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The Direct Impact of Team Leadership on  
Implicit Coordination of a Team and the Role of  
Trust as a Mediator

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## **Abstract**

**Title** – The Direct Impact of Team Leadership on Implicit Coordination of a Team and the Role of Trust as a Mediator

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The purpose of this master thesis is the study of the relationship between leadership of a team and the achievement of implicit coordination, both directly and indirectly, through trust within the team. Data was collected by distributing a survey and by doing a laboratory study. From all the research made, it was expected that leadership would boost trust and implicit coordination, and that trust would also boost implicit coordination. The results confirmed that and showed that the different types of leadership functions have a positive effect on the level of implicit coordination a team can achieve, through the development of trust within a team.

O objetivo desta tese de mestrado é o estudo da relação entre a liderança de uma equipa e o alcance de coordenação implícita, tanto diretamente como indiretamente, através da confiança dentro da mesma equipa. Os dados necessários ao estudo foram recolhidos não só com a distribuição de questionários, como também com a realização de um estudo de laboratório. Depois de toda a pesquisa feita, era de esperar que a liderança aumentasse a confiança e a coordenação implícita de uma equipa, e que a confiança também aumentasse a coordenação implícita. Os resultados não só confirmaram isso, como mostraram que os diferentes tipos de funções de um líder têm um efeito positivo no nível de coordenação implícita de uma equipa, através do desenvolvimento da confiança dentro duma equipa.

**Key words:** *Teamwork, Leadership, Trust, Implicit Coordination*

**Palavras-chave:** *Trabalho de equipa, Liderança, Confiança, Coordenação Implícita*

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## Introduction

When I embraced this theme for my master thesis, my first thought was to apply it to my favorite football team and all of its different environments. When thinking about teamwork and team effectiveness, there are thousands of scenarios where different characteristics of teams and team leaders would better apply in order to achieve a better performance. Although seeming a basic notion, teamwork is everything but simple and my approach is based on applying existing knowledge to my perception about how my favorite football team manages the preparation of each game and, obviously, the performance.

I was interested in understanding how can a team of so many people coordinate themselves, how can they become better every day and what drives their motivation to achieve better coordination in the pitch. It becomes an even more interesting subject when we think that, during their performance, there is almost no stopping nor talking for long periods of time – they only stop once, at the middle of the match, and their possibility to communicate is almost null. Also, during the team's performance, they present themselves in a high stressful environment, a high-tempo situation where decisions need to be made quickly. Therefore, the relationship and interaction with each team member and, definitely the leader, is vital for a good performance.

Firstly, we can easily think about who is the leader in a team like this – the coach. Even though the coach could always be shouting to the football field, the team is basically self-managing itself during their performance. So, is the coach really the leader? There is certainly the captain of the team, but what happens if the captain is a defender or even the goalkeeper? Who will manage the decisions and the behavior of the team when the team is on the offensive side of the pitch? How can a team rely on each other so hard without coaching during the performance? What happens in the mind of each team member? The more I questioned myself about it, the more it got interesting – however, because of the limitations written later, I was not able to use a football team as a subject of the study.

Therefore, the goal of my work is to understand how does leadership influence the ability of a team to achieve implicit coordination. Although having looked at more variables, this is the main relationship I was interested in and the base of my work.

# Literature Review

## Teamwork

Before understanding what teamwork is, it is vital to define the concept of team – it represents two or more individuals with specified roles interacting adaptively, interdependently, and dynamically towards a common and valued goal (Salas, Sims & Burke, 2010). Salas et al (2010) tell us that teamwork is a set of interrelated thoughts, actions, and feelings of each team member that are needed to function as a team and that combine to facilitate coordinated, adaptive performance and task objectives resulting in value-added outcomes. As Cho and Poister (2014) say, teamwork is a prerequisite for successful innovation and productivity improvement, both within and between organizations. Herdman, Yang and Arthur (2014) show that teamwork behavior is positively associated with team effectiveness. Many other authors relate teamwork to success variables, to other concepts that boost a team's performance. Marks, Mathieu and Zaccaro (2001) tell us that team processes are the means by which members work interdependently to utilize various resources, such as expertise, equipment, and money, to yield meaningful outcomes. These authors argue that the processes convert inputs to outputs through cognitive, verbal, and behavioral activities directed towards organizing taskwork to achieve collective goals.

Entin and Serfaty (1999) tell us that highly reliable teams have a team structure adaptive to changes in the task environment, maintain open and flexible communication lines and its members are extremely sensitive to other members' workload and performance in high-tempo situations. Salas et al (2010) say that in order to achieve an effective level of teamwork, there are five different concepts to bear in mind – the Big Five. Those are Team Leadership, Mutual Performance Monitoring, Backup Behavior, Adaptability, and Team Orientation. These authors propose a definition of each concept, which are important to understand in order to get deeper into the analysis of this work. Firstly, team leadership is argued to be the ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, motivate team members, plan and organize, and establish a positive atmosphere. Then, mutual performance monitoring is said to be the ability to develop common understandings of the team environment and apply appropriate task strategies to accurately monitor teammate

performance. As for backup behaviors, they are defined as the ability to anticipate other team members' needs through accurate knowledge about their responsibilities. This includes the ability to shift workload among members to achieve balance during high periods of workload or pressure. Moreover, adaptability is argued to be the ability to adjust strategies based on information gathered from the environment through the use of backup behavior and reallocation of intrateam resources. It can also result in altering a course of action or team repertoire in response to changing conditions (internal or external). Finally, team orientation is defined as the propensity to take other's behavior into account during group interaction and the belief in the importance of team goals over individual members' goals.

Before trying to understand leadership, its processes, and their role in fostering team effectiveness, which will be the topic of our next section, it is important to first understand the nature of team functioning. (Morgeson, DeRue, & Karam, 2010). On Marks et al's work (2001), the authors talk about emergent states, saying that they tap qualities of a team that represent member attitudes, values, cognitions, and motivations. These states characterize properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes, and outcomes. Basically, they describe cognitive, motivational, and affective states of teams, as opposed to the nature of their member interaction – variables that are normally used to represent one process. Collective efficacy, cohesion, situational awareness, or trust, are examples of these emergent states. Marks et al (2001) think that, over time, team performance is best viewed as a series of related Input-Process-Outcome episodes. They assert that I-P-O models are attached to episodes and subepisodes, rather than the entire life cycle of the team – outcomes from an initial episode will become an input for the next cycle. This approach suggests that teams are actively engaged in different types of taskwork at different phases of task accomplishment – they can be focused both on activities directly related to goal accomplishment, and on reflecting on past performance or planning future actions.

Therefore, Marks et al (2001) refer to these different emphases as Action and Transition phases. Moving back and forth between these phases changes the nature of team processes. Action phases are the periods of time in which teams are engaged in acts that contribute directly to goal accomplishment. Coordination, communication, coaching and monitoring processes are likely to dominate these phases. On the contrary, transition phases represent periods of time when teams focus primarily on evaluation and/or planning activities to guide their accomplishment of a team goal or objective. Needs arising during this phase

include establishing goals, developing team norms and a shared understanding within the team, and deciding on strategies. Nevertheless, transition and action phases are not always separate periods and can blend into one another. Finally, it is important to know that the frequency, length, and predictability of action and transition phase alterations are functions of a group of variables, such as team objectives, environment, expertise, norms, and leadership. Marks et al (2001) also argue that there are not only action and transition phase processes, but also interpersonal processes. These include conflict management, motivate/confidence building, and affect management. Moreover, they are seen as the foundation of all of the other processes - they need to be present at all times for guaranteeing team effectiveness.

## **Leadership**

Firstly, let us explore the concept of leadership. Lee, Gillespie and Mann (2010) consider leadership as a set of roles involved in managing key tasks and functions essential for team performance. One thing that we can be sure of is that leadership drives performance. In an article from 2015, Feser, Mayol and Srinivasan show that over 90% of CEOs were planning to increase investment in leadership development because they saw it as the single most important human-capital issue their organizations faced. This study also showed that between the twenty possible types of leadership behaviors, only four of them explained 89% of the variance between strong and weak organizations in terms of leadership effectiveness. Those were solving problems effectively, operating with a strong results orientation, seeking different perspectives, and supporting others.

Morgeson et al (2010), following Marks et al (2001), divide team processes into two different phases, saying that in the transition phase, teams engage in evaluation or planning activities designed to foster goal attainment. As for the action phase, teams perform work activities that directly contribute to goal accomplishment. In addition, during both phases, interpersonal processes must be managed – important interpersonal needs include fostering adequate team member motivation, promoting a sense of psychological safety, and managing the emotions and conflict that can occur within the team.

Morgeson et al (2010) also argue that whoever assumes the responsibility for satisfying a team's needs can be viewed as taking on a team leadership role. This view is consistent with the functional leadership model – the theory suggests that the leadership role

is “to do, or get done, whatever is not being adequately handled for group needs” (McGrath, 1962, cit in Morgeson et al, 2010). In sum, the best a leader can do is to observe which functions are not being performed by a segment of the group and enable this part to accomplish them. Because multiple individuals are often capable of satisfying team needs, it has been suggested that researchers should devote attention to the study of leadership rather than leaders, in part because of the observation that many every-day groups have different leaders in different situations. Morgeson et al (2010) conceptualize team leadership as the process of team need satisfaction in the service of enhancing team effectiveness.

There are leadership functions that belong to each phase the team is working on, as Morgeson et al (2010) proposed. Firstly, Transition phase will comprise composing a team, defining a mission, establishing expectations and goals, structuring and planning, training and developing a team, sensemaking, and providing feedback. Regarding the Action phase, there is the monitoring of the team, managing team boundaries, challenging the team, performing team tasks, solving problems, providing resources, encouraging team self-management and supporting social climate. Morgeson et al (2010) tell us that this support function occurs during the task cycle when it is particularly important to tend to the team’s social environment and to address interpersonal issues within the team that may interfere with the team’s performance. Although the authors suggest that this function happens during the action phase, it may relate to what Marks et al (2001) call interpersonal processes, explained before in this section, and therefore be relevant throughout both phases. Leaders who engage in these types of activities are more likely to be rated as superior, and will better manage the team’s emotions (Pescosolido, 2002). In addition, a laboratory experiment conducted by Phillips, Douthitt, and Hyland (2001, cit in Morgeson et al, 2010), examined the impact of a formal external leader’s supportive actions, finding that these actions were positively related to satisfaction with the leader and attachment to the team.

Since coordination will be the topic of the next section of this work, it is important to relate it to leadership. As Kirsh (1999) says, a team leader can be an effective mechanism of group coordination if the coordination problem satisfies at least two conditions: it is possible for the team leader to track overall group behavior and classify it meaningfully into better or worse states; and it is possible to communicate with all participants as needed without creating a bottleneck. That is, it is possible to easily broadcast group wide advice or possible to target specific advice in time to be useful. Essentially, this is just what happens before the performance of a team of firefighters. Before there is a fire, they practice, exchange

knowledge, decide strategies and the leader is always monitoring the team members' performance, in order to give timely feedback and get the team to the best possible state to the next performance episode.

## **Coordination**

Going back to the concept of teamwork, as defined by Salas et al (2010), it involves a set of thoughts, actions, and feelings that “combine to facilitate coordinated, adaptive performance and task objectives resulting in value-added outcomes”. Therefore, it is logical to think that the more coordinated a team is, the better its performance will be (Salas et al, 2010, Wilson et al, 2007). There are numerous studies stating that this relationship is true. Let us start with a definition of coordination – the process by which team resources, activities, and responses are organized to ensure that tasks are integrated, synchronized, and completed within established temporal constraints (Burtscher, Wacker, Grote & Manser, 2010). Coordination will occur when team members perform the same or compatible actions in a timely manner. Almost any kind of team will need to be coordinated in some way to reach a better result. But how can a team better coordinate? What is the leader's role in achieving better coordination? There are many different and complex concepts around this definition that I will further explore.

Espinosa, Kraut and Lerch (2004) give us another definition of coordination – the effective management of dependencies among sub-tasks, resources, and people. They also argue that the process of “coordinating” can be defined as the activities carried out by team members when managing those dependencies. The question now is - how do the team members proceed with this management? Wilson et al (2007) state that coordination requires knowledge requirements, mutual performance monitoring, backup behavior and adaptability. Some authors go further and talk about coordination mechanisms. On one hand, Salas et al (2010) say there are three of them – shared mental models, mutual trust and closed-loop communication. On the other hand, Espinosa et al (2004) also show us three coordination mechanisms, but with a different analysis – these authors divide the three mechanisms into two different groups - the explicit coordination mechanisms, which include Task Organization and Team Communication, and the implicit coordination mechanisms that include Team Cognition.

In order to better understand the concept of coordination, one should understand the variables previously related to it. Starting with shared mental models, they are defined as an organizing knowledge structure of the relationships among the task the team is engaged in and how the team members will interact (Salas et al, 2010). Foti & McIntyre (2013) say they give a shared understanding of team goals, individual team member tasks, and the necessary coordination to achieve common goals. These authors, as well as Salas et al (2010), divide them into team-related and task-related mental models. Moreover, Druskat and Pescosolido (2002) argue that mental models include not only the psychological ownership over the team's processes and outcomes, but also the need for continuous learning and heedful interrelating. As for mutual trust, Salas et al (2010) argue that it is the shared belief that team members will perform their roles and protect the interests of their teammates. Finally, closed-loop communication, as defined by the same authors, is the exchange of information between a sender and a receiver irrespective of the medium.

Then, Espinosa et al (2004) talk about different types of coordination – the explicit and the implicit. Rico, Gibson, and Sánchez-Manzanares (2008) argue that the focus on explicit coordination so prevalent in past research offers a relatively static picture of team functioning. Despite their undoubted importance, explicit coordination mechanisms reveal only one aspect of team coordination. Kirsh (1999) gives a good example in order to understand the difference between both concepts. Work plans represented on a white board for a meeting – they are there to explicitly coordinate the meeting and the project itself. Additionally, implicit coordination is achieved without these types of explicit communication, as it is developed by using cognitive resources. Rico et al (2008) say it takes place when team members anticipate the actions and needs of their colleagues and task demands and dynamically adjust their own behavior accordingly, without having to communicate directly with each other or plan the activity. Toups and Kerne (2007) state that with implicit coordination, mutual understanding is achieved without explicit communication, enabling team members to better use cognitive resources to accomplish tasks. These authors argue that it is important for teams that work in dynamic, stressful environments because it reduces communication overhead (the cost of using a shared communication channel, inhibits the team's ability to work because it increases the cognitive load of members and saturates the bandwidth of the shared communication channel, which might be used for other purposes). Moreover, Entin and Serfaty (1999) say that implicit coordination involves the use of shared or mutual mental models among team members. The

use of implicit coordination is adaptive to time-pressure-induced stress. It also allows the team to maintain an effective level of performance under stress. These authors state that strategies used by effective teams in high-stress situations suggest that shared mental models are useful constructs to explain the anticipatory behavior of team members in the absence or scarcity of communications.

Getting back to Espinosa et al's work (2004), when talking about the implicit coordination mechanisms, the authors say that they come from shared cognition. It is the multidimensional construct that "enables team members to have more accurate expectations and a compatible approach for task performance" (Salas & Cannon-Bowers, 2001, cit in Wilson et al, 2007). Basically, it explains how effective teams are able to coordinate without explicit communication, having, for example, shared mental models as an emergent state. Additionally, Rico et al (2008) state that team-specific attributes, such as trust and perceived group efficacy, may affect intrateam communication, learning, and knowledge exchange patterns among team members, therefore influencing the formation of team knowledge.

On Entin and Serfaty's work (1999), a team-training procedure was designed to train teams to adapt by shifting from explicit to implicit models of coordination and choosing strategies that are appropriate during periods of high stress and workload conditions. Their results showed that the adaptation training significantly improved performance and that several underlying team process measures exhibited patterns indicating that adaptive training improved various team processes, including efficient use of mental models, which in turn improved performance. Therefore, we can understand that adapting to different circumstances depending on the context where the team is placed is very important.

Going back to the basics of coordination, Marks et al (2001) argue that coordination and monitoring processes are likely to dominate the action phases of goal accomplishment. Additionally, Morgeson et al (2010) state that the more coordinated a team is, the better the team performance will be. This suggests that one of the leadership functions the authors talk about - training and developing a team – focuses on the capabilities required for individual task work as well as the interpersonal team processes that facilitate superior team performance, thereby enabling the team to more effectively lead itself in the future. These authors also say that a leader providing feedback will not only facilitate within-team interaction and important task processes such as coordination, but it will also enhance the bond among team members and their commitment to the team.

To sum up, the behavior of the leader is likely to influence the team's ability to implicitly coordinate. By engaging in transition phase functions (e.g. sensemaking, planning), he/she will promote a shared understanding of the task and of the environment, leading to a reduced need to communicate during task work. At the same time, engaging in action phase related functions (e.g. providing resources, monitoring the team) may help the team in focusing on the task and not so much on the need to explicitly coordinate their work. Finally, supporting the social climate will create the basis for conflict-free interpersonal relationships and for a trusting climate, relevant for implicit coordination to occur.

These relationships bring us to my first research question – does leadership influence the capacity of a team to achieve implicit coordination? Also, I use the split of the different leadership functions, as done on Morgeson et al's (2010) study. Therefore, my first hypothesis will be:

H1: Leadership positively influences the implicit coordination of a team;

H1a: Leadership transition phase functions positively influence the implicit coordination of a team;

H1b: Leadership action phase functions positively influence the implicit coordination of a team;

H1c: Leadership social climate support functions positively influence the implicit coordination of a team.

## **Trust**

Going back to the basics of coordination, one of its mechanisms stated by Salas et al (2010) is the mutual trust in a team. Trust may also be conceptualized as one of the emergent states brought up by Marks et al (2001), which influences each teamwork process.

According to Grichanik (2014), on the contrary of the few studies that do not relate team performance to trust, there are actually numerous studies proving that this relationship exists (Wilson et al, 2007, Cho & Poister, 2014). For any type of team, trust will be very important to increase the effectiveness of many other variables to achieve a good performance. There are numerous definitions of trust, as it is a much studied issue among

researchers. Hudson (2004) tells us that trust is composed of four components – risk and vulnerability, incomplete knowledge of other parties, interdependency, and exercise of discretion. Cho and Poister (2014) cite a definition of trust (Rousseau, Sitkin, Burt & Camerer, 1998, p. 395), which says it is the psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another. McAllister (1995) splits the concept of trust into two different ones – Cognition-based trust (grounded in individual beliefs about peer reliability and dependability), and Affect-based trust (grounded in reciprocated interpersonal care and concern). Contrary to this and other definitions, the definition of Costa, Roe and Taillieu (2001) considers the behaviors of trust as components and not as effects of trust itself. They argue that behaviors are an important component of trust, since they reflect the significance of the decision about trusting or not by enabling to act upon their own judgements. The definition states that trust is the psychological state that manifests itself in the behaviors towards others, is based on the expectations made upon behaviors of these others, and on the perceived motives and intentions in situations entailing risk for the relationship with those others. The definition says it is a construct composed of three different components – propensity to trust, perceived trustworthiness, and trust behaviors.

It is important to understand each one of these components. Firstly, propensity to trust represents the willingness to trust others. Various factors may determine it, such as life experiences, personality types, cultural backgrounds, education, and several other socio-economic factors.

Then, the perceived trustworthiness is argued to be the evaluation of the characteristics and actions of the trustee(s). Not only Costa et al (2001), McAllister (1995) also talks about this concept, stating that it represents the extent to which individuals expect others to be and to behave according to their implicit or explicit claims. This judgement is based on evaluations in relation to character, competence, motives, and intentions of the other party. There are three dimensions upon which trustworthiness with teams can be accessed (Cummings & Bromiley, 1996, cit in Costa et al, 2001) – the belief that another person or group makes good-faith efforts to behave in accordance with any commitments both explicit and implicit, the belief that another person or group is honest in whatever negotiations preceded such commitments, and the belief that another person or group does not take excessive advantage when the opportunity is available.

As for trust behaviors, they are defined as the actions that reflect the willingness to be vulnerable to others whose actions one does not control. Four categories of actions have been consistently found in other studies – communication openness, acceptance of influence, forbearance from opportunism, and control reduction. It seems more meaningful to consider these behaviors as complementary, as they often occur simultaneously, or one behavior leads to another. Costa et al (2001) distinguish between cooperative and monitoring behaviors. The former refers to the extent team members communicate openly about their work, accept the influence of others, and feel personally involved with the team. The latter refers to the extent team members feel a necessity to control other members' work and be surveillant. This distinction has the purpose of pointing at the role of monitoring in trust, as it is normally a topic where trust is not present.

Going back to the Big Five of Teamwork, one of its components is the Mutual Performance Monitoring. In any sports team, everyone should be monitoring their team member's performance, in order to be able to follow them. More importantly, there will be a coach monitoring each of the member's actions, in order to be able to give feedback when possible. As Grichanik (2014) defines it, team monitoring is an action-phase process that teammates employ during performance episodes. It is primarily a cognitive operation in which team members observe actions of their teammates and watch for errors or performance discrepancies. Though being vital to achieve efficient teamwork, monitoring could be perceived as something bad and untrustworthy. As stated by the author, costs of distrust take various forms such as monitoring, defensive behavior, documenting problems, and re-doing work. In fact, he splits this concept into two different types of monitoring, just as Costa et al (2001) thought it would be. On the one hand, the need-based monitoring will be the positive side of this concept, also known as mutual performance monitoring, proposed by Salas et al (2005). It is associated with trust among teammates. McAllister (1995) explains that it is a characteristic of communal relationships and is driven by affect-based trust, team members' sensitivities to one another's needs, and teammate taken on one another's problems as their own. However, on the other hand, there is the negative side, the control-based monitoring, which Grichanik (2014) argues that if monitoring is perceived as control, then the team performance will suffer, since it is thought of a signal of distrust. This latter perspective is the one adopted by Costa et al (2001), and also the one adopted in this work, which follows her model and measurement instrument.

Again, the behavior of the leader is likely to influence the level of trust within his/her team. If the team leader is able to develop a shared commitment to the team's mission, for example, it will be more likely that team members trust their colleagues will act on behalf of the team. Simultaneously, if the leader monitors the work of the team, team members are likely to perceive a reduced need to be surveillant to their colleagues' performance. Finally, the existence of a positive social climate will foster the belief that the colleagues make good-faith efforts to attain valuable outcomes.

Therefore:

H2: Leadership positively influences trust;

H2a: Leadership transition phase functions positively influence trust;

H2b: Leadership action phase functions positively influence trust;

H2c: Leadership social climate support functions positively influence trust.

## **Leadership, trust and implicit coordination**

Rico et al (2008) say trust is critical for collective tasks that require high levels of interpersonal risk, mutual dependence, and continuous adaptation of team members' actions and knowledge. When the members of a team trust each other, they perceive that interaction with other teammates is safe, easy, and feasible, and this, in turn, increases their motivation to actively participate in team processes. These authors proceed saying that teams with high levels of trust exhibit an open exchange of information and engage in conversations about relevant work and personal issues. Trust is also related to perspective-taking behaviors, which may enhance the understanding of colleagues' messages, intentions, and interpretations. All of this can lead to higher implicit coordination potential in teams.

Costa et al (2001) argue that trust in the team is of great importance for project work because team members are often equally or more reliant on their colleagues than on the leader for performance and satisfaction. Being in an emotionally open environment enhances the extent to which people listen to and absorb others' knowledge, meaning that knowledge sharing in the team will be boosted (Levin & Cross, 2006). It allows team members to understand who possesses what specialized knowledge, and to organize this differentiated

knowledge effectively (Zhang, Han, Hempel & Tjosvold, 2007). This will also build up the degree to which each team member will be influenced by others, either by knowledge shared by peers or by simply trusting and following the team members' performance during a stressful situation. Consequently, sharing one's knowledge will strengthen the coordination of the whole team, not only during the performance, but also when preparing for it.

All of this leads to my third hypothesis of this study:

H3: Trust positively influences implicit coordination.

When we look at Salas et al's (2005) proposal, we can see that through the fostering of mutual trust, it is understood and accepted by team members that group members are in fact looking out for each other for the good of the team. Trust is also needed in the acceptance of team leadership behaviors. If team members do not trust each other or their team leader, they will be less willing to appear uninformed, thereby hindering the team leader from effectively managing the team.

Finally, we propose that the positive impact of leadership functions on implicit team coordination can be both direct (cf. H1) and indirect, through the development of trust within the team. Therefore, the leader, through investing in leadership functions, will allow the team to share an understanding of their objectives, and to focus on their tasks, as well as to have a positive social climate. All of this promotes trust that, in turn, will positively affect implicit coordination because team members will be more willing to rely in less explicit coordination and communication, as they believe their teammates will behave in order to favor the group's mission.

Therefore, we arrive to my last hypothesis:

H4: Leadership positively influences trust, which in turn positively influences the implicit coordination of a team;

H4a: Leadership transition phase functions positively influence trust, which in turn positively influences the implicit coordination of a team;

H4b: Leadership action phase functions positively influence trust, which in turn positively influences the implicit coordination of a team;

H4c: Leadership social climate support functions positively influence trust, which in turn positively influences the implicit coordination of a team.

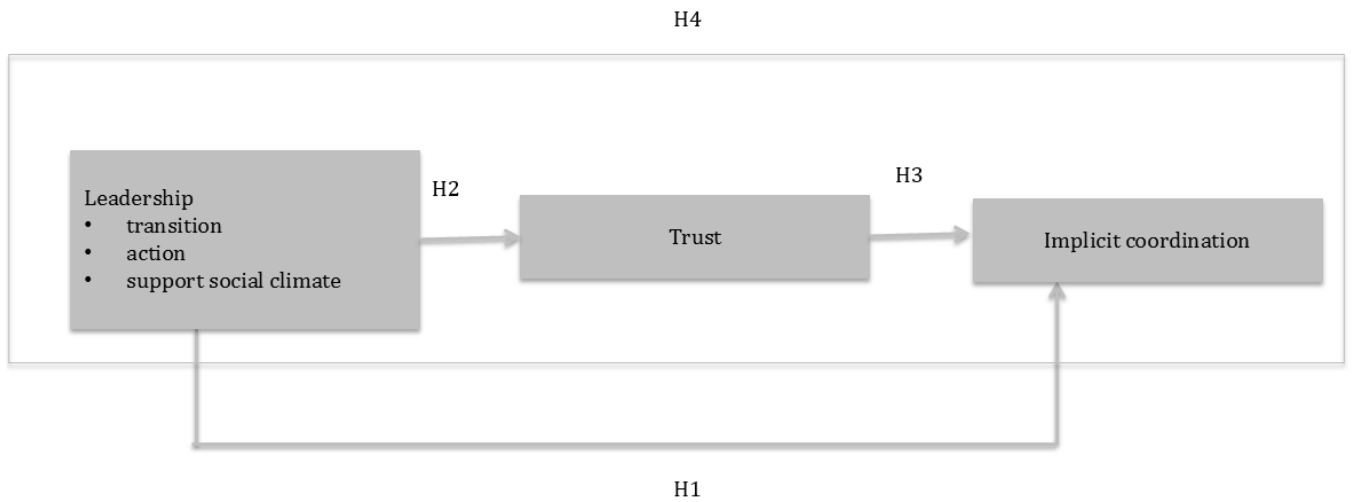


Figure 1: Summary of all the hypothesis

## **Methodology**

### **Participants and procedure**

The broad theme of this master thesis (Team Effectiveness) was proposed to five students at Catolica Lisbon School of Business and Economics, whom embraced the project. I, together with the other four students, collected the data in two different ways.

Firstly, we built a questionnaire covering the variables for each of our studies. The questionnaire addressed two different groups of respondents – “real world” teams, composed by teams from companies; and teams that participated in our laboratory study, which is explained later on.

The questionnaire for companies had two different versions – one for the leader of the team, and another one for the members of that team. The difference of the questionnaires was only one, as the leader had to self-evaluate him/herself, and the team members had to evaluate the leader. These teams had the prerequisite of having already done a project together in the past, in order to present more truthful results.

As for the laboratory study, we gathered teams between four and six people, to participate in a twenty-minute competition. Randomly, we selected one leader at the beginning of the study and explained him/her the task. Then, the leader would have to explain the task to his teammates and try to win the 30€ gift card for the winning team. After the task, the team had to answer a questionnaire, regarding the perceptions of how the team performed, evaluation of the leader – the leader self-evaluated him/herself - and demographic data.

The goal of the task was to get the more tangram figures possible in the twenty minutes. Tangram is a puzzle-like game, where there are seven different shapes that, together, can make other different shapes without overlapping (see Appendix 1). The materials distributed to each team were the following: a sheet of paper with the 7 shapes, a pen for each member of the team, a sheet of paper with the solutions – in black and white, giving the team no perspective of the dimensions – and a set of blank sheets of paper. One important rule was that the team could choose one member to leave the table once and get anything the team decided – basically, they could use any means necessary, but the internet. After the twenty minutes, the team’s score would be the number of figures made, and if the best teams had the same score, the first team finishing the last figure made would win.

The data we were able to collect amounts to 243 respondents (n=243), with 106 male and 135 female participants (two participants omitted). The respondents were distributed among 51 teams, with 23 from companies and 28 from our laboratory study. Each team had an average of 4,9 members and a standard deviation of 0,7. The average age of the participants was 32,7 with a standard deviation of 13,1.

## **Measures**

The variables for my study were, as previously stated, Leadership, Trust, and Implicit Coordination. On all the questionnaires, the participants had to answer on a scale of 1 to 7, which can be summarized like this: 1 – strongly disagree; 7 – strongly agree. The Leadership scale used on this study is based on Morgeson et al (2010). As stated earlier, I made a split of the variables as it was done on Morgeson et al's (2010) work. Firstly, leadership transition phase functions (e.g. "Communicates what is expected of the team"), then leadership action phase functions (e.g. "Monitors team and team member performance"), and leadership social climate support functions (e.g. "Looks out for the personal wellbeing of team members").

As for trust, the scale used and the split of the concept made was based on Costa and Anderson (2011), which has four dimensions that combine to create the trust index. The sub dimensions are: propensity to trust (e.g. "In this team most people speak out for what they believe in"), perceived trustworthiness (e.g. "In this team people can rely on each other"), cooperative behaviors (e.g. "Most people in this team are open to advice and help from others"), and monitoring behaviors (e.g. "In this team people watch each other very closely"); this latter dimension items are reverse coded. Initially, I intended to use the full scale. However, I present below the characteristics and analysis ran both for the full scale and the subscales.

Lastly, the implicit coordination scale was based on Rico et al (2008) (e.g. "We anticipate what each member of the team is going to do/need in each certain moment").

I made the analysis of all the data gathered using SPSS Statistics Software. Firstly, chronbach's alpha was calculated to measure the reliability of each scale used, with the results present in the table on the next page.

Variable	Number of items	Chronbach's Alpha
Leadership	21	0,97
Leadership transition functions	8	0,94
Leadership action functions	9	0,93
Leadership social climate support functions	4	0,90
Trust	12	0,91
Propensity to trust	3	0,85
Perceived trustworthiness	3	0,88
Trust cooperative behaviors	3	0,84
Trust monitoring behaviors	3	0,81
Implicit coordination	4	0,74

Table 1: Chronbach's alpha for each variable

## **Data Analysis**

### **Results**

On the next page, a summary of the descriptive statistics for each variable, alongside the correlations between them, are presented in table 2.

When analyzing the correlations between each variable, one value popped out and made this study even more interesting – the monitoring behaviors dimension (reverse coded) of the trust construct had a much lower correlation with the other dimensions of it, which made me think that the dimension might have different effects than of the other trust's subscales. Even if the full scale presented a Chronbach's alpha of 0,91, from here on, I worked with the full scale as well as with the four different dimensions separately.

Finally, I finished the analysis on two different ways – simple regression analyses and simple mediation. Hypotheses 1, 2 and 3 were analyzed estimating a regression between the independent variables – leadership on hypothesis 1 and 2, trust on hypothesis 3 – and the dependent variables – implicit coordination on hypothesis 1 and 3, and trust on hypothesis 2. The mediation was conducted following the work of Preacher and Hayes (2004), which allows for the estimation of the indirect effects of the mediators and their significance. It was made to test hypothesis 4, with leadership as the independent variable, trust as the mediator, and implicit coordination as the dependent variable. This process uses bootstrapping – a nonparametric resample procedure that estimates the indirect effect on each of a number of samples created from the data.

	N	Mean	Std Dev	Implicit Coordination	Leadership Transition Processes	Leadership Action Processes	Leadership Social Climate Support Processes	Leadership	Propensity to trust	Perceived Trustworthiness	Trust Cooperative Behaviors	Trust Monitoring Behaviors
Implicit Coordination	240	4,4	0,75									
Leadership Transition Processes	229	5,2	1,31	0,50**								
Leadership Action Processes	232	5,8	1,30	0,56**	0,87**							
Leadership Social Climate Support Processes	240	5,4	1,40	0,37**	0,73**	0,77**						
Leadership	222	5,2	1,17	0,55**	0,96**	0,96**	0,84**					
Propensity to trust	196	5,8	1,08	0,19**	0,33**	0,25**	0,30**	0,29**				
Perceived Trustworthiness	241	5,6	1,16	0,29**	0,42**	0,36**	0,43**	0,41**	0,73**			
Trust Cooperative Behaviors	201	5,7	1,01	0,14	0,42**	0,35**	0,46	0,40**	0,67**	0,80**		
Trust Monitoring Behaviors	241	5,4	0,91	0,11	0,16*	0,13	0,14*	0,17*	0,25**	0,29**	0,29**	
Trust	194	5,6	0,84	0,21**	0,42**	0,34**	,43**	0,40**	0,85**	0,91**	0,87**	0,54**

Table 2: Descriptive statistics and correlations between the variables of the study (\* $p < 0,05$ , \*\* $p < 0,01$ )

In order to test the first hypothesis, as stated before, a regression analysis was made, with the results presented in the following table:

	Independent variable	Dependent variable	R <sup>2</sup>	F	p	$\beta$
H1	Leadership	Implicit coordination	0,31	97,12	0,00	0,55**
H1a	Leadership transition functions		0,25	75,73	0,00	0,50**
H1b	Leadership action functions		0,31	104,07	0,00	0,56**
H1c	Leadership social climate support functions		0,14	38,05	0,00	0,37**

Table 3: Output of the regression analysis made to test the first range of hypothesis (\* $p < 0.05$ , \*\* $p < 0.01$ ).

N = 222

This regression was used to test if leadership and its different types of functions significantly predicted the implicit coordination of a team. For H1, the variable leadership explains 30,6% of implicit coordination's variance ( $R^2=0,306$ ,  $F(1,220)=97,118$ ,  $p<0,01$ ). It was found that leadership significantly predicted implicit coordination ( $\beta = 0,553$ ). Then, for H1a, the variable leadership transition functions explains 25% of implicit coordination's variance ( $R^2=0,25$ ,  $F(1,227)=75,728$ ,  $p<0,01$ ). It was found that leadership transition functions significantly predicted implicit coordination ( $\beta = 0,5$ ). As for H1b, the variable leadership action functions explains 31,2% of implicit coordination's variance ( $R^2=0,312$ ,  $F(1,229)=104,07$ ,  $p<0,01$ ). It was found that leadership action functions significantly predicted implicit coordination ( $\beta = 0,559$ ). Finally, for H1c, the variable leadership social climate support functions explains 13,9% of implicit coordination's variance ( $R^2=0,139$ ,  $F(1,236)=38,046$ ,  $p<0,01$ ). It was found that leadership social climate support functions significantly predicted implicit coordination ( $\beta = 0,373$ ). Therefore, H1 was supported.

The second regression analysis made was to test the second range of hypothesis, with the results presented in a table on the next page.

	Independent variable	Dependent variable	R <sup>2</sup>	F	p	$\beta$
H2_1	Leadership	Trust	0,16	33,09	0,00	0,40**
H2a_1	Leadership transition functions		0,18	38,65	0,00	0,42**
H2b_1	Leadership action functions		0,12	24,59	0,00	0,35**
H2c_1	Leadership social climate support functions		0,18	42,76	0,00	0,43**

Table 4: Output of the regression analysis made to test the second range of hypothesis ( $*p < 0.05$ ,  $**p < 0.01$ ).

N = 177

This regression was used to test if leadership and its different types of functions significantly predicted trust within a team. For H2\_1, the variable leadership explains 15,9% of trust's variance ( $R^2=0,159$ ,  $F(1,175)=33,093$ ,  $p<0,01$ ). It was found that leadership significantly predicted trust ( $\beta = 0,399$ ). Then, for H2a\_1, the variable leadership transition functions explains 17,5% of trust's variance ( $R^2=0,175$ ,  $F(1,182)=38,65$ ,  $p<0,01$ ). It was found that leadership transition functions significantly predicted trust ( $\beta = 0,419$ ). As for H2b\_1, the variable leadership action functions explains 11,9% of trust's variance ( $R^2=0,119$ ,  $F(1,182)=24,593$ ,  $p<0,01$ ). It was found that leadership action functions significantly predicted trust ( $\beta = 0,345$ ). Finally, for H2c\_1, the variable leadership social climate support functions explains 18,4% of trust's variance ( $R^2=0,184$ ,  $F(1,190)=42,758$ ,  $p<0,01$ ). It was found that leadership social climate support functions significantly predicted trust ( $\beta = 0,429$ ). Therefore, H2 was supported.

More analyses were made, after realizing the lower correlations of the monitoring dimension of trust with the other dimensions, presented in a table on the next page.

	Independent variable	Dependent variable	R <sup>2</sup>	F	p	β
H2a_1	Leadership Transition Functions	Trust	0,18	38,65	0,00	0,42**
H2a_2		Propensity to trust	0,11	22,78	0,00	0,33**
H2a_3		Perceived trustworthiness	0,18	49,42	0,00	0,42**
H2a_4		Trust cooperative behaviors	0,18	40,25	0,00	0,42**
H2a_5		Trust monitoring behaviors	0,03	5,74	0,02	0,16*
H2b_1	Leadership Action Functions	Trust	0,12	24,59	0,00	0,35**
H2b_2		Propensity to trust	0,07	12,83	0,00	0,26**
H2b_3		Perceived trustworthiness	0,13	33,96	0,00	0,36**
H2b_4		Trust cooperative behaviors	0,12	25,72	0,00	0,35**
H2b_5		Trust monitoring behaviors	0,02	3,71	0,06	0,13
H2c_1	Leadership Social Climate Support Functions	Trust	0,18	42,76	0,00	0,43**
H2c_2		Propensity to trust	0,09	18,38	0,00	0,30**
H2c_3		Perceived trustworthiness	0,18	52,69	0,00	0,43**
H2c_4		Trust cooperative behaviors	0,21	51,32	0,00	0,46**
H2c_5		Trust monitoring behaviors	0,02	4,97	0,03	0,14*

Table 5: Output of the regression analysis made to test the second range of hypothesis with the subscales of Trust (\* $p < 0.05$ , \*\* $p < 0.01$ )

N = 177

Indeed, all leadership functions predict each dimension of trust, except the monitoring behaviors dimension, which fails to be predicted by leadership action functions ( $p > 0,5$ ).

The third and final regression analysis made was to study the effect of Trust on Implicit Coordination, with the results presented in the following table:

	Independent variable	Dependent variable	R <sup>2</sup>	F	p	β
H3	Trust	Implicit Coordination	0,05	9,01	0,00	0,21**
H3a	Propensity to trust		0,04	7,19	0,01	0,19**
H3b	Perceived trustworthiness		0,08	21,53	0,00	0,29**
H3c	Trust cooperative behaviors		0,02	3,77	0,05	0,14*
H3d	Trust monitoring behaviors		0,01	2,84	0,09	0,11

Table 6: Output of the regression analysis made to test the third range of hypothesis (\* $p < 0.05$ , \*\* $p < 0.01$ )

N = 222

This regression was used to test if trust and its different types of dimensions significantly predicted implicit coordination within a team. For H3, the variable trust explains 5% of implicit coordination's variance ( $R^2=0,05$ ,  $F(1,189)=9,006$ ,  $p<0,01$ ). It was found that trust significantly predicted implicit coordination ( $\beta = 0,213$ ). Therefore, H3 was supported,

considering the trust construct as a whole. However, when analyzing each dimension separately, the dimension monitoring behaviors failed to predict implicit coordination ( $\beta = 0,11, p = 0,09$ ).

In order to finish the analysis, as stated before, a simple mediation was computed, with a bootstrapping of 10000 samples and significance tested for a 95% confidence interval. The results are presented in the following table:

Dependent variable – Implicit Coordination		Bootstrapping (10000 samples)			
		Percentile 95% bias			
	Independent Variable	Mediator	Indirect effect	Lower CI	Upper CI
H4_1	Leadership	Trust	0,069*	0,024	0,136
H4_2		Propensity to trust	0,040*	0,009	0,092
H4_3		Perceived trustworthiness	0,086*	0,038	0,158
H4_4		Trust cooperative behaviors	0,052*	0,003	0,120
H4_5		Trust monitoring behaviors	0,012	-0,002	0,046
H4a_1	Leadership transition functions	Trust	0,080*	0,024	0,165
H4a_2		Propensity to trust	0,054*	0,016	0,122
H4a_3		Perceived trustworthiness	0,102*	0,044	0,186
H4a_4		Trust cooperative behaviors	0,056	-0,004	0,135
H4a_5		Trust monitoring behaviors	0,013	-0,002	0,049
H4b_1	Leadership action functions	Trust	0,057*	0,017	0,122
H4b_2		Propensity to trust	0,029*	0,000	0,081
H4b_3		Perceived trustworthiness	0,069*	0,024	0,138
H4b_4		Trust cooperative behaviors	0,045*	0,004	0,112
H4b_5		Trust monitoring behaviors	0,010	-0,002	0,044
H4c_1	Lead social climate support functions	Trust	0,092*	0,026	0,180
H4c_2		Propensity to trust	0,050*	0,011	0,117
H4c_3		Perceived trustworthiness	0,121*	0,054	0,215
H4c_4		Trust cooperative behaviors	0,067	-0,005	0,160
H4c_5		Trust monitoring behaviors	0,016	-0,001	0,057

Table 7: Output of the mediation analysis made to test the fourth range of hypothesis

The indirect effects of each of trust's dimensions may be seen in the table, alongside the confidence interval at 95%. Firstly, considering Trust as a whole, we can see that the indirect effect is significant, independently of the independent variable (H4\_1: coefficient = 0,0687, CI={0,0235; 0,1356}; H4a\_1: coefficient = 0,08, CI={0,0242; 0,1646}; H4b\_1: coefficient = 0,0567, CI={0,0172; 0,1222}; H4c\_1: coefficient = 0,092, CI={0,0264;

0,1797}). Therefore, H4 is supported. However, when considering each dimension of the trust construct separately, we again see that the dimension of monitoring behaviors does not present a significant indirect effect between leadership and implicit coordination (H4\_5: coefficient = 0,0116, CI={-0,0021; 0,0457}; H4a\_5: coefficient = 0,0131, CI={-0,0017; 0,0494}; H4b\_5: coefficient = 0,0101, CI={-0,0022; 0,0438}; H4c\_5: coefficient = 0,0159, CI={-0,0011; 0,0572}). Furthermore, the dimension of cooperative behaviors does not mediate the relationship between the leadership transition and social climate support functions and implicit coordination (H4a\_4: coefficient = 0,0560, CI={-0,004; 0,1354}; H4c\_4: coefficient = 0,0667, CI={-0,005; 0,160}).

## **Discussion**

As H1 predicted, from the analysis made we can see that not only the full scale of leadership functions, but also the leadership functions, divided by transition phase functions, action phase functions and social climate support functions, significantly increase the level of implicit coordination a team can achieve. Therefore, the first range of hypotheses are supported both by the research previously made and the analysis of the database we collected. This means that the general behavior of a leader of a team is important, when thinking about the ability of that team to implicitly coordinate. The leader, by engaging in transition phase functions, like sensemaking or planning, will be promoting a shared understanding of the tasks, goals, and environment. These functions help the team understanding their mission, as well as their training and development, as the leader is giving feedback to the members of the team. As for the action phase functions, like providing resources and monitoring the team members' behaviors, the leader will be promoting a focus on the task, instead of a focus on trying to explicitly coordinate with the teammates. These functions promote adaptation and coordination without explicit communication. Finally, by engaging in social climate support functions, the leader is boosting all the interpersonal relationships and the overall satisfaction of the team. Each teammate will feel more attached to the team in a comfortable climate, relevant for implicit coordination to occur.

Then, H2 predicted that leadership functions had a positive impact on the trust within a team. Not only had the literature review suggested, but the analysis ran also supported this relationship, with one exception explained later. Trust within a team requires the teammates

to accept vulnerability and influence from other members of the team, as well as emotional openness. When the leader works on social climate support functions, he/she will be promoting the bond between teammates, making everyone feel more comfortable. Feeling more attached to the team will make it easier for teammates to share knowledge, and to make good-faith efforts to attain valuable outcomes for everyone. Therefore, each team member will be able to rely on all his/her teammates. Also, when the leader completes transition phase functions, a shared commitment of the team's mission is developed, which strengthens the cohesion and trust among teammates. As for the action phase functions, if the leader is monitoring the performance of each team member, each individual will not have to worry about being surveillant, which is indirectly boosting the trust within each teammate.

The exception was found on trust monitoring behaviors' dimension. As stated in the literature review, the trust's construct used in this study had four dimensions, one of which is the monitoring behaviors of members of the team. The scale used to measure this dimension was reverse coded, meaning that the analysis were focusing on the absence of behaviors such as "In this team people check whether others keep their promises" or "In this team people watch each other very closely". Having said this, the fact that leadership action phase functions do not have a statistically significant effect of predicting the absence of monitoring behaviors ( $p > 0,05$ ) is surprising. Leadership action phase functions enables the leader to monitor his/her team performance, which in turn lets each team member to be less surveillant, which means they will not need to monitor their teammates' performance. Considering our results, we can argue that the leader may function as a role model. Therefore, if the leader engages in monitoring the behavior of the team, team members may accept that behavior as relevant for their functioning.

As for H3, it was also expected to be a valid hypothesis from the literature reviewed. The analysis made showed us that the main relationship was supported. When there is trust within a team, it will be easier to perform collective tasks that require high levels of interpersonal risk, mutual dependence, and continuous adaptation of team members' actions and knowledge. Trust helps the team communicating only when needed, because they will believe their colleagues can be trusted if left alone performing the task; it also boosts the learning and exchange of knowledge that will lead to a decreased need to communicate in the future. The members of a team, when they trust each other, will feel safe when interacting, and the motivation to actively participate in team processes increases. One of the trust's dimensions analyzed showed not to have a statistically significant effect on implicit

coordination (trust monitoring behaviors, with  $p > 0,05$ ), and another one was almost non-significant (trust cooperative behaviors, with  $p = 0,05$ ). It seems that implicit coordination is more dependent on the degree to which individuals believe their teammates are trustworthy (Propensity to trust) and on the degree to which they perceive their teammates as reliable (Perceived trustworthiness), than on specific behaviors of cooperation and absence of monitoring. If an individual thinks that he/she may trust his/her teammates and their actions, and if he/she perceives them as reliable, there is the belief that teammates can be trusted without having to speak about what has to be done or how it should be performed. Simultaneously, the actions of other teammates, like this, can be anticipated and easily followed without the need to communicate. Having at least these two subdimensions of Trust present, will make an individual believe that his/her teammates are truly fighting for the common goal of the team, and that their behavior will favor the team, because they are trusted and look reliable. The ability to implicitly coordinate, therefore, may be independent of the specific behaviors displayed when working (either monitoring or cooperative) and more dependent on individual perceptions of trustworthiness and propensity to trust each other, which may, in turn, drive from interpersonal interactions not necessarily task-related (e.g. keeping their work, not gossiping about other teammates, participation in social responsibility actions, etc.).

These individual perceptions seem to be the foundation for each individual to be able to implicitly coordinate with his/her team – independently of how an individual behaves in terms of the completion of the task itself (e.g. whether he/she asks for collaboration or listens to others' opinions), if he/she is perceived as a trusting team member, it will be easier to implicitly coordinate with the team. Basically, one should not need to show cooperative or the absence of monitoring behaviors, in order to contribute to an increase of the implicit coordination of a team.

Finally, there was H4, which was also expected to be a valid hypothesis, while reviewing all the literature and creating a network of all the concepts seen on it. When looking at the full scales, which composed the main relationship I was looking for, we see a statistically significant indirect effect of leadership on the implicit coordination a team can achieve, through trust. Generally, all the results were satisfying, having two different scenarios where the effects were not statistically significant. Firstly, the indirect effect was not statistically significant through trust cooperative behaviors, when considering the relationship between implicit coordination and both leadership transition phase functions and

social climate support functions. Getting back to the definition of trust cooperative behaviors, they are said to refer to the extent team members communicate openly about their work, accept the influence of others, and feel personally involved with the team (Costa et al, 2001). Then, trust monitoring behaviors (reverse coded) were found not to statistically have a significant effect when mediating the relationship between any leadership functions and the implicit coordination a team can achieve. It seems that the relationship of these functions of leadership and implicit coordination is not mediated by these trust dimensions. It seems that the behavior of the leader leads to implicit coordination mostly through the dimensions of trust that are less related to member's behavior (cooperative and/or monitoring) and more through enhancing the positive perceptions team members have about each other in what trust is considered. We argue that, by having a high propensity to trust and by perceiving that the team members are, implicit coordination will be easier to achieve, regardless of the degree to which team members feel monitored by their peers. It seems that the trust behaviors any team member shows are not crucial for translating the behavior of the leader into the development of implicit coordination. When comparing to all the literature review, it suggests that these behaviors should contribute to a better coordination of a team, which makes us think that it could be boosting the explicit part of a team's coordination. Indeed, cooperation implies communication, which is an explicit action. Also, the absence of monitoring might also be related to an increased need to discuss, explicitly, the task at hands and the procedures to goal attainment. A leader, through investing in the different leadership functions, will be promoting a focus on the relevant tasks, a positive and comfortable social climate, and will allow a shared understanding of the team's mission and goals to every team member. All of this boosts the trust within the team that, in turn, positively affects implicit coordination.

## **Practical Implications**

When looking at the results of this study, there are some implications for the real world that may be drawn. The different functions of a leader of a team were studied and proved to be very important to achieve good levels of implicit coordination. It is important for each leader to know he/she has a range of different functions that he/she has to develop and focus on. Each leader should know how and when to act in each environment, and what functions to use at the right moments. Not only the leadership functions, but also trust is vital to achieve good levels of implicit coordination. A leader should always bear in mind that trust

must be present within his/her team, as it not only affects the level of implicit coordination, but also many other variables to achieve a good performance at the end.

Companies should be aware that the education of all their managers is vital, as many of them may escalate to team leaders. It should start from the recruiting process, where the knowledge of the leadership functions would be analyzed. Companies could also invest on workshops on this topic, so everyone would not only know how they should behave as leaders, but also as team members. A trustful environment should be promoted everywhere, even when the team members are competing between themselves. Team building exercises should be present in a team's day-to-day activities, as it will boost trust and make the team achieve better teamwork, which is essential to achieve good performance. Then, even if you are working alongside your competitors to get a job promotion, it is always better to cooperate with those competitors to achieve a better individual performance.

Then, each individual will only help himself if he/she works alongside his/her competitors. But most importantly, it should be the leader promoting trust within the team, by acting properly at the right moments. The leader's role is vital, as many team members perceive him/her as a role model. The leader should be the one showing trusting behaviors, and being open to be trusted by everyone. He/she should be the example for the team and promote trust between everyone. For example, the team leader should be the first one to keep his/her promises, to show specific competences related to the task at hand and to encourage team members to speak up for what they believe in. Obviously, the behaviors of each individual are important to build a trust environment, but the leader's role on creating and developing the perceptions of each individual are even more important, as the leader is normally the most reliable teammate and the easiest to trust at first hand.

## **Limitations and Further Developments**

There are a few limitations present in this study that must be stated. Firstly, as stated in the introduction of this study, the desired sample could not be used. Studying this topic with the analysis of a football team's performance would take a lot more time than the time proposed to write this master thesis, what made me fall back on the other samples stated in the methodology's section. The same time constraint made it impossible to have a larger

sample size. Also, there were few “real world” teams used for the creation of the dataset. Both of these limitations suggest that further research on this topic can be made, with more time and a better data collection method.

The results of the analysis were auto-reported and the survey’s answers were based on self-evaluation. Also, data was collected only at one point in time. Marks et al (2001) showed how the emergent states (such as trust) that influence team’s processes change with time, and that is an issue that can be solved with further research, by collecting data at different points in time and conducting a longitudinal study.

One of trust’s subscale (trust monitoring behaviors, reverse coded) gave us an interesting result – not only it does not predict implicit coordination, it also does not mediate the relationship between leadership and implicit coordination. A research involving also the explicit coordination may be a good way to find out more about the effects of this variable, as it represents the explicit behaviors of individuals in relation to their team.

Finally, there was a concept numerous times stated in the literature reviewed – psychological safety. Being very similar to trust, all of the studies related to it showed it is very important to achieve a comfortable environment within a team, and that showed to influence the level of implicit coordination within a team. Having said this, it could also be a topic for further research.

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## Appendix

### 1. Tangram rules and materials

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#### TANGRAM

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Tangram is a puzzle-like game that consists in 7 shapes, called *tans*, that can be organized into figures. The goal of the puzzle is to construct figures using all the 7 shapes, without overlapping them.

You have a representation of the shapes in the next page.

Your task is to **build the maximum of figures possible, from the list provided in page 3, in 20 minutes.**

In the end of those 20 minutes, you have to decide, from the figures that you have actually build, which one will be the logo for your team and why.

In the end of the study, the team who builds the highest number of figures in less time will win the 30€ voucher.

#### **Rules:**

- Do not use the internet – you will be disclassified
- One team member can leave the room once during the 20 minutes, provided that he/she does not take anything with him/her
- You can use any materials you want to
- Please inform the researcher when you finish so that he/she can check if the figure is ok

