant team and task parts of their work (Santos et al., 2015).

Some teams do not understand what they are specifically adapting to (Christian et al., 2017) and this is where sensemaking can have an influence. By stimulating sense making, the leader properly explains the new and unknown events, organizing them to be easier to act upon (Maitlis et al., 2013). It is expected that teams that share the same view on how they act as a group and how they relate with each other are more efficient and effective (Hinsz, 2004). Basically, to adapt more effectively, teams must be able to predict what the members are going to do next and how they are going to act to achieve that (Mathieu et al., 2000).

2.3. Metacognition

In teams, sensemaking is important to organize and simplify the information and tasks that are continuously appearing (Mathieu et al., 2000). However, this requires a high cognitive effort, being the teams who are better at knowing themselves, by being aware of their cognitive processes (Hamilton et al., 2017) that adapt better to this endless barrage of information. This understanding of one's own cognitive capabilities and processes is known as Metacognition (Zaccaro et al., 2001).

Metacognition is reflecting upon the cognitive processes used in problem solving (Zaccaro et al., 2001), being aware of the cognitive processes and having the capacity of monitoring and intentionally controlling them. (Wiltshire et al., 2014). It represents *knowledge and cognition about cognitive phenomena* (Flavell, 1979). It is the events, processes, structures and knowledge involved in the interpretation, control and modification of thinking itself (Wells & Cartwright-Hatton, 2004), the beliefs and expectations that teams have about how they process information and carry on cognitive processes (Hinsz, 2004).

Empirical evidence suggests that teams are seldom successful in reflecting, sharing their thoughts and using the information at hand, which leads to failure in adapting to an environment that is constantly changing (Konradt et al., 2015).

As described by Zaccaro et al. (2001), in order to achieve high levels of expertise which in turn promote adaptation in an everchanging environment, teams need to devote time into reflecting, either together or separately, the consequences of the strategies taken, how they came up with the team solution and how teamwork was executed to implement the carefully chosen solution.

On the other hand, when a team spends much time reflecting, they can end up addressing several subjects that are not relevant to the objectives and goals (Konradt et al., 2015). Nonetheless, several authors argue that metacognition in teams is essential for team performance, predominantly when it is required for teams to quickly adapt to dynamic environments (Zaccaro et al., 2001). When it is promoted effectively within teams, especially after a given task, it becomes a great way of boosting team effectiveness. Collective metacognition is promoted when leaders provide important feedback to team members and encourage reflection around the team processes. In empirical studies, it was found that teams where leaders promote collective metacognitive processes had better performance than teams whose leaders did not promote those practices (Zaccaro et al., 2001).

When teams have a clear understanding of the information that comes their way, with the promotion of effective sensemaking by the leader, teams are more likely to spend a greater amount of time reflecting on what they are doing and how they are doing it, ultimately being able to perform a given task more effectively.

Hypothesis 1: Metacognition positively mediates the relationship between the leaders' promotion of sensemaking and team performance.

2.4. Team Adaptation

The ever-increasing dynamic environments where organizations operate require teams to adapt (Maynard et al., 2015). Specifically, with the current threat we are facing, with the Covid-19 pandemic, it is extremely important for a team to be adaptive. Teams must adapt to these new circumstances, where physical teamwork has become difficult and remote work has become increasingly popular (Kshirsagar et al., 2020).

Team adaptation refers to changing the team performance, by responding to a stimulus leading to an efficient outcome for the team. It is argued that adaptability is key to success since organizations and teams successful at adapting would have greater efficiency in the market. As organizations are increasingly in need of solving complex problems, they adopted the use of teams, mostly because of this complexity, therefore being adaptive is imperative (Rosen et al., 2011). Cannon-Bowers et al. (1995) referred adaptation as the process by which a team can use information gathered from the task environment to adjust strategies using compensatory behaviors and reallocation of intrateam resources.

In some cases, where teams change the structure of the team or when unexpected events occur, teams may have to come back to a transition phase, where they review their processes

and react, making the necessary changes before adapting their following action (Maynard et al., 2015). Research has shown that the teams that fastest identified that change was necessary, were the ones who stopped and took more time thinking about the team processes while they were doing a given task (Ilgen et al., 2005)

Following this, when the leader promotes an environment of understanding, helping to properly organize and deconstruct complex information, this fosters team adaptation, allowing teams to react faster, and quickly adjust their strategies, goals and the way they work to a given situation, which in turn will have a positive impact in the performance of such teams.

Hypothesis 2: Team adaptation positively mediates the relationship between the leaders' promotion of sensemaking and team performance.

2.5. Team Performance

In the organizational world, the success of a team is commonly evaluated according to their performance, as teams are created to perform tasks (Salas et al., 2000).

The main goal is to have the largest number of teams performing highly in each company, so that the companies' goals and objectives are accomplished, being team performance defined by extent of their completion (Bell, 2007).

Leadership plays a vast role in team performance. In teams where the leader is guiding effectively, by providing the appropriate directions and organizing the team in such a way that progress can be maximized, team effectiveness increases, therefore increasing team performance (Zaccaro et al., 2001).

We reason that teams where the leader promotes sensemaking and have high levels of metacognition, are likely to become better at reacting to the environment and properly adapt to changes and with that reach high levels of performance. As team members transform hard to understand information, organizing it into small, clear and to the point portions, it promotes the reflection on what they are capable of doing, increasing their cognitive control and their understanding of how to better process the information (Hinsz, 2004). Consequently, this will foster an improved use of this information, now made sense of, allowing to more effectively adapt the strategies, decisions and behaviors that are used (Cannon-Bowers et al., 1995), ending up having a positive relationship in the teams' performance.

Hence, it is expected that there is a relationship between the leaders' promotion of sensemaking, metacognition, team adaptation and team performance.

Hypothesis 3: Metacognition and team adaptation sequentially mediate the relationship between the leaders' promotion of sensemaking and team performance.

The research model is represented in Figure A.
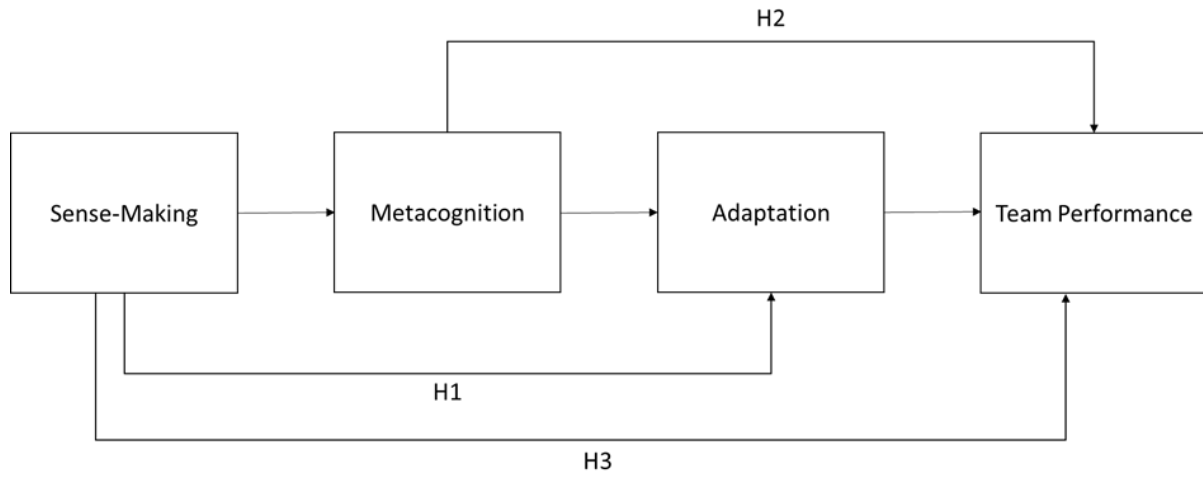
Figure A. Hypothesized research model

III.   Methodology

3.1. Sample Characterization

The study was performed on a sample of 55 teams, summing a total of 265 individuals. The teams worked in consulting or audit services in companies located and registered in Portugal. The number of team members varied between two and seven, with most teams consisting of 4 to 6 members (85 %). The average age was 31 years and the participants were evenly distributed in terms of sex, with approximately 53% Male and 47% Female.

3.2. Procedure

The study was performed using a written paper questionnaire. The team members and leaders answered individually and autonomously to the questionnaire. The data was collected within 3 months, as part of a broader research project, targeting the identification of the factors related to teamwork that contribute to the effectiveness of the projects and satisfaction of both the clients and the consultants/auditors.

3.3. Measure

3.3.1. Leader's promotion of sensemaking

Promotion of sensemaking by the leader was measured by using a 5-item scale (e.g "The leader helps the team interpreting what happens inside the team"; see Annex D), based on what was proposed by Passos et al. (2019). This scale was measured using a 7-item scale, ranging from 1 = Totally disagree, 7 = Totally agree.

3.3.2. Metacognition

In the operationalization of metacognition, a 4-item scale (e.g "Whenever we perform a new task, we stop and think, questioning about out performance"; see Annex D), adapted from Mukherji and Mukherji (2017), was used, being evaluated through a 7-item scale, stretching from 1 = Completely disagree, 7 = Completely Agree).

3.3.3. Team Adaptation

Team Adaptation was measured using an 8-item scale (e.g "Our team is effective in finding innovative ways to deal with unexpected situations"; see Annex D), proposed by Quinteiro et

al. (2015). This scale is assessed by using a 7-item scale (1 = Completely disagree, 7 = Completely agree).

3.3.4. Team Performance

Performance was measured by the leader in the leader's questionnaire (see Annex A), and was operationalized using an adapted 2-item scale (e.g. "The team is effective."; see Annex D) from Gonzaléz, Fortes-Ferreira and Peiró (2009), equally measured using a 7-item scale (1= Completely disagree, 7 = Totally Agree).

The following table summarizes the information regarding the scales used in this dissertation (Table 3).

Table 3. Questionnaire Scale Summary

Construct	Items	Adapted from
Leaders' promotion of sensemaking	5 items	Passos et al. (2019)
Metacognition	4 items	Mukherji & Mukherji (2017)
Adaptation	8 items	Quinteiro et al. (2015)
Team Performance	2 items	Gonzaléz et al. (2009)

IV.   Data Analysis

4.1. Aggregation

Initially, individual answers were aggregated to perform a team level analysis. To do this and justify the aggregation, rwg(j) was calculated for the desired variables, to identify the level of agreement between the groups and confirming therefore the validity of the group-level constructs. To this effect, the goal was a mean value of rwg(j) higher or equal to .70 (James, Demaree & Wolf, 1993). Additionally, the agreement was measured as follows: .00 to.30 – "Lack of Agreement"; ,31 to .50 – "Weak Agreement"; .51 to .70 – "Moderate agreement"; .71 to .90 – "Strong agreement"; .91 to 1.00 – "Very strong agreement" (Biemann, Cole & Voelpel, 2012: 73).

Resulting from this, leader promotion of sensemaking has a rwg(j) mean value of .80 and 9.09% of the values evidencing lack of agreement or weak agreement, while 90.91% evidence moderate, strong or very strong agreement. As for metacognition the rwg(j) mean value is .70, with 21.82% of the values evidencing lack of agreement or weak agreement and 78.18% evidencing moderate, strong or very strong agreement. The rwg(j) mean value of team adaptation is .87, and 5.45% of values correspond to weak agreement, while 94.55% correspond to moderate, strong or very strong agreement. Finally, for team performance the rwg(j) mean value is .84, with 5.45% of values showing lack of agreement, while the remainder 94.55% of the values were included in the moderate, strong or very strong agreement.

4.2. Hypotheses testing

While preparing the hypothesis testing, the correlations of all variables were tested. The results are displayed in Table 4, together with mean values and standard deviations. As expected, results show a significative positive correlation between all the variables. Leader promotion of sensemaking, metacognition, Team adaptation and team performance were all positively correlated with each other.

To evaluate our research model, process macro, developed by Hayes (2013) was used. With this macro it is possible to test direct and indirect effects of the leader's promotion of sensemaking in team performance, through metacognition and team adaptation, even when there is no association between sensemaking and team performance. The sample was re-sampled 5.000 times and examined for 0.95 confidence intervals (CI).

Table 4. Mean, standards deviation and correlations of all analyzed variables

	Rwg	M	SD	1	2	3	4
1. Leader promotion of sensemaking	0.80	5.51	0.77				
2. Metacognition	0.70	4.78	0.74	.69**			
3. Team adaptation	0.87	5.57	0.62	.80**	.72**		
4. Team performance	0.84	6.01	0.65	.51**	.52**	.68**	

Note: n = 55 teams

** p < .01

Table 5 synthesizes the results of the process macro and the effects of leaders' promotion of sensemaking on team performance.

Table 5. Total, Direct and Indirect Effect of leader's promotion of sensemaking on team performance

Effect type	Effect size (B)	Standard Error (SE)	Lower Limit (CI)	Upper Limit (CI)
Total Effect	0.2915	0.128	0.0346	0.5484
Direct Effect	-0.0247	0.2157	-0.4579	0.4085
Total Indirect Effect	0.3162	0.2126	-0.0596	0.7727
Mediation through Metacognition	-0.0539	0.138	-0.3603	0.2033
Mediation through Metacognition and Team Adaptation	0.0959	0.0739	0.0065	0.319
Mediation through Team Adaptation	0.2741	0.1606	0.0177	0.6624

Note: 1) CI = Confidence Interval

4.2.1. Direct Effects

Initially, the regression tests were run. First, testing leader's promotion of sensemaking as a predictor for metacognition. This relationship was supported, showing a strong positive effect (B = .64, p < .01), with [CI = 0.45, 0.83]. For leader's promotion of sensemaking as a predictor for team adaptation, the results showed a similarly strong positive effect (B = .48, p < .01), with

[CI = 0.30, 0.65]. As for metacognition predicting team adaptation the results were also significant (B = .26, p < .01), with [CI = 0.07, 0.45].

When considering leader's promotion of sensemaking as a predictor for team performance, the effect was negative (B = -.02, p > .05), with [CI = -0.46, 0.41], which gives validity to the study model. For metacognition as a predictor for team performance, the effect was also negative (B = -.08, p >.05), with [CI = -0.48, 0.31].

However, for team adaptation as a predictor of team performance the results evidenced a strong positive effect (B= .57, p < .01), with [CI = 0.02, 1.13].
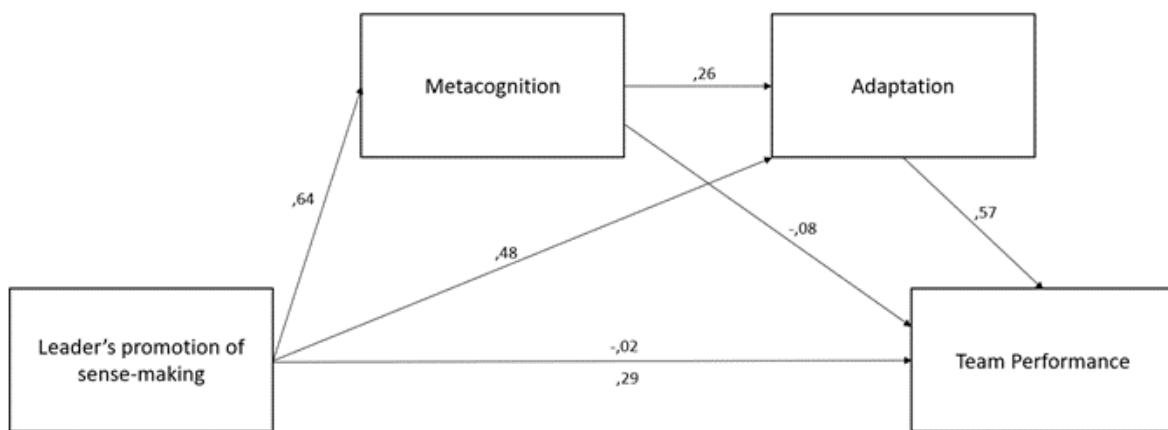
Figure B. Hypothesized model with effect values that resulted from the macro process.

4.2.2. Indirect Effects

Then, after testing the individual direct influences of each independent variable, indirect effects were tested to verify the effect of the mediation by metacognition and team adaptation on the promotion of sensemaking in team performance.

The results are concisely represented in Table 5 and they show that leaders promotion of sensemaking when mediated by metacognition alone show a negative effect (B = -.07 [CI = -0.48, 0.27]), giving evidence that alone, metacognition does not mediate the relationship between the leaders' promotion of sensemaking and team performance, not supporting Hypothesis 1.

As for the effect of the mediation of both team adaptation and metacognition the results show a positive effect (B = .09 [CI = 0.01, 0.30]). This gives both support to the study model and to Hypothesis 3.

Finally, leaders' promotion of sensemaking when mediated by team adaptation alone shows a strong positive effect (B = .27 [CI = 0.02, 0.66]), giving support to the Hypothesis 2.

V.   Discussion

The objective of this study was to analyze and test the effects of metacognition and team adaptation as mediators of the relationship between the leaders' promotion of sensemaking and team performance. The main goal was to understand if in highly complex and dynamic environments, by using sense-making and promoting metacognitions and adaptation in the team, the relationship was beneficial to team performance, with the goal of producing solutions or mechanisms to react to these situations.

Considering the mediation hypothesis, being the core of the studied model, it was expected that metacognition and team adaptation mediated the relationship between the leaders' promotion of sensemaking and team performance.

Concerning Hypothesis 1, results show that the metacognition alone as a mediator, did not have significant effects on the relationship between the leader's promotion of sense making and team performance. Even as a direct predictor of team performance, metacognition had similar insignificant effects. This is contrary to what was expected, which was a positive effect in the previously mentioned relationship. The findings may suggest that by spending much time thinking, teams might get distracted and lose focus of the end goal (Konradt et al., 2015). This can be a valuable input for the discussion about effects of metacognition in performance, where several authors take conclusions that give evidence for the positive effect of the aforementioned relationship (Keith & Frese, 2005; Zaccaro et al., 2001)

As for the Hypothesis 2, results evidence that team adaptation as a mediator had significant effects on the previously mentioned relationship. When directly predicting team performance the effects were similarly significant. The results are according to the expectations, and suggest that teams that promote adaptation, have clearer understanding of the information that is given to them, being able to perform better. When comparing this with existing literature, it is in line with what is mentioned my most authors, that defend the positive relationship between team adaptation and team performance (Kozloswki & Bell, 2013).

Regarding the Hypothesis 3, results support the double mediation, that is, metacognition and team adaptation mediate the relationship between the leaders' promotion of sensemaking and team performance. This is in line with literature, as teams that have higher levels of control over their cognitive processes and are more self-aware, perform better as the environment changes and are required to adapt to it (Ilgen et al., 2005). Additionally, as mentioned by Zaccaro et al., (2001), teams should take time to reflect on their strategies, the information that is presented to them and how they cognitively thought and ended up choosing a given strategy. Teams that can do this, become more adaptive, ending up increasing their overall performance.

Therefore, with these results, support was found for the studied model, such that the effect of the leaders' promotion of sensemaking in team performance was mediated by the two variables, metacognition and team adaptation, since when serving as a predictor by itself, leaders' promotion of sensemaking to team performance had a weak effect, but when mediated either by team adaptation alone or by both variables, it had a positive effect, corroborating what was being studied.

Over the last years, especially in the most recent times, work has become more complex and dynamic, so teams and organizations must be able to keep up with the changes (Kozlowski & Bell, 2013). Consequently, this result can be beneficial for teams who want to keep up or increase their overall performance, that is, by using sensemaking, teams develop their adaptation and metacognition, which as has been proven in this model, mediate positively the relationship between performance and sensemaking.

To our knowledge, it is the first time that this specific model is tested, and the results contribute to literature, presenting a new view that will open for more research, since it gives evidence of different ways of stimulating performance in teams. By developing metacognition, teams will be more conscious of what they are thinking and aware of their capabilities, being easily able to develop adaptative behaviors, which, as the results of this dissertation propose, will be related to a greater understanding of the blizzard of information is constantly flowing, ending up having a positive impact in the performance in teams.

5.1. Practical implications

These findings can be used by leaders that want to increase performance in teams. When teams are presented with complex and highly dynamic environments, keeping up the performance is critical to ensure continued success of organizations. As the results suggest, if leaders promote an environment where the new and unknown information is explained and organized in a simple and practical fashion (Sense making), they more easily develop a need in their members to think about the way they think and to gain a better control of their cognitive functions (Metacognition).

This increase will lead to the development of better solutions, that are more fit to these environments, being able to walk step by step with the uncertainty, and instead of always fearing it, being ready to quickly react (Team Adaptation). Ultimately, this will create teams which are ahead of the competition, with organized and controlled thoughts and ready to quickly react to most environmental cues, thus having higher performance than their peers that do not follow these steps.

Results of this study also show that by itself, the promotion of sensemaking does not have a big impact in team performance, however when mediated by both metacognition and team performance that relationship becomes impactful. This can be useful for leaders, in such a way that it can be understood that only clarifying and making sense of complex information might not be enough for the increase of the team's performance, but by also promoting reflection and thinking about their own cognition and capabilities, allied with the stimulation of an adaptive environment within the team, will in turn increase team performance, which is the desirable outcome in every organization.

5.2. Limitations and Future Research

The sample studied was consisting of 55 teams, which can be considered as relatively small. Additionally, the members were all from only two industries, audit and consulting, which limits the representability of the study.

In a future research, a similar study could be performed with a higher sample size, included in more diverse settings, from office work, like recruiting, to field work, such as supply chain, as an example. This would allow a greater understanding of the results and to confirm if the findings can be applied to other settings and lines of work.

The study performed was a questionnaire, for better results, different methodologies could be used, for instance longitudinal studies, conducting interviews or using case studies. To further understand the intensity of these connections and this mediation, studies in different sectors could be performed, in the different lines of work, from more knowledge intensive companies to more industrial and operational companies.

It would also be worth to study if this relationship is stronger in more dynamic settings, subject to constant environmental changes or in more predictable settings.

The factor culture could be studied to further understand if this relation is specific to Portugal, or if it is similarly strong in other countries, thus being able to extrapolate to the overall population.

VI.   Conclusions

This dissertation began with a question: "The leaders' promotion of sensemaking affects positively performance, when mediated by team adaptation and sensemaking?". Despite looking simple, this model was not studied before, thus it provides new insights and findings to the existing literature.

In today's reality, organizations are facing increasing competitive and dynamic contexts, requiring them to be able to keep having high performing teams to keep achieving the desired goals.

This dissertation provides relevant insights that should be taken in consideration by organizational leaders and team leaders that want to produce highly adaptable teams, with the cognitive control required to quickly and effectively understand the information that is given to them and achieve greater levels of team performance.

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IX. Annexes

Annex A. Questionnaire for leaders

QUESTIONÁRIO AO LÍDER

1. Este questionário insere-se num projeto de investigação levado a cabo por um grupo de investigadores do ISCTE-Instituto Universitário de Lisboa, focado na eficácia do trabalho em equipa em contexto de empresas de consultoria/ auditoria. O principal objetivo deste projeto é identificar os fatores relacionados com o trabalho em equipa que contribuem para a eficácia dos projetos realizados e para a satisfação, quer dos clientes, quer dos próprios consultores/auditores.
2. Os dados recolhidos serão exclusivamente analisados pela equipa de investigação, estando garantido o anonimato.
3. As perguntas estão construídas de modo a que apenas tenha de assinalar a resposta que lhe parecer mais adequada. Procure responder sem se deter demasiadamente em cada questão.
4. Não há respostas certas ou erradas. O que nos interessa é exclusivamente a sua opinião pessoal.
5. Para cada pergunta existe uma escala. Pode utilizar qualquer ponto da escala desde que o considere adequado.
6. Responda a todo o questionário de seguida, sem interrupções.

Para qualquer esclarecimento, ou para receber informação adicional sobre o estudo por favor contacte: Prof.ª Doutora Ana Margarida Passos (ana.passos@iscte-iul.pt).

Obrigado pela sua colaboração!

Para responder a este questionário pense na EQUIPA e no projeto específico que está a liderar

1. As questões que a seguir se apresentam procuram descrever **os comportamentos da equipa**. Indique em que medida concorda com cada uma delas utilizando a escala de resposta seguinte:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

1.	A equipa tem um bom desempenho.	1	2	3	4	5	6	7
2.	Os membros estão satisfeitos por trabalhar na equipa.	1	2	3	4	5	6	7
3.	A equipa é eficaz.	1	2	3	4	5	6	7
4.	Não hesitaria em trabalhar com esta equipa em outros projetos.	1	2	3	4	5	6	7
5.	Esta equipa poderia trabalhar bem em futuros projetos.	1	2	3	4	5	6	7

2. Pense agora **no seu comportamento enquanto líder da equipa**. Por favor, utilize a mesma escala.

1.	Revê resultados de desempenho relevantes com a equipa.	1	2	3	4	5	6	7
2.	Monitoriza a equipa e o desempenho dos colaboradores.	1	2	3	4	5	6	7
3.	Diz à equipa como interpretar eventos ou situações com que a equipa se depara.	1	2	3	4	5	6	7
4.	Diz à equipa como compreender (dar sentido a) eventos ou situações.	1	2	3	4	5	6	7
5.	Explica à equipa o significado de eventos ou situações ambíguas.	1	2	3	4	5	6	7
6.	Fornece feedback positivo quando a equipa tem um bom desempenho.	1	2	3	4	5	6	7
7.	Contribui com ideias concretas para melhorar o desempenho da equipa.	1	2	3	4	5	6	7
8.	Repara em falhas nos procedimentos ou trabalho desenvolvido pela equipa.	1	2	3	4	5	6	7
9.	Comunica o que é esperado da equipa.	1	2	3	4	5	6	7
10.	Participa na resolução de problemas com a equipa.	1	2	3	4	5	6	7
11.	Assegura que a equipa tem objetivos claros de desempenho.	1	2	3	4	5	6	7

12.	Encoraja a equipa a interpretar, em conjunto, o que acontece à equipa.	1	2	3	4	5	6	7
13.	Promove a discussão, em equipa, de diferentes perspetivas sobre eventos /situações com que a equipa se depara.	1	2	3	4	5	6	7
14.	Encoraja os membros da equipa a dar o seu ponto de vista sobre eventos/ situações.	1	2	3	4	5	6	7
15.	Promove o desenvolvimento de um entendimento partilhado entre os membros da equipa acerca de eventos e situações com que a equipa se depara.	1	2	3	4	5	6	7
16.	Encoraja a equipa a, coletivamente, dar sentido a situações ambíguas.	1	2	3	4	5	6	7
17.	Encoraja os membros da equipa a olhar de diferentes perspetivas para eventos/ situações.	1	2	3	4	5	6	7
18.	O que o líder diz, muda a forma como a equipa interpreta eventos ou situações com que se depara.	1	2	3	4	5	6	7
19.	O que o líder diz, altera a forma como a equipa pensa sobre eventos ou situações com que se depara.	1	2	3	4	5	6	7
20.	O que o líder diz, modifica a forma como a equipa pensa sobre eventos ou situações com que se depara.	1	2	3	4	5	6	7

_____

Para terminar, gostaríamos de lhe solicitar alguns dados sociodemográficos, indispensáveis ao tratamento estatístico dos questionários:

1. Sexo: ☐ Masculino   ☐ Feminino   **2. Idade:** _____ anos

3. Função que exerce na empresa:
_____

4. Há quanto tempo trabalha nesta Empresa?
☐ Menos de 1 anos   ☐ 1 a 3 anos   ☐ 3 a 5 anos   ☐ 5 a 7 anos   ☐ Mais de 7 anos

MUITO OBRIGADO PELA SUA PARTICIPAÇÃO!

Annex B. Questionnaire for team members

QUESTIONÁRIO AOS COLABORADORES

7. Este questionário insere-se num projeto de investigação levado a cabo por um grupo de investigadores do ISCTE-Instituto Universitário de Lisboa, focado na eficácia do trabalho em equipa em contexto de empresas de consultoria e auditoria. O principal objetivo deste projeto é identificar os fatores relacionados com o trabalho em equipa que contribuem para a eficácia dos projetos realizados e para a satisfação, quer dos clientes, quer dos próprios consultores.
8. Os dados recolhidos serão exclusivamente analisados pela equipa de investigação, estando garantido o anonimato.
9. As perguntas estão construídas de modo a que apenas tenha de assinalar a resposta que lhe parecer mais adequada. Procure responder sem se deter demasiadamente em cada questão.
10. Não há respostas certas ou erradas. O que nos interessa é exclusivamente a sua opinião pessoal.
11. Para cada pergunta existe uma escala. Pode utilizar qualquer ponto da escala desde que o considere adequado.
12. Responda a todo o questionário de seguida, sem interrupções.

Para qualquer esclarecimento, ou para receber informação adicional sobre o estudo por favor contacte: Prof.ª Doutora Ana Margarida Passos (ana.passos@iscte-iul.pt).

Obrigado pela sua colaboração!

Para responder a este questionário pense no projeto de consultoria/ auditoria em que está atualmente envolvido e na equipa em que está a trabalhar

1. As questões que a seguir se apresentam procuram descrever os **comportamentos da equipa**. Indique em que medida concorda com cada uma delas utilizando a escala de resposta:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

A **nossa equipa** é eficaz…

1.	A levar a cabo ações criativas para resolver problemas para os quais não há respostas fáceis ou diretas.	1	2	3	4	5	6	7
2.	A encontrar formas inovadoras de lidar com situações inesperadas.	1	2	3	4	5	6	7
3.	Em ajustar-se e lidar com situações imprevistas, mudando rapidamente de foco e tomando as medidas adequadas.	1	2	3	4	5	6	7
4.	A desenvolver planos de ação alternativos, num curto espaço de tempo, para lidar com imprevistos.	1	2	3	4	5	6	7
5.	Na procura e desenvolvimento de novas competências para dar resposta a situações/ problemas.	1	2	3	4	5	6	7
6.	A ajustar o estilo pessoal de cada membro ao da equipa como um todo.	1	2	3	4	5	6	7
7.	Na melhoria das relações interpessoais tendo em consideração as necessidades e aspirações de cada membro.	1	2	3	4	5	6	7
8.	A manter o foco mesmo quando lida com várias situações e responsabilidades.	1	2	3	4	5	6	7

2. As seguintes afirmações referem-se a **sentimentos** que algumas equipas têm **em relação ao seu trabalho**. Utilize, por favor, a mesma escala apresentada anteriormente.

1.	Quando estamos a trabalhar sentimo-nos cheios de energia.	1	2	3	4	5	6	7
2.	Sentimo-nos com força e energia quando estamos a trabalhar.	1	2	3	4	5	6	7
3.	Estamos entusiasmados com este trabalho.	1	2	3	4	5	6	7
4.	Este trabalho inspira-nos.	1	2	3	4	5	6	7

5.	Durante o trabalho, temos vontade de participar nas diversas atividades.	1	2	3	4	5	6	7
6.	Somos felizes quando estamos envolvidos neste trabalho.	1	2	3	4	5	6	7
7.	Estamos orgulhosos com o nosso trabalho nesta consultora.	1	2	3	4	5	6	7
8.	Estamos imersos no trabalho desta consultora.	1	2	3	4	5	6	7
9.	"Deixamo-nos levar" pelas atividades deste trabalho.	1	2	3	4	5	6	7

3. As questões que se seguem dizem respeito à forma como a sua **equipa trabalha e funciona**. Utilize, por favor, a mesma escala.

Nós, enquanto equipa…

1.	Debatemos entre todos sobre a melhor forma de realizar o trabalho.	1	2	3	4	5	6	7
2.	Reunimos com frequência para assegurar uma cooperação e comunicação efetiva.	1	2	3	4	5	6	7
3.	Temos o cuidado de dar uns aos outros informação relacionada com o trabalho.	1	2	3	4	5	6	7
4.	Antecipamos o que cada membro da equipa faz/precisa em determinado momento	1	2	3	4	5	6	7
5.	Ajustamos o comportamento para nos anteciparmos às ações dos outros membros	1	2	3	4	5	6	7
6.	Sincronizamos o trabalho entre nós, reduzindo a comunicação ao mínimo indispensável	1	2	3	4	5	6	7
7.	Temos a mesma forma de pensar	1	2	3	4	5	6	7
8.	Possuímos o mesmo conhecimento e competências	1	2	3	4	5	6	7
9.	Vemos o mundo da mesma forma	1	2	3	4	5	6	7
10.	Estamos de acordo acerca do que está certo e errado	1	2	3	4	5	6	7

4. As questões que se seguem dizem respeito à **forma como a sua equipa funciona enquanto grupo**. Indique, por favor, com que **frequência** cada uma destas situações se verifica na realização do vosso trabalho. Utilize, por favor, a seguinte escala:

Nunca	Raramente	Poucas vezes	Às vezes	Muitas vezes	Quase sempre	Sempre
1	2	3	4	5	6	7

1.	Existem conflitos pessoais entre os membros da equipa.	1	2	3	4	5	6	7
2.	Existe atrito entre os membros da equipa.	1	2	3	4	5	6	7
3.	Existe conflito de ideias entre os membros da equipa.	1	2	3	4	5	6	7
4.	Existe desacordo entre os membros sobre a forma de distribuir o tempo disponível na realização de tarefas.	1	2	3	4	5	6	7
5.	Existe confronto de opiniões sobre o trabalho.	1	2	3	4	5	6	7
6.	Existe desacordo na equipa em relação às ideias expressas por alguns membros.	1	2	3	4	5	6	7
7.	Existe desacordo entre os membros sobre o tempo que é necessário despender para realizar as tarefas.	1	2	3	4	5	6	7
8.	Os conflitos pessoais são evidentes.	1	2	3	4	5	6	7
9.	Os membros da equipa estão em desacordo em relação à rapidez com que as tarefas devem ser realizadas.	1	2	3	4	5	6	7

5. As questões que se seguem dizem respeito ao **comportamento do líder**. Utilizando a mesma escala, indique, com que **frequência** o líder manifesta cada um dos seguintes comportamentos:

1.	Relembra os membros sobre prazos importantes/a data limite para tomarem uma decisão	1	2	3	4	5	6	7
2.	Estabelece prioridades para as tarefas e distribui o tempo para cada uma	1	2	3	4	5	6	7

3.	Prepara e desenvolve atempadamente planos para contingências para ultrapassar eventuais problemas.	1	2	3	4	5	6	7
4.	Insiste para os membros terminarem as tarefas a tempo	1	2	3	4	5	6	7
5.	Estabelece prazos para avaliar o progresso da equipa	1	2	3	4	5	6	7
6.	É eficaz a coordenar a equipa de forma a cumprir os objetivos e os prazos estabelecidos	1	2	3	4	5	6	7
7.	Acompanha a equipa para que o trabalho seja concluído dentro do prazo							

6. Pense agora na forma como a **sua equipa trabalha** e indique em que medida concorda com cada uma das seguintes afirmações. Utilize, por favor, a escala seguinte:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

1.	Partilhamos entre nós os relatórios e documentos oficiais relacionados com o trabalho desenvolvido	1	2	3	4	5	6	7
2.	Aplicamos o conhecimento que temos que deriva da nossa experiência	1	2	3	4	5	6	7
3.	Fornecemos os manuais e metodologias de trabalho aos restantes membros da equipa.	1	2	3	4	5	6	7
4.	Utilizamos o nosso conhecimento para resolver novos problemas	1	2	3	4	5	6	7
5.	Partilhamos a nossa experiência ou conhecimento do trabalho com os restantes membros da equipa	1	2	3	4	5	6	7
6.	Aplicamos o conhecimento que desenvolvemos para resolver novos problemas.	1	2	3	4	5	6	7

7. Pense agora na forma **como a sua equipa funciona**. Indique em que medida concorda com cada uma das seguintes afirmações. Continue, por favor, a utilizar a mesma a escala.

1.	Discutimos regularmente em que medida a equipa está a ser eficaz no seu trabalho.	1	2	3	4	5	6	7
2.	Alteramos os objetivos quando as circunstâncias assim o exigem.	1	2	3	4	5	6	7
3.	Os métodos de trabalho da equipa são discutidos frequentemente.	1	2	3	4	5	6	7
4.	Os objetivos são revistos com frequência.	1	2	3	4	5	6	7
5.	Revemos com frequência a forma de abordar os problemas.	1	2	3	4	5	6	7

8. Por favor, pense agora nos **resultados do trabalho da sua equipa**. Continue, por favor, a utilizar a mesma a escala.

1.	A minha equipa tem um bom desempenho.	1	2	3	4	5	6	7
2.	Estamos satisfeitos em trabalhar nesta equipa.	1	2	3	4	5	6	7
3.	A minha equipa é eficaz.	1	2	3	4	5	6	7
4.	Não hesitaria em trabalhar com esta equipa em outros projetos.	1	2	3	4	5	6	7
5.	Esta equipa poderia trabalhar bem em futuros projetos.	1	2	3	4	5	6	7
6.	A minha equipa é boa a gerar novas ideias	1	2	3	4	5	6	7
7.	Somos bons a encontrar formas criativas de resolver os problemas	1	2	3	4	5	6	7
8.	A minha equipa tem confiança que somos capazes de produzir novas ideias/ soluções	1	2	3	4	5	6	7
9.	A minha equipa tem o conhecimento e as competências para desenvolver um bom trabalho.	1	2	3	4	5	6	7

9. As questões que se apresentam de seguida referem-se à forma como **a sua equipa planeia o trabalho**. Utilize, por favor, a seguinte escala:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

A/Na minha equipa:

1.	Desenvolve um plano claro antes de iniciar qualquer projeto.	1	2	3	4	5	6	7
2.	Identifica as tarefas que devem ser realizadas e decide quem as realiza durante o projeto.	1	2	3	4	5	6	7
3.	Clarifica as expetativas dos membros sobre os seus papéis na equipa.	1	2	3	4	5	6	7
4.	Utiliza a lógica "*if-then*" no desenvolvimento dos projetos onde estou inserido.	1	2	3	4	5	6	7
5.	Especifica alternativas de ação a serem utilizadas caso o plano inicial não funcione.	1	2	3	4	5	6	7
6.	Comunica planos de *backup* (Plano B) com antecedência.	1	2	3	4	5	6	7

10. As questões que se seguem dizem respeito ao **funcionamento da sua equipa**. Indique em que medida concorda ou discorda com cada uma delas. Por favor, continue a utilizar a mesma escala.

1.	Sempre que fazemos uma nova tarefa, paramos para pensar e questionamo-nos sobre o nosso desempenho	1	2	3	4	5	6	7
2.	No decorrer do trabalho, fazemos uma pausa regularmente para verificar nossa compreensão do problema ou situação em questão.	1	2	3	4	5	6	7
3.	No final de uma tarefa, perguntamo-nos sobre o que aprendemos com a sua realização.	1	2	3	4	5	6	7
4.	Quando a informação não é clara, paramos e voltamos a analisá-la com cuidado	1	2	3	4	5	6	7

11. Pense no trabalho realizado pela sua equipa. Analise os seguintes modelos, veja a descrição de cada um deles e indique o que melhor representa **a forma como a sua equipa organiza o tempo. Escolha APENAS uma opção.**
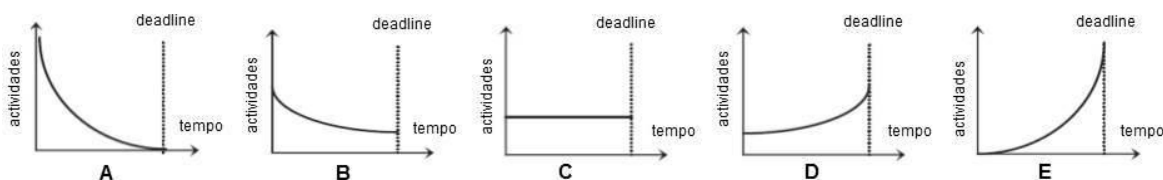
A	B	C	D	E
☐	☐	☐	☐	☐
Começamos logo a trabalhar e terminamos o trabalho muito antes do prazo limite	Fazemos uma parte do trabalho logo no início para podemos relaxar um pouco perto do deadline	Trabalhamos de forma contínua, dividindo as tarefas pelo tempo que temos para a sua realização	Trabalhamos de forma gradual, aumentando o ritmo de trabalho quando o prazo se aproxima	Realizamos a maior parte do trabalho num período de tempo relativamente curto antes do deadline

12. Pense agora no **projeto** em que a sua equipa está envolvido **e no suporte tecnológico (e.g., sistema de intranet, de email, de armazenamento de conhecimento e/ou de comunicação) que têm à disposição** para realizar o trabalho**.** Indique em que medida concorda ou discorda com cada afirmação, utilizando para tal a escala seguinte:

| Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

Team Adaptation and Performance

O suporte tecnológico que temos à disposição:

1.	Permite-nos realizar um trabalho conjunto independentemente da altura e do local.	1	2	3	4	5	6	7
2.	Permite-nos comunicar eficazmente entre membros da equipa	1	2	3	4	5	6	7
3.	Permite-nos pesquisar e aceder à informação sempre que necessário	1	2	3	4	5	6	7
4.	Permite-nos armazenar o trabalho de forma contínua	1	2	3	4	5	6	7
5.	É adequado às tarefas diárias da minha equipa	1	2	3	4	5	6	7
6.	É bastante útil.	1	2	3	4	5	6	7

13. Pense agora no **projeto em que a sua equipa está envolvida.** Indique em que medida concorda ou discorda com cada afirmação, utilizando para tal a escala seguinte:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

1.	Conhecemos em detalhe o ambiente em que o projeto se desenvolve	1	2	3	4	5	6	7
2.	Sabemos claramente as variáveis que influenciam o sucesso do projeto	1	2	3	4	5	6	7
3.	Identificamos rapidamente as alterações que podem influenciar o nosso trabalho	1	2	3	4	5	6	7
4.	Temos informação clara sobre as tarefas/ projeto que estamos a desenvolver	1	2	3	4	5	6	7

14. Pense agora no **comportamento de liderança** da sua chefia. Indique em que medida concorda com cada uma das afirmações. Por favor, utilize a escala seguinte:

Discordo Totalmente	Discordo muito	Discordo em parte	Não concordo nem discordo	Concordo em parte	Concordo muito	Concordo Totalmente
1	2	3	4	5	6	7

O <u>líder</u> da nossa equipa…

1.	Revê resultados de desempenho relevantes com a equipa.	1	2	3	4	5	6	7
2.	Monitoriza a equipa e o desempenho dos colaboradores.	1	2	3	4	5	6	7
3.	Diz à equipa como interpretar eventos ou situações com que a equipa se depara.	1	2	3	4	5	6	7
4.	Diz à equipa como compreender (dar sentido a) eventos ou situações.	1	2	3	4	5	6	7
5.	Explica à equipa o significado de eventos ou situações ambíguas.	1	2	3	4	5	6	7
6.	Fornece feedback positivo quando a equipa tem um bom desempenho.	1	2	3	4	5	6	7
7.	Contribui com ideias concretas para melhorar o desempenho da equipa.	1	2	3	4	5	6	7
8.	Repara em falhas nos procedimentos ou trabalho desenvolvido pela equipa.	1	2	3	4	5	6	7
9.	Comunica o que é esperado da equipa.	1	2	3	4	5	6	7
10.	Participa na resolução de problemas com a equipa.	1	2	3	4	5	6	7
11.	Assegura que a equipa tem objetivos claros de desempenho.	1	2	3	4	5	6	7
12.	Encoraja a equipa a interpretar em conjunto o que acontece à equipa.	1	2	3	4	5	6	7
13.	Promove a discussão, em equipa, de diferentes perspetivas sobre eventos /situações com que a equipa se depara.	1	2	3	4	5	6	7
14.	Encoraja os membros da equipa a dar o seu ponto de vista sobre eventos/ situações.	1	2	3	4	5	6	7
15.	Promove o desenvolvimento de um entendimento partilhado entre os membros da equipa acerca de eventos e situações com que a equipa se depara.	1	2	3	4	5	6	7

16.	Encoraja a equipa a, coletivamente, dar sentido a situações ambíguas.	1	2	3	4	5	6	7
17.	Encoraja os membros da equipa a olhar de diferentes perspetivas para eventos/ situações	1	2	3	4	5	6	7
18.	O que o líder diz, muda a forma como a equipa interpreta eventos ou situações com que se depara.	1	2	3	4	5	6	7
19.	O que o líder diz, altera a forma como a equipa pensa sobre eventos ou situações com que se depara.	1	2	3	4	5	6	7
20.	O que o líder diz, modifica a forma como a equipa pensa sobre eventos ou situações com que se depara.	1	2	3	4	5	6	7

15. Pense agora na forma como os membros da sua equipa **trabalham uns com os outros** na realização dos projetos em que estão envolvidos. Por favor, continue a utilizar a mesma escala de resposta.

1.	Partilhamos abertamente os nossos conhecimentos uns com os outros.	1	2	3	4	5	6	7
2.	Consideramos cuidadosamente todos os pontos de vista, esforçando-nos para criar soluções ótimas.	1	2	3	4	5	6	7
3.	Consideramos cuidadosamente as informações fornecidas por cada elemento.	1	2	3	4	5	6	7
4.	Desenvolvemos ideias e soluções melhores do que desenvolveríamos individualmente.	1	2	3	4	5	6	7
5.	É seguro correr riscos dentro da minha equipa	1	2	3	4	5	6	7
6.	Os membros da minha equipa não toleram os erros uns dos outros	1	2	3	4	5	6	7
7.	Ninguém da minha equipa atuaria deliberadamente de forma a prejudicar um membro da equipa	1	2	3	4	5	6	7

_____

Para terminar, gostaríamos de lhe solicitar alguns dados sociodemográficos, indispensáveis ao tratamento estatístico dos questionários:

1. Sexo: ☐ Masculino ☐ Feminino   **2. Idade:** _____ anos

3. **Função** **que** **exerce** **na** **empresa:**
_____

4. Há quanto tempo trabalha nesta Empresa?
☐ Menos de 1 anos   ☐ 1 a 3 anos   ☐ 3 a 5 anos   ☐ 5 a 7 anos   ☐ Mais de 7 anos

5. Número de pessoas que trabalham na sua equipa: _____

MUITO OBRIGADO PELA SUA PARTICIPAÇÃO!

Annex C. Letter explaining the study

ISCTE◈IUL
Instituto Universitário de Lisboa

À direção

Enquanto Coordenadora científica do Projeto "ConsulTeam", gostaria de solicitar a vossa autorização para aplicar um questionário às equipas de consultores/ auditores da vossa empresa e assim como aos responsáveis diretos dessas equipas. Trata-se de um projecto de investigação levado a cabo por um grupo de investigadores do ISCTE-Instituto Universitário de Lisboa, focado na eficácia do trabalho em equipa em contexto de empresas de consultoria e auditoria. O principal objetivo deste projeto é identificar os fatores relacionados com trabalho em equipa que contribuem para a eficácia dos projetos realizados e para a satisfação quer dos clientes quer dos próprios consultores/ auditores.

Os questionários são distribuídos em papel por um dos membros da equipa de investigação e demora sensivelmente 15 minutos a preencher. O questionário do líder, de muito menor dimensão, demora cerca de 5 minutos a preencher. Aproveito para salientar que o nome da vossa empresa não será mencionado em qualquer documento.

Comprometemo-nos a disponibilizar no final do ano letivo, após a conclusão do estudo, um documento com as principais conclusões a todas as empresas participantes.

Estou inteiramente ao dispor para responder a qualquer questão relacionada com este projecto e a aplicação dos questionários (ana.passos@iscte-iul.pt).

Com os melhores cumprimentos,

_____

Ana Margarida Passos

Professora no Departamento de Recursos Humanos e Comportamento Organizacional

Lisboa, 13 de fevereiro de 2019

Annex D. Construct scales

Leaders' promotion of sensemaking (based on Passos et al., 2019)

- The leader helps the team interpreting what happens inside the team.
- The leader helps the team interpreting relevant events that happens outside the team.
- The leader helps the team understanding events and situations.
- The leader helps the team interpreting internal and external events.
- The leader helps giving meaning to ambiguous situations.

Metacognition (based on Mukherji & Mukherji, 2017)

- Whenever we perform a new task, we stop and think, questioning about our performance.
- Across the development of our work, we take regular breaks to check our understanding of the problem or situation at hand.
- At the end of each task, we ask ourselves what we have learned with doing it.
- When the information is unclear, we stop and carefully reevaluate it.

Team Adaptation (based on Quinteiro et al., 2015)

- Our team is effective bringing off creative actions to solve problems to which there are no easy or direct answers.
- Our team is effective in finding innovative ways to deal with unexpected situations.
- Our team is effective in adjusting and dealing with unexpected situations, quickly changing the focus and taking the necessary actions.
- Our team is effective in developing alternative action plans in a short time, dealing with the unexpected.
- Our team is effective in finding and developing new skills to respond to situations/problems.
- Our team is effective in improving interpersonal relationships, while having in consideration the aspires and needs of each member.
- Our team is effective in maintaining focus, even when dealing with several situations and responsibilities.

Team Performance (based on González et al., 2009)

- The team has a good performance.
- The team is effective.

Annex E. Results from the macro process

Run MATRIX procedure:

************* PROCESS Procedure for SPSS Release 2.16.1 *****************

     Written by Andrew F. Hayes, Ph.D.   www.afhayes.com
  Documentation available in Hayes (2013). www.guilford.com/p/hayes3

****

Model = 6
  Y = L_perfor
  X = lider_pr
 M1 = metacogn
 M2 = TAdapta_

Sample size
    54

****

Outcome: metacogn

Model Summary

R	R-sq	MSE	F	df1	df2	p
,6827	,4661	,2831	45,3971	1,0000	52,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,2259	,5284	2,3200	,0243	,1656	2,2862
lider_pr	,6416	,0952	6,7377	,0000	,4505	,8327

****

Outcome: TAdapta_

Model Summary

R	R-sq	MSE	F	df1	df2	p
,8268	,6836	,1267	55,0989	2,0000	51,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,6905	,3713	4,5532	,0000	,9451	2,4358
metacogn	,2603	,0928	2,8062	,0071	,0741	,4465
lider_pr	,4773	,0872	5,4754	,0000	,3023	,6523

****

Outcome: L_perfor

Model Summary

R	R-sq	MSE	F	df1	df2	p
,4070	,1656	,4883	3,3082	3,0000	50,0000	,0275

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1431	,8645	3,6356	,0007	1,4066	4,8796
metacogn	-,0840	,1957	-,4293	,6696	-,4770	,3090
TAdapta_	,5744	,2749	2,0890	,0418	,0221	1,1266
lider_pr	-,0247	,2157	-,1146	,9093	-,4579	,4085

*********************** TOTAL EFFECT MODEL ****************************

Outcome: L_perfor

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3011	,0906	,5117	5,1828	1,0000	52,0000	,0270

Model

	coeff	se	t	p	LLCI	ULCI
constant	4,1943	,7104	5,9044	,0000	2,7688	5,6198
lider_pr	,2915	,1280	2,2766	,0270	,0346	,5484

**************** TOTAL, DIRECT, AND INDIRECT EFFECTS ********************

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
,2915	,1280	2,2766	,0270	,0346	,5484

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-,0247	,2157	-,1146	,9093	-,4579	,4085

Indirect effect(s) of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	,3162	,2126	-,0596	,7727
Ind1 :	-,0539	,1380	-,3603	,2033
Ind2 :	,0959	,0739	,0065	,3190
Ind3 :	,2741	,1606	,0177	,6624

Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	,4255	,2699	-,0956	,9752
Ind1 :	-,0725	,1866	-,4824	,2668
Ind2 :	,1291	,0923	,0086	,3858
Ind3 :	,3690	,2075	,0177	,8426

Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	,3266	,2025	-,0630	,7415
Ind1 :	-,0557	,1420	-,3726	,1993
Ind2 :	,0991	,0698	,0083	,3012
Ind3 :	,2832	,1552	,0308	,6559

Ratio of indirect to total effect of X on Y
```
        Effect    Boot SE   BootLLCI   BootULCI
Total:  1,0848    7,4620    -,3100     5,9918
Ind1 :  -,1849    13,3303   -3,5513    ,6630
Ind2 :  ,3291     8,4032    ,0074      2,1297
Ind3 :  ,9406     11,7829   ,0170      6,9205
```

Ratio of indirect to direct effect of X on Y
```
        Effect     Boot SE    BootLLCI     BootULCI
Total:  -12,7966   131,0478   -1193,0874   -7,1706
Ind1 :  2,1814     66,0818    ,6864        471,3437
Ind2 :  -3,8823    44,7263    -307,1020    -2,0643
Ind3 :  -11,0957   147,7256   -1433,4493   -5,9391
```

Indirect effect key
```
 Ind1 :  lider_pr ->    metacogn ->    L_perfor
 Ind2 :  lider_pr ->    metacogn ->    TAdapta_ ->    L_perfor
 Ind3 :  lider_pr ->    TAdapta_ ->    L_perfor
```

******************** ANALYSIS NOTES AND WARNINGS ********************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    5000

WARNING: Bootstrap CI endpoints below not trustworthy. Decrease confidence or increase bootstraps
 -1193,0874 -307,1020 -1433,4493

Level of confidence for all confidence intervals in output:
    95,00

NOTE: Some cases were deleted due to missing data. The number of such cases was:
 1

------ END MATRIX -----