MASTER THESIS

The Influence of Boundary Spanner's Coordination Activities on Multiteam System Effectiveness

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Acknowledgements

Presented to you is my thesis on how boundary spanner's coordination activities influence the effectiveness of an MTS. This thesis is the last contribution to my master's degree in Business Administration with the specialisation 'International Management and Consultancy' at the University of Twente in Enschede. Writing a thesis is not something that you can do all by yourself. Therefore, I would like to take this opportunity to extend my deepest gratitude to two persons who guided me through this process.

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Abstract

At the beginning of the twenty-first century, a new team formation had been considered, called Multiteam System (MTS). This formation is unique because of the interdependence of the component teams. Numerous studies have theorised that there is a connection between the coordination activities of a boundary spanner and the effectiveness of an MTS. However, these studies are not based on empirical evidence. This research used empirical data gathered from a Dutch military MTS to study this phenomenon over time. The results indicated that the leader was the boundary spanner in the MTS, yet the leader's characteristics showed that he was not competent as a boundary spanner. Consequently, the leader's incompetence made him dysfunctional in the coordination activities. Furthermore, the results illustrated that communication, trust, and shared mental models indeed form the coordination mechanism in an MTS. Yet, the boundary spanner did not properly conduct the coordination activities. There was a lack of communication, lack of trust, and no shared mental models, mainly caused by the boundary spanner's behaviour. Thus, the coordination activities of a boundary spanner can also act as an inhibitor of MTS effectiveness. To conclude, this research extends the literature on MTS and boundary spanning by showing with empirical evidence how the coordination activities of a boundary spanner can negatively influence the MTS effectiveness.

Keywords: Boundary Spanner, Boundary Spanning Coordination Activities, Multiteam System, Multiteam System Effectiveness

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1. Introduction

The environment in which teams operate is constantly evolving, therefore they need to adapt and change. Nowadays, teams are increasingly dependent on technology and experience more pressure because of the competing demand of the environment (Tannenbaum et al., 2012). There are several types of teams among which permanent working teams, self-managed teams, project teams, cross-functional teams, and virtual teams (Devine et al., 1999; Tannenbaum et al., 2012). These teams are often unable to react and adapt quickly to the challenging environment. That is why a new team formation has been considered around the beginning of the twenty-first century, called Multiteam System (MTS) (Mathieu et al., 2001). According to Mathieu et al. (2001), MTS is defined as *"two or more teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals. MTS boundaries are defined "by virtue of the fact that all teams within the system while pursuing different proximal goals, share at least one common distal goal; and in doing so exhibit input, process, and outcome interdependence with at least one other team in the system"* (p. 209). The teams in an MTS are also called component teams (CTs).

Within the MTS, coordination between and within the CTs is necessary to achieve the desired objectives. Researchers theorise that in order to favour effective coordination, a boundary-spanning mechanism plays a crucial role within an MTS and that the actions of a boundary spanner can lead to a higher MTS effectiveness (Davison et al., 2012; Turner et al., 2020). There is as well research available that states that boundary spanners' dual leadership is related to the success of an MTS because the activities of a possible boundary spanner ensure goal achievement (Bienefeld & Grote, 2014). Moreover, Porck et al. (2019) mention that the performance of an MTS benefits from leaders who act as boundary spanners and that coordination is a boundary spanning effort. It should be underlined that the boundary spanner is not always the MTS and/or CT leader as boundary spanners do not always have the status of leader (Williams, 2013). Thus, it appears that there is a link between the boundary spanning coordination activity and MTS effectiveness.

However, there is currently no empirical evidence of how such coordinating boundary activity is related to the effectiveness of an MTS. For instance, in their experimental study, Davison et al. (2012) found that the MTS performance will be higher when a boundary spanner coordinates his/her actions well with the members of his/her own CT, with the MTS leader(s) and with the boundary spanner of the 'support' team. Nevertheless, I do not know exactly

which elements are involved in coordination as the researchers only state what horizontal and vertical coordinated action entails (Davison et al., 2012). Similarly, Drach-Zahavy (2011) explored the positive effect of boundary-spanning activities on inter-organisational teams and underlined that the boundary spanning activities such as scouting, ambassadorial and coordinating lead to team effectiveness. It should be underlined that the beforementioned researchers all use a different measurement/definition for effectiveness and performance. For instance, Drach-Zahavy (2011) used a Likert-scale and Davison et al. (2012) a sum of points. Thus, even though the experiment of Drach-Zahavy (2011) was not conducted on an MTS, it still shows that there is a relationship between these concepts. It goes without saying that there is a difference between inter-organisational teams and MTSs as the members of the CTs in an MTS need to work interdependently.

The need to work interdependently is called 'functional interdependence'. Functional interdependence is explained by Mathieu et al. (2001) as *"a state by which entities have mutual reliance, determination, influence, and shared vested interest in processes they use to accomplish work activities"* (p. 293*).* In the case of an MTS, at least one CT is functionally interdependent with another CT (Mathieu et al., 2001). The effectiveness of an MTS is dependent on the coordination activities between the CTs as a result of the functional interdependence (Zaccaro, Marks, et al., 2012).

Thus, little is still known of the mechanisms and processes whereby the boundary spanner's coordination activities can boost MTS effectiveness in real-life MTS. Hence, this study aims to address this gap through a qualitative exploration by answering the following research question:

"How can boundary spanner's coordination activities influence multiteam system effectiveness?"

In this thesis, I used empirical evidence of a Dutch Military MTS to examine this relationship. Therefore, this research contributes to the existing literature on boundary spanners, boundary spanning coordination activities, and MTSs by unpacking the dynamics and exploring the relationship with empirical evidence. This study is as well valuable for MTS managers and leaders, as the boundary spanner's coordination activities could be crucial for achieving the desired objectives of the MTS.

2. Theoretical Background

This theoretical section contains key theories and concepts about multiteam systems, coordination, and boundary spanning/boundary spanner. This chapter starts with defining a multiteam system and explaining what MTS effectiveness entails. Subsequently, coordination and boundary spanning/boundary spanner are described in detail.

2.1 Multiteam System

As mentioned before, MTS can be classified as a relatively new organisational form, which can easily adapt and react immediately to the environment (Mathieu et al., 2001). They can occur in both private and/or public organisations because they are not restricted to the boundaries of one organisation. For example, an MTS in the public sector might involve an emergency response unit working with various departments of the hospital to save a life (Mathieu et al., 2001). In this case, the goal of the fire department differs from the paramedic's goal. However, the distal goal would be to save this person's life. Thus, another characteristic of an MTS is that the CTs have different goals, but together they must have at least one goal in common (Mathieu et al., 2001). In order to achieve these goals, the different CTs have to work together interdependently. According to Singh and Muncherji (2007), goal attainment is also related to MTS effectiveness. In the next section, MTS effectiveness will be discussed in more detail.

2.1.1 MTS Effectiveness

As of 2022, MTS effectiveness has not been researched in-depth (Turner et al., 2020). Only a few researchers explored what MTS effectiveness could entail. Zaccaro (2012) proposes that the effectiveness of an MTS depends on at least three attributes; compositional (e.g., characteristics and demographics) linkages (e.g., communication between CTs) and development (e.g., development of MTSs over time). However, Turner et al. (2020) state there is currently no measure for, or clear definition of, MTS effectiveness. To address this gap, the literature on team effectiveness could offer an interesting starting point to grasp and better understand MTS effectiveness. Asencio and DeChurch (2017) underlined that to fully comprehend MTS effectiveness, understanding first team effectiveness becomes crucial, as they represent the basic component whereby team members must achieve their own goals. Indeed, albeit without specifying which enablers make up team effectiveness, they theorise that the drivers of team effectiveness should also be key enablers of MTS effectiveness. This is another reason why focusing on the literature of teams is of pivotal importance to unpack MTS effectiveness. Yet, it should also be acknowledged that the literature on team

effectiveness may not sufficiently explain MTS dynamics because of the MTS complex interdependence of the teams and their common desired objectives (Mathieu et al., 2001).

There are several possibilities to measure and/or define team effectiveness. One of the most popular approaches to defining team effectiveness is goal attainment because teams are created to pursue specific objectives (Singh & Muncherji, 2007). This approach has been criticised as it does not concentrate on the means of achieving the goals (Singh & Muncherji, 2007). Meaning that it only focuses on if the goal is attained instead of how the goal is attained. In terms of benefits, measuring the goals is often quite simple because the team must reach a certain number of units or turnover. However, not all goals can be measured and in this study no revenue or anything like that is associated with the goal. Therefore, the focus is on the process of achieving effectiveness.

There are various process models of team effectiveness available (e.g., Cohen, 1997; Hackman, 1987), but the IPO model (input, process, output) is probably the most common one. According to McGrath (1964), the input consists of the individual, group, and environment level factors. Then, the interaction process (e.g., communication) will lead to the outcome of the team (e.g., form of effectiveness). However, the IPO model has been criticised on various points. For instance, Forsyth (2010) states three limitations of this particular model. Firstly, it does not take into account that amidst the variables there is a complex interdependency. Secondly, some processes should be classified as mediators as these characteristics develop over time. Lastly, it does not include feedback processes (Forsyth, 2010). For these reasons and the fact that the model of McGrath is outdated, the IPO model will not be used in this research.

When looking at the entire process of team effectiveness, team processes are the core. This means that interdependence of the team members' actions are important for team effectiveness (Mathieu et al., 2001). Marks et al. (2001) define team process as *"members' interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals"* (p. 357). Subsequently, Kozlowski and Ilgen (2006) stated that certain *"cognitive, motivational/affective, and behavioural team processes and emergent states enhance team effectiveness"* (p. 111). For instance, team coordination is a part of behavioural processes and team cohesion of affective processes (Kozlowski, 2006). Hilton and Cook (2015), argue that team effectiveness is dependent on the alignment of the same three processes in combination with task demands. So, team effectiveness could be achieved by means of the behavioural process 'coordination'.

Other researchers also suggest that coordination is an enabler of team effectiveness. A study by Tannenbaum and Salas (2020) indicates that seven enablers make up team effectiveness; capability, cooperation, coordination, communication, cognition, coaching and conditions. The researchers studied the literature intensively and only when there was clear, consistent evidence (e.g., through meta-analyses) were the drivers identified. As reported above, past and recent studies state that coordination is an enabler of team effectiveness. Some even indicate that the coordination process is the most important player in this (see e.g., Mathieu et al., 2008). Thus, in the following section, the coordination process will be explained in more detail.

2.2 Coordination

Coordination is one of the enablers of team effectiveness and is defined as *"a process that involves the use of strategies and patterns of behavior aimed to integrate actions, knowledge and goals of interdependent members, in order to achieve common goals"* (Malone & Crowston, 1994; Rico et al., 2011, p. 60). Inter-team coordination plays an important role in MTS performance (Dechurch & Marks, 2006). MTS coordination can be defined as *"aligning the sequencing and timing of interdependent actions among teams"* (Dechurch & Marks, 2006, p. 313). DeChurch and Marks (2006) only state a definition of MTS coordination but do not go deeper into what the process of coordination entails. Therefore, I will once again use the team coordination process literature as a starting point to address this gap.

Coordinating mechanisms in individual teams consist of three processes; shared mental models, mutual trust and closed-loop communication (Salas et al., 2005). Firstly, shared mental model entails that the CT members should have a shared understanding of the CT goals, tasks and coordination to accomplish the distal goal (Cannon-Bowers et al., 1995; Salas et al., 2005). Secondly, communication is the key to information exchange as, without communication, there is no collaboration. The level of communication is dependent on whether someone identifies themselves strongly with the CT and the MTS (Keyton et al., 2011). Lastly, mutual trust ensures that members interpret the behaviour of others in the right way (Salas et al., 2005).

Since these three processes (communication, shared mental models, and trust) have also been linked to MTS by other researchers (e.g., Dechurch & Marks, 2006; Huggins & Scheepers, 2019; Keyton et al., 2011), they are taken into account to examine MTS coordination in this study. Firstly, Keyton (2011) linked communication with an MTS as there needs to be a certain level of communication between the CT leader and the CTs members. Secondly,

trustful relationships between the CTs members are connected to the performance of an MTS (Huggins & Scheepers, 2019). Lastly, shared mental models are also linked to the performance of an MTS as it enables members to adjust and anticipate when necessary (Dechurch & Marks, 2006; Rico et al., 2017).

However, some differences exist between coordination in teams and MTSs. As already mentioned, a difference is that the MTS coordination has to take into account the functional interdependence between the CTs. Another crucial discrepancy is that there appears to be a connection between the boundary spanning coordination activity and effectiveness (Davison et al., 2012; Drach-Zahavy, 2011). Hence, to fully understand the team and MTS coordination, in the next section, I will explain boundary spanning in more detail.

2.3 Boundary Spanner & Boundary Spanning

In the previous sections, I discussed that team and MTS effectiveness can be affected by coordination. Several researchers indicated there is a possible relationship between the boundary spanning coordination activity and effectiveness (e.g., Bienefeld & Grote, 2014; Davison et al., 2012; Turner et al., 2020). It should be emphasised that the above researchers often do not clarify what makes a certain person a boundary spanner. For instance, Bienefeld and Grote (2014) assume that with a particular function you span the boundaries and then you are classified as a boundary spanner and engage in boundary spanning activities. As a result, both leaders and subordinates can in principle be the boundary spanner.

Boundary spanning is a concept that has been discussed extensively by multiple researchers. According to Zaccaro et al. (2012), boundary spanning could be defined as *"a concept that encompasses a wide variety of activities, located at the interface between organizational units both within and across formal (e.g., legal) boundaries, from simple information exchange to complex and real-time behaviour integration and coordination"* (p. 323). With boundary spanning the internal environment is linked with the external environment. In the case of an MTS, a boundary spanner should manage and facilitate interactions between the different CTs and organisations outside the MTS (Ancona & Caldwell, 1990; Marrone, 2010). It seems that the boundary spanner has a formal role in an organisation but that does not have to be the case. According to Yagi and Kleinberg (2011), anyone can be a boundary spanner as long as they have the right skills and knowledge.

The designated boundary spanner has a wide range of activities such as taking into account all the demands and balancing them (Choi, 2002; Marrone, 2010), improving information exchange (e.g., Hinsz & Betts, 2012), conflict management (Turner et al., 2020) and coordination activities (e.g., Drach-Zahavy, 2011). Besides, in the case of a boundary spanner in an organisation, it seems that if he/she identifies strongly with the team and the organisation the group performances increase and there are fewer conflicts (Cuijpers et al., 2016; Richter et al., 2006). According to Williams (2013), boundary spanners usually do not have the position of a leader and thus manage without the power. However, in the case of an MTS, some researchers state that the leader should be the boundary spanner or even that a (dual) leadership role of a boundary spanner is related to the success of an MTS (Bienefeld & Grote, 2014; Zaccaro, Marks, et al., 2012).

You would expect that a leader engages in boundary spanning activities to achieve the goal(s) because leadership is defined as *"an asymmetrical relationship of influence in which one actor guides or directs the behavior of others toward a certain goal over a certain period of time"* (Underdal, 1994, p. 178). Prior research by Ancona & Caldwell (1990) state also that leaders are involved in boundary ambassadorial activities and task coordination. Nonetheless, the leader does not necessarily have to be the boundary spanner, because the leader has as well other activities e.g. strategizing (Dechurch & Marks, 2006). In summary, boundary spanners and leaders relate to each other in the following way: the leader may be the boundary spanner or the leader is involved in activities that can also be classified as boundary spanning activities or nothing of the above.

A boundary spanner should possess various characteristics to function well. In Table 1, the most common characteristics of a boundary spanner are described.

Table 1. *Characteristics of a Boundary Spanner*

Characteristics	References
Ability to engage with others / emphasise	(Williams, 2002, p. 110)
Desirable characteristics: honesty, tolerance, approachability, openness, reliability, sensitivity	(Williams, 2002, p. 116)
Best characteristics: inviting and easy-going personality and it must be a person who can divest his organizational and professional baggage.	(Williams, 2002, p. 116)
People orientated, friendly, sociable, committed, hard worker, persistence	(Williams, 2011, p. 30)
Communicative / active listener	(Tushman & Scanlan, 1982; Williams, 2002)

To summarise, this section clarifies that coordination is one of the activities of a boundary spanner. In addition, the boundary spanner does not necessarily have to be the leader of a CT or the entire MTS. In this research, the focus is on the person who conducts the boundary spanning coordination activities and therefore is also the boundary spanner.

3. Methodology

This study had an inductive research approach as data was analysed bottom-up to discover novel patterns and to suggest propositions. Inductive research allows the researcher to use raw data in order to discover themes (Thomas, 2006). In the following sections, the research design, case description and research instruments of this research are given and explained. Afterwards, the collection of the data and the (dis)advantages of secondary data are discussed. Finally, the data analysis is discussed.

3.1 Research Design

The methodology for this research was a case study because this research aimed to understand a complex phenomenon, namely, how the coordination activities of a boundary spanner influence the effectiveness of an MTS in a real-life context (Yin, 2003). Case studies make it possible to examine the concepts in detail and explain why some findings happen (Denscombe, 2010). Yin (2003) defined a case study as *"an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident"* (p. 13). This gave me confidence that a case study was the right choice of methodology. I studied one construction MTS of the Dutch Military, which makes it a single case. It was decided to study one case as I wanted to study the phenomenon over time. According to Yin (2003), a longitudinal single case study was suitable for this. This research can be classified as qualitative research because secondary data were used, namely: interviews and a diary. A qualitative approach allowed me to study the complex phenomenon in-depth as there was a richness of data and it allowed me to possibly contradict the existence theory (Denscombe, 2010).

Case studies are criticised by researchers because it is often not possible to generalise the results (Tsang, 2014). However, the aim of this research was not generalisation, but to explore a possible relationship between two constructs in a real-life context in order to draw up propositions. Another point of criticism is that the data collected in a case study is often very voluminous, leading researchers to get too specific or overlook the most important parts (Eisenhardt, 1989a). However, the advantage of case studies is that they have proven that they can handle multiple qualitative methods correctly simultaneously (Eisenhardt, 1989b). Hence, a longitudinal case study was the best approach for this research as it did not aim for generalisation but for drawing up propositions using multiple methods.

3.2 Case Description

The MTS that was studied was from the Dutch Military and consisted of three CTs; construction, communication and information, and contractors (as can be seen in Table 2). The construction team consisted of nine individuals; the MTS leader, two team leaders and the construction members. The construction team had three subgroups: installation, electrical and construction engineering. This study focused mainly on the leader, the two team leaders and one team member as they were classified as key persons.

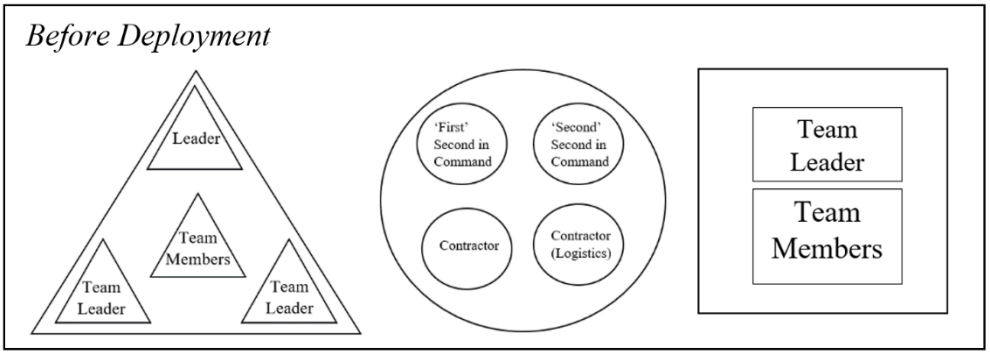
The contractor team consisted of four contractors. One of the contractors worked extensively together with one of the construction team leaders as both were responsible for electro technic. During the deployment, this person also got the role of second in command. Another contractor was responsible for a special project called concrete canvas and was the second in command till someone else took over. The third contractor as well worked together with a construction team leader. The last contractor was not quite a contractor, because his focus was on logistics. Lastly, the communication and information team consisted of the team leader and seven team members.

Table 2. *Component Teams*

Component Team	Component Team Members
Construction	The leader, 2 construction team leaders, and 6 construction team members
Contractors	4 contractors, one of whom had expertise in logistics
Communication & Information	Communication team leader and 7 communication and information team members

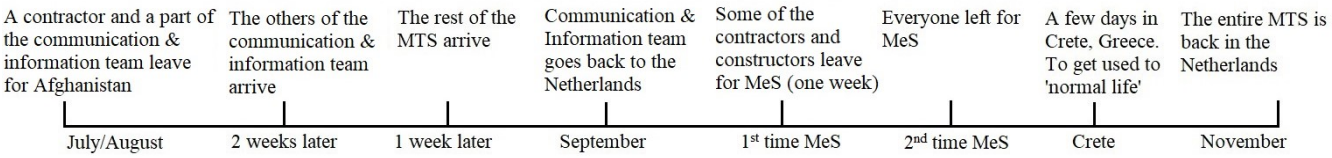
In Figure 1, the formal boundaries of the teams and who belongs to which team are visualised. The different geometric shapes indicate to which team someone belongs.

Figure 1. *Teams before Deployment*



This MTS was active in Kunduz and Mazar-e Sharif (MeS) in Afghanistan in 2012 to build infrastructure and ensure communication/information exchange. Before the first group went to Kunduz, there were team-building activities. At the end of the summer, the first group including a contractor and a part of the communication team left for Kunduz. After two weeks, the rest of the communication team also arrived and another week later the entire MTS was complete. For several weeks, all the component teams were in Kunduz but in September the assignment of the communication team was as good as finished and they went back home. Then, only the contractors and construction members were left although some of the contractors and construction members left for MeS for a week. After that, they finished their projects as good as possible and then travelled back via MeS and Crete to the Netherlands. They needed to stay a few days in Crete to acclimatise. The timeline is also visualised in Figure 2. To conclude, this MTS was suitable for this research because it operated in a complex and insecure environment that required extensive coordination to get the task done.

Figure 2. *Timeline of Deployment*



3.3 Research Instruments

This research was built on secondary data collected by Dr Wijnmaalen (2015). Not all information in the data collected by Dr Wijnmaalen had been used. This means that this research focused on *"maximizing use of existing data"* (Tate & Happ, 2017, p. 3). An advantage of secondary data is that the designing, collecting and organising of data had already been done and this normally takes a lot of time (Vartanian, 2011). Tate and Happ (2017) state that with primary data, you are concerned with locating participants and hoping they will be willing to share sensitive information. This is not a problem for secondary data. However, you should investigate whether the data suits your research. Another drawback of secondary data is that one has no control over the implementation of the data collection methods, cannot gather more information from the participants and have control over the quality of the data (Vartanian, 2011). However, the data had been collected in a very rigorous manner, this is discussed below.

For this research, two types of research instruments of the data gathered by Dr Wijnmaalen have been used: semi-structured interviews and one diary. As reported by Williams (2007),

the complexity of the phenomenon will be better understood and explored while using qualitative research and data triangulation can guarantee the high quality of this research. Indeed, through data triangulation, the researcher used different sources that converged to the same conclusion and thus confirmed the previous results (Mills et al., 2012). In addition, triangulation had been used to achieve a complete picture of the situation (Denscombe, 2010).

3.3.1 Semi-Structured Interviews

According to Yin (2003), semi-structured interviews are one the most important sources of data for case studies. Interviews are even recommended by Denscombe (2010) to explore a complex phenomenon. There are three types of interviews; structured, semi-structured and unstructured (Baškarada, 2014). The interviews of this study were semi-structured, this entails that the interviewee had a pre-defined set of questions but could easily deviate to ask for more about a certain topic (Baškarada, 2014). This could stimulate the interviewees to speak their minds and give the researcher insights into their thoughts. Thus, the aim was to discover instead of just checking (Denscombe, 2010). As reported by Podsakoff (2003), the interviews could have given socially desirable answers to present them better. Although this could happen in every interview, I had to be aware of this fact. Ultimately, the quality of the interviewees partly depends on how good the interviewer's skills were. The interviewer should have possessed skills such as attentiveness, sensitivity and non-judgement (Denscombe, 2010). It was not possible to rectify the potential 'mistakes' (if any) in the data collection because it was secondary data.

In the end, I could state that I could use the data of the semi-structured interviews because the interviews were longitudinal and in-depth. So, there was a lot of information available and, therefore, I did not need follow up questions. I examined the interviews and there were no suggestive questions, only open questions. The researcher also asked multiple times for clarity by means of examples. All of this allowed us to overcome the cons of the secondary data.

3.3.2 Diary

The second research instrument that was used was the diary of one of the CT members. Personal records are a rich source of data but is it subjective. As a researcher, it is possible to obtain access to information, thoughts, and feelings that you otherwise would not know (Sheble et al., 2017). Especially in this research because the MTS members were not asked to keep up a diary, but this member wanted to. The diary was first discussed during the post-deployment interview and permission was given to read the diary. As a result, the information cannot be biased.

The collected data have been used for this research for several reasons. Firstly, the collected data was very extensive and therefore there was a lot of information available. I briefly investigated the data and the concepts came back in the data. And secondly, the interviews were conducted with central and secondary figures. Denscombe (2010) states that when you want to explore a particular situation in-depth you need these people. I wanted to explore the coordination activities of a boundary spanner in-depth, so I needed these key players. To conclude this section, I could trust the quality of the collected secondary data for the reasons mentioned in the previous paragraphs. There are some inaccuracies, as some of the interviewees gave socially desirable answers, possibly due to lack of confidence, and follow-up interviews took place several months after deployment (Wijnmaalen, 2015). But the pros outweighed the cons. Thus, I could state that the analysis was robust.

3.4 Data Collection

This section describes when the data was collected to ensure transparency. Dr Wijnmaalen conducted a total of 26 interviews with central and secondary figures before, during and after the deployment of the military MTS in Kunduz/MeS, Afghanistan. The semi-structured interviews took place between July 2012 and January 2013. Afterwards, the interviews were transcribed by Dr Wijnmaalen herself and two independent individuals. In Table 3, the numbers of semi-structured interviews and the time they took are presented.

Table 3. *Information about the Interviews*

Component Team	Number of Interviews			Time per Interview		
	Before	During	After	Before	During	After
Construction	3	2	3	30-60 minutes	40-60 minutes	60-120 minutes
Communication & Information	8	0	1	15-30 minutes	-	80 minutes
Contractor	3	2	4	20-25 minutes	30-110 minutes	70-160 minutes

3.5 Data Analysis

The main part of this research was coding the interviews to find out if and how the coordination activities of a boundary spanner influence the effectiveness of an MTS. The method of Gioia (2012) has been used to organise the interviews because the steps of this method are well-defined in a systematic manner, without compromising the quality of the

research (Gioia et al., 2012). This systematic manner brings qualitative rigour, meaning that others could have confidence in the findings of this research. This is the most important reason why Gioia has been chosen. The Gioia method consists of coding the transcriptions into 1st order concepts, 2nd order themes, 3rd order themes, and one 4th order theme.

The interviews had already been conducted and transcribed, but some were selected to verify that the audio recordings matched the transcribed data. While reading the interviews the researcher had the feeling that sometimes the transcribed sentences were not correct. Therefore, the researcher wanted to confirm that what was said was actually said by the interviewees. In the end, most of the interviews were correctly transcribed, only some abbreviations and sentences had to be changed.

The programme Atlas.ti was used to code the interviews and the diary. This was the researcher's first-time coding interviews using the Gioia method and using a coding programme. To master the skill of coding in Atlas.ti, the researcher read relevant articles on how to use the programme efficiently and did a practice session with an experienced researcher. This was all done to ensure that no important parts of the interviews were skipped in the coding process and that the researcher interpreted the data correctly. The coding process was inductive because the aim was to develop codes while analysing the data instead of having predetermined codes that were going to be connected to the data. I did know the literature on coordination, boundary spanning and effectiveness beforehand yet during the coding process I tried not to look for certain codes that could be connected to these constructs. So, I knew the concepts in general but tried to shut off the details in my mind to stay unbiased. Thus, to avoid confirmation bias (Gioia et al., 2012). This was difficult, of course, but I constantly reminded myself to stay open-minded and code anything I thought was remarkable, even if it was ruled out at a later date.

All relevant quotes were highlighted during the coding process and simultaneously first order codes were assigned to them. After coding all the interviews, the data structure was analysed iteratively to guarantee that the codes were relevant for this research and that they told the exact story of the MTS members. I had multiple codes that were not relevant for this research such as codes about the use of voice and in-group vs out-group. This resulted in modification, removal, or creation of codes. In the end, there were 106 unique first-order codes identified. After this step, I began to compare the first order codes to form second-order themes, third-order themes, and fourth-order themes. I did the coding session alone, so there is a chance I

assigned the wrong codes to the data and created non-logical second, third, and fourth-order themes.

Nevertheless, I discussed the entire data structure various times with two other researchers, these meetings gave me new valuable insights. I discovered that I could combine various first-order codes and the same applied to the second and third-order themes to gain mutually exclusivity. This process took some time as I had to alter, remove, and combine the themes various times. Yet, in the end, I had eleven unique second-order themes, four third-order themes and one overarching theme. The theme ‘elements of boundary spanning’ give information about who the boundary spanner is in this MTS as this research revolves around this person. The themes ‘lack of communication’, ‘no shared mental models’, ‘lack of trust’, and ‘the characteristics of the leader’ form together ineffective leadership and provides the information needed to answer the research question.

4. Results

This research aimed to explore how the boundary spanner's coordination activities are influencing the effectiveness of an MTS. Before the main results can be presented, the boundary spanner of the MTS must be determined. The boundary spanner is the person this entire research revolves around.

4.1 Elements of Boundary Spanning

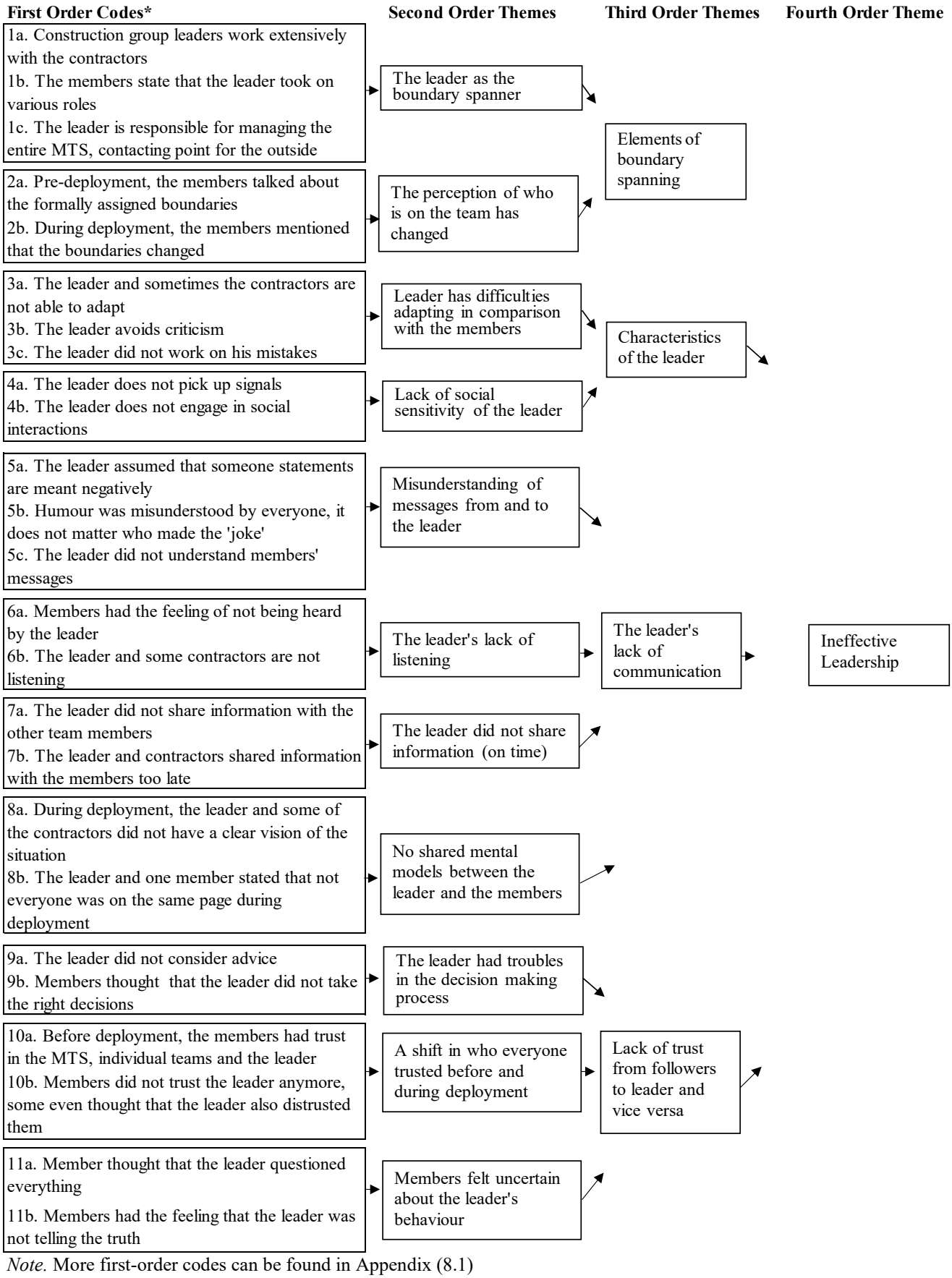
The MTS members emphasised two different elements of boundary spanning, one of which made it clear who the boundary spanner is and the second made it clear that the perspective of who is on which team changed. First, the focus is on who is the boundary spanner. Several members explained that the leader took on duties outside his role, such as wanting to take on the role as an emerging platoon commander and taking over duties of the contractors. This proves that the leader did not know who was responsible for what. Still, the leader also unconsciously took on another role. The leader was as well the boundary spanner in this MTS because he had the opportunity to lead/engage in activities within, across, and outside the boundaries of the component teams. The team leaders of the construction team underlined that the leader was the one who had the most access within and across the boundaries of the CTs and MTS. *"We have a leader and that is Dean, if we have a problem we tell him and he communicates it to someone of a higher level, that comes across much better"* and *"In principle, I expect from the leader that he manages everything, that we have little to do with that"*. The construction team leaders are on a minor level boundary spanners because they worked intensively with the contractor team. Since the contractors were responsible for formulating the assignments/projects that the construction team needed to execute. *"Mason is my (construction team leader) other half during the deployment, there is always a partnership"*. The same applied to the other construction team leader. *"Especially Brandon, right? And that is your other half too, right? - Yes exactly, yes he is also an engineer"*. So, the team leader crossed the boundaries. Yet, the leader crossed the boundaries of all the component teams and the MTS because he was the spider in the web. Therefore, the leader is on a greater level also the boundary spanner.

The second element of boundary spanning has to do with the fact that the member's perspective on who is on which team changed during the deployment, yet the perspective was for each person is different. Still, especially the position of the boundary spanner changed. In the pre-deployment phase, the members were all formally assigned to one of the three component teams. However, during the deployment, the leader decided to sit in the

contractors' office because the leader did not know this team and did not want to miss out on a personal connection with them. The leader had already known the construction team for quite some time as he normally is the platoon leader of the construction company, so a personal connection with them was already established. Yet now he was the leader of the entire MTS and needed to be personally connected to everyone. This decision to take a seat at the contractors' office contributed to the effect that the boundaries of the CTs shifted. One of the contractors voiced that Dean belonged to the contractor team. *"Who is on the team?"- "Us four. So, Riley, Dean (the leader), Mason and me".* Moreover, another contractor underlined that the four men in the office were not a team, meaning the contractors and the leader. The decision to be seated in the contractor's office also influenced how the construction team leaders perceived the teams. According to one of the construction team leaders, the leader belonged to the contractors. *"Well, he (the leader) actually belonged to the contractors. Actually, there was the leader, the contractors, and us (the construction team leaders)"*. Thus, a boundary spanner is involved in boundary spanning activities, yet the boundaries of teams need to be crossed for them to be classified as boundary spanning activities. With the boundaries of the teams depending on which perspective is taken, the position of the boundary spanner especially changed. Yet, the boundary spanner still had the opportunity to lead within and across the boundaries of the teams. No matter which perspective you take.

Now, we know that the leader is the boundary spanner and that it has been established that the leader/boundary spanner can conduct the boundary spanning activities at any time. The focus shifts to how the boundary spanner's coordination activities influence the MTS effectiveness. The data structure (see Figure 3), developed during the coding process, provides the necessary information to answer the research question. The third order themes 'lack of communication', 'no shared mental models', and 'lack of trust' made up the coordination mechanism and together with 'the characteristics of the leader' form 'ineffective leadership'. The leader is the boundary spanner so these elements are essential to answer how the boundary spanner coordination activities influence the effectiveness of the MTS.

Figure 3. *Data Structure*



Note. More first-order codes can be found in Appendix (8.1)

4.2 The Characteristics of the Leader Influence his Functioning, Actions and MTS Effectiveness

Many MTS members noted that the leader had two characteristics that were not in his favour: adaptability and social sensitivity. These two characteristics affected how competent the leader was in his role as leader and as a boundary spanner and how well the leader behaved in activities, such as the coordination activities. Moreover, it as well indirectly influenced the MTS effectiveness. Thus, the characteristics play an essential role in understanding how well the leader/boundary spanner functioned.

Firstly, lack of social sensitivity. This characteristic affected the competence of the leader. Both the construction and the contractors underlined that the leader was not participating in social interaction activities, nor during work or after work. If we take the perspective of the construction team, one of the construction team leaders voiced that on various occasions that the leader was not socially engaged. This resulted in that the members also did not talk to him. *"No one speaks to him (the leader) personally. Or it must be work related, but no one speaks to him personally".* According to the other construction team leader, knowing your MTS colleagues on a more personal level ensures that you pick up signals more easily. Still, the leader stated that he focused more on the contractors to not miss the personal connection with them, so he sat down in their office. The leader thought he already had a personal connection with the constructors as he is normally their platoon leader. Yet, this decision resulted in not picking up any signals from what was happening in the construction team. For instance, a contractor stated that the construction team workers talked negatively about their group leaders, yet the leader had no idea. *"You had those two team leaders and that clashed with the team members, but that was not intervened by, for example by the leader. He is the boss, he has to see that"*.

The constructions team workers echoed that the leader did not interact with them. *"He is not socially engaged, he is always busy with work. As a leader, I think you should get on with those men socially"*. And even when the leader decided to go outside and talk to the construction workers, this did not go down well with them because then the leader was just complaining about work. The same applied to the contractors, they all echoed that the leader did not socially participate. A contractor once told the leader that he needed to socially interact with everyone to earn respect as a leader. Now they had a negative image of him as the leader's last deployment did not go well. The MTS members always kept in mind that the leader did not function properly in that deployment. Still, the leader did not follow the advice

to communicate socially. This became clear in the following example. As explained by another contractor, the leader and he shared a room but most of the time it was quiet. *"You can almost count that on two hands. The times we talked to each other"*. Another contractor also voiced that he had an informal conversation with the leader, where the leader exposed his personal side a bit more by telling the contractor what bothered him. The contractor told the leader he needed to have this kind of conversation as well with the others because they would appreciate him more. *"Just be yourself now and then and say what you find difficult. You get much more appreciation for that than solving everything yourself. Yes, yes, I have to do that again. He did not"*. The effect of not acting on his words was that the contractor's emotions were heightened. *"Yes, I am indeed disappointed"*. Thus, the leader's lack of social interaction and opening up ensures that he cannot identify or understand signals from the members and therefore there is a lack of social sensitivity.

Secondly, the leader had difficulties adapting. This is the second characteristic that the members underlined. This characteristic also influenced how competent the leader was in his role. Three sub-themes of interest displayed the adapting difficulties of the leader. First, this is shown in the fact that the leader was not willing to change his plans. According to one of the construction team leaders, there was this one time everything went faster than expected. So, the construction team leader changed the plans, a part of the men would sweep the terrain and the other part would already start counting material. Yet, the leader wanted to stick to the planning, even when the constructor explained to the leader that otherwise, a few men would be doing nothing all day. *"Very difficult to switch. Very difficult to adapt to the situation. That is very annoying"*. So, the effect of not being able to adapt is that the work is not done most efficiently. This was not the only time it happened that the leader did not want to deviate from his plans. For instance, the leader did not want to stop with the daily 5 p.m. meetings to discuss the (next) day. The second time in MeS, however, the MTS members did not have any assignments except for a few small projects, there was no added value. *"I have heard it so often: Stop with that misery dude. Even in MeS he wanted to do it. I said: We are not doing it here"*. This resulted in both the contractors and the construction members thinking the leader missed the point completely and displayed recalcitrant behaviour by disobeying his orders. One of the contractors even stated that overall it felt very strangling, but the agreements were not changed by the leader. *"And I think if at some point you spend two or three weeks together and you see that the agreements are not right or that they are very strangling, then you (the leader) should be able to adjust that"*.

The second sub-theme the members underlined was that the leader also struggled with criticism. A construction team member voiced that there was an evaluation session that should have been for the entire MTS, but the leader did not want the contractors to attend because he was afraid of their criticism. *"The leader was afraid he would be criticised? - Yes, I think so"*. One of the contractors echoed the same. *"But the leader was also probably very afraid of our criticism"*. The third sub-theme the members voiced was that the leader struggled with working on his mistakes. In another evaluation session, the construction team leader voiced the wrongdoings of the leader and displayed how he could improve himself. The leader wrote down some of the points, even acknowledged some of them, and stated that he going to work on them. Yet, the construction team leader did not have the feeling the leader was going to do this. It was mentioned to the leader before and he did not do anything about it either. *"I think they (MTS members) have done that before. It has often been said to him (the leader), certain things"*. Not working on his mistakes time after time led to the feeling that the leader did not could adapt but also to the fact that one of the contractors began counting the mistakes. The contractor started counting them after an incident where the leader used money from the general money pot (all members of the MTS had put money in this pot) to buy t-shirts for the entire MTS. Yet the leader did not consult the others and asked for their permission to use the money for the t-shirts. The leader just used the money. *"Yeah fine, not a good action, again not a good action"*.

This paragraph displayed the characteristics of the leader, who could also be seen as the boundary spanner. The characteristics can be seen as signs of how competent the leader is in his role as a leader and boundary spanner. This affected how the leader behaves in certain events and also indirectly influences the effectiveness of the MTS. The lack of social sensitivity showed that the leader did not identify or understand the signals the members were giving. The difficulties with adapting presented that work was not done in the most efficient way but also that the leader did not change his behaviour. For this research, this means that the leader/boundary spanner already gave signals that he was ineffective in his role. Yet, the leader/boundary spanner is the most important person in this study and he should function properly in his activities.

4.3 The Leader's Lack of Communication

The MTS members noticed the leader's lack of communication. The leader struggled to communicate effectively with the MTS members, and this resulted in a disconnection between the leader and the MTS members. Moreover, it also had a negative influence on the MTS effectiveness. The leader's lack of communication has three sub-themes that will be discussed below.

4.3.1 The Leader had Difficulty with Sharing Information (On Time)

The leader had trouble with sharing information on time, meaning he shared information with both the contractors and the construction members last minute. This resulted in the members not receiving the necessary information to execute their work. *"He (the leader) does attend other meetings and he does attend places where information relevant to us comes from. Nothing came out of that, he filtered everything for himself"*. Furthermore, withholding information from the MTS members often also resulted in the emotions of the members running high. There is this one example, where the leader withheld information for both teams. A construction team leader and contractor voiced that there was a situation where the MTS had to build an arch tent for an official moment. However, the leader had not discussed this with the contractor and the construction team. *"He (the leader) had promised others that we would build those arched tents for the guests. He just did not tell us (contractors)"* and the construction team leader echoed the same *"Withholding information, passing it on too late, for instance, the arch tent"*. Reluctantly the MTS members built the arch tent, yet the emotions were heightened among the members while building the tent. *"Yes, …irritations sky high. Terrible yes"*. After, the event no one from the MTS wanted to tear down the arch tent even though the leader ordered them to do so. The emotions were already heightened from the last-minute announcement and the members decided to disobey the leader's order. This type of situations happened more often with all of the construction team members including the team leaders and the workers. A construction member explained also that the workers received information much later. *"Yes, but often later. But that is because of the leader because he wanted to keep the information to himself for so long and then announce this is what we are going to do now at the last minute"*.

Furthermore, this was not the only time it happened that the leader withheld information for a longer period of time, it also happened with the contractors. There was this one time that the leader was sitting at the mess hall together with the contractors. The leader received a phone call that contained information about their return date. However, when the leader returned, he

continued eating but did not share the information he just received. The other contractors had to pressure him to talk about the return date. *"He (the leader) had known that for quite some time, but he did not tell us (MTS members) that. So, we asked: When are we going to leave? What is the date now? Yes, it is difficult and I'm still trying. Yes, just tell me a date, then I can call home. But that only came through very late. That is too bad"*. In the following example, a contractor stated that he had made a plan regarding how certain containers should be arranged and this plan was ready to be executed. However, while this contractor was in MeS a new plan was created without his knowledge. Once again, the leader had not openly communicated that there was already a plan. *"The leader and another contractor (made a plan), but not informed by the leader: There is already a plan".* This did not go over well with the contractor, his emotions were heightened. In his opinion, if you are big enough to put his plan aside, then the leader should implement his own plan. So, he was not willing to do the work anymore. Yet, there was another time that where the leader withheld information for a longer time. There was an e-mail incident where the leader had sent an e-mail to the Netherlands outlining the problems in the MTS, but especially the problems in the contractor team. A contractor found out about this email. Although the contractors, including the leader, had all agreed to keep it internal. The contractor confronted the leader about this and told him to tell the other contractors about the email. Yet, the leader kept quiet. In the end, the other contractors found out through others. A construction team leader also noticed that this incident affected the ambience because the contractors were very annoyed with the leader. As a result, the contractors disregarded the leader. Even talking to the leader about these situations and in general about his lack of sharing information did not help.

One of the contractors tried having a conversation with the leader about his lack of communication, yet he did not change. *"The proof was delivered an hour later when it turned out that we had to set up an arch tent for the command transfer and that had been known for a week but not at the construction team"*. Even when someone tried to make him face the facts by telling him directly that he did not communicate, the leader did not change his behaviour. Another contractor also had a conversation with the leader and confronted him about his lack of communication. However, the leader still did not see the point of sharing information. *"Yes, but if I had not told you that now, you would not have known that either and then I would not have to say it"*. The effect was that the contractors just could not understand why you would behave in this way.

This part presented that the leader was someone who withheld information for a longer period of time. This behaviour reinforced the disconnection between the leader and the members. The effect of the leader's behaviour was that the members did not receive the information on time that they needed to do their work in the best way possible. Yet sometimes the members responded by not doing the work at all. Thus, this paragraph displayed signs of ineffective leadership.

4.3.2 The Leader Misunderstands Messages

The MTS members emphasised that it was a frequent occurrence that the messages to and from the leader were misunderstood. This means in the process of sending and receiving messages, the clarity of the messages was distorted. The leader sometimes transferred messages to the members, but the members had the feeling that the leader misunderstood the message first. Members of all three component teams experienced this. For instance, the leader instructed the members to move the beds because the air-conditioning was going to be cleaned the next day. Yet, nothing happened and, in the end, it turned out that it was a test in one building to see how many they could service in one day. *"He (the leader) had attended the meeting and he did tell things, fortunately, but half of the info was not correct at all, completely twisted, seemed like some whisper game had taken place. Happened a few times"*. This resulted in that work had been done that was not necessary. Furthermore, a contractor voiced that the leader often first states something in a certain way and later the leader stated it differently. This causes a lot of distortion, not knowing what exactly the information was, and members getting tired of these kinds of things happening *"Yes, that gives a lot of noise because you do not know where you stand in the end"*. Lastly, from the perspective of the construction team leaders. During a meeting, the leader had arranged something with a construction team leader, but this changed a couple of days later and the reason for this change did not come across to the constructor as intended. This showed that the messages from the leader were not always understood by the members. Now, the perspective of the members is given but not yet how the leader experienced all this.

The leader acknowledged that occasionally he did not understand the messages from his members correctly. There was this one time during the deployment that a part of the MTS went to conduct an assignment in MeS. This resulted in that one of the contractors being willing to openly discuss a situation again as he had the feeling there was room for it. *"Then when the contractor once again worded what he now exactly meant, we were actually talking about the same thing, then I said: Oh, then you should have worded it like this"*. However,

when everyone was together in Kunduz the communication within the office of the contractors including the leader was difficult. Messages were not transferred correctly. *"And then, either you do not understand it any more or you do not quite connect with the story that you then pass to someone else. Not me (the leader) personally, me too sometimes"*. This underlines that the leader did not understand the messages and therefore sometimes did not pass them on correctly.

Not only messages were misunderstood by the leader but also humour. According to a contractor, the contractors and the leader disagreed occasionally during meetings. Where nobody would take a decision, thus he stated as a joke *"Then we count the most votes. And that was accepted as truth (by the leader)".* The contractor did not understand why the leader would agree with this. *"Of course, that makes no sense, that is just too crazy for words".* A construction team member echoed the same. On the first day that the constructions team members arrived at Kunduz, one of them was pointed out by the leader that he had to remove a badge from his uniform. Otherwise, the uniform would not have been worn properly. Thus, a construction member voiced that if they were going to point out the correct outfit to each other, then the leader should close his breast pockets. He had meant this as a joke with a serious undertone (with a grain of truth), yet the leader did not seem to recognise this. In the end, this resulted in no communication at all. *"Well, my first five weeks he (the leader) just ignored me. Not a word was spoken, there was not even a good morning"*.

The leader voiced that missing the connection with the contractors, not knowing their communication styles, and not knowing each other in general resulted in not knowing what someone in the contractor team meant. *"That we do not understand each other's words, we only literally listen to what we say, but everyone says everything differently".* However, all the members emphasised that especially the leader had problems communicating messages correctly and understanding the messages he received. The leader was the spider in the web and should have communicated effectively to make sure the information came across the boundaries of the teams as intended.

4.3.3 The Leader's Lack of Listening

The MTS members underlined that the leader was often unaware of what the members were doing because he did not listen to them. Listening is an important sub-theme in communication as without being able to listen (properly) messages can be misunderstood or not even heard at all. The latter is the case in this MTS. According, to the construction team leaders both the contractors and the leader were not listening to them. Every day at 5 p.m. the

contractors, the construction team leaders, and the leader had a meeting where they discussed what they had done that day and what they were going to do the next day. Nevertheless, on various occasions, the construction team leaders would receive questions after the meetings about what they just told them. *"What are you going to do tomorrow? We just told you that. They have not listened, but the leader had no idea either".* Thus, this resulted in the leader not knowing what everyone was doing. A construction team leader noted that after the 5 p.m. meeting he confronted the leader as well with his suspicion that he had no idea what the construction team was doing. *"Yes, listen, do you have an idea of what we do? No, he (the leader) said. I said: Then why do not you come and see? Then you get an idea. I can tell a nice story in the evening, but if you do not have an idea about it, it will not help"*. So, the construction team leader had the entire deployment the feeling that the leader and the contractors did not listen to them, even when they indicated problems, but just continue with their plans. This resulted in that they both felt frustrated but also that the construction workers felt this way. Furthermore, the leader did not listen to the contractors either. During the time they were in Crete, a contractor (the one who focused on the logistics) had a conversation with the leader about his functioning, this conversation was a repetition of an earlier conversation. Where in the leader's opinion, he had done a decent job as a leader. The contractor gave him several reasons why the leader's functioning was not good, yet the leader did not listen to him. *"Because he again just did not listen to me. And I also told him that he never took anything from anyone else, no matter what rank that person had".*

The abovementioned sub-themes of communication showed signs that the leader's lack of communication is ineffective leadership. The leader's actions created a disconnection between himself and the MTS members. However, it also affected the effectiveness of this MTS as members did not receive the necessary information from the leader in time to function properly. Furthermore, the leader did not listen to the members, so he had no idea what they were doing and could therefore not do his job optimally. The leader had to be the spider in the web so that everyone could function properly.

4.4 No Shared Mental Models Between the Leader and the MTS Members

The second theme of the coordination mechanism is no shared mental models, meaning that the leader and the members were not on the same page. The members noted that in particular the contractors' and the leader's visions were not aligned. When looking back at the deployment, the leader stated that he was too focused on the contractor's team because he did not want to lose the personal connection with them. This resulted in that the leader did not

know what the construction team was doing. *"That I no longer knew what they were doing, because they gave feedback and sometimes there were points in it and we talked about that afterwards, normally I would have responded to that. I would be sharp, I would say: What do you mean by that? Can you explain that? Because either it is not right or I do not quite get it"*. Thus, the leader was not on the same page as the constructors. Although the leader voiced that he wanted to connect with the contractor team, this did not mean the leader and the contractors were always on the same page. The contractors' job was to be the ones preparing the work for the other teams. This means that they had to come up with assignments and projects and the construction team carries them out. The leader would then have the final say on how to execute it. Yet, all the contractors voiced that they were not on the same page. According to a contractor, the contractor team (including the leader) were not on the same page, but they should have been. Otherwise, they would not be able to coordinate their actions if they did not know what the others were doing. *"In the first instance, we (the contractors and the leader) are the ones where the input is poured into and we then have to come up with work assignments, that the others will carry out. And then you should actually be on the same page and complement each other"*. Another contractor echoed the same that the visions were not aligned. *"Yes, that you have a lot of different people who really thought very differently"*. Moreover, another contractor underlined that everyone did their tasks yet there was no feedback or information shared about situations happening. They would all see that something is wrong but would not tell the person responsible. *"No, everyone did their own thing, but there was no feedback to each other".* This also ensured that the leader and the contractors were not on the same page. It did not work out well for the contractors, that the leader was seated at their office. While in the pre-deployment phase almost every one of the MTS was on the same page, during the deployment the contractors and the leader were not. The non-shared mental models influenced the effectiveness of the MTS because the leader and some of the MTS members did not know (exactly) what was going on and therefore were not being able to respond to events that were taking place. Moreover, the leader and the contractors could not do their work in the best way possible as they did not agree on most things.

4.5 Lack of Mutual Trust between the Leader and the MTS Members

The third coordination theme is achieving and retaining trust. In particular, the leader had difficulties retaining the trust between him and the members. The leader's actions made members feel that the leader did not trust them and also weakened members' trust in the leader. These actions and the consequences showed signs of ineffective leadership by the

leader. This paragraph describes the third coordination theme in more detail and how it influenced the MTS effectiveness.

4.5.1 Shift of Trust During the Deployment

In the pre-deployment phase, most of the members of all three component teams underlined that they trusted their leader and that they had faith in their component team and/or MTS. If we take the perspective of the communication and information team, they all had faith in the MTS. *"And do you have faith in the group? – Yes, yes"*. Even though, for some of them, it was the first time collaborating with contractors. *"Do you have trust in them? Because they (contractors) have to do things for you too". I have absolute trust in that"*. The same applied to the contractor team. A contractor emphasises that he had faith in the collaboration between him and the leader. *"Yes, and the leader and you? Do you have trust in that combination? - Yes, because I think he is the soft one and I am the hard one. So, the combination is there, I think so"*. Regarding the construction team leaders and the leader there was already a bit more uncertainty. A team leader underlined that they had trust in their team and the others. *"Do you have faith in the triangle, the leader, the other construction group leader and you? – Yes, absolutely"*. The other construction team leader echoed the same. *"Do you have faith in the group? – Yes, sure, there is a lot of experience. – With the construction team or? – Everything, except communication because I do not know them, but I think there is also enough experience within the team"*. Yet, there was still a bit of doubt by both team leaders regarding the leader because of his previous deployment. *"I am curious how the collaboration between me, the other construction team leader and the leader is going to be because there are some stories about the leader from the previous deployment"*. The leader already trusted the construction team leaders but did not trust the construction team members yet. He expected this would happen soon when he and the construction members spend more time together. Moreover, in general, the leader had faith in the entire MTS that they would function properly.

During the deployment, this feeling of trust in each other changed, one of the reasons for this change were the actions of the leader. For instance, the leader was not listening during the 5 p.m. meetings gave the team leaders the feeling that the leader did not have trust in them. *"Well, at least it states distrust. I told him (the leader) you should have more faith in us"*. The other construction team leader voiced that he had the same feeling. *"Also, a bit of trust. That he just does not trust us. – That the men do not trust him? – No, that the leader did not trust me and the other construction team leader"*. These actions of the leader resulted in that the

team leaders did not trust him anymore. Even the team members of the construction team realised there was no point in talking with the leader. There was once an evaluation with the construction team members, but nobody said anything. They had no faith that it would change for the better. *"After that, we did tell the men that they always have something to say and then there is an evaluation and then they said almost nothing, and their response was: it is no use anyway".* A construction member also explicitly stated that he did not trust the leader at all because of his actions.

In contrast, the leader noted that he always trusted the construction team leaders and the construction team members. The leader felt that the construction team did not need as much guidance because he was sure that if he put in an assignment, they would do it just fine. Once again, the leader thought that he should focus on the contractor team because he did not want to miss out on the personal connection. *"Yes. Yes, because you have faith in them and you know that with the other team (contractors) you should not miss out on the connection… then you try to focus on that".* Nevertheless, this seems not to have the effect the leader wanted. All the members of the contractor team underlined that there was no mutual trust in this office. This also became visible in the fact that everyone was in their little bubble, only two contractors talked to each other during the day, but this stopped when the other contractor or the leader entered the office. One of the contractors voiced that this was because of the lack of trust. *"There is no trust in each other, no cohesion, so communication with each other is often difficult"*. Another contractor echoed the same. *"But did you have faith in the others within your team? – In terms of the human being, no"*. Moreover, a contractor underlined that he did not trust the leader based on the decisions the leader made, him not sharing information, and because the contractor wondered if the leader told the correct story to others. However, this contractor also had the feeling that the leader did not trust one of the contractors. So, the contractor had the feeling that there was no mutual trust. *"It sounds like you did not trust him (the leader)? – That is right. – And did you have the feeling that he did not trust you either? Or at least all of you? Because you said: Sometimes I felt mistrust. He questioned everything we said. – Yes"*. Especially, the action of the leader regarding the e-mail incident, as mentioned in the paragraph about withholding information, caused that the mutual trust was completely gone. *"The trust is then… yes that is completely gone. That has not come back either".*

All the contractors echoed that they had the feeling that there was no trust between everyone who was seated in the contractor's office. The leader also voiced that there was no mutual trust in this office. Thus, this sub-paragraph made it clear that there was a shift of trust during the deployment. Still, it is hard to pinpoint exactly what happened to the shift in trust. The actions of the leader played a role in this, but it cannot be the only cause. It seems like a confluence of circumstances.

4.5.2 The MTS Members Felt the Leader's Displayed Distrustful Behaviour

The MTS members noted that during the deployment they got the feeling that the leader was questioning everything and displayed distrustful behaviour. According to the MTS members, the leader took offence rather quickly. For instance, there was a meeting where the entire MTS was discussing MeS and the leader had told the MTS members were not going to do any assignments. Later, the leader accidentally told the members they needed to do some assignments. When a construction team leader confronted the leader about this, he reacted defensively. *"What about assignments? I (the leader) did not say anything about assignments. I said: You just said yourself that there are several assignments. I would like to know what the assignments are. Maybe I can still prepare. – And then he acts so weird and very distrustful of you".* The other construction team leader experienced the same. One afternoon in MeS, the leader would receive the flight times later that day. Yet, a contractor got them a bit earlier and casually mentioned it to the leader and the construction team leaders who were sitting at a table discussing work. However, the leader was quick to take offence. *"The leader commented: yes, why did you ask for the flight times, which is my job. I would get them at five o'clock but now you went there and asked for them. Then you take work off my hands. – Then the contractor was making a face, well terrible. Yes, that was intense"*. Both team leaders also gave the same example where one of them had to pick up some forms from logistics. While there, he saw that the planning board had a different date for the teams to hand in their gear. This was a different date than what the leader had communicated. The construction team leader asked the workers of logistics if this date was correct, but they told him that they had agreed with it with their leader. So, the construction team leader told the leader what he found out. *"And he (the leader) immediately: What are you bothering with? Why were you at logistics? and all such things. I said: Relax, I just saw it there – I will take care of that, you do not have to interfere with that".* The other team leader echoed the same. *"It is all been arranged. What are you meddling with?"*. So, especially the construction leaders had the feeling of distrust of the leader because of his behaviour. Yet, one of the contractors felt the

same way. A contractor had a chat with the leader in which the leader was honest about struggling with working with older and more experienced members. The contractor responded by saying why the leader did not specify this at the start of the deployment because he always felt the leader was easily offended. *"Because I always had the feeling that anything that was said that the leader questioned that, or that he felt like being personally attacked"*. All these actions of the leader did not strengthen the mutual trust between the leader and the members, it even distorted it. There is also another sub-theme that the MTS members underlined, which showed that the members felt that the leader showed distrustful behaviour.

Some of the members underlined that the leader was not always telling the truth and this affected the trust. For instance, according to a construction team member, the leader told the construction team that two weeks after they got back to the Netherlands, they would go elsewhere for a training week. Nevertheless, when they were back in the Netherlands, the construction member asked one of the captains in charge. He told him they had made it clear to the leader that none of them had to come. *"That is a nice one, the leader started about it three weeks before the end of the deployment and insisted that we had practice. In the end, he said we had no practice, that he had arranged that for us".* This behaviour of being dishonest showed the construction member that the leader was distrustful and therefore the member did not trust the leader. Thus, the leader's actions led to less/no trust between him and the MTS members.

4.5.3 The Decision-Making Process of the Leader Influenced Trust

There is another sub-theme that showed why the behaviour of the leader affected the mutual trust between the MTS members and the leader. This sub-theme is on a different level than the other two because it shows how the leader behaves in the decision-making process influences the trust and causes a lack of trust. Several MTS members felt that the leader did not take the right decisions. Often it happened that the leader decided without discussing it with the members. The job of the contractors was to provide the leader with technical advice, as they have extensive knowledge about certain areas. So, that the leader could make a considered decision. This is consultative decision making and therefore mutual trust is necessary. All the contractors voiced that the leader did not take advice into account while making decisions. According to a contractor, there was a situation where bridges over concrete canvas were built, and they should have used scrap wood to build them. Nevertheless, wood of decent quality was used, and the leader had approved of this. The leader should have discussed it with the contractor as he knew there was still scrap wood left. *"That will not happen again, I*

am done with it, that makes no sense at all, you should have just asked me if there was still wood and you could have just gotten an answer from me: yes, there is wood. This does not make sense". Moreover, the leader went to an orientation meeting to discuss a new project/assignment but did not want to take a contractor with him. Even though, this project would have been in the field of the contractor's expertise. Another contractor made it quite clear to the leader that this is not the way it should go. *"Yeah, but this is for officers – He is the professional idiot and he is coming along and he is going to think about it. He is going to make a report. This is my advice. He is advisory. Not three officers who are going to think something of it. Then of course I received three times: Yes, but. No, not but. End of story"*. A contractor explained it probably happened as leaders are trained in a way that they want to show off but that is also happened because of the lack of trust. Other contractor members echoed the same that the leader made decisions without consulting the advisors, which often ultimately resulted in assignments having to adjust (extra workload) and not taking the right decisions. *"Works at his (the leader's) level but does not see the importance of passing on changes or discussing agreements where technical advice should be discussed, making decisions about work, so that preconditions are always adjusted/changed and therefore the work that has to be done"* and another contractor voiced that *"At a certain point, the captain of the infrastructure started to decide everything together with the leader, without asking how or what, so then everyone's emotions ran high"*. Not only did the leader not take into account advice from the contractors but also not from the construction team leaders. According to the construction team leaders, there was this one time they gave the leader the advice to not place the barriers that close to the air conditioning as it would otherwise be difficult to maintain. The outcome was that the leader did not want to deviate from the decision he had made. *"No, that is how we are going to do it. Then the air-conditioning farmer has a problem, he has to solve it himself"*.

So, the leader did not consider advice when making decisions or did not even tell the MTS members why he decided something. The MTS members as well voiced that the leader occasionally made no decisions at all. According to a contractor, there were frequent discussions during the meetings where contractors disagreed. Yet, the leader did not intervene and made the decision. As a leader, he had the final say. *"You (the leader) have to make a decision now. I can take him too, but I do not think that is supposed to happen. That is what you are there for. Yes"*. Another contractor voiced that the 'not making the final decision' behaviour of the leader, even when they encouraged him to take it, displayed clearly why the

leader was of no use to them. According to him, this failure to function well as a leader had damaged mutual trust. Another MTS member echoed the same *"His role, he is a leader, he has to make decisions. Are we going left or are we going right? and you can advise him about what we do and the contractors also give advice. And in the end, he has to determine: we do it like this. That is not happening"*.

The last three paragraphs presented three themes of the coordination mechanism; communication, shared mental models, and trust. However, the themes were not presented in a positive way. The leader/boundary spanner was the one who did not communicate, was not aligned with the members and there was no mutual trust either. The leader's actions sometimes even negatively influenced the trust. Thus, the leader did not conduct the coordination elements well, partly because he was ineffective in his role as a leader/boundary spanner. The leader's engagement in the coordination activities sometimes also negatively influenced the MTS's effectiveness by, for instance, ensuring that the MTS members could not do their job in the most efficient way.

5. Discussion

This research was conducted to discover how the boundary spanner's coordination activities influence the effectiveness of a MTS. In this chapter, the results are discussed to answer the research question and propositions are suggested. The chapter ends with practical implications, the limitations of the study, and recommendations for future research.

5.1 Theoretical Contributions

This research strengthens the literature on the personality of the boundary spanner in an MTS by demonstrating with empirical evidence that the characteristics of a boundary spanner influence how competent this individual is in his/her role as a boundary spanner. More precisely, the literature noted that a boundary spanner should possess certain characteristics to function properly. Table 1 displayed the key characteristics of a boundary spanner based on studies by Williams (2002, 2011) and Tuchman and Scanlan (1982). In this study, the leader was the person who took the role of a boundary spanner as he had the greatest opportunity to lead/engage in activities across and outside the boundaries of the component teams. This result aligns with the literature in that the leader should be the boundary spanner in an MTS (Zaccaro, et al., 2012). For the reason that the component teams of an MTS are structured in a way that only the MTS management (in this case the leader) can handle certain elements of coordination. These aspects are beyond the capacity of the component teams. This structure ensures that the component teams can solely focus on their tasks. Hence, the responsibility for the majority of cross-border boundary spanning activities, therefore, rests with the MTS leader (Zaccaro, et al., 2012). Thus, the leader is the boundary spanner. The results showed signs that the leader/boundary spanner had difficulty adapting, but also that he lacked social sensitivity (e.g., not socially engaged). In addition, the boundary spanner's involvement in the coordination mechanism also showed signs that he was not a good listener, communicator, or honest. These characteristics are in contrast with the characteristics that a boundary spanner should possess. For instance, according to Williams (2002) and Tushman and Scanlan (1982), the boundary should be communicative and an active listener, but the results showed just the opposite. Another example, the results displayed that the leader was not always honest, yet honesty is one of the most desirable qualities of a boundary spanner. Based on this, it is possible to state that the leader was less competent in his role as a boundary spanner. This research thus extends the existing literature on the personality of a boundary spanner by discovering that certain characteristics indeed make the boundary spanner competent or incompetent in his role.

Proposition 1: *The characteristics of a boundary spanner determine to what extent a boundary spanner is likely to be competent in its role.*

This research also adds to the literature by showing how the coordination activities of a boundary spanner can influence the MTS effectiveness. Literature underlined that three variables, namely closed-loop communication, mutual trust and shared mental models, make up the coordination mechanisms in teams (Salas, 2005). Several researchers also connected these three elements to MTSs (e.g., Huggins & Scheepers, 2019; Keyton et al., 2011), yet this was only theorising and not backed up with empirical evidence. This research showed that communication, shared mental models, and trust are indeed variables that form the coordination mechanism in an MTS. However, this does not mean that there cannot be other variables that together with these three make up the coordination mechanism because I have looked specifically at these three. Thus, this study illustrates with in-depth qualitative data that communication, trust, and shared mental models are indeed making up the coordination mechanism in an MTS.

Nonetheless, the results showed that the coordination elements were not positive, there was a lack of communication, no shared mental models, and a lack of trust. In the literature, the boundary spanner need to conduct activities such as improving information exchange (e.g. Hinsz & Betts, 2012), conflict management (Turner et al., 2020), and/or coordination activities (e.g. Drach-Zahavy, 2011) for a positive result. This means that in this research boundary spanner's coordination activities should have positively influenced the MTS effectiveness. Yet, the main focus, in the results chapter, was on the boundary spanner's coordination activities and less on how the coordination activities of the boundary spanner influence the MTS effectiveness. The reason for not describing it in detail was that in this study it was theorised that the coordination activities (conducted by the boundary spanner) were an enabler of MTS effectiveness. Still, the results displayed signs of ineffectiveness. The boundary spanner in this MTS did carry out the coordination activities, but often not in the way it should have been done to achieve positive results. For instance, the boundary spanners' actions resulted in that the members did not receive the necessary information on time to do their work in the most efficient way or that decisions were not made based on advice. Thus, a boundary spanner can also conduct coordination activities in a way that results in negative instead of positive outcomes. Based on all of the above, I can draw up the following proposition.

Proposition 2: *The coordination activities of a boundary spanner have a greater impact on the effectiveness of MTSs than teams given the complex nature of MTSs.*

The results also showed that there was a lack of communication and lack of trust in this MTS. The leader played a major role in this. Moreover, the behaviour of the leader ensured that the MTS was less effective. Research by Parker (2006) illustrates that trust and open communication help ensure that a team is effective, yet the leader's behaviour plays an essential role in this. The leader must take the lead and lead by example. Yet, if the communication is not good, it is a sign of an ineffective team. Lencioni (2002) also confirms that trust is essential, teams are built on trust and that when there is no trust it causes the team to be dysfunctional. The main point is that what Parker and Lencioni found for teams seem also to be valid for MTSs. Thus, the following proposition is suggested.

Proposition 3: *The effectiveness of an MTS is dependent on effective communication and mutual trust among all members. The leader's behaviour plays a vital role in ensuring that the communication is effective and that there is mutual trust.*

The results underlined that the leader was the boundary spanner. Still, it could be argued that the activities could be classified as leadership activities instead of boundary spanning coordination activities. For instance, mutual trust and interpersonal communication are as well important variables in leadership (e.g., de Vries et al., 2010; Kim et al., 2016). There is a certain overlap in the leadership and boundary spanning activities. For example, DeChurch and Marks (2006) proposed in their study that an MTS leader has the function of strategizing as well as coordinating. According to Drach-Zahavy (2011), the last one is also a boundary spanner activity. Yet, the literature is not always clear about how we can distinguish the activities of a leader from a boundary spanner. Nevertheless, Williams (2012) illustrates that boundary spanning can be a part of a leader's role and that the leader then can also be called a boundary spanner. This study seems to align and strengthen the research of Williams (2012) as it was the task of the leader to conduct the coordination activities within and across the boundaries of the component teams. This ability to cross the boundaries classified the leader also as the boundary spanner. Thus, the following is proposition is formulated.

Proposition 4: *Leadership activities can be classified as boundary spanning activities when the leader conducts the activities within and across the component teams in an MTS.*

To summarise, this research aligns, strengthens, and contributes to the existing literature on MTS and boundary spanning/boundary spanners by explaining how the coordination activities of a boundary spanner influence the MTS effectiveness.

5.2 Practical Implications

It is important to gain insights into the phenomenon of how boundary spanner's coordination activities influence the MTS effectiveness as the environment in which teams operate becomes more complex and demanding. So, it is expected that MTS will increasingly be used. As a result, this study will provide valuable insights to, for instance, managers/directors of a public or private organisation.

MTSs are becoming increasingly popular, therefore the findings of this research can be crucial for the functioning of this organisational form. The boundary spanner is the key person in an MTS and is responsible for properly carrying out the coordination activities. This study suggests that managers and/or directors should assign someone the role of a boundary spanner with the right characteristics. In this research, it became clear that if you do not assign someone the role, a person without the right characteristics could take on the job. Before, establishing the MTS the managers/directors need to examine the characteristics of all possible MTS members using a personality test to determine who is the right fit for the role. The boundary spanner needs certain characteristics to be competent in his/her role such as being sensible and adaptable (see Table 1). Furthermore, the boundary spanner's coordination activities consist in any case of three elements: communication, shared mental models and trust. First, the boundary spanner needs to effectively communicate with its members. To make sure this will happen I would advise the boundary spanner to follow a workshop on how to communicate effectively and that he, for instance, recognises the importance of sharing information. Yet, it is also important that all the MTS members follow a workshop together on communication styles because the boundary spanner needs to interpret the messages of the members correctly and needs to understand how to communicate with someone in his team. Secondly, the boundary spanner must ensure that everyone is on the same page. He/she could do this by attaching great importance to transparency and leading by example. Thirdly, the boundary spanner needs to establish long-term mutual trust with its members. Therefore, the boundary spanner should follow training that provides him guidance to behave in the most reliable manner by for instance not questioning everything an MTS member says or does. To establish trust in the first place all the MTS, including the boundary spanner, should participate in trust-building activities. In this way, everything has been done to ensure that the boundary spanner coordination activities run as smoothly as possible and that it can only positively influence the MTS effectiveness.

5.3 Limitations & Future Research

Like all research, this study has also certain limitations. Firstly, the outcomes of this research are based on one MTS. Albeit very informative and rich in details, it is not possible to generalise the results because studies on other MTSs could give other results (Tsang, 2014). Secondly, the coding of the interviews was done by one researcher. Even though confrontations and discussions were held with other researchers, confirmation bias may be present because the researcher knew some of the literature beforehand (Gioia et al., 2012). Thirdly, the results were derived from semi-structured interviews and a diary. However, there was only one diary available, limiting the extent to which the researcher could corroborate some of the events via triangulation of multiple methods/sources (Carter et al., 2014). Lastly, in this research, it was assumed that *MTS* effectiveness and coordination were equal to *team* effectiveness and coordination because there was limited literature available on MTS effectiveness and coordination. This was taken for granted since the team coordination elements were linked to MTSs by various researchers (e.g., Dechurch & Marks, 2006; Huggins & Scheepers, 2019; Keyton et al., 2011). However, teams and MTSs differ from each other, mainly because of the functional interdependence element in MTSs. Thus, the concepts for teams cannot be the same for MTSs.

To overcome the above limitations, future researchers should consider a number of points. Firstly, future researchers should investigate several MTSs rather than one in order to generalise the results. Secondly, the coding of the interviews should be done by multiple researchers to avoid confirmation bias. Thirdly, future research should use multiple methods/sources to confirm the events via triangulation. Lastly, future research should demonstrate the precise differences and similarities between the effectiveness and coordination of *MTSs* and the effectiveness and coordination of *teams*. This study also revealed some other interesting points that need to be further explored in the future. The data showed that the boundaries of the component teams are fluid rather than fixed. Yet, the literature does not specify how the boundaries of a team are established. For instance, Marrone (2010) only mentioned that marketing teams or suppliers could be a team that engages in team boundary spanning. Even, the study by Bienefeld (2014), where they studied an MTS, assumes that the boundaries are the boundaries of the standardised teams. They do not take into account that the boundaries could shift over time. Future research should examine to what extent the boundaries of a team are fluid. Moreover, in this study, it was not explained in-depth what MTS effectiveness entails, the focus was on the process of achieving

effectiveness. Nevertheless, it would be interesting to study what MTS effectiveness entails. In terms of operationalisation as in which enablers make it possible because, in this study, it was assumed that coordination would be one of the enablers of MTS effectiveness. Turner et al. (2020) made a start with how to measure it, this researcher used team effectiveness frameworks and models to theorise what the MTS effectiveness framework should look like. However, this framework has not been assessed with real-life data. Thus, future research with empirical data is needed.

6. Conclusion

In this thesis, the main question, *"How can boundary spanners' coordination activities influence the multiteam system effectiveness?",* has been answered. It became clear that the leader took on the role of the boundary spanner, yet the leader did not possess the characteristics a boundary spanner should have. The leader was less competent in his role as a boundary spanner because of his characteristics, which included being not able to adapt, social insensitivity and uncommunicative. Furthermore, this research confirmed that communication, trust, and shared mental models indeed made up the coordination mechanism in an MTS. Yet, the boundary spanner did not effectively conduct the coordination activities. In this MTS there was a lack of communication from the boundary spanner, no shared mental models between the boundary spanner and the members, and trust was limited. The trust was limited partly because of the boundary spanner's behaviour. The literature illustrated that coordination is positively related to effectiveness because it is an enabler. Yet, in this case, the coordination activities of the boundary spanner acted as an inhibitor to the MTS effectiveness. So, the effectiveness of the MTS was negatively affected by it. For instance, the work was not done in the most efficient way. Thus, a boundary spanner can conduct the coordination activities ineffectively, with the result that it negatively influences the MTS effectiveness.

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8. Appendix

In this chapter, an overview of the data structure is presented.

8.1 Overview of the Data Structure

First Order Codes	Second-Order Themes	Third-Order Themes	Fourth-Order Theme
1a. The leader does not follow up on a message 1b. The leader does not understand the message of the members 1c. Members thought the discussions took a lot of time, which meant that the decisions were not 100% clear 1d. The leader is not clear in his communication 1e. The leader mentioned a lot about the importance of knowing the communication styles of the members 1f. A contractor did not have a filter and said everything he wanted to say 1g. The communication style of the contractors and the leader was sometimes a bit blunt 1h. Certain members stated what they thought of the communication style of other members 1i. Contractors always have their opinion ready 1j. The leader assumes that the statements of someone are meant negatively 1k. Humour is misunderstood by everyone, it does not	Misunderstanding of messages from and to the leader		

matter who makes the 'joke' 1l. Members did not understand why the leader voices things in a certain way				
2a. The leader does not always listen properly 2b. Constructors are not always listening to the contractors 2c. Members felt they were not being heard by the leader 2d. Before deployment, the members expected that everyone would listen to each other 2e. The leader and some contractors are not listening	The leader's lack of listening			
3a. Rarely did it happen that there was no open and honest communication between the group leaders and their members 3b. The leader is often not honest in his communication 3c. Members had the feeling that the leader was withholding information 3d. The leader did not include the contractors so that they could not verify or deny statements 3e. No open communication between a contractor and other members 3f. The leader of the communication team directly shared the information with his team members 3g. Members shared information among themselves	The leader did not share information (on time)	The leader's lack of communication		

3h. Contractors shared information with members 3j. Contractors did not share information with the leader 3k. Contractors do not share information 3l. Feeling that the leader filtered the information before sharing it 3m. The members did not share information with (their) leader 3n. The leader did not share information with the other team members 3o. Members tried to share information with the leader 3p. Information was shared via different team members instead of directly from the leader 3q. The leader and contractors shared information with the members too late 3r. Before the deployment, the members and the leader had enough information 3s. Before the deployment, some felt that the information they had was limited 3t. Before the deployment, everyone had collected the information they needed				
4a. Some members predict and anticipate each other's needs, while the leader felt like this happened during the meetings in MeS				

4b. Both the leader and the members did not always try to anticipate and predict each other's needs 4c. Members and leader do not communicate their actions, so no integration of activities is possible 4d. The decisions of the contractors/leaders are sometimes not aligned, they all have a different vision of the situation 4e. Members try to coordinate activities with the contractors 4f. During deployment, the leader and some of the contractors did not have an unobstructed vision of the situation 4g. The leader and one member stated that not everyone was on the same page during deployment 4h. Before the implementation, not everyone thought the entire MTS was on the same page, especially since they had not met the others yet 4i. Members thought the meetings were too long, not to the point 4j. Before deployment, most of the members (including the leader) stated that their team and/or MTS are on the same page	No shared mental models between the leader and the members		Ineffective leadership
5a. Contractors and members took advice from each other into account			

5b. Members had consultations to give advice 5c. The leader did not consult the others before making a decision 5d. Contractors and the leader made decisions without consulting people 5e. Contractors did not ask for advice 5f. Some members and the leader did not openly discuss matters 5g. Contractors and the leader did not take information and knowledge into account while making decisions/plans 5h. The leader did not take advice into account 5i. Members openly dealt with stuff, while the leader stated that he did that but without evidence 5j. The leader did not engage in open discussions 5k. The contractors had not told why something should be done or why something was decided 5l. The leader has not told why something should be done or why something was decided 5m. Leader and contractors did not tell the reasons why they said or decided something 5n. Members did not know how to tell their men why a	The leader had difficulty in the decision-making process			

certain decision had been made 5o. The leader of the communication team stated that the leader gave the correct information 5p. A contractor and the leader did not take decisions 5q. Everyone agreed with the decision to not talk about what happened during the deployment in Crete 5r. The leader, the contractors and the members did not make decisions together 5s. Members thought that the leader did not take the right decisions 5t. The leader did not make decisions based on advice 5u. Contractors thought that the leader repeatedly made the wrong decisions		Lack of trust from followers to leader and vice versa		
6a. During deployment, the members did not trust a contractor anymore 6b. During deployment, a lot of distrust in the contractor team + leader 6c. During deployment, the leader trusted his construction team leaders 6d. During deployment, only some members stated that they trusted someone from the other team 6e. Before deployment, most of the members had	A shift in who everyone trusted before and during deployment			

trust in the MTS, individual teams, and the leader 6f. Before deployment, there was trust in the component team and/or leader				
7a. The leader did not act on his words 7b. Members did not trust the leader anymore, some even thought that the leader also distrusts them 7c. Members had the feeling that the leader did not believe them 7d. Member thought that the leader questioned everything 7e. Some members are not sure who was telling the truth 7f. The information of the leader seemed not to be correct 7g. Members had a feeling that the leader was not telling the truth	Members felt uncertain about the leader's behaviour			
8a. In the end, the leader was willing to admit his mistakes 8b. The leader avoided criticism 8c. The leader was willing to admit his mistakes and accept feedback in the end 8d. Members openly stated what they did not like 8e. The leader was not willing to own up to his mistakes 8f. Members felt that the meetings were unnecessary, but the leader did not want to change it	The leader has difficulties adapting in comparison with the members			

8g. A contractor made the same mistake repeatedly 8h. The leader was not able to adapt 8i. Members could adapt easily 8j. Component team members had a flexible mindset 8k. Contractors were not able to adjust easily		Characteristics of the leader	
8a. Contractors and members showed interest in each other (social interaction) 8b. The leader stated that you need to pick up signals 8c. The leader did not know what his members are doing 8d. The leader was not actively engaged 8e. The leader did not pick up signals 8f. In the end, the members did not care anymore 8g. The leader did not engage in social interaction	Lack of social sensitivity of the leader		
10a. Construction group leaders work extensively together with the contractors 10b. The embers state that the leader took on various roles 10c. The leader is responsible for managing the entire MTS, contacting point for outside the MTS 10d. The members think the leader does a poor job 10e. The role of one of the contractors is not completely clear	The leader as the boundary spanner	Elements of boundary spanning	
11a. Pre-deployment, the members talked			

about the formally assigned boundaries		
11b. During deployment, the members mentioned that the boundaries changed	The perception of who is on the team has changed	
11c. Decisions of the leader partially caused the boundaries to shift		