The background of the cover is a photograph of an industrial facility, possibly a refinery or chemical plant, silhouetted against a bright, hazy sunset sky. The sun is low on the horizon, creating a strong glow and casting long shadows. The industrial structures include a tall cylindrical tower, various pipes, and a complex network of walkways or scaffolding. The overall color palette is dominated by the warm tones of the sunset: oranges, yellows, and pinks, transitioning to a dark, almost black foreground where the industrial structures are silhouetted.

Entering the boxing ring:
**Intergroup behavior in
Multiteam systems**

Julia R. Wijnmaalen

ENTERING THE BOXING RING: INTERGROUP BEHAVIOR IN MULTITEAM SYSTEMS

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Printed by Boekengilde, Enschede, The Netherlands.

ISBN 9789462330320

ENTERING THE BOXING RING: INTERGROUP BEHAVIOR IN MULTITEAM SYSTEMS

DISSERTATION

to obtain

the degree of doctor at the University of Twente,

on the authority of the rector magnificus,

Prof. dr. H. Brinksma,

on account of the decision of the graduation committee

to be publicly defended

on Thursday the 17th of September 2015 at 14:45.

by

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Preface

This research was partially funded by the Ministry of Defense.

Summary

The pressure on organizations to adapt to their environment increases. Organizations need to adjust quickly to new challenges to keep momentum. Consequently organizations are in need of a form of cooperation to help them react more efficiently to fast changing environments. A Multiteam system (MTSs) is such a form of cooperation. *'MTSs are 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.'* MTSs are used in aeronautics and space, health care, disaster relief, the military, business alliances, public transportation, oil industry, first aid response units and in the financial service industry.

Although the number of MTSs is rising and more organizations and branches rely on this form of cooperation there is little verifiable knowledge concerning how these systems actually work. The defining characteristic of MTSs is that they consist of multiple teams (called component teams, CTs). MTSs consist of multiple groups that need to work together closely to achieve a common goal. Existing literature on intergroup behavior teaches us that intergroup behavior is characterized by negative stereotyping, limited interaction, feelings of ingroup superiority, conflicts, and non-cooperative behavior. Therefore MTSs encounter many obstacles when it comes to cooperation between the CTs. While understanding the relationship between intergroup behavior and MTS teamwork is critical for MTS success no empirical research and hardly any literature regarding this relationship exists. Hence, this study aims to provide clarity on *the relationship between MTS intergroup behavior and MTS teamwork over time.*

The research approach is a real-time multi-case study aimed at theory building based on the strategy proposed by Eisenhardt (1989). The longitudinal character of the four case studies adheres to the call for a more rigorous and in-depth study of the processes within real-life MTSs instead of laboratory MTSs. Three military construction MTSs and one civilian construction MTS were studied. A military construction setting was chosen for several reasons. For one the military is a very ideographic organization filled with sub-unit specific identities. Moreover, military identity categories are clearly visible through the structure of the organization and the uniforms. Hence, this makes the study of intergroup behavior feasible. Furthermore, the construction setting of the cases makes *'the process of interest transparently observable'*, as there is clear task interdependence. The extreme circumstances in which the military MTSs work create maximalization of the process that this research aims to study. The principle of maximalization creates a research setting where the topic of

study manifests itself more strongly and you can learn the most. The civilian case study is extreme in its own right. The MTS operates on a very complex project for a prestigious client under time pressure and while experiencing budgetary problems.

The results show that MTS and CT identity strength changes over time. However the direction and size of these changes differs per case study. The MTS members who display intergroup behavior indicate that the teamwork situation is better in their CT compared to in the MTS. Furthermore the case results show that earlier MTS teamwork experiences influences future MTS teamwork. The relationship between MTS intergroup behavior and MTS teamwork is best explained using a boxing ring as an analogy. The fact that an MTS consists of multiple CTs provides MTS members with 'safe havens' comparable to the corners of a boxing ring. These corners provide CT members with a place to retreat to and huddle together in safety. Negative MTS (teamwork) experiences influence the strength of CT and MTS identity, triggering intergroup behavior. Intergroup behavior causes MTS members to retreat to their own corner. If the distance between the CTs rises, the number of negative MTS (teamwork) experiences also rises. Negative MTS (teamwork) experiences triggers even more intergroup behavior, hence the MTS members retreat even further to their own corners. Every time the distance between the CTs increases MTS teamwork is negatively affected and the MTS becomes less successful. How the relationship between intergroup behavior and MTS teamwork develops over time varies per case due to 'game changers'. The game changers which stand out are: 1) the extent to which the leader acts as a role model; 2) the frequency and quality of inter-CT contact; 3) the presence of boundary spoilers; 4) the MTS structure; 5) the presence of role ambiguity and role conflict; and 6) the occurrence of a teambuilding program.

This study provides MTS scholars a sneak preview into the relationship between MTS intergroup behavior and MTS teamwork. The holistic approach of the research has also led to new propositions as well as advice for future research. For example, future studies should be of large real-life MTSs in a variety of contexts and they should maintain a multi-disciplinary, longitudinal and multi-tool character. There is a need for MTS specific teamwork scales. This study also provides MTS leaders advice on their specific role within MTSs and how they can lead MTSs in the most effective fashion.

Hopefully, this research provides a fruitful basis for both future researchers as well as practitioners and brings us one step closer to understanding the complexity of what has come to be called MTSs.

Samenvatting

De druk op organisaties om zich aan te passen aan hun omgeving neemt toe. Organisaties moeten steeds sneller reageren op veranderingen in hun omgeving. Vandaar dat organisaties steeds meer behoefte hebben aan een samenwerkingsvorm die hen helpt om beter en efficiënter in te spelen op hun omgeving. Multiteam systemen is zo'n samenwerkingsvorm. Een Multiteam systeem is een samenwerkingsvorm waarbij twee of meer teams (component teams) direct afhankelijk van elkaar zijn voor het behalen van (een) gezamenlijk(e) doel(en). De component teams in een Multiteam systeem moeten dus nauw met elkaar samenwerken om het gezamenlijke doel te behalen. De gemeenschappelijke doelen bepalen de mate van input, output en proces-afhankelijkheid tussen de component teams. Ook bepalen ze de grenzen van het Multiteam systeem. Multiteam systemen zijn te vinden in een verscheidenheid aan sectoren, zoals in de gezondheidszorg, de nationale hulpdiensten, het leger, de financiële dienstverlening, commerciële samenwerkingsverbanden, het openbaar vervoer, en in de olie-industrie.

Ondanks de stijging van het aantal Multiteam systemen is er nog maar weinig bekend over hoe deze systemen werken. De wetenschappelijke literatuur gaat niet verder dan twee boeken met theoretische beschrijvingen en een aantal artikelen waarbij onderzoek is gedaan in laboratoria. Maar Multiteam systemen kenmerken zich juist door complexiteit in omgeving en in structuur. Een complexiteit die zeer moeilijk in laboratoria is na te bootsen. Eén van de meest karakteristieke kenmerken van een Multiteam systeem is dat het uit meerdere teams (meerdere groepen) bestaat. Onderzoek naar intergroepsprocessen laat zien dat wanneer groepen elkaar treffen dit gepaard gaat met negatieve stereotypische beelden, het ontbreken van interactie, met het gevoel dat de eigen groep superieur is, met conflicten en een gebrek aan samenwerking. De vraag is nu in hoeverre intergroepsprocessen met de daarbij behorende effecten ook optreden in Multiteam systemen. En daarnaast is de vraag wat de invloed van het optreden van intergroepsprocessen binnen Multiteam systemen is op de samenwerking binnen een Multiteam systeem. Het onderzoeken en begrijpen van deze relatie is cruciaal, omdat het succes van een Multiteam systeem afhankelijk is van de kwaliteit van de samenwerking tussen de component teams.

In dit onderzoek wordt Eisenhardt's (1989) methode voor het ontwikkelen van theorie aan de hand bewijs uit case-onderzoek toegepast. Het longitudinale karakter van de vier bestudeerde cases komt tegemoet aan de vraag naar diepgaand onderzoek naar de processen in *real-life* Multiteam systemen. De relatie tussen Multiteam systeem intergroepsprocessen en Multiteam systeem samenwerking is bestudeerd in drie militaire bouw Multiteam systemen en in een burger bouw Multiteam systeem. De bouw is als setting gekozen, omdat er binnen de bouw een duidelijk

observeerbare component team taakafhankelijkheid is. Het idiografische karakter van het leger en de extreme omstandigheden waarin militairen werken zorgen voor maximalisatie van het te bestuderen proces. Het proces daardoor beter te onderzoeken. De burger case is ook 'extreem' aangezien dit Multiteam systeem aan een zeer complex bouwproject werkt voor een prestigieuze en veeleisende klant in een omgeving gekenmerkt door een hoge tijdsdruk en geld problemen.

De resultaten van het onderzoek laten zien dat de sterkte van Multiteam systeem- en component team-identiteit over de tijd verandert waarbij zowel de richting als de grootte van de verandering per case studie verschilt. Daarnaast is de samenwerking in Multiteam systemen waar intergroepsprocessen optreden minder goed in vergelijking met de samenwerking in de component teams van diezelfde Multiteam systemen. De resultaten laten ook zien dat de huidige Multiteam systeem samenwerking van invloed is op de verdere samenwerking, dus slechte ervaringen zijn niet opeens vergeten en werken door in de toekomst. De dynamische relatie tussen Multiteam systeem intergroepsprocessen en Multiteam systeem samenwerking over de tijd is het best te vergelijken met de dynamiek in een boksring. Het feit dat Multiteam systemen bestaan uit verschillende component teams geeft ieder component team een 'veilige hoek'. Dit is te vergelijken met de veilige hoeken in een boksring. Deze veilige hoeken geven component team leden een plek om zich terug te trekken met elkaar. Negatieve ervaringen met bijvoorbeeld andere component teams of een ander Multiteam systeem lid beïnvloeden zowel de sterkte van de Multiteam systeem- als de component team identiteit. Een afname van de Multiteam systeem-identiteit en/of een toename van de component team-identiteit triggert intergroepsprocessen. Deze intergroepsprocessen zorgen voor een terugtrekkende beweging van de Multiteam systeem leden naar hun component team hoek. Als gevolg van de terugtrekkende beweging neemt de afstand tussen de component teams toe en deze toename vergroot de kans op negatieve Multiteam systeem ervaringen. Iedere keer dat de afstand tussen de component teams groter wordt, verslechtert de samenwerking in het Multiteam systeem. De omgekeerde dynamiek vindt ook plaats. Positieve ervaringen leiden tot meer toenadering tussen de component teams en een betere samenwerking in het Multiteam systeem. Hoe de dynamiek binnen de boksring zich ontwikkelt is afhankelijk van de aanwezigheid van bepaalde '*game changers*'. De '*game changers*' die in dit onderzoek naar voren komen zijn: 1) de mate waarin een Multiteam systeem leider optreedt als rolmodel, 2) de mate en kwaliteit van contact tussen de component teams, 3) de aanwezigheid van '*boundary spoilers*', 4) de structuur van het Multiteam systeem, 5) de mate van rolambigüiteit en rolconflict, en 6) of het Multiteam systeem aan teambuilding heeft gedaan. Deze '*game changers*' zijn van invloed op de terugtrekkende bewegingen van de component teams en beïnvloeden dus indirect de afstand tussen de component teams.

Dit onderzoek geeft inzicht in de relatie tussen Multiteam systeem intergroepsprocessen en de samenwerking in Multiteam systemen en hoe deze relatie zich ontwikkelt over de tijd. Het onderzoek heeft tot nieuwe theoretische proposities geleid die sturend kunnen zijn voor toekomstig onderzoek. Ook heeft dit onderzoek geleid tot adviezen voor Multiteam systeem leiders aangaande hun specifieke rol en de invulling van hun taak. Toekomstig onderzoek zou een multidisciplinair en longitudinaal karakter moeten hebben gericht op grote 'real-life' Multiteam systemen in verschillende contexten. Verder is er behoefte aan schalen die specifiek gericht zijn op het meten van Multiteam systeem kenmerken. Hopelijk is dit onderzoek een vruchtbaar begin voor het verder ontrafelen van de processen in Multiteam systemen.

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Chapter 1 Introduction

1.1 Problem statement and research aim

Multiteam systems (MTSs) are everywhere and their numbers are growing rapidly. *'MTSs are 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'* (Mathieu, Marks & Zaccaro, 2001, p. 290). MTSs are used in airspace shuttles (Caldwell, 2005; Vessey, 2014), health care (DiazGranados, Dow, Perry & Palesis, 2014; Misasi, Lazzara & Keebler, 2014; Weaver, Pronovost, Goeschel, Kosel & Rosen, 2014), disaster relief (Hegner & Larson, 2014), the military (DeConstanza, DiRosa, Jiménez-Rodríguez & Cianciolo, 2014; Goodwin, Essens & Smith, 2012), business alliances (Marks & Luvison, 2008), public transportation (Goodwin, et al., 2012), oil industry (Larson, et al., 2014), first aid response units (Crowe, Allen & Bowes, 2014), and in the financial service industry (Allison & Shuffler, 2014). The number of MTSs is growing rapidly, because organizations are in need of a form of cooperation to help them react efficiently in fast changing environments (Zaccaro, Marks & DeChurch, 2012, p.4). For example, in the aftermaths of hurricanes like Haiyan in the Philippines and Katrina in New Orleans time is the most valuable asset to limit casualties. Hence, a coordinated reaction of aid agencies and governments is pivotal. Failing MTSs also play an important role in less life-threatening situation such as the economy. According to Allison and Shuffler (2014) failing MTSs in the financial service industry partly caused the financial crises of 2008.

Although the number of MTSs is rising and more and more organizations and branches rely on these forms of cooperation there is hardly any knowledge on how these systems actually work. Since Mathieu et al. (2001) introduced the term MTS only a handful of articles and two books have been published on the topic. The articles either describe existing MTSs or they describe laboratory experiments. However, one can wonder whether it is even possible to recreate the complexities of MTSs in a laboratory setting (Burke, 2014, p.22; DeChurch & Mathieu, 2008, p.286). The two books highlight the need for more research on different aspects, yet they do not provide real research results. The book by Zaccaro, Marks and DeChurch (2012) is packed with suggestions for future MTS research based on theoretical propositions and the book of Shuffler, Rico and Salas (2014) describes a variety of real-life MTSs. Hence; no systematic research on real-life MTSs has been conducted yet.

The military is one field in which the usage of MTSs has increased. The most well-known military MTSs are the Provincial Reconstruction Teams (PRTs) used in Afghanistan. The new attitude towards

'war', the comprehensive approach, aims to stabilize countries through a holistic approach using a combination of diplomacy, defense and development. Subsequently teams from different ministries need to work together in a team. The comprehensive approach is not the only situation in the military field that generates teams which consist of groups of different professionals. From June through August 2010 forty semi-structured exploratory interviews on working in MTSs were conducted with military personnel. What stood out in the interviews were personal frustrations with cooperation-processes between different organizations and/or army branches during the deployments. As Lieutenant-Colonel Van der Heul summarized these problems: *'The problems start before people are actually working together. It is the uniform'*. According to him the actual uniform creates boundaries because it amplifies differences between the military branches. His idea to counter these problems is to suggest that everyone in the military wears pink uniforms because the pink uniform can dissolve the initial boundaries between the different military branches. Although the pink uniform idea mostly elicits mocking remarks, Van der Heul might actually be on to something.

One of the defining characteristics of MTSs is that they consist of multiple teams (called component teams, CTs). These component teams have distinctive characteristics that differentiates them from each other. Hence, MTSs consist of multiple groups. The basis of social psychology is the study of groups and the problems that occur when groups come together. Intergroup behavior is characterized by negative stereotyping of other groups (Van der Vegt & Bunderson, 2005), less interaction with members of other groups (Keyton, Ford & Smith, 2012, p.180), feelings of ingroup superiority, discrediting other relevant groups (Dick, 2001; Mullen, Brown & Smith, 1992), more group cohesion, collective behavior (Hogg & Terry, 2001, p.5), emotional contagion (Kelly & Barsade, 2001), claims of uniqueness, group polarization, put-down jokes about other groups (Boxer & Cortés-Conde, 1997; Ferguson & Ford, 2008), more intergroup conflicts (Hennessey & West, 1999; Pratt, 2001, p.16; Zaccaro & DeChurch, 2012, p.253), and more non-cooperative behavior between teams (Hinsz & Betts, 2012, p.294). Groups working together encounter many obstacles merely because being part of a group unconsciously creates a certain behavior. Uniforms are a manifestation of a group membership or identity (Pratt & Rafaeli, 1997, p. 863). Hence, wearing different uniforms is enough to unleash cooperation problems between the different army branches.

Even though understanding the relationship between intergroup behavior and teamwork within MTSs is critical for optimizing the MTS processes no empirical research exists on this topic (Connaughton, Williams & Shuffler, 2012, p.111; DeChurch & Mathieu 2009, p.283; Shuffler, et al., 2014, p.8; Zaccaro, et al., 2012). Hence, the main research question of this study is:

What is the relationship between MTS intergroup behavior and MTS teamwork and how does it develop over time? To answer the research question it is also imperative to know how both MTS intergroup behavior and MTS teamwork develop over time.

The aim of this study is to provide managers and/or military leaders with knowledge concerning the relationship between MTS intergroup behavior and MTS teamwork so they are able to provide leadership for these systems in the most suitable and effective way.

1.2 Research approach

A fitting research strategy is needed to unravel processes within MTSs over time. Due to a lack of MTS literature the researcher chose to use a real-time multi-case study aimed at building theory. Case studies lend themselves to a deeper understanding of complex social phenomena (Boeije, 2010, p.11; Elliott, Fischer & Rennie, 1999; Yin, 2003, p.2).

To answer the research question three military construction MTSs and one civilian construction MTS are studied. The military setting has several features which makes the case studies significant in relationship to the research question. First of all, the military is a very ideographic organization filled with sub-unit specific identities (Ashforth & Mael, 1989). Moreover, military identity categories are clearly visible through the structure of the organization and the uniforms. Hence, this makes the study of intergroup behavior more feasible. Furthermore, the construction setting of the case studies makes *'the process of interest 'transparently observable''* (Eisenhardt, 1989, p.537; Flyvbjerg, 2006). Interdependence within construction is tangible. Moreover, a construction setting also makes the case studies engaging for the reader. Another reason for the selection of a military setting is the extreme and complex circumstances where the MTSs work. The extremity of the case studies is not related to the danger in Afghanistan, but with the fact that the MTS members are together 24/7 for several months. Emotions intensify and speed up certain processes. The environment acts as a pressure-cooker of MTS. Morse and Field (1996) call this the principle of maximalisation, which they describe as a research setting where the topic of study manifests itself more strongly therefore you can learn the most. The civilian case study does not take place in a war zone, yet it is extreme in its own right. The civilian case study is about a large MTS that consists of top grade organizations that work under time and money pressure on a very prestigious project for a prestigious client. This project can make or break both the companies and individuals involved.

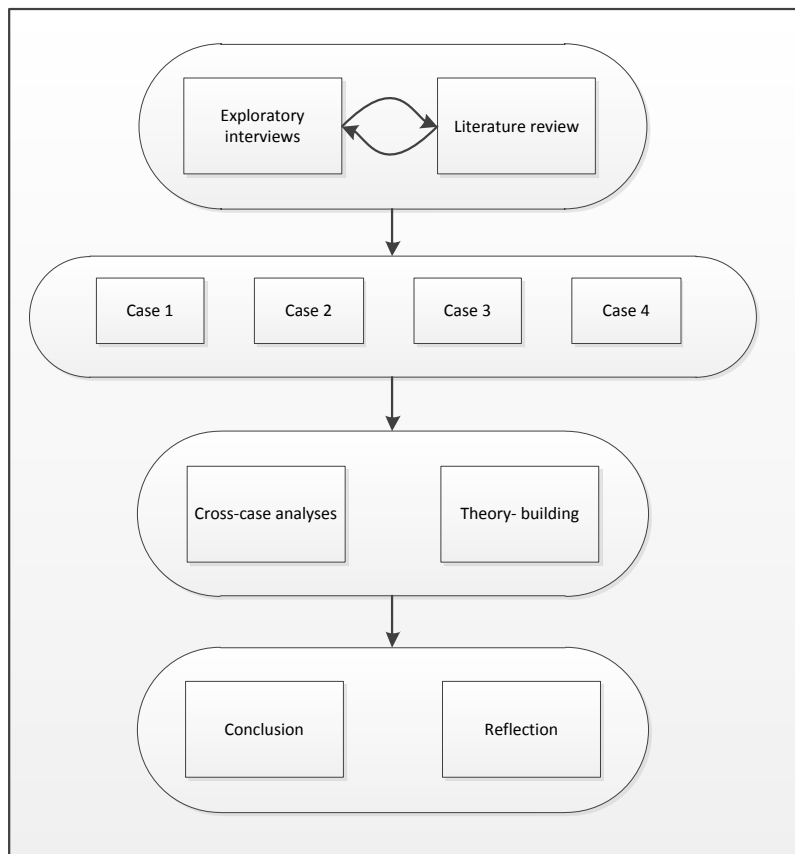
The research approach to building theory from case studies is based on a strategy proposed by Eisenhardt in 1989. She provides three reasons why theory building through case study research is useful. First of all there is the likelihood of creating a new theory. Secondly, the theory is likely to be testable and verifiable with constructs that can be readily measured and hypotheses that can be

confirmed. Lastly, it is very likely the theory is empirically valid and relevant (Eisenhardt, 1989). Additionally, case studies have the ability to trace changes over time (Yin, 2003, p. 123). This temporal aspect is very important in this study, because the focus is on identity development, as well as the development of teamwork (Abbott, 2004, p.30). Furthermore, the longitudinal character of case studies adheres to the call for more rigorous and in-depth study of the processes within real MTSs (Marks & Luvison, 2012, p.51; Keyton, et al., 2012, p.188; Shuffler, et al., 2014, p.11; Vessey, 2014, p.147). Moreover, there is a strong call from MTS researchers for more research of MTSs ‘in the wild’ as laboratory settings are unable to recreate the complexities in which MTSs act (Burke, 2014, p.22; DeChurch & Mathieu, 2009, p.286; Marks Mathieu, Alonso, DeChurch, Panzer & Alonso, 2005; Shuffler, et al., 2014, p.5). Additionally, there is an appeal for the use of new research methods (Burke, 2014, p.31; Salas & Wildman, 2008, p.538).

1.3 Outline of the dissertation

The dissertation follows Eisenhardt’s research strategy (see Figure 1). The introduction began with the results of the iteration between theory and practice in the exploratory phase through the exploratory interviews. The interviews form the basis of the problem statement and the research aim.

Figure 1: Research design



Chapter two presents the conceptual framework which guides the four case studies using the insights retrieved from the iteration process between the exploratory interviews and the literature review. Even though it is unusual in theory-building studies to start with specific constructs in mind prior theoretical knowledge aids the data collection and structuring process (Boeije, 2010, p.76-79). Subsequently, if the constructs prove important, they are already firmly embedded through triangulated measures increasing construct validity (Eisenhardt, 1989). Chapter three outlines the research method. The case selection strategy, data collection tools and data analyses methods are touched upon and issues of validity and reliability regarding these methods are also discussed. Chapters four to seven expands information from the four case studies. Each case study chapter starts with an outline of the setting of the case followed by a case description using Zaccaro et al.'s (2012) MTS typology format. After the characteristics of the case are discussed an extensive narrative of the storyline is put forward. Each case chapter ends with the results of the within-case analyses and a conclusion. Chapter eight contains the results of the cross-case analyses and introduces the boxing ring analogy to explain the relationship between MTS intergroup behavior and MTS teamwork over time. Chapter nine consists of the general research conclusions and propositions that follow from the conclusion. The research conclusion is followed by a reflection on issues such as the method and research strategy. The dissertation ends with recommendations for practitioners and MTS scholars.

Chapter 2 Conceptual framework

2.1 Introduction

There is limited literature on MTSs. Burke (2014, p.21) acknowledges the lack of literature and proposes that MTS scholars use a multidisciplinary approach when they study MTSs. If a researcher wants to build theory h/she is always influenced by the research field h/she originates from. Theory building research that starts out with a number of constructs permits the researcher to measure these constructs more accurately. It aids the data collection, and data structuring process (Boeije, 2010, p.76-79; Eisenhardt, 1989; Kirk & Miller, 1986, p.52; Yin, 2003, p. 9). The strands of research literature which guided this study is research on MTSs, on identity and intergroup behavior, and on teamwork. The literature on MTSs provides information about this new 'breed' of teams, and how they differ from conventional teams. The literature on intergroup behavior explains how group identity causes intergroup behavior, and describes the consequences of intergroup behavior. Lastly, the extensive field of teamwork research provides the research with leading constructs as to what makes a conventional team effective, and whether or not these constructs are pivotal in MTSs.

2.2 Multiteam systems (MTSs)

2.2.1 MTS definition and characteristics

In 2001 Mathieu, Marks and Zaccaro introduced the concept of MTSs (Zaccaro, et al., 2012). An MTS is seen as a new 'breed' of teams (DeChurch & Mathieu, 2008, p.281) which has developed naturally as a reaction to the complex context in which many organizations operate nowadays (Mathieu, et al., 2001). This 'unique organizational arrangement' (Marks, et al., 2005) is defined as follows: *'...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.'* (Mathieu, et al., 2001, p. 290). MTSs have five distinctive characteristics (DeChurch & Mathieu, 2009, p. 268-270); these five characteristics are explained in more detail in the following paragraphs.

1) MTSs are composed of two or more component teams

MTSs are composed of two or more teams. The component teams (CTs) are defined as *'non-reducible and distinguishable wholes with interdependent members and proximal goals'* (DeChurch & Mathieu, 2008, p. 268). Component teams may differ in terms of their core values, compositional attributes, domains of expertise, leadership structures, behavioral norms, historical cultures and internal climates (Zaccaro, et al., 2012, p.12). There are two sorts of MTSs, internal and cross-boundary MTSs.

The difference between these two sorts of MTSs lies in the origins of the component teams. An internal MTS consists of component teams from one organization. For instance an MTS comprised of component teams from different departments within one organization. Cross-boundary MTSs consist of component teams from two or more different organizations (DeChurch & Mathieu, 2009, p.282). A good example of a cross-boundary MTS is a first aid response team. First aid response teams consist of an ambulance component team, a police component team and a fire brigade component team. Members of internal MTSs are likely to have similar norms, values, and motivational and cognitive systems, where members of cross-boundary MTSs are more likely to face task and social complexity (Zaccaro, et al., 2012, p.15). Task complexity derives from the level of information load, information diversity and information change. Social complexity refers to the scope, scale, diversity and dynamism of stakeholders in the MTS environment. The measure of both task and social complexity determines which processes are required for success, as well as the required level of cognitive and social capacities of the MTS' members and leaders (Zaccaro, 2001).

2) *MTSs are larger than a team but smaller than an organization*

An MTS is a unique entity that is larger than a conventional team but smaller than the organization in which the MTS is embedded. In many respects MTSs operate in a similar fashion as large teams, yet in other respects they operate more like organizations (Mathieu, 2012, p.512). For example, some MTSs are so large they have an administrative component team similar to an administrative body in a large company.

3) *Functional interdependence exists between component teams within an MTS*

Another distinguishing feature of MTSs is the functional interdependence between the component teams. Functional interdependence is '*the glue that holds it all together*' (DeChurch & Mathieu, 2008, p.268). DeChurch and Mathieu (2008) provide the following definition of functional interdependence: '*a state by which entities have mutual reliance, determination, influence and vested interest in processes they issue to accomplish work activities*' (p.272). Functional interdependence occurs within, and between at least two component teams (DeChurch and Mathieu, 2008, p. 272-273; Zaccaro, et al., 2012; p.8), across the systems' boundaries (e.g. external actors, DeChurch & Zaccaro, 2010) and can change over time (Mathieu, et al., 2001). The degree of functional interdependence between component teams depends on the goal hierarchy within the MTS. If the component teams really need each other to accomplish goals there is more need for well-functioning inter- component team processes (Marks, et al., 2005). Three forms of functional interdependence characterize the cooperation processes within an MTS: 1) input, 2) process and 3) outcome interdependence (DeChurch & Mathieu, 2008, p.272-273). Input interdependence reflects

the extent to which component teams share resources, such as people, facilities, equipment and information related to the superordinate goal (DeChurch & Mathieu, 2008, p.274; Mathieu, et al., 2001; Boyer O'Leary, Williams Woolley & Mortensen 2012, p.141). Process interdependence is the amount of interaction between component teams required to achieve the superordinate MTS goal(s). There are several forms of process interdependence: pooled, sequential, reciprocal and intensive (DeChurch & Mathieu, 2008, p.274; Mathieu, et al., 2001; Boyer O'Leary, et al., 2012, p.141). Outcome interdependence is whether personal benefits, rewards, costs and other outcomes received by individuals in component teams depends upon the goal accomplishment of other component teams in the MTS (DeChurch & Mathieu, 2008, p.273; Mathieu, et al., 2001; Boyer O'Leary, et al., 2012, p.141).

4) MTSs have goal hierarchy

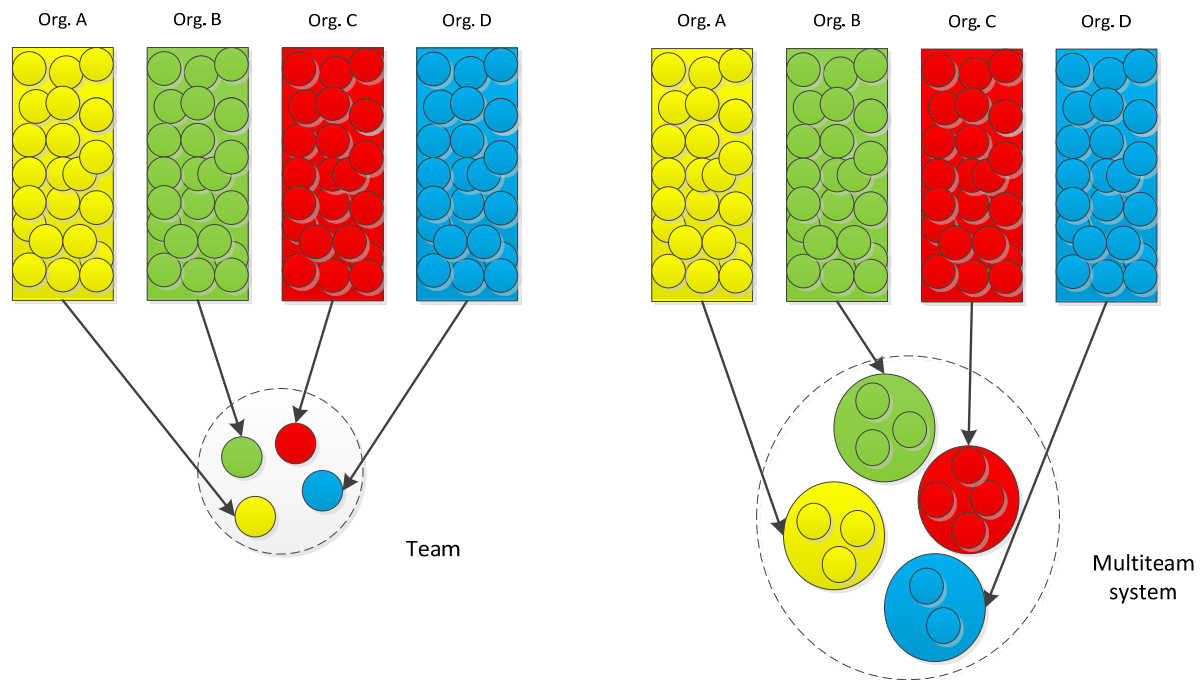
The component teams share one or more superordinate distal goal(s). This superordinate goal is the *raison d'être* of the MTS. The component teams also have proximal goals. Those proximal goals do not necessarily line up across the component teams (DeChurch & Mathieu, 2008). Goal hierarchy is the '*structure describing how proximal team goals, when accomplished, combine to realize a higher order MTS goal*' (Marks et al., 2005, p.965). The number, as well as the nature of interactions between component teams stems from the goal hierarchy (DeChurch & Mathieu, 2008, p.278). Goal hierarchies in MTSs have several features: there is a minimum of two levels; goals differ in their priority and valence; interdependent actions among component teams are needed to achieve higher level goals, in comparison with lower level goals; the superordinate goal at the top of the hierarchy is only achieved by accomplishing all the lower level goals; and higher level goals tend to have a longer time horizon than lower ranked goals. (Zaccaro, et al., 2012; p.9).

5) MTSs are open systems

MTSs are open systems. The structure of an MTS depends on both the performance requirements of the context that the MTS is in, as well as the technologies used. (DeChurch & Mathieu, 2008, p.270). Hence, MTSs might look very different from one another (Mathieu, 2012, p.527). MTSs are also dynamic entities. Their structure can change over time.

2.2.2 Differences between MTSs and other team formats

Even though MTSs resemble other team formats (e.g. inter-disciplinary teams or taskforces) they are distinctively different. For one, the number of levels of analysis in MTSs differs from the number of levels within teams. Conventional teams have two possible levels of analyses: the individual and the team level. MTSs, on the other hand, have three possible levels of analysis: the individual level, the component team level, and the MTS level (see Figure 2).

Figure 2: Levels of analyses in a team and in an MTS

A second difference is the amount of diversity within MTSs. Diversity in teams occurs exclusively within teams. However, in MTSs diversity can occur both within as well as between the component teams.

Furthermore, in an MTS various temporal cycles are present compared to only temporal cycle in conventional teams (Mathieu, et al., 2001). These temporal cycles are created by the different component teams since each component team has its own schedule. Conventional teams have only one temporal cycle, as all team members have the same schedule.

DeChurch and Mathieu (2008) hypothesize that another difference between teams and MTSs is the awareness of being part of an entity. The interdependencies within teams are immediate. Individuals have the same schedules, and share the same goals. Subsequently, it is very likely that those individuals will perceive themselves as forming an entity with each being a team member. In an MTS, however, the interdependencies between component teams are often less immediate. The individuals within the component teams might not feel part of a bigger entity next to their component team.

MTSs are also more functionally diverse than teams (Mathieu, et al., 2001). MTSs often include and integrate multiple functions that would be organized as separate subsystems in a conventional organization (Zaccaro, et al., 2012; p.6-7). Zaccaro, et al. (2012, p.16) hypothesize that this functional diversity has positive and negative consequences inasmuch as it enhances the cognitive abilities of the MTS, yet could also lead to more conflicts and less social cohesion.

To finish, DeChurch and Mathieu (2008) hypothesize that there are multiple identity levels within an MTS from which MTS members derive their identity as compared to being within in a team. MTS' members can derive their group identity from its component team and/or the MTS while a member of a conventional team can only derive a group identity from that team.

2.3 Identity and intergroup behavior

2.3.1 The Social Identity approach

The Social Identity approach is the combination of the social identity and categorization theory. Even though people see themselves as autonomous individuals in many social settings they primarily think in group-memberships (Ellemers, DeGilder & Haslam, 2004). The Social Identity theory (SIT) is an intergroup theory (Hogg, 2001) that explains the psychological base and processes of intergroup behavior and discrimination (Dick, 2001; Hogg, Terry & White, 1995; Tajfel, 1982). Tajfel (1982) defines social identity as *'that part of the individuals' self-concept which derives from their knowledge of their membership of a social group (or groups) together with the value and emotional significance attached to that membership'* (p.2). Thus social identity is formed by an individual's perception of belonging to a certain group (Tajfel & Turner 1986, p.16). If individuals perceive themselves as an actual or symbolic member of a group they feel and believe that their fate is psychologically intertwined with the fate of the group, and they share in the failures and successes of the group (Earley & Mosakowski, 2000; Mael & Ashforth, 1992; Turner, 1982).

The Self-Categorization Theory (SCT) expands on the SIT. SCT explains the behavioral consequences of social identities (Turner, Hogg, Oakes, Reicher & Wetherell, 1987; Hogg, et al., 1995). Social identities are the *'cognitive mechanism that makes group behavior possible'*, and social categories are cognitive structures that guide self-perception and the perception of others (Turner, 1982, p.21). A social category is formed when two or more individuals share a common social identity (Turner, 1982, p.15). Individuals create social categories for two reasons. For one, social categorization helps individuals to make sense of, and cope with their surroundings. In addition, social categories allow individuals to establish their own position within the world (Connaughton, et al., 2012, p.112). Group membership is a psychological state that is accompanied by a subjective sense of togetherness, we-ness or belongingness. It answers the question: *'Who am I?'* (Turner, 1982, p.16).

Organizational identity is a special form of social identification as it largely answers the *'Who am I?'*-question (Ashforth & Mael 1989; Dick 2001; Gautam, Van Dick & Wagner 2004; Hogg & Terry, 2000; Pratt, 2001, p.14). Organizational identity is defined as *'the perception of oneness with or belongingness'* to an organization (Ashforth & Mael, 1989, p.21). Organizations are groups, because organizations create social boundaries (Goette, Huffman & Meier, 2006; Hogg & Terry, 2000). In

addition they have their own culture, characteristics, jargon, and identity (Shenkar & Zeira, 1990). *'The more individuals identify themselves with their organization, the more they think and act from an organization's perspective'* (Gautam, et al., p.303). The extent to which a person identifies him/herself with the organization depends on the personal disposition of that individual, positive informational involvement with another member, the nature of the organizations' socialization process, and tenure with the organization (Ashforth & Mael, 1989; Bartel, 2001; Mael & Ashforth, 1995).

2.3.2 Intergroup behavior

What we know about the relationship between identity and intergroup behavior comes from research on groups and teams. Symbols, insignias or uniforms act as a clear referent for groups (Shamir, Zakay, Brainin & Popper, 2000). Individuals believe that it possible to achieve positive self-esteem and superiority status through the successes of the group and its members (Pratt, 1998). The central proposition of SIT is that in intergroup contexts people *'strive to or maintain a positive social identity'* (Tajfel & Turner, 1986, p.16). For instance, a positive social identity is achieved through favorable comparisons with other groups (Campbell & Sedikides, 1999; Ferguson & Ford, 2008; Pratt, 1998; Turner, 1982). If a group identity is salient a process of depersonalization or self-categorization starts, which causes personal perspectives to become interchangeable with those of the group (Haslam, Postmes & Ellemers, 2003). Depersonalization is the fundamental process underlying group phenomena (Hogg, 2001) as it creates prototypes of both one's own and of other groups (Turner, 1982; Ashforth & Mael, 1989). Prototypes are *'fuzzy sets that capture context dependent features of group membership, often in the form of representations of exemplary or ideal members'* (Hogg & Terry, 2000, p.123). Prototypes are at the base of stereotypes (Hogg & Terry, 2000).

Identity strength and the extent to which individuals identify themselves with groups is not static: it is dynamic and responsive (Van Dick, 2001; Ellemers, Spears & Doosje, 1997; Hogg & Terry, 2000; Nkomo & Cox, 1996; Tajfel, 1982). Contextual factors influence whether or not an identity category becomes salient, so whether or not the prototypes are *'activated'* (Brickson, 2000; Hogg & Terry, 2000; Johnson, Morgenson, Ilgen, Meyer & Loyd, 2006; Van Dick, 2001). The relative size of an ingroup compared to the outgroup, for instance, influences identity strength. In a situation where the ingroup is much smaller than the outgroup, the ingroup bias will be stronger. The same is true in situations in which the groups are relatively similar. In both instances groups feel a strong urge to distinguish themselves from the other group (Ashforth & Mael, 1989; Mullen, et al., 1992). If an identity category is salient the norms of the group will guide the behavior of the person/group (Hogg & Terry, 2000; Jetten, Postmes & Mcauliffe, 2002). *'Group norms arise from the interaction between group members and they express a generally accepted way of thinking, feeling or behaving that is*

endorsed and expected because it is perceived as the right and proper thing to do' (Turner, 1991, p.3). The mere identification with a group is enough to activate group norms even if one is not in the presence of individuals from the group (=minimal group paradigm) (Tajfel, 1978; Tajfel, Billig & Bundy, 1971). A salient identity leads to feelings of ingroup superiority, less interaction with other groups (Keyton, et al. 2012 p.180), social stereotyping (Van der Veegt & Bunderson, 2005), discrediting other relevant groups (Dick, 2001; Mullen, et al., 1992), more group cohesion (Hogg & Terry, 2001, p.5), emotional contagion (Kelly & Barsade, 2001), collective behavior (Hogg & Terry, 2001, p.5), claims of uniqueness, group polarization, put-down jokes about other groups (Boxer & Cortés-Conde, 1997; Ferguson & Ford, 2008), shared norms (Hogg, Terry & White, 1995; Jetten, Postmes & Mcauliffe, 2002; Van Vught & Hart, 2004); and infra-humanization. Infra-humanization causes individuals to believe that the members of their group have more human essences than the members of a random outgroup (Leyens & Demoulin, 2009, p.214).

Thus, intergroup behavior is a consequence of salient group identities. Measuring CT and MTS identity strength provides information on the salience of these two identity categories. MTS identity strength provides information about the amount of 'we-ness' in an MTS, where CT identity strength provides information about the amount of 'we-ness' in a CT. Intergroup behavior occurs when MTS members identify more with their CT compared to the MTS.

2.4 'Big Five' in teamwork

2.4.1 Introduction of the 'Big Five' in teamwork

Teamwork variables have been a research topic for many years and in many different research fields. Even though *'effective teamwork is extremely important when coordinated, interdependent behavior is required'* (Wilson, et al., 2007, p.246) there is no common definition of teamwork (Rousseau, Aubé & Savoie, 2006; Gibson & Zellmer-Bruhn, 2001). Triggered by the impracticality of all the different definitions Salas, Sims and Burke (2005) reviewed existing teamwork literature and came up with the 'Big Five' in teamwork. They define teamwork as *'a set of interrelated thoughts, actions, and feelings of each team member that are needed to function as a team and that combine to facilitate coordinated, adaptive performance and task objectives resulting in value-added outcomes'* (2005, p.562). The 'Big Five' in teamwork consists of five components, and three coordinating mechanisms. The component variables are variables found in almost all teamwork taxonomies. The coordinating mechanisms are needed to fuse the value of each of the five components. An overview of the five components and the three coordinating mechanisms is provided in Table 1.

Table 1: Overview of the 'Big Five' in teamwork (Salas, et al., 2005)

Component variables	Definition
Team Leadership	<i>'The ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, motivate team members, plan and organize, and establish a positive atmosphere'</i> (Salas, et al., 2005, p.560).
Team orientation	<i>'The propensity to take other's behavior into account during group interaction and the belief in the importance of team goal's over individual members' goals'</i> (Salas, et al., 2005, p.561).
Mutual performance monitoring	<i>'The ability to develop common understandings of the team environment and apply appropriate task strategies to accurately monitor teammate performance'</i> (Salas, et al., 2005, p.560).
Workload sharing	<i>'The ability to anticipate other team member's needs through accurate knowledge about their responsibilities. This includes the ability to shift workload among members to achieve balance during high periods of workload or pressure'</i> (Salas, et al., 2005, p.560).
Adaptability	<i>'Adaptability is altering a course of action or team repertoire in response to changing conditions (internal or external)'</i> (Salas, et al., 2005, p.560).
Coordinating mechanisms	Definition
Trust	<i>'The shared belief that team members will perform their roles and protect the interests of their teammates.'</i> (Salas, et al., 2005, p.561).
Shared mental model	<i>'For team members to effectively work together, individuals must have a clear understanding of their roles in the task, of the resources available, and of their team mates' capabilities'</i> (Salas, et al., 2005, p.565).
Closed-loop communication	<i>'The exchange of information between a sender and a receiver irrespective of the medium'</i> (p.561), which has three characteristics: 1) the sender sends a message, 2) the receiver receives this message, interprets it and acknowledges it reception and 3) the sender follows-up to ensure that the intended message was received (Salas, et al., 2005, p. 568).

The taxonomy of the 'Big Five' in teamwork by Eduardo Salas and his colleagues is chosen for two reasons: 1) no literature exists regarding MTS teamwork, and 2) Professor Salas is a much respected scholar and has conducted extensive research in the field of teams. Salas has co-authored over 320 journal articles and book chapters and has co-edited over 20 books. He is on/has been on the editorial boards of Personnel Psychology, Military Psychology, Interamerican Journal of Psychology, Theoretical Issues in Ergonomics Science, Applied Psychology: An International Journal, International Journal of Aviation Psychology, Group Dynamics, The Leadership Quarterly, Journal of Occupational and Organizational Psychology, Human Resources Development Review and Journal of Organizational Behavior and is past Editor of Human Factors journal and current he is Associated Editor for the Journal of Applied Psychology (information Salas, 2015). In 2012 Salas also received the *Joseph E. McGrath Award for Lifetime Achievement in the Study of Groups* from his peers in the field. Hence, Salas is a much-respected scholar in the field of teams, teamwork and groups.

The variables mentioned in the 'Big Five' in teamwork are equally relevant to the study of MTSs. Throughout the book by Shuffler et al. (2014) researchers name point to important variables for MTSs. The following variables are mentioned: trust, communication, effective leadership, shared

situational awareness, adaptability, role ambiguity, training, competing goals, time pressure, MTS structure, power distribution, difference in values/culture and problems with decision-making. So, according to the scholars of this book, trust, communication, shared mental model, leadership and adaptability are important variables for MTSs at the same time these variables are also present in the 'Big Five' in teamwork by Salas et al. (2005).

Numerous books and articles have been written about each teamwork variable in the 'Big Five' in teamwork. This research aims to provide insight in how each of the MTS teamwork variables and mechanisms develop in relationship to MTS intergroup behavior. Successively when each component variable and coordinating mechanism of the 'Big Five' in teamwork is discussed the focus is on the value of the variable in the specific context of an MTS.

2.4.2 The 'Big Five' component variables

Leadership

Effective leadership is a critical factor for the success of teams (Zaccaro, Rittman & Marks, 2001). Similarly, Zaccaro and DeChurch (2012) underline the vital role of leadership of MTSs: *'...these systems [MTSs] are often characterized by a powerful force toward disorder and conflict'* (p.253). A leader in an MTS faces more and unique challenges (Bienefeld & Grote, 2013) and holds a more demanding role than a leader in normal team (Zaccaro et al., 2012), since misaligned component teams might succeed individually, but not collectively (Bienefeld & Grote, 2013; DeChurch & Marks, 2006; Marks, et al., 2005). Moreover, effective leadership in MTSs is crucial, because of the complexity of the systems (DeChurch, et al., 2011), and of the context (Zaccaro & DeChurch, 2012, p.254). Additionally, the leader has several leadership roles: s/he needs to be a leader on the component team level as well as on the MTS level, and even across the boundaries of the MTS (Zaccaro & DeChurch, 2012, p.259-269; Bienefeld & Grote, 2013). Subsequently, the leader has to switch back and forth between the two different levels (Bienefeld & Grote, 2013) and is only an effective MTS leader when the results are evident at the system level (DeChurch, et al., 2011). Even though, effective leadership is critical for the success of MTSs, it remains an under-researched topic (Zaccaro & DeChurch, 2012, p.257; DeChurch, et al., 2011).

Team Orientation

Team orientation is an attitudinal component that creates team synergy, because it creates 'give-and-take' behavior (Allport, 1962), subsequently it leads to coordination and cooperation (Eby & Dobbins, 1997). Team orientation is very important within MTSs because for a MTS to be successful the MTS level goals need to prevail above individual and component team level goals. There needs to be a process of give and take among all MTS members. However, the component team's proximal

goals should also be valued, otherwise component teams might feel that both they and their goals are not important (Hinsz & Betts, 2012, p.296).

Mutual performance monitoring

MTS' success relies on the success and synchronization of component team efforts mutual performance monitoring is therefore pivotal. Mutual performance monitoring increases the success of teams, because it helps avoid errors before they become irreversible (Wilson, et al., 2007). However, a certain level of trust is needed in a team before mutual performance monitoring is perceived as helpful, and not as 'spying' or checking up on' (Wilson, et al., 2007). So, there needs to be an understanding or attitude that says 'we are all here to maximize the performance of the team'. Continuous feedback is the follow-up action of monitoring (McIntyre & Salas, 1995, p.24).

Workload sharing

Workload sharing is critical to MTS success especially in challenging and highly interdependent contexts (Marks, Sabella, Burke & Zaccaro, 2002). Workload sharing is part of a more general construct named backing-up or supportive behavior (Rousseau, et al., 2006). Backing-up behavior is what '*makes a team, a team*', the willingness to jump in and help (McIntyre & Salas, 2005, p.26). Backing-up behavior is defined as '*the extent to which team members help each other perform their roles*' (Porter, Hollenbeck, Ilgen, Ellis, West & Moon, 2003, p.396). However, two issues need to be pointed out: 1) backing-up behavior is a two way street, so a member does not only receive but also needs to ask for help (Wilson, et al., 2007); and 2) the helper must have the expertise to be able to help effectively (McIntyre & Salas, 1995, p.27).

Adaptability

Adaptability is crucial in successful teams (McIntyre & Salas, 1995, p.29; Zaccaro, et al., 2001), especially in complex contexts in which things do not always go as planned (Wilson, et al., 2007) or when the success of the teams depends on rapid, complex and coordinated task behavior (Marks, et al., 2002). Adaptability is influenced by for instance backing-up behavior (Ilgen, Hollenbeck, Johnson & Jundt, 2005; Salas et al., 2005) and whether MTS members are capable of switching attention from within team activities to cross-team activities (Marks, et al. 2005).

2.4.3 Coordinating mechanisms

Trust

Mutual trust is the *'individuals' confidence in the character, integrity, strength and abilities of another person'* (Earley & Gibson, 2002, p.106) or group. Trust moderates the relationship between team performance and various other variables (Costa, Roe & Taillieu, 2001; Dirks, 1999). Trust is a very important team process, however it does not develop easily across group boundaries (Hinsz & Betts, 2012; Williams 2001).

Shared mental model

Shared mental models are crucial for coordinated effective action (Zaccaro, et al., 2001). *'Cognitive similarity is a key driving component of coordinating mechanisms for MTS.'* (Rentsch & Staniewicz, 2012, p.229). It is important that all component teams share the same mental model so they can interpret contextual cues in a similar manner and make compatible decisions regarding their common goal (Cooke, Salas, Cannon-Bowers & Stout, 2000; Mathieu, 2012). Misaligned mental models can cause conflicts between the groups (Hinsz & Betts, 2012, p.299). Additionally, a lack of a shared mental model concerning the tasks of others creates misunderstandings in MTSs (DiazGranados, et al., 2014, p. 99). Moreover, in times of stress or fast changing environments the importance of shared mental models increases as the amount of explicit communication decreases (Salas et al., 2005).

Closed-loop communication

Formal as well as informal communications are important in MTSs (Weaver et al., 2014, p.55). Communication both between and within component teams is needed to share information, synchronize actions and keep the shared mental model updated. Also it avoids noise due to CTs' which merely focus on their own tasks (Keyton et al. 2012; Marks et al., 2005; Salas, et al., 2005). Communication is the simple exchange of information, however *closed-loop* communication is pivotal for successful communication (McIntyre & Salas, 1995, p.25). Closed-loop communication adds a feedback loop: Was the information received and interpreted correctly? However, (closed-loop) communication might be hindered by team boundaries through distrust and ingroup favoritism (Hinsz & Betts, 2012).

To summarize, the conceptual framework guiding this research consists of MTS literature, intergroup behavior literature and teamwork literature. These three strands of literature form the theoretical lenses through which the researcher interprets events and analyzes the data retrieved in all four case studies. The next chapter discusses the research methods that are used to collect information on the variables introduced in the conceptual framework.

Chapter 3 Methods

Chapter three outlines the methods used in this research. First the research strategy is explained in more detail. After the research strategy, the case selection procedure is discussed followed by the data collection strategy. The data collection strategy paragraph consists of an outline of the strategy and an outline of the different data sources. Successively there is a paragraph on the within and cross-case analyses strategies. To end the validity and reliability of the research strategy, data collection tools, and data analyses methods are discussed.

3.1 Research strategy

The research strategy is a real-time multi-case study aimed at theory building. A case study is an *'empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident'* (Yin, 2003, p.13). Additionally, groups need to be studied in their own context (Gladstein, 1984; Gersick, 1988; Guzzo & Dickson, 1996; Katz, et al., 2004). Real-time case study research adheres to the appeal for more empirical MTS research of MTSs 'in the wild' (Burke, 2014, p. 21; DeChurch & Mathieu, 2008, p.286; Marks et al., 2005; Shuffler, et al., 2014, p.5). Moreover, case studies lend themselves to a deeper understanding of complex social phenomena (Boeije, 2010, p.11; Elliott, et al., 1999) as they have the ability to trace changes over time (Yin, 2003, p. 123). The temporal aspect is very important in this study, because the research question aims to explore the relationship between MTS intergroup behavior and MTS teamwork over time. Furthermore, the longitudinal character of case studies adheres to the call for more rigorous and in-depth study of the processes within MTSs (Marks & Luvison, 2012, p.51; Keyton, et al., 2012, p.188; Shuffler, et al., 2014, p.11).

3.2 The Cases

3.2.1 Case selection

Eisenhardt (1989) suggests that four to ten cases work well for building theory from case studies. Whether a case study can make a contribution to science depends on several aspects. First of all a case study must be significant in the sense that the case portrays something important or takes place in an unusual setting. Furthermore, case studies must be complete in the sense that the case and the setting are thoroughly researched. Additionally, case studies must consider alternative perspectives so the results can be compared with rival theories. Case studies must also display sufficient evidence so that readers can decide for themselves whether the analyses and conclusions are valid. Lastly, case studies must be composed in an engaging manner (Yin, 2003, p.161-165).

'Selection of cases is a very important aspect of building theories from case studies' (Eisenhardt, 1989, p.536). In qualitative research there are no randomly selected samples. Cases are always

selected according to the study needs (purposeful selection) (Boeije, 2010, p.35-36; Eisenhardt, 1989). Each case within a multi-case design is chosen for a specific reason as they may predict similar results, fill theoretical categories, or predict contradictory results (Eisenhardt, 1989; Yin, 2003, p.47).

Four cases were selected for this research: three military construction MTSs and one civilian construction MTS. Many of the interviewees in the exploratory phase of the research spoke about their experiences in deployed construction MTSs. In military jargon these construction MTSs are called taskforces. The first case was selected because it resembled the MTSs described by the interviewees in the exploratory interviews and for practical reasons (Burke, 2014, p.23; Flyvbjerg, 2006). The researcher was given permission to follow the military MTS in their natural habitat before, during and after the deployment. Due to possessing the appropriate security clearances the researcher was able to join meetings and access databases. The taskforce in the second case resembled the first case so much that it was also taken into account to see whether the results of the first case would be duplicated. The third case was taken into account, although the setting was the same as in the first two cases, the third case differed in the amount of pre-deployment activities and the way the MTS was structured. The researcher theorized that the processes in this MTS would develop differently from compared to the first and second case. So, the third case was added because contradicting cases (a negative case) strengthens research outcomes (Boeije, 2010, p.38).

The three military cases are also used because they resemble an experimental setting. The three MTSs deal with identical uncertainties, have similar numbers of personnel, originate from the same military units, receive the same unwelcoming attitude at the start of the deployment, work on the same military compounds, and they were all deployed for approximately the same amount of time. The only differences between the cases are the activities during the pre-deployment phase and the MTS structure. So the three military cases provide the possibility to investigate real-life MTSs in approximately the same setting with limited extraneous variation. The selection of relatively similar projects eases case comparison and therefore promotes the development of more general insights (Flyvbjerg, 2004).

The fourth case is a civilian construction MTS. This case is selected, because it differs on many accounts from the three military MTSs. At conference the researcher often received feedback from peers who wondered whether it was possible to translate the processes in the military context to a non-military context. Henceforth a civilian construction case was added to increase the external validity of the study. Furthermore, Keyton, et al. (2012, p.187) point to the need for empirical research focusing on rather simple MTSs as this will help us to better understand how real-life MTSs operate. The first three cases fit this description, as they are all real-life and quite simple MTSs. The

MTS are simple as they only consist of two to three component teams. The fourth case is the opposite of small as it is a large and complicated real life MTS. In each of the four cases there is a 'main event'. In the first three cases the MTSs are deployed, and in the fourth case the Big Room is introduced.

So, the first and the second case were chosen at the start of the research, because they are very similar, while the third and fourth cases were incorporated because they differ in comparison to the first two cases. Yet all four cases are construction MTSs.

3.2.2 Case comparison

In this paragraph the four cases are compared. Figure 3 and Figure 4 provide an overview of the composition of the four cases.

Figure 3: Composition of the MTSs in first three cases

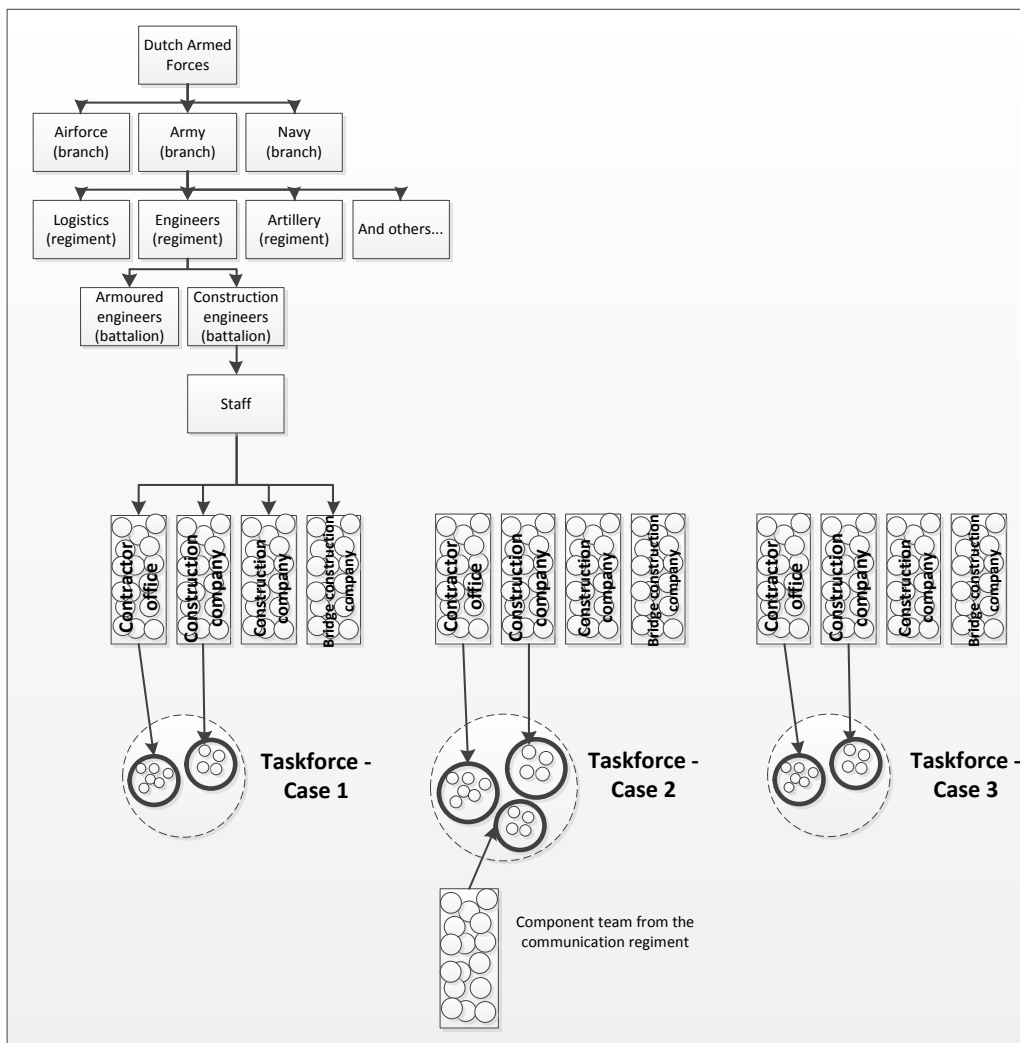
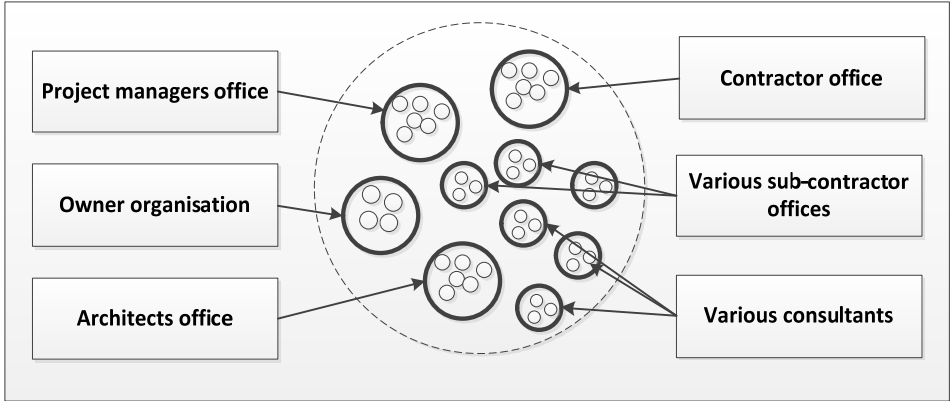


Figure 4: Composition of the MTS in the fourth case



The four MTSs are described and compared based on the typology designed by Zaccaro, et al. (2012, p.12-23; see Table 2). Zaccaro, et al. (2012) designed this typology especially to make it possible to compare MTSs, as MTSs come in so many different shapes and sizes. The typology consists of three different kinds of attributes: compositional, linkage, and development attributes. Compositional attributes are the overall demographic features of the MTS and the CTs in the MTS. Linkage attributes are the different ways in which CTs can be connected or linked with each other. Lastly, developmental attributes are the characteristics of the development of the MTS.

Table 2: Overview of the MTS typology by Zaccaro, et al. (2012, p.12-23)

Compositional attributes	
Number	Number of CTs in the MTS
Size	Number of individuals that make up the whole MTS
Boundary status	Do the different CTs all come from one organization (internal MTS) or do they come from multiple organizations (external/cross-boundary MTS)?
Organizational diversity	In cross-boundary MTS the number of different organizations represented among the CTs
Proportional diversity	In cross-boundary MTS the percentage of team from different organizations
Functional diversity	Degree of heterogeneity in the core purposes and missions of CTs
Geographic dispersion	Co-located, partly dispersed or fully dispersed CTs
Cultural diversity	Degree to which CT come from different nations or cultures
Motive structure	Degree of commitment of each CT to the MTS, compatibility of MTS and CT goals
Temporal orientation	Level of effort and temporal resources expected of each CT
Linkage attributes	
Interdependence	The degree of interdependence required of its CTs to meet collective goals; degree of integrated coordination (e.g. input, process, outcome) among members of different CTs
Hierarchical arrangements	Ordering of CTs according to levels of responsibility for goal attainment, for instance some CTs are responsible for only one proximal goal, while others have the responsibility for more than one goals
Power distribution	The relative influence of the CTs within the MTS
Network communication	The structural patterns of interteam communication, can be full centralized, fully decentralized or in between those two extremes
Modality communication	The modes of communication (e.g. electronic, face-to-face, or mixed) that occur across CTs
Developmental attributes	
Genesis	How was the MTS established? The initial formation of an MTS as either appointed or emergent
Direction of development	How does the MTS develop over time? From emergent to formalized; an evolution from an early formal state
Tenure	How long will the MTS exist? The anticipated duration of the MTS
Stage	In which stage of group development is the MTS at this moment? The stage of MTS development from newly formed to mature
Membership constancy	Fluidity versus constancy of CTs as members
Linkage constancy	Fluidity versus constancy of linkages among the CTs

Compositional attributes

Number, size and boundary status: The first and third military case are very similar in size, and constitution. The MTS in both cases consist of two component teams from the same battalion making it internal MTSs. The MTS in the second military case differs from the other two military cases as it consists of three component teams of which one is from a different battalion. The MTS in the civilian case is much larger than the three military cases and its' components teams are all from different organizations. Hence the MTS in the second military case and in civilian case are both cross-boundary MTSs.

Diversity, temporal orientation and motive structure: The two cross-boundary MTSs contain more proportional, organizational, and functional diversity, than the two internal MTSs. The civilian MTS is more organizationally diverse than the second military case. In the civilian MTS every component team is from a different organization, whereas in the military case two of the three component teams are from the same battalion. Moreover the proportional diversity in the second military case is 2:1 as there are two component teams from the same organization, whereas in the civilian case every component team represents a different organization. In the civilian case the degree of heterogeneity in the core purposes and missions of component teams is much higher than in the second military case. The two internal MTSs (military case one and three) are very similar when it comes to the amount of proportional, organizational, and functional diversity. Moreover, these two MTS are also not culturally diverse, as the two component teams in both MTS are from the same battalion, regiment and country. The situation differs in the second military MTS. In this MTS one of the component teams is from a different regiment and subsequently has a different culture. The civilian MTS takes the cake when it comes to cultural diversity. First of all there is an abundance of different nationalities. However, most MTS members have been living in the United States of America (USA) for a long time. So their official nationality might be Korean, their situational ethnicity is American. The principle of situational ethnicity is that the context determines ethnicity salience (Cox, Lobel & McLeod, 1991). Secondly, every component team represents a different profession. Professions attract similar people, subsequently there are also differences between types of people in professions. For example, stereotypically speaking architects are sensitive while contractors are blunt.

Geographic dispersion: In the first military case the component teams are co-located for part of the deployment, while the component teams in the other two military cases are co-located throughout the entire deployment. The component teams in the civilian case are officially co-located after the implementation of the Big Room, however hardly any of the MTS members actually sit in the Big Room on a daily basis.

Table 3 provides an overview of the compositional attributes of the four cases.

Table 3: Similarities and differences between the four cases

	Case 1	Case 2	Case 3	Case 4
Compositional attributes				
<i>Number</i> (# CTs in the MTS)	2	3	2	17
<i>Size</i> (# of individuals across the teams)	Contractor: 5 Construction: 16	Contractor: 4 Construction: 10 (1 person did not participate in the research) CI: 8	Contractor: 4 Construction: 9	Architect: 15 Owner: 4 Contractor: 6 Project manager: 4 Consultants: ranges between 2-5
<i>Boundary status</i>	Internal MTS	Cross-boundary MTS	Internal MTS	Cross-boundary MTS
<i>Organizational diversity</i>	None	Two organizations	None	> 15 organizations, differs per phase of the project
<i>Proportional diversity</i>	Both CTs are from the same battalion	One CT is from a different battalion	Both CTs are from the same battalion	Every CT represents a different organization
<i>Functional diversity</i>	Both CTs have homogeneous core purposes and mission.	Contractor and construction CT are homogeneous in the core purposes, and mission. CI CT has some different core purposes, so less homogenous.	Homogeneous in the core purposes, and missions of CTs	All CTs have some overlap, yet there are also many differences in the core purposes, and missions
<i>Geographic dispersion</i>	Partially co-located	Co-located	Co-located	Partially co-located
<i>Cultural diversity</i>	None	None	None	Some
<i>Motive structure</i>	Same goals	Same goals	Same goals	More stratification, hence less commitment to the MTS goal
<i>Temporal orientation</i>	Same level of effort, and temporal resources expected of both CTs	Same level of effort, and temporal resources expected of both contractor, and construction CT. Less is expected of the CIS CT.	Same level of effort, and temporal resources expected of both CTs	Same level of effort, and temporal resources expected of the architect, owner, contractor, and project manager CT throughout the life time of the MTS. Less is expected of the consultants CTs.

Linkage attributes

Interdependencies: All four MTSs are characterized by a variety of inter-component team linkages.

The input interdependence between the component teams in the three military cases is mostly based on material, such as the number of electric drills and lumber. In the second military case the component team from the communication regiment is linked with the other two component teams through input dependency, and less by process interdependence. In the civilian case information causes input interdependence. A construction process is characterized by sequential task

interdependence. For example, the contractor cannot start working if the blueprints and architectural drawings are not yet finished.

Power distribution and hierarchical arrangements: Differences in power distribution and responsibilities create hierarchy in all four cases. The power distribution in the three military cases is linked to the chain of command. In the civilian case the power distribution is based on a commissioning party-accepting party relationship between the disparate component teams. For example, the owner has hired the architect, giving them the power to fire them. Hence, the owner has power over the three other component teams. The architect has hired several consultants, and therefore has power 'over' those consultants. The differences in responsibilities also creates differences in power. In each military MTS the contractors' component team is responsible for the quality of the projects, which gives them the authority to approve and disapprove the work of the construction component team. In the second military case this is different for the communication and information component team as their task is different and the contractor component team cannot really check the work of the communication and information component team.

Network communication: The network communication is formalized in all four MTSs. All four MTSs have clear internal lines of communication between them and structured meeting plans. Next to the formalized communication network, there are also informal lines of communication. The existence of these informal lines of communication depends on personal relations between the people and the atmosphere in the MTS. In the first military case for instance, there is hardly any informal communication within the MTS, while in the third military case there is a good deal of informal communication. In the second military case and in the civilian case there is some informal communication.

Modality of communication: Before the deployment and before the implementation of the Big Room there is some face-to-face communication between the component teams, yet most contact is through emails. In the first and second military case for instance there is hardly any communication before the deployment. During the deployment the contact between the component teams in the three military cases is face-to-face. In the civilian case the modality of communication is mixed. Several component teams attend the Big Room and these component teams have a lot of face-to-face contact next to the phone calls and emails. The other component teams still only see people during the meetings, and rely heavily on emails.

Table 4 provides an overview of the linkage attributes similarities and difference between the four cases.

Table 4: Similarities and differences between the four cases

	Case 1	Case 2	Case 3	Case 4
Linkage attributes				
<i>Interdependence</i>	Input: Yes Process: Yes Output: No	Input: Yes Process: Yes (differs for one of the component team) Output: No	Input: Yes Process: Yes Output: No	Input: Yes Process: Yes (differs per component team) Output: No
<i>Hierarchical arrangements</i>	Yes	Yes	Yes	Yes
<i>Power distribution</i>	Yes	Yes	Yes	Yes
<i>Network communication</i>	Centralized	Centralized	Centralized and informal	Centralized and informal
<i>Modality communication</i>	Face-to-face communication	Face-to-face communication	Face-to-face communication	Mixed methods of communication

Developmental attributes

Genesis: All four MTS are appointed and newly formed.

Direction of development: The three military MTSs are formalized MTSs and the civilian MTS is emergent.

Tenure: The three military cases have similar tenures of spanning five to eight months, counting from the moment they are appointed to the end of the deployment when the MTSs are dissolved. The civilian case has a much longer life span. The first steps in the project were taken in the fall of 2012 and the project is intended to last until the spring of 2015.

Membership and linkage constancy: The three military MTS have constant component team memberships. At the start of the MTS lifespan there are the same numbers of component teams as at the end. The only exception is that one of the component teams in the second MTS is deployed several weeks earlier, and also returns several weeks earlier. The linkage constancy of the component team membership in the civilian MTS is very different from that of the three military cases. In the civilian case the linkage of component teams is less constant. Right before the research in this MTS started two large component teams left and several new ones joined the MTS. The different phases in the construction process influences membership and linkage constancy. During the research the number of component teams in the MTS was quite constant, as the MTS stayed in the same construction phase. The MTSs in the three military cases do not go through a standard construction process, hence there is less fluidity in membership and linkage constancy.

Table 5 provides an overview of the developmental attributes similarities and difference between the four cases.

Table 5: Similarities and differences between the four cases

	Case 1	Case 2	Case 3	Case 4
Developmental attributes				
<i>Genesis</i>	Appointed	Appointed	Appointed	Appointed
<i>Direction of development</i>	Formalized	Formalized	Formalized	Emergent
<i>Tenure</i>	7 months	8 months	5 months	Fall 2012 till spring 2015 (intended)
<i>Stage</i>	Newly formed	Newly formed	Newly formed	Newly formed
<i>Membership constancy</i>	Constant	Constant	Constant	Fluid
<i>Linkage constancy</i>	Constant	Constant	Constant	Fluid due to different construction phases

To conclude, the three military MTSs are similar in the way they are composed with two exceptions. The second military MTS is a cross-boundary instead of an internal MTS and the component teams in the first military case are only partly co-located whereas the MTSs in the second and third MTS are co-located throughout the entire deployment. The civilian MTS differs from the three military cases in its size and its diversity. The four MTSs are very similar when it comes to the linkage attributes between the component teams. The developmental attributes of the four MTSs are also similar. However, the life span of the civilian MTS is much longer compared to the other three MTSs.

3.3 Data collection strategy

3.3.1 Data triangulation

'Given the nascent state of the field we suspect that collecting both qualitative and quantitative data is a must. [...] There is a need for multidisciplinary and multimethod approach to collecting data on MTSs' (Burke, 2014, p.28 & p.31). Data triangulation through the use of multiple data collecting tools provides strong verification of constructs and hypotheses in case study research (Eisenhardt, 1989; Marks, Mathieu & Zaccaro, 2001). Using a variety of data collection tools and data sources creates a reliable picture of what is going on (Abbott, 2004, p.26; Yin, 2003, p.97). Analyzing and collecting data at the same time is useful as it allows for adjustments (e.g. adding an extra interview question) during the data collection process (Eisenhardt, 1989). The idea is that these adjustments allow the researcher to take advantage of opportunities that present themselves during the research, and subsequently create as much depth in the case as possible. *'This flexibility is not a license to be unsystematic. Rather, this flexibility is controlled opportunism in which researchers take advantage of the uniqueness of a specific case and the emergence of new themes to improve resultant theory'* (Eisenhardt, 1989, p.539).

Creating accurate sampling frames in real-life cases is often difficult (Burke, 2014; p.27; Eisenhardt, 1989). The sampling frames used in this research are depicted Figure 5: Sampling frame in the first three cases and Figure 6.

Figure 5: Sampling frame in the first three cases

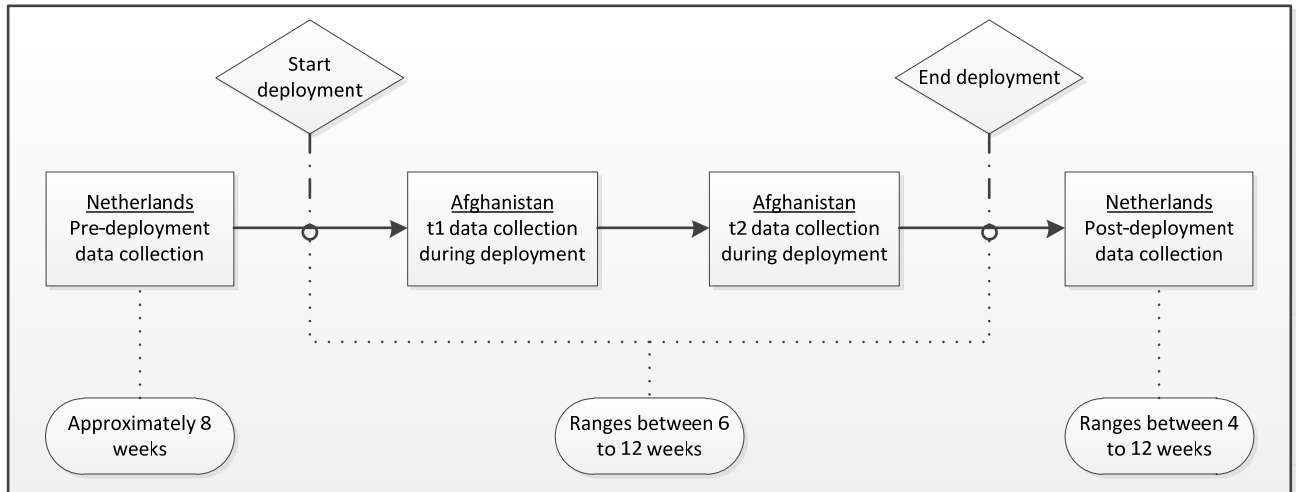
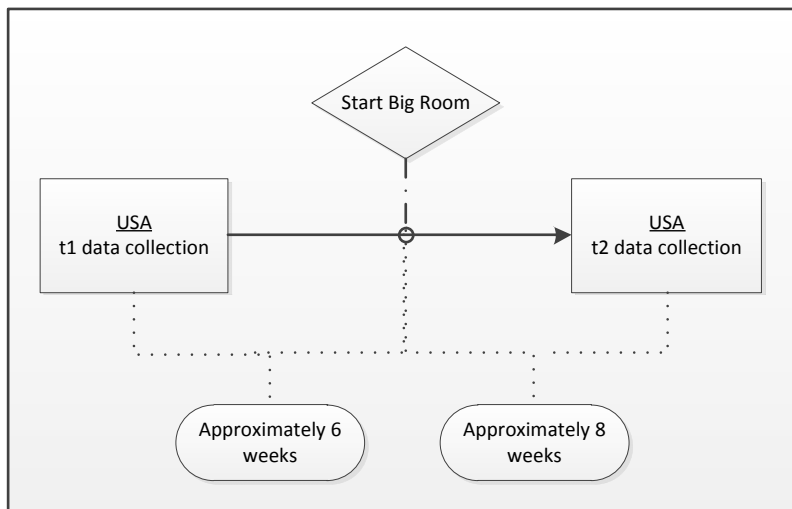


Figure 6: Sampling frame in the fourth case



The data collection tools used in this research consists of both traditional and less traditional data collection tools. The traditional data collection tools are semi-structured interviews, questionnaires and participative observation. The variables introduced in the conceptual framework guided the data collection process in these three tools. For example the interview as well as the observation scheme consisted of an overview of the MTS teamwork variables and remarks about identity or intergroup behavior related issues. At the same time the questionnaire measured these variables.

The less traditional data collection tools which were used are official military orders, two diaries, power-point presentations, debriefing notes, emails, minutes of meetings (Burke, 2014, p.23) and

'feelings' of the researcher herself. Especially, the two diaries proved very valuable. One of the diaries contained several subjective and emotional accounts of what was happening. The other diary described events in a more matter of fact kind of way. 'Feelings' of the researcher were also very useful. *'Your body is a research tool'* (Moelker, 2014, p.110). The transference of emotions by placing yourself in certain situations or positions is the idea behind a therapy called *'familie opstellingen'* (translated: family arrangements). The goal of the technique is to transfer feelings and perceptions through arranging people in space. During the fieldwork for this research this kind of transference took place. For example, every day the researcher had breakfast with the same component team. So, every morning she walked through the long aisle in the middle of the dining room with that specific component team. As she walked down the aisle she saw other component teams of the MTS eating their breakfast. However, somehow it felt very awkward to greet them, as if there was this enormous gap between them. Then came lunch. This time the researcher walked down the aisle with one of the other component teams. Yet, when she saw the component team she ate breakfast with walk by the same awkward feeling came over her again: *'Shall I greet them?'* So, being 'part' of a group transferred certain group feelings onto the researcher. It actually let the research enter/feel their world of perception. After the first few times the researcher noticed this transference of feelings, she started to note those feelings down. Additionally, she remembered Eisenhardt's (1989) statement that analyzing and collecting data at the same time is useful, as it allows the researcher to be flexible and make adjustments during the data collection process. So, in the second military case the researcher decided to add another data collecting tool. She asked every MTS member to draw a *'familie opstelling'* (a family arrangement) of the MTS.

3.3.2 Semi-structured interviews

3.3.2.1 Outline of the interviews

In-depth interviews are very useful in obtaining access to personal perspectives (Boeije, 2010, p.63), and in exploring complex and subtle phenomena (Denscombe, 2011, p.173). In this research semi-structured in-depth interviews were used. In semi-structured interviews the researcher has a clear list of issues s/he wants to discuss. However the order of topics is flexible and topics might be added (Denscombe, 2011, p.174-175). All, except two, interviews were one-on-one interviews. The two interviews that were not one-on-one was a phone-interview with two MTS members in Afghanistan, and a focus group with the members of the communication and information component team. The researcher acted as a facilitator during the focus group.

The choice of informants is very important as it affects the content of the data. Due to the size of the MTSs it is impossible to collect data from all its members (Burke, 2014, p.24). In each case several central figures, and several secondary figures were interviewed. The central figures were people who

had managing/leadership positions, had encountered problems, had caused problems, or had held a somewhat neutral stance. The secondary figures were MTS members who did not play a particular important role. The perspectives of these secondary figures are valuable because they set the scene concerning routine processes in the MTS and verified occurrences of certain events. Next to the semi-structured interviews, a multitude of shorter and longer informal conversations took place. An overview of the number of semi-structured interviews and informal conversations conducted in each case over time is provided in Table 6.

Table 6: Number of semi-structured interviews and informal conversations over time per CT and per case

	Number of semi-structured interviews					Approximate number of informal conversations
	Pre-	During	Post-	Eye-witnesses	Total interviews	
Case 1						
- Contractor CT	6	3	6	14	40	350
- Construction CT	4	1	6			200
Case 2						
- Contractor CT	4	2	4	5	35	400
- Construction CT	3	3	4			200
- Communication CT	8	1	1			75
Case 3						
- Contractor CT	1		4	0	10	75
- Construction CT	1		4			75
Case 4						
- Owner CT	2		1	0	19	15
- Contractor CT	3		2			30
- Architect CT	3		1			10
- Project manager CT	3		1			5
- Consultants	2		1			2

3.3.2.2 Interview strategy

As a sign of respect for the interviewee the researcher was always prepared and on time for the interviews. Respect is important as it influences the chemistry between the researcher and the interviewee, and subsequently the quality of the data. Additionally, the researcher had only one opportunity to conduct the interview, so she had to do it right. Coming early creates the opportunity to have a coffee with the interviewee and build rapport. Rapport is if both parties in an interview have a genuine interest in the questioning, the answering and the listening conducted during the interview (Boeije, 2010, p.62). Small-talk eased people into the interview. Moreover it helped the researcher probe the interviewee. The researcher tried to influence the setting in which the interview took place as best as she could. She tried to sit somewhere private, free from external stimuli (to keep interviewee and interviewer focused) and with an optimal seating arrangement

(angle between 45-90° between interviewer and interviewee). Interviews took place in offices, meeting rooms, a shipping container, outdoors, and in empty staff rooms.

The same interview protocol was used in all interviews. The protocol consisted of a piece of paper stating the topics which should be mentioned in the introduction, the main variables, a list of possible interesting variables, and some interviewee-specific questions. The interviews started with an introduction of the research, its funding, privacy matters, time estimation, permission to record interview and of course a 'thank-you'. The subject of the questions in the interviews were linked to the central variables of the research, and what the researcher had heard and wanted to verify. The topics of the interview depended on the time of the interview. In the three military cases interviews were conducted before the deployment, during the deployment and after the deployment. Before the deployment the questions were about expectations, past experiences, how the cooperation was coming along now, current team spirit, relations, and communication. These questions gave the researcher an idea of the 'base-line' of the study. The pre-deployment interviews took between 30 minutes and 60 minutes.

The only way for the researcher to keep track of what was happening in Afghanistan was through phone-interviews and eyewitnesses. An eyewitness was someone who had recently visited Afghanistan, and had spoken with the MTS members. What did those people notice? What did the MTS members tell them? Permission from the MTS members in Afghanistan was asked before the researcher contacted eyewitnesses for an interview. The interviews with MTS members in Afghanistan lasted between 30 and 45 minutes, and the interviews with the eyewitnesses between 30 and 120 minutes.

After the deployment the researcher reinterviewed all the interviewees. This time the questions were about their experiences during the deployment. Additionally, the occurrence of certain events was verified and the questions '*what stood out for you?*' and '*what surprised you?*' were asked. Due to special leave for the MTS members the post-deployment interviews took place several weeks sometimes several months after the deployment. The post-deployment interviews took between 60 and 150 minutes.

In the civilian case the researcher interviewed several MTS members before the initiation of the Big Room, and a couple months after the Big Room was implemented. Those interviews took place mostly at the architects' office. However some of the interviews also took place in the office of the owners, outdoors, and over the phone. The interviews before and after the Big Room ranged between 30 and 90 minutes.

3.3.2.3 Transcription process

The researcher and two external transcribers transcribed the recorded interviews. The two external transcribers were hired for transcribing interviews which takes an immense amount of time. Transcribing recordings partly modifies the data. If people talk, for instance, many of them do not finish their sentences. However when the interviews were transcribed the sentences were often 'filled up'. Another important issue is the fact that transcribing is more than just writing down the words. An interview is not just about what is being said, but also about how it is being said, expression of the person and body language. The researcher came up with a trick to make sure that the non-verbal aspects would not be lost in the transcriptions of the interviews. The trick was that the researcher named non-verbal aspects during the interview. So, if an interviewee would get a smile on his face when he answered a question, the researcher would say *'I see that the question makes you smile, can you explain why?'* Or when the researcher wanted to make sure that the tone of voice was rightly interpreted, she would ask *'That sounds rather sarcastic, can you explain why you are sarcastic?'* Since the interviewer asked these questions out loud they got recorded, and later on transcribed.

3.3.3 Questionnaire

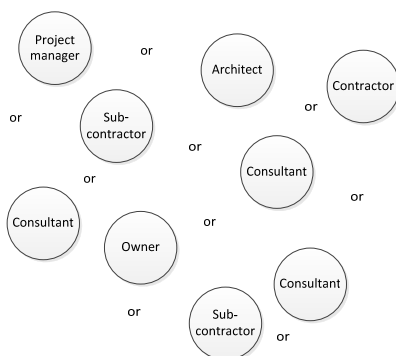
3.3.3.1 Outline questionnaire

The questionnaire consisted of five parts: 1) introduction, 2) identity questions, 3) MTS teamwork questions, 4) CT teamwork questions, and 5) a teamwork variables short-list (see annex 1). The introduction outlined the research goal, the longitudinal nature of the research, the time investment, and privacy statements. Furthermore the difference between CT and MTS was explained with the use of the following images and text (see Figure 7).

Figure 7: Example of the drawing in the introduction of the questionnaire

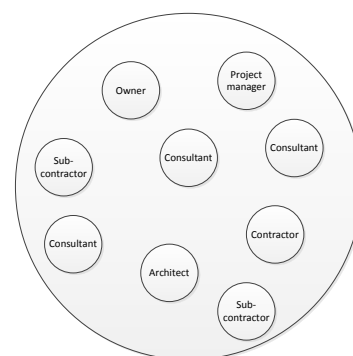
Organizational team

(=Singular team)



X project team

(=Total of all the organizational teams)



There were two 'warnings' in the introduction: please not to skip any questions and do not 'over think' questions. Additionally the name of the respondent, and the date were asked. In the introduction of the three military cases the monetary support of the Ministry of Defense was also mentioned. The Ministry of Defense was mentioned in order to increase the credibility of the research as many soldiers are somewhat skeptical about research. Lastly, the participants were thanked for their effort and time. The second part of the questionnaire consisted of identity strength questions. In a short introduction the questions were explained, and an example question was provided. It was specifically mentioned that they were going to be asked questions about groups that they were a part of and groups that they were not members of. The introduction was so very specific, because in the previously participants did not answer questions about the other groups, because they thought they did not have to answer those questions. The third part and fourth part of the questionnaire consisted of questions about different teamwork aspects both within the MTS as well as within the CT. Part three and part four started with priming the participants to make sure that the referent-shift consensus model was effective. Priming is a method used in psychology to enhance the chance that people are thinking about the same thing. Lastly, a list of a variety of teamwork variables was provided from which the participant could choose a maximum of 5 variables that they thought were most important for cooperation processes in an MTS.

The total number of questions differs per case for several reasons. For one, the number of CTs in each case is different; hence the number of identity questions differs. Additionally, in the civilian case there was less control of variables since tenure could only be asked about the organization and not about the multiple layers in the organization as was the situation in the three military cases. Over time the researcher also realized that measuring the identity strength off several control-groups did not really add anything to the exploration of the research question. So the number of identity questions decreased over time until finally in the civilian case the scale was used for only the CT and the MTS identity. Something that did seem more important over time was the participants' view of essential teamwork variables. In case three and four this question was asked at every measurement point.

3.3.3.2 Scales

The scales used in the questionnaire measure the variables introduced in the conceptual framework in Chapter two. For a number of teamwork variables a mature scale exists, yet not for all. Subsequently, for four variables the researcher had to develop a scale. The other scales are established and validated scales in their original language (English and French). However, the scales needed to be translated into Dutch due the educational level of many of the MTS members. The translate-translate back method was used for the translation. The fourth case took place in an English

speaking country, so in that cases the original scales were used, and the scales designed by the researcher needed to be translated into English. Again the translate-translate-back method was used. All answers were measured on a 5-point Likert continuum running from (1) 'strongly disagree' to (5) 'strongly agree'. Table 7: Overview of the scales used in the questionnaire provides an overview of the scales used in the questionnaire.

Table 7: Overview of the scales used in the questionnaire

Variable	Scale	Example of an item	Number of items
<i>Identity</i>	Organizational Identity Scale of Ashforth & Mael (1989)	When someone criticizes the MTS it feels like a personal insult	6
Component variables			
<i>Mutual performance monitoring</i>	Cummings & Bromiley in Langfred (2004)	In the MTS we monitor each other's progress	4
<i>Supportive behavior</i>	Supportive Behavior Scale of Aubé & Rousseau (2005)	In the MTS we cooperate to get the work done	5
<i>Adaptability</i>	Organizational Adaptability scale of Mott (1972) in Angle & Perry (1981)	In the MTS we do a good job of anticipating problems	4
<i>Leadership</i>	No peer review scale	The MTS is being well led	2
<i>Team orientation</i>	No peer review scale	In the MTS the teams have the intention to work together	5
Coordinating mechanisms			
<i>Trust</i>	Simons & Peterson in Langfred (2004)	Within the MTS we trust each other	4
<i>Shared mental model</i>	No peer review scale	The organizational teams in the MTS are on the same page regarding the tasks that need to be executed	6
<i>Closed-loop communication</i>	No peer review scale	There is a lot of miscommunication within the MTS	6

The four non-peer-reviewed scales are discussed per variable in the following four paragraphs.

Leadership: The role of leadership in teams is very complex and there are many extensive scales available. However, the goal of this research is to explore the role of specifically MTS leaders in a more general sense, therefore merely two questions were asked: '*Does the leader facilitates the combined efforts of the MTS?*' and '*Is the MTS being led well?*'

Team orientation: A peer-reviewed scale does not yet exist for team orientation. In 2010 Duel developed a scale for team orientation for his PhD research on military teams. The three items with the highest factor loadings were used in our scale of team orientation. However, we felt that these items did not cover the whole range of team orientation within an MTS setting, so two additional questions: '*In the MTS the teams have the intention to work together*' and '*Within the MTS we are open for feedback*' were added.

Shared mental model: There is no peer-reviewed scale to measure a shared mental model. We created five items based on the definition of a shared mental model by Sales et al. (2005) plus added one item of Duel (2010).

Closed-loop communication: A scale was needed that covered all aspects of closed-loop communication as given in the definition by Salas et al. (2005), as well as questions about the extent that individuals actually exchanged information. Unfortunately, none of the peer-reviewed communication scales fully adhered to these demands, so a new scale was created. Two items are negatively formulated and need to be recoded afterwards.

3.3.3.3 Level of measurement versus level of analysis

The interest of this study is directed at what happens in the component teams and in the MTS. However, the unit of measurement and analysis is individual. A lot has been written, and debated about multiple level research. Aggregating means of individuals to a group mean during the analysis of data is not possible as this leads to a fallacy of the wrong level (James, 1982, p.223). *'Estimates of agreement based upon group mean scores have been incorrectly interpreted applying to perceptual agreement among individuals'* (James, 1982, p.219). It is however possible to generate group level scores if the aggregation takes place in the data collection phase through compositional models. *'Compositional models specify the functional relationship among phenomena or constructs at different levels of analysis, that reference essentially to the same content but that are qualitatively different at different levels'* (Chan, 1998, p. 234). There are several kinds of compositional models, and one of them is the referent-shift consensus model. The referent-shift consensus model states that withingroup consensus is used to compose the lower level construct to the higher level construct, and that a shift in the referent (e.g. level of the construct) prior to the consensus assessment warrants aggregation of individuals' collective perceptions to represent the value of the higher level construct (Chan, 1998). In other words, the central constructs in the questions were directed at the component team level and the MTS level, and not to the individual level. For example instead of asking 'I trust....', the question was formulated into 'My team trusts...' (component team level) and 'Within the MTS we trust....' (MTS level). The question is directed at higher-level constructs, so there is a shift in referent from both the 'I' to the 'component team' and 'MTS' level. The referent-shift consensus model was used both in the interviews and in the questionnaire.

3.3.3.4 Sampling strategy

The strategy of conducting the questionnaire part of the research was pragmatic and differed per case study. *'You need to be flexible when you collect data in MTS research'* (Burke, 2014, p.25). The researcher worked with paper questionnaires because being dependent on computers would severely limit the researcher in her flexibility to collect data. Wherever possible the researcher tried

to hand out the questionnaires to all MTS members, or all component team members, at the same time. Ideally the setting would be quiet; everyone would complete the questionnaire at the same time; the researcher would be able to introduce the questionnaire; and the questionnaires would be returned on the same day. However, due to the busy schedule of the military MTS in the pre-deployment phase it was impossible to schedule a specific time bracket for the research. Subsequently, questionnaires were handed out during breaks at a shooting range, in the waiting room of the logistical center, and in a nurses' office. The researcher was only able to arrange the time and setting of one measurement moment in Afghanistan. The remainder of the measurements were conducted as seen fit by the MTS leader. Some of those leaders made the MTS members sit together and fill out the questionnaire, while others handed out the questionnaire at night with the message to return it the next morning. The researcher tried to gain as much information about the circumstances in which the questionnaire were completed in order to assess the quality of the measurements. The civilian case was also characterized by both time limitations and time pressure. Subsequently, the questionnaires were handed out and the researcher tried to get them returned as soon as possible. The fluidity of MTS membership was also an issue in the data collecting process; subsequently the date that this person filled out the questionnaire differed from the rest of his/her component team or MTS.

3.3.4 Participative observation

3.3.4.1 Method of observation

'The most advanced form of understanding is achieved when researchers place themselves within the context being studied' (Flyvbjerg, 2006, p.236). Participative observation within the field was used to generate this advanced form of understanding. Participative observation is a method to collect data during field work in which the focus is on everyday interactions of the research objects and generating tacit knowledge about the case (DeWalt, DeWalt & Wayland, 1998). Participative observation comes has certain degrees of participation from non-participation to complete and total participation. In non-participation observation the researcher does not interact with the individuals in the case, while in complete participate the researcher fully emerges in the research setting and becomes a member of the group that s/he is studying (DeWalt, et al., 1998, p.58-62). In this research a mix of moderate and active participation is used. During most of the research the researcher moderately participated while observing, for instance during meetings the researcher stayed on the sideline and did not interfere. However, during lunches, formal and informal group activities she talked a lot with the MTS members. The researcher actively participated during the ten days she was embedded in Afghanistan. There she ate, slept, and worked alongside the MTS members.

3.3.4.2 Observation strategy

Methods on how to observe are non-existent (Delamont, 2001, p.213). Observing entails several elements. First of all, where do you position yourself as a researcher? For example, at the start of the research the researcher often sat at the table during meetings. However what she noticed was that this position gave participants the feeling they should involve her in the meeting. Subsequently, the researcher tried not to sit at the table. Yet, staying on the side did not always 'sit' well with the participants. In the civilian case the researcher was asked time and time again, whether she would not like to sit at the main table. Even though, the researcher explained the reason why she did not want to join at the table, the question was asked almost every meeting. Moreover, how do you 'listen in' on informal conversations? Informal conversations are everywhere, during lunch, in the hallway, during coffee breaks, in the bathroom, before and after meetings. The tactic used by the researcher was to try and be everywhere in the hope to catch as much information, and see as much interaction as possible. The research always made her presence known to the research participants; this provided the research participants the possibility to voice their objection.

3.3.4.3 Field notes

In this study a combination of field notes and recordings was used. Field notes are the primary data collecting tools within participative observation (DeWalt, et al., 1998). In field notes the researcher wrote down what he/she sees, hears, smells, feels, and notices. However, this proves difficult sometimes. First of all you do not always have you notebook with you, for instance during lunches or in the hallway while returning from the bathroom. Another aspect is that the reactions on note taking are very divers (DeWalt, et al., 1998, p.272). Some people feel somewhat threatened when the researcher is writing while they talk. Even though people are aware that what they say will be used in the research, even if the researcher is not writing. Other times writing slows down the conversation, which then loses its natural flow. Especially if someone is telling about a sensitive issue it is quite disruptive to take out a pen and notebook. Yet, making notes on the spot is much more preferred than writing up notes later. So, the researcher tried to note down key words so that she would remember the story, and write up the conversation immediately after the conversation took place. Yet over the course of the research the researcher learned that recording meetings or conversations in which one or more than one person talked was more accurate than just writing notes. So she started to use a mix between field notes and recordings. The conversation or meetings was recorded, while at the same time notes were written about the context, the atmosphere, expressions of people, and their body posture. Recording conversations has several advantages. For one, recording conversations does not disrupt the normal flow of the conversation. Another advantage is that it allows the researcher to be at two places at the same time.

3.4 Case analyses

The aim of the analyses is to reassemble the data in such a way that possible patterns and relationships arise. Case studies always entail an immense volume of data. General techniques to analyze data have not yet been defined in case study research (Eisenhardt, 1989; Yin, 2003, p.109).

Identifying patterns at the case level helps the researcher analyze the data from multiple cases identify more general patterns across cases (Eisenhardt, 1989). The within-in case analyses consist of qualitative as well as quantitative data analyses methods. The qualitative data was categorized and each category received a code. *'A code is not just a new name for a category, it has to lead to meaningful interpretations of the data'* (Boeije, 2010, p.88). Three sources were used to derive codes from: 1) terms or constructs apparent in the data, 2) words used by the research participants (in-vivo codes), and 3) constructs derived from theory (Saunders, Lewis & Thornhill, 2008, p.470). A combination of all three types of codes was used to analyze the qualitative data. The quantitative data was analyzed via SPSS. Data characteristics, such as the sample size, determine which quantitative analytical method is feasible. Due to the small sample size of each MTS it was only possible to conduct modest statistical analyses such as paired samples t-tests and Pearson-r correlations.

After the within case analyses possible themes and relationship emerge. The next step is to systematically compare these 'ideas' with the evidence from each case (Eisenhardt, 1989). A combination of Yins' first and second general approach to analyze case studies was used. The first strategy is to rely on theoretical propositions that are the groundwork for the research. This research did not use theoretical propositions; the variables introduced in the second chapter guided the analyses instead. The second strategy is to think about alternate theories that might explain certain processes that occurred in the case. Yin (2003) proposes five specific techniques to analyze cases: pattern matching, explanation building, time series analyses, logic models and cross-case syntheses. Pattern matching, cross-case synthesis, explanation building, and logistic models are used in the cross-case analyses. First the results per research question of the within-case analyses were compared. This comparison led to several patterns, and logistical models. The comparison also gave additional insights regarding the research question that in turn lead to cross-case synthesis and explanation building.

3.5 Validity and reliability

Theoretical debates about whether or not the terms reliability and validity used in quantitative research are applicable in qualitative research led to an abundance of 'new' terms for validity and

reliability. Subsequently a muddle of research on validity exists within the field of qualitative research.

3.5.1 Validity and reliability of the research strategy

The validity of this research was assessed in several ways. The first three cases were very similar and could therefore be used to achieve internal validity. Pattern matching, explanation building, addressing rival explanations and using logistic models were used to assess the internal validity. At the same time the fourth case was included in the study to further assess the external validity. Construct validity was increased through data triangulation, as well as using both qualitative and quantitative data. A combination of qualitative and quantitative data creates synergy: *'for while systematic data create the foundation for our theories, it is the anecdotal data that enable us to do the building'* (Mintzberg, 1979 in Eisenhardt, 1989, p.538). Lastly, reflexivity of the researcher was also used to assess validity. The *'myth surrounding theory building from case studies is that the process is limited by investigators' preconceptions, in fact, just the opposite is true. This constant juxtaposition of conflicting realities tends to 'unfreeze' thinking, and so the process has the potential to generate theory with less researcher bias than theory built from incremental studies or armchair, axiomatic deduction'* (Eisenhardt, 1989, p.546-547). However, to validate the choices for the central constructs in this research a list of a variety of teamwork variables was provided to the respondents with the question to choose a maximum of five variables important for cooperation processes in MTSSs.

The reliability was ensured by spending as much time as possible in the field observing and being near the four MTSSs using a diversity of data collection methods and contexts. Likewise, much attention was given to prevent sources of research bias. The reliability increases if researchers are in the field longer and the research is controlled for sources of research bias by mixed-methods (DeWalt, et al., 1998, p.288). A longitudinal mixed-method approach decreases the chance of a common-method bias due to the variety of data collecting instruments, sample times and multiple contexts (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

3.5.2 Validity and reliability of the data collection methods

3.5.2.1 Validity and reliability of the interviews

Every interview is different and cannot be repeated with the exact same results (Denscombe, 2011, p.192-193). The interviewer effect, the interviewee, time of the interview, the way the interview is recorded, professionalism of the interviewer, and location of the interview all influence data retrieved from interviews. The researcher tried to limit possible reliability and validity threats of the interview data in a variety of ways. The interviewer effect, for example, was prevented by building

rapport before the interviews and by being polite, punctual, neutral, and create the right interviewing climate. The reliability of the interview data was checked through crossing checking data with other versions of the stories the researcher heard. To limit the influence of the moment in time of the interview the researcher tried to interview and talk to people during events or shortly thereafter. Additionally, the researcher always made sure the interview took place somewhere private and reminded the interviewee of the privacy vow of the researcher at the start of the interview. Recording devices also pose a threat to the reliability of interview data. So, before the interview started the researcher always explained she recorded the interview for practical reasons, and asked whether the participants minded the device.

3.5.2.2 Validity and reliability of the questionnaire

The reliability and validity of the questionnaire was checked with Cronbach's alpha. Data retrieved with scales with a Cronbach's alpha lower than 0.6 were not taken into account. The order of the questions also influences the validity and reliability of questionnaire data. The researcher did take this risk, as she wanted to make sure the most important questions were answered, and since the questionnaire was long it meant putting the most important questions up front. Two items of the communication scale were reversed try and limit the common-method bias caused by keeping the order of the question quite constant. Social desirability also threatens the reliability and validity of questionnaires. In the research approach it was important to link the data of the respondents over time. Asking respondents to write down their name on the envelope increased the chance of social desirable answers, however at the same time it was best method to link the individual scores. To reduce the chance of social desirability the researcher tried to return participants their sense of privacy in two ways. For one, in the introduction the researcher emphasized that the names of the participants would be changed into numbers when the data was entered into the computer. Furthermore, the blank questionnaire was put in an envelope of the University that had the word 'confidential' stamped on the front. The respondents were asked to return the filled in questionnaire sealed in the same envelope.

3.5.2.3 Validity and reliability of participative observation

Reactivity to the researcher, observer bias, selective recall, selective perception, and misinterpretation of behavior are all validity threats in participative observation (Denscombe, 2011, p.198; Foster, 1996, p. 89). As only one individual collected data throughout the four cases diachronic reliability is created. Additionally, misinterpreted behavior due to the researcher's personal frame of reference was avoided by asking respondents how they interpreted certain events. Moreover, all observations and incidents of researcher reactivity were noted down and taken into account in the analyses to avoid selective recall. Reactivity to the researcher was diminished by spending as much

time as possible with the research participants to become an '*accepted marginal member*' (Foster, 1996, p.70-72). Additionally, the presence of the researcher helped to sample the setting in a systematic way, at different times and speak to everyone (Delamont, 2001, p. 211).

3.5.3 Validity and reliability of the data analyses

To increase the reliability of the data analyses the case, the with-in case and cross-case analyses chapters are all extensive chapters to ensure the chain of evidence is clear for external observers. Additionally, cross-case analyses of multiple cases strengthen the findings within the cases (Yin, 2003, p.130). Hence, the research takes four cases into account. Furthermore, rival theories are addressed to evaluate the confidence that can be placed in the findings (Yin, 2003, p.36).

Chapter three outlines the strategies that are used to collect and analyze the research data. The next four chapters show the results of the research strategy. Each chapter tells the story of an MTS. After the story is told the collected data is analyzed in order to answer the research question.

Chapter 4 Case study 1

4.1 Introduction

Parliament supports the police training mission in Kunduz (28-01-2011)

Last night the Dutch government agreed to an integrated police-training mission in the Afghan province Kunduz. CDA, VVD, GroenLinks, D66, ChristenUnie, and SGP agreed to the proposal to aid in the training and education of the civilian police force in the north of Afghanistan.

In the addendum of the article-100 letter the government emphasized the pure civilian character of the mission. Additionally the government decided to increase the quality of the basis course by prolonging it to 18 weeks. The training by Police Operational Mentor and Liaison Team's (POMLT's) will last a minimal of 5 months.

The Dutch approach towers high above the usual NATO training missions. The course is longer, more intensive, and enhances the knowledge and skills about good governance and human rights. The policemen will be followed over time and there will be feedback sessions, so the course will also be durable.

The Dutch contribution totals 545 personnel who will be stationed in Kunduz and in partly in Kabul. Four F-16s, plus supporting personnel stationed at Mazar-e-Sharif. The Dutch forces will step in a German project that builds shelters made of stone and concrete to protect Dutch personnel.

The Dutch F-16s are primarily tasked to look for IEDs, yet they are also available to provide air support. The Dutch contingent commander has the mandate to use the planes if fellow countrymen are in need of support.

(source: <http://www.rijksoverheid.nl/nieuws/2011/01/28/parlement-steunt-politietrainingsmissie-kunduz.html>, site visited on 10-3-2014; researcher translated the Dutch text)

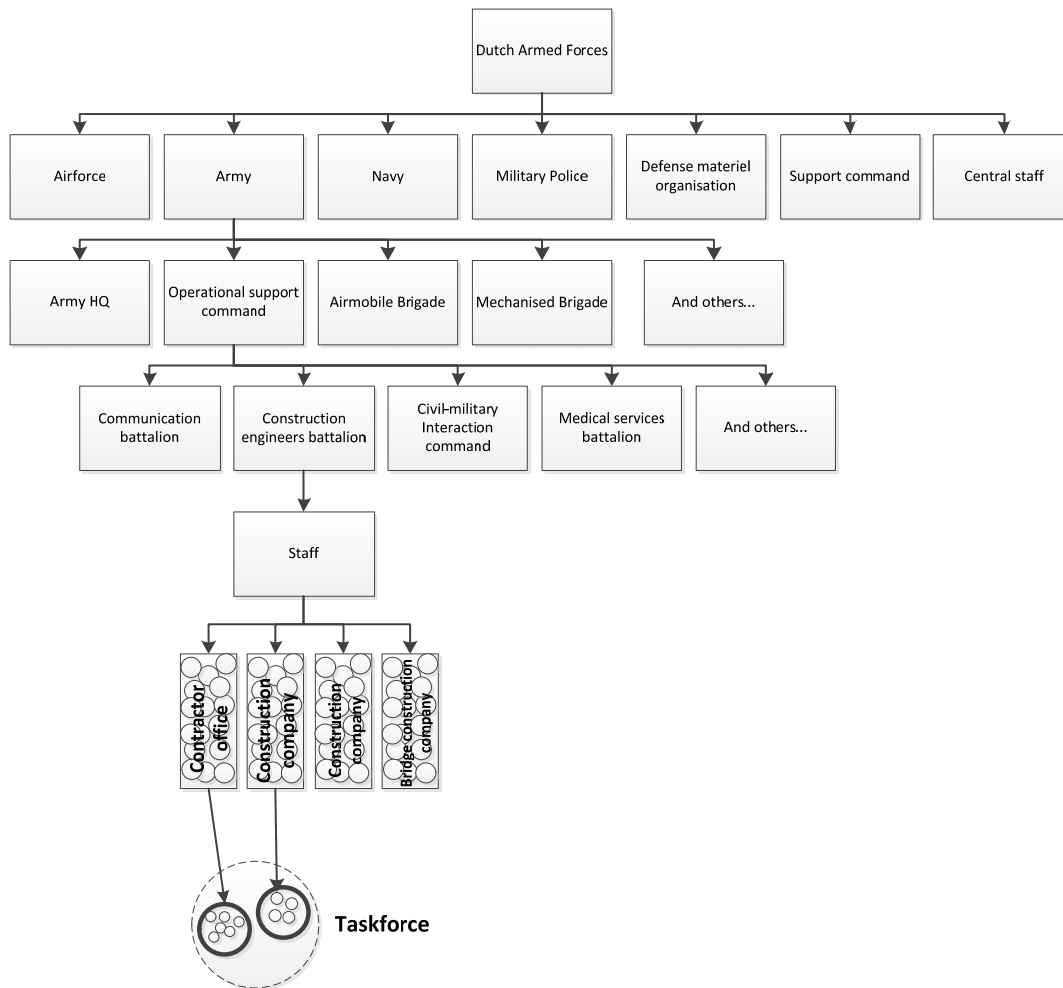
In 2011 Dutch parliament votes in favor of establishing Police Mentoring Teams (PMTs) in north Afghanistan to support NATO-ISAF's contribution towards the development of the Afghan National Police (ANP). The Dutch PMTs are stationed in Kunduz, with an air force detachment stationed at Camp Marmal in Mazar-e Sjarif (MeS). The military compound in Kunduz is approximately six square kilometers, and houses around 3500 military and civilian personnel from various countries. Camp Marmal in MeS is a compound located approximately 150 kilometers from Kunduz. It is the headquarters of NATO's Regional Command (RC) North plus it serves as a large transit airport for military and civilian flights. Since 2011 several engineering taskforces are appointed to conduct extra construction work on both camps. An international contractor conducts a large part of the construction work. Smaller construction projects around the buildings, such as protection elements, a maintenance area, pavement, and several smaller offices are conducted by the military engineering taskforces. The taskforce described in this chapter is one of those military taskforces sent to Afghanistan to conduct several construction projects.

4.2 Description of the taskforce

4.2.1 Compositional attributes

In the Dutch armed forces there is one construction engineering battalion. This battalion is tasked with all infrastructural work outside the Netherlands. The military construction engineers are trained to build bridges and compounds in dangerous and complex environments. The construction battalion consists of three construction companies and the contractor's office. Two of the three construction companies are divided into four disciplines: installation engineering, electric engineering, construction engineering, and civil engineering. The third company is specialized in hydraulic engineering and bridges. The contractor's office develops, engineers, manages, and is responsible for construction projects outside of the Netherlands. The contractor's office consists of several sections: management, professional drafters, a logistics section, electricians, installation engineers, construction engineers, drill experts and civil engineers. Figure 8 provides the organization chart of the Dutch armed forces. The taskforce consists of a team from a construction company and a team from the contractor's office. The circle at the bottom of Figure 8 depicts the taskforce. In the following two paragraphs both teams are described in more detail.

Figure 8: Schematic overview of the Dutch armed forces



Note: The circle depicts the taskforce.

The contractor team

The contractor team consists of seven people. Five non-commanding officers and two officers. Of those seven team members five officially work at the contractor's office. Four team members physically work in the contractor's office. The first one is Zack. He works in the contractor's office for a couple of years, and he really likes it. He is a first-lieutenant however for the duration of the deployment he is promoted to captain. Then there is Sergeant Bruce. Bruce is an electrician. He has worked in the contractor's office for several years but until two years ago he worked there as a civilian. In the short time he has been a sergeant he frequently visited Afghanistan for both shorter and longer periods of time. The third person is sergeant-major Roger who joins the team as second in command. Roger works as a civil engineer at the contractor's office for about a year. Roger is a combat engineer. Combat engineering tasks are construction projects and dismantling objects outside of military compounds. According to Roger there is a big difference between combat engineers and construction engineers. Roger prefers combat engineering. The member is sergeant-

major Aaron. Aaron recently joined the construction-engineering branch at the contractor's office. The fifth contractor's office employee is Sergeant Floyd. Floyd is part of the logistics branch of the contractor's office. The logistics is located at a somewhat remote spot on the base. Subsequently there is not much contact between this section and the rest of the contractor's office. The other two members, Sergeant Derrick and Max, teach at military engineering school. Derrick re-joined the army after a civilian career and has been in the military for two years now. Max is not a soldier. He has worked as a civilian in the military for over twenty years. During the deployment Max is promoted to the rank of captain. The average age in the contractor team is 41 years. Three team members have a higher vocational degree. Although Aaron is relatively new, Zack, Aaron, Roger, and Bruce know each other pretty well as they work in the same office. Floyd, Derrick, and Max do not really know each other or any of the other team members. The contractor team does not leave for Afghanistan on the same date, nor do they all return on the same date. For Max and Derrick this is their first deployment.

The construction team

The members of the construction team are all, with one exception, from one platoon. Therefore the men know each other well as they work together on a daily basis. The construction team consists of sixteen men, of which 86% is below 31 years of age. There is one lieutenant, three sergeants, and the rest of the men are soldiers and corporals. The lieutenant is platoon commander Jim. Jim has been platoon commander for two years. He resigns as platoon commander before the deployment. Sergeant Jonas is second-in command. Jonas is a very passionate man who does everything in his power to protect his men. Throughout most of his career Jonas works as a combat engineer. Jonas has been with the construction company for little over a year. He likes working in the construction company however, he does miss some of the team spirit of the combat engineer battalion. The two other main players in this team are Ralph, and Freddy. Ralph is the group commander of the installation-engineering group. He is very enthusiastic about the contractor's office, and he wants to work there in the future. Freddy is the commander of the installation-engineering group. He is an inexperienced group commander. Freddy and Max know each other from Freddy's time at the military engineering school. In his function as an instructor Max helped Freddy through some personal issues. The tenure in the military profession of 80% of the construction team members exceeds three years, and 80% of them work at that specific company for more than one year. Most of the construction team members have lower vocational training; the leader is the only one with a higher vocational degree. The construction team leaves for Afghanistan as a complete team, and they all return home on the same day (except for one person who needs to return home earlier for

personal reasons). For eight of the team members it is their first deployment. An overview of the most important actors in the taskforce is provided in Table 8.

Table 8: Overview of the central figures in the taskforce

Team	Names of the main players
<i>Contractor team</i>	Zack, Roger, Aaron, Max, Derrick, Bruce and Floyd
<i>Construction team</i>	Jim, Jonas, Ralph, and Freddy

4.2.2 Linkage attributes

The nature of the linkage attributes or interdependencies between the component teams may shift over time throughout the life cycle of an MTS (Zaccaro, et al., 2012). The first interdependency within this taskforce stems from the different tasks of both teams. The tasks of the contractor team are to plan, monitor progress and quality of the construction objects. Additionally, the contractor team members check the work of the international contractor, and coordinate with the contractor's office in the Netherlands. The construction team is responsible for the actual construction tasks and depends on the contractor team for construction drawings, the correct materials, and equipment. The contractor team depends on the construction team for progress information for the planning, and quality work. Moreover, the two teams need each other to be able to achieve the taskforce's goals. Yet the contractor team feels it is their deployment, as their office prepared the projects, and they are responsible for the quality of all objects. The construction team sees this deployment as a way to show how good they are their work. Furthermore, the organizational chart dictates the formal chain of command in the taskforce. The contractor team is placed above the construction team in the organizational chart and therefore the contractor team is in charge. At least this is how the contractor team interprets the chain of command. The construction team, on the other hand, sees it differently. Yes, the contractor team is their 'boss' regarding when it comes to the constructed object. However, the contractor team is definitely not their 'boss' when it comes to non-construction related matters, such as uniforms and behavior. Zack and Jim agree that all work communication goes through official chain of command as portrayed in the organizational chart. The chain of command is a sensitive issue for the construction team, because one of their colleagues was unable to return to work for a year due to the stress and conflicts this exact issue caused. Lastly, the two teams share scarce resources, such as office equipment, means of transportation and satellite phones.

4.2.3 Developmental attributes

The taskforce is an appointed, newly formed, and formalized team. The life span of the taskforce equals the length of the deployment. The deployment is planned to last six months. Throughout the deployment the contractor, as well as the construction team stay part of the taskforce. Only the number of contractor team members changes. Four members of the contractor team leave for

Afghanistan. Three travel to Kunduz, and one stays behind in MeS. A few weeks later Floyd also arrives in Kunduz. So, in the first months there are five contractor team members in Kunduz and one in MeS. In May Zack returns to the Netherlands. At the beginning of June Bruce arrives in Kunduz to replace Derrick. In the first week of July Roger and Floyd leave. Then in August the construction team, Max and Bruce return to the Netherlands. Aaron leaves a few weeks after everyone else has left. So there are many personnel shifts in the contractor team throughout the deployment.

4.3 Story-line

The lifespan of the taskforce is approximately nine months. In the research these nine months are divided in three time slots: the pre-deployment phase, the deployment, and the post-deployment phase.

4.3.1 Pre-deployment phase

Zack finds out he is going to Afghanistan in November, however he is convinced someone else will take his place as he is expecting the birth of his first child. Aaron and Roger also learn they are going to Kunduz in November. There is a discussion for some weeks about whether Roger joins this taskforce or the next one. Derrick and Max do not know they are going to be deployed until somewhere in January. Floyd does not find out till the end of February. In the last week before Christmas 2011 Jim, and Jonas learn they are going to Kunduz with sixteen of their men. However, more information about the what, who, and when remains unclear until the end of January.

Amount of contact in the pre-deployment phase

The two teams prepare for the deployment separately. Subsequently there is hardly any interpersonal contact in the pre-deployment phase. The construction team members see each other on a daily basis, because they all work in the same office. Nonetheless, the preparations for the deployment are added on top of the normal amount of work, as the construction team members are not exempted of their original responsibilities. The contractor team members, however, hardly meet face to face in the pre-deployment phase, because everyone no one is exempted from their normal duties. Derrick and Max for, instance, still work at their original offices which are located more than an hour drive from the contractor's office. Furthermore, in the pre-deployment phase Max has to undergo a few weeks of military training. Most contact between the contractor team members is via email, or if Zack, Aaron or Roger bump into each other in the hallway.

The pre-deployment program

The construction and the contractor teams meet five times in the four months of the pre-deployment phase. These five encounters consist of two informational meetings, a week at the

Mission Oriented Instruction school (MGI), a combined roll-call with informal coffee, picking up uniforms at the distribution center, and the family information day (FID).

The two information meetings: The two information meetings are led by Captain Matt and take place in March. Captain Matt is the project manager of the projects that are scheduled in Afghanistan. He has planned, coordinated, and arranged every aspect of this deployment. In these two information meetings Matt tries provide the taskforce members with information about the projects, the actors, its sensitivities, and possible risks for the schedule. Additionally, Matt warns for possible delays in the construction process at their arrival in Afghanistan due to the collaboration with a large international contractor. The first meeting is only for the leadership of the two teams (Zack, Aaron, Roger, Jim, and Jonas are present), and the second meeting is for the entire taskforce. The chain of command is a much-discussed topic during the meetings. According to Jim, and Jonas, most of the problems in earlier taskforces are caused when members of the contractor team overstep their role, and do not following the chain of command. A major in the contractor office explains the difficulties between the roles of the contractor versus the roles of the construction team as follows: *'the contractor team only interferes with technical issues, while the construction team is responsible for directing the men during the process. The problem is that in the technical part there is also a piece of the process. And officially if you look at the lines of military hierarchy a sergeant-major can say something about disciplinary issues, however now these discipline elements are seen as a responsibility of the construction team.'* Hence, there is a thin line between the contractor team's role, and the construction team's role. The conversation below illustrates this quite well.

Jim: *What I find important is that everything regarding steering the men will go through Jonas or me, because otherwise we have no clue where our men are*

Roger: *We also do not want to lead the men directly*

Jim: *Ok, because otherwise we will lose track, so please everything via us*

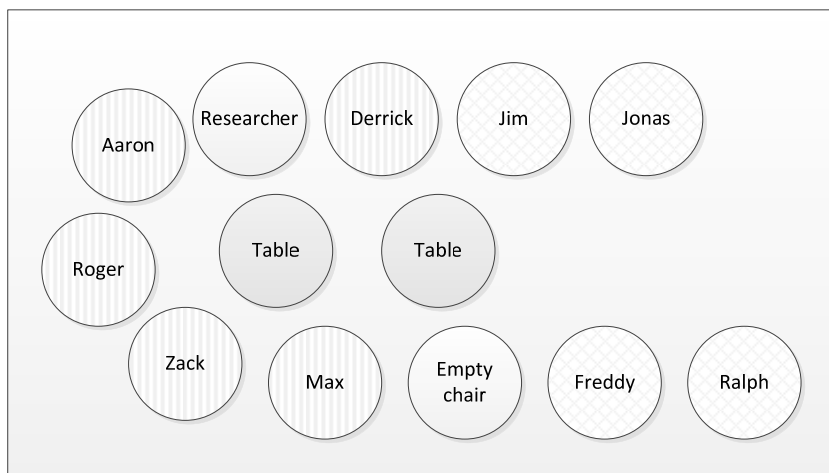
Aaron: *Well it sometimes depends on the setting though, sometimes steering profession wise it might be wise to steer directly*

Jonas: *Well yeah, but we do not want any of those MeS incident of prior engineering taskforces where the leader and his second are placed out of range*

The MGI: The MGI is an obligatory course week for all military personnel ready to be deployed. In this week topics such as cultural awareness, history of Afghanistan, NGOs, and contact with the media are covered. In the MGI the taskforce sits together in the same classroom for four whole days. The fourth day is only mandatory for the leadership of the taskforce. The leadership of the taskforce consists of the entire contractor team, Jim, Jonas, Freddy, and Ralph. Floyd does not attend the course. The members of both the contractor and construction team interact during the MGI, yet the teams do not really mix. This statement is best illustrated by a lunch break on the fourth day of the MGI. The taskforce members can have lunch in an official dining facility or in a small cafeteria. After

the teacher dismisses the class for lunch the entire contractor team walks to the cafeteria. Jim calls out to Zack, Zack walks back, and they talk for a minute. Zack then returns to the rest of the contractor team, and asks whether they want to have lunch at the dining facility together with the construction team. Aaron and Roger immediately speak out against it. Zack then walks back to Jim, who waits with the rest of the construction team some 200 meters from the contractor team, to tell him the news. In the cafeteria the contractor team members conduct small talk, and eat their home-brought sandwiches. Some ten minutes later the construction team members enter the cafeteria, and sit down next to the contractor team (see Figure 9).

Figure 9: Overview of the seating arrangement during lunch on the fourth day of the MGI



Note: the striped circles are the contractor team members and the squared circles are the construction team members

Jim, and Jonas start to talk with Zack about work related issues. Once they agree on some issues, the conversation falls silent. Max plays with his phone. Aaron, Derrick and Roger talk about their children, and upcoming ski-holidays. The body language of the taskforce members changes within minutes after the arrival of the construction team members. Initially, Zack's body is turned towards Jim, and Jonas, however after their short exchange of information his body turns towards Roger, Aaron and Derrick. Also Derrick and Max start to turn their bodies more towards Aaron, and Roger. So, after just a few minutes Max's back is turned towards Freddy, and Derrick's back is turned towards Jim. Jim has also turns his body towards his own team. Hence, in a matter of minutes the group boundaries between the two teams are clearly recognizable through the body language of the taskforce members. Then out of the blue Jim, Jonas, and Freddy rise, and announce they are going to go to the dining facility. Jim asks Ralph: *'Are you coming?'* Ralph replies: *'No, I am going to stay here with my new friends'* [his tone of voice is somewhat sarcastic]. Ralph moves to the seat next to Derrick. Jim, Jonas, and Freddy leave the cafeteria. Even though, Ralph stays behind, he does not

interact with any of the contractor team members after his team members left. He just plays with his phone.

The combined role call: The combined role call formally initiates the beginning of the taskforce. Interestingly, the combined role call takes place after the MGI in the first week of March. During the roll call the construction teams as well as the contractor team are lined-up per group. Zack stands in front of the two groups, and introduces the contractor team members and their roles to the men of the construction team. The construction team is not introduced. After the role-call the taskforce has coffee in one of the communal spaces on the base. During the coffee moment the contractor team members try to integrate with the construction team members. Yet, most of the contact is between the leadership of the construction team and the contractor team members. The majority of the construction team members merely talk with other construction team members.

Picking up uniforms: The fifth moment that the taskforce members see each other is in the waiting area of the distribution center. Before military personnel is deployed they pick up uniforms, and other gear needed in the environment of their deployment. The distribution center is an hour drive from the base where both teams are stationed. Nonetheless, the two teams organize do not travel together. During their time in the waiting area only Jonas and Jim talk to Zack, Roger, and Aaron. Max, Derrick, Floyd and Bruce are not present. Most of the conversations are work related. Jonas and Jim are searching for more information about the projects at hand.

The FID day: The FID day is a day filled with information for family and friends of the personnel who will be deployed. The FID day covers topics such as the departure procedure, postal services, flight information, means of communication, and the emergency hotline. Most of the taskforce members sit with their own families during this day. Jim and Jonas go around and introduce themselves to the families of the construction team members. Roger, Max, Aaron and their families sit together and talk. Both Derrick and Zack sit with their own families, and do not introduce themselves to the families of the other contractor team members, and vice versa. Floyd and Bruce not present.

The quest for information

Work is the topic of most conversations between the contractor and the construction team in the pre-deployment phase. Both teams are on a quest for information. Information such as when do we leave, when do we get our uniforms, and when do we return. Sometimes information reaches the construction team faster than the contractor team and vice versa. The construction team, for example, does not know they are expected at the distribution center till the day before the appointment, while the contractor team does know. Jim and Jonas also search for project

information. They ask for drawings, they have questions about equipment present in Afghanistan and important dates.

Teambuilding yes or no?

In the pre-deployment phase several people suggest there should be a team building. Especially Roger and Jonas especially see this is an absolute must before a deployment. *'You cannot force people to be a team. You become a team when you undertake activities together.'* Teambuilding gives people the opportunity to get to know each other, learn about how other people react, and act under certain circumstances. The other taskforce members, however, do not feel an extended team building really adds much. Isn't the MGI enough? Or maybe we will just have a drink together? Eventually time runs out and nothing is arranged.

General attitude before the deployment

In the pre-deployment phase the taskforce members are still a bit uncomfortable with each other. This awkwardness is nicely illustrated by the jokes that are made. The taskforce members only dare to make jokes about their own team members and not about team members of the other team. Aaron, for instance, makes a joke about Zack's handwriting: *'You have to present Zack, because I cannot read your handwriting even if I tried!'* and Jonas about Jim: *'Isn't the platoon commander always the one to blame if things go south?'* However, the taskforce members do not yet dare to joke around with each other.

There are some doubts in the pre-deployment phase. Jonas, for example, expresses concerns regarding the planning. He knows his planning depends on how well the contractor team is able to arrange equipment. *'I am a bit skeptical whether they will arrange the prerequisites or whether I need to constantly remind them.'* Moreover, both Jonas, and Jim remark: *'I am not able to say if I trust them yet as I do not really know them that well.'* Another example is the doubt Aaron, Roger, and Max have about Zack's leadership capabilities, and motivation. *'Some people just do not have it in them to be able to maneuver in such a complicated context.'* Before Max leaves for Afghanistan he says to his son: *'I will probably have to stay longer, because I bet you that Zack will return home early, and I will be asked to take over his role.'* It isn't until February that it is clear Zack is really going, and he starts preparing himself, however he is still not very motivated. In a meeting between, Jim, and Zack, for example, it is clear Zack has not read any of the documents, nor looked at the drawings, or thought about a schedule. *'I really have other priorities at this moment'*, he says to Jim.

Furthermore, not everyone's roles are a 100% clear during the pre-deployment phase and at the time the taskforce leaves for Afghanistan. For example, the contractor's office tells Roger he is Zack's second and his coach. *'My role is difficult to explain...I think that my role as the second is to jump in*

when Zack is not there. [...] I am not sure whether the contractor office told Zack what my role is. Zack thinks that I will take care of the prerequisites, and other practical issues. [...] My role has not been written down on paper, but the way I see it, the contractor office wants me to back-bench for Zack [...] I do not think that the other team members know what my role is.' Zack, on the other hand, sees Roger's role as *just* his second. Additionally, Zack is somewhat unsure about his own role, and responsibilities, as Matt is still the project manager during the deployment of the taskforce. Subsequently, Zack has to run everything by Matt, and does not have any real decision making authority himself.

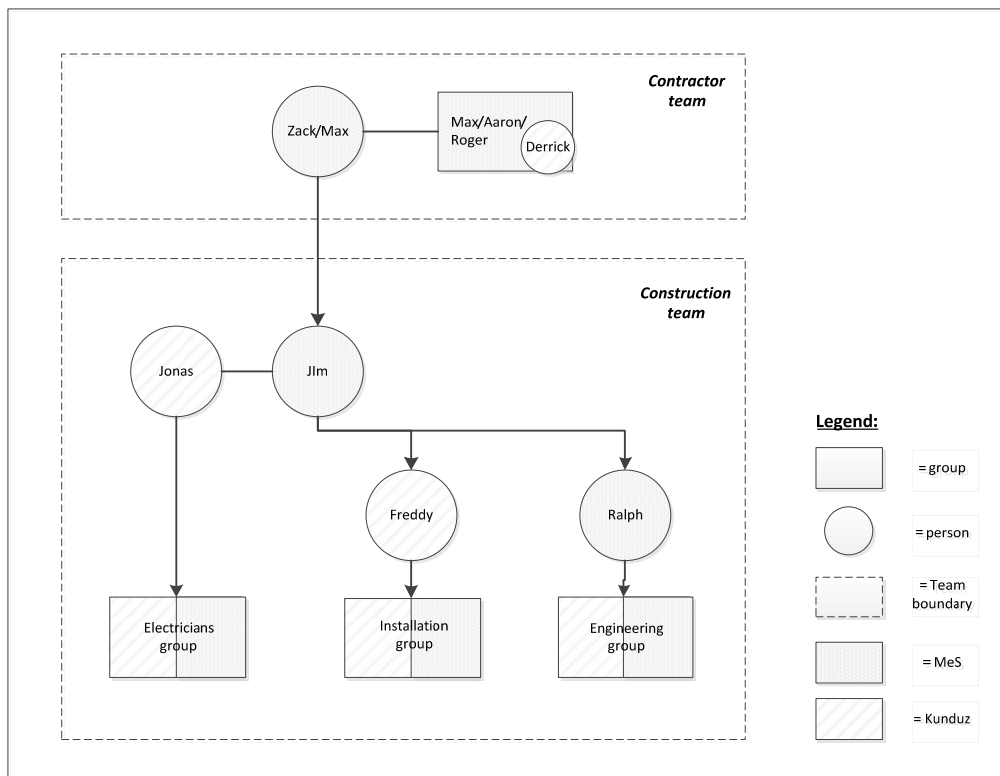
The first disappointment

In the first week of April 2012 the taskforce leaves for Afghanistan. On the way to the airport Zack receives the official news that the international contractor is a couple of weeks behind on schedule. Subsequently, the taskforce cannot start the projects for which they are sent to Afghanistan for another three to four weeks. Zack shares the news with the members of his team and with Jim, and Jonas. Hence, the taskforce members are already without work before they left the Netherlands.

4.3.2 The deployment

Arrival in Afghanistan

After a flight of approximately seven hours the taskforce arrives in MeS. The taskforce does not, however, receive the warm welcome they expect. No one expects them, because of the delays in the work of the contractor. Subsequently, there are not enough tents available in Kunduz to house the twenty-one taskforce members. The taskforce is a little taken aback by the negative news of the delay in the construction work, and the *'What are you guys doing here?'*-attitude of their colleagues. The taskforce needs to adjust their plan as there is not enough housing nor work for all of them in Kunduz. Subsequently, the contractor team and Jim decide a part of the taskforce will stay in MeS to work on the MeS projects and the rest of the taskforce will fly to Kunduz. Figure 10 provides an overview of how the taskforce is split up. Half of the taskforce is stationed in Kunduz for the duration of the deployment, while the other half is in MeS for the first two months.

Figure 10: Schematic overview of how the MTS is split up during the first two months of the deployment

The first week in Kunduz

The first week in Kunduz is characterized by heated discussions about whether or not the taskforce should stay. These discussions are fueled by the negative attitude the taskforce receive from other parties on the compound. Many people do not understand why the taskforce is in Afghanistan as there is no work for them and there won't be a long time. The discussions heat up as the taskforce members have different opinions on what to do. Zack really wants to go home. Jim and Aaron feel it is better to stay otherwise you have to say good-bye to your family twice. Roger believes if there is no work you should not stay because it is unfair to the tax payer. After a stormy week the taskforce finally learns that they are staying. They start to rethink their initial plans. The contractor team and Jim decide the construction team will work for the Germans so that the men do not get bored, and also to create some goodwill. In the meanwhile the contractor team rearranges its plans. Jim is not asked to join these meetings. Zack describes the first weeks as *'Puzzling, puzzling, and puzzling.'* In the first and second week there is no daily structure. The construction team works for the Germans, while the contractor team is pre-occupied with improving the workplace and sleeping arrangements.

Housing situation

In Kunduz the taskforce is assigned one large tent. Imagine a tent with two rows of five bunk beds, nine individuals with two duffle bags each, plus their own smaller personal belongings. It is warm, crowded, and there is no privacy. Moreover, that same tent is also the office. The discussions in the

first week all take place in a tent into which everyone can walk in and out. *'We sleep with the construction team in one tent, however we also work in that tent, and sometimes we want to discuss things in private, and if Jim is there and overhears what we say, he will immediately start to act, and say things, while we just need some time to discuss things before we tell them to him.'* After two weeks the taskforce receives another tent next to the old tent. The construction team sleeps in one tent while the contractor team and Jim sleep in the other tent. The contractor team tent also doubles as the taskforce office.

The construction site is a three-kilometer walk from the housing/office tent. The site itself spans approximately one square kilometer. The dining area and the sport facilities are located one kilometer on the other side of the housing/office tent. Next to physical construction work the taskforce members probably walk more than fifteen kilometers per day from the tent, to the construction site, to the dining hall, and back.

Irritations develop

As stated earlier, the contractor team is pre-occupied with improving the work and arranging sleeping arrangements. Everyday Zack 'fights' with the responsible Dutch unit for phones, means of transport, extra tents, and a computer. Yet, every day Zack returns empty-handed. *'It was just an unpleasant situation, you are trying to manage stuff, get computers, works space, and so on. Yet everything is rejected, and you are the one who brings bad news to the group every day.'* Zack's lack of success irritates members of the contractor team especially when Roger manages to fix an extra tent without much trouble. The contractor team members start to question the ferocity with which Zack fights for them. Is he really trying? Or does he just want to go home? At the start of the deployment the contractor team members are supportive towards Zack regarding his home situation. Both Roger and Max even tell Zack they understand if Zack leaves Afghanistan, however they also feel Zack has to make a decision. Stay and give a 100%, or leave. Roger tells Zack to carefully think about it for a few days. However, the next day Zack already announces he has decided to stay, and give a 100%. After a week, though, Zack is already distracted again by his home situation. However, now his team members are a lot less supportive than before. Zack should 'man up'; *'don't they all they have things going on at home?'*

Due to the lack of success and the way Zack leads the meetings and communicates with his team some of his team members are irritated with him. Roger tries to 'coach' Zack. Yet, at every meeting Zack seems to forget the Roger's suggestions. Subsequently, Roger gets increasingly more annoyed with Zack, and forces the 'lessons' on Zack publicly in the meetings. Zack interprets Rogers's behavior as an attempt by Roger to discredit Zack and take over his job. Aaron also pushes Zack to take the

lead. The irritations between Zack and Roger begin to influence the meetings leading to tensions in the contractor team. One evening, for instance, Zack returns from the gym, and mentions how he enjoyed his work-out. His comment is replied with: *'oh that is something you do have time for?'* Zack is aware of the tensions in the contractor team, and decides openly ask his team members how they think things are going. The men answer the question in all honesty and give some him harsh feedback. After the conversation Zack is of the opinion that the problems are partly caused by 'boredom.' *'Non important things all of a sudden become very important, just because there are no other things to do, plus there was no work which led to frustration in general, and also with each other.'*

Role ambiguities, role conflicts and the Yellow Cord

Besides the dissatisfaction with Zack's leadership the 'clashes' between Roger, Aaron, and Jim also create tense meetings. The clashes are mostly about roles and projects. The distribution of the phones, for example, sparks a discussion. Jim feels his team should get them, because all his men are scattered over the compound while they work for the Germans. The contractor team, however, does not agree, and feel one phone should be enough for the contractor team. They think Jim is greedy and only thinks of his own team. *'If you offer him one thing, he wants everything.'*

Jim also feels he needs to constantly defend his men against interference of the contractor team regarding disciplinary issues, such as uniforms. The topic of uniforms and caps comes up very often in the first months of the deployment, and leads to heated discussions between Jim, Roger, and Aaron. Zack does not take a stance in these fierce discussions because he feels everyone's roles are clear. Roger and Aaron see disciplinary issues as their first duties as non-commanding officers. Jim, however, is of the opinion that as their commanding officer he is the only one allowed to correct the behavior of his men. Two examples are provided to illustrate what causes the tension. Once Aaron sees the construction team members acting in a way he thinks is dangerous. He immediately tells them to stop. Later that evening Jim tells Aaron it is not up to Aaron to tell his boys to stop doing something. Another incident occurs with Roger. One day Roger sees several construction team members' sunbathing on a container roof, Roger calls out to the men, and tells them they are not allowed to sunbathe there. The men tell Roger he is not their boss. Subsequently, Roger walks over to Jim and explains the situation. Yet, Jim sides with his men and tells Roger it is not his job to tell them the construction team men what they can and cannot do. Roger and Aaron, on the other hand, feel they need to intervene because Jim is unable to lead the construction team. *'I do not think that Jim really has the upper-hand in the construction team.'*

Roger's interference with the construction team increases when he takes on or is given (the opinions differ) a new role. At the start of the deployment it is clear there is hardly any civil engineering work

and since being second-in-command does not take up that much time Roger does not really have anything to do. Hence, Roger takes on a new role as the sergeant major for the whole support element stationed in Kunduz. This means that Roger is the one responsible for the non-work-related working conditions, well-being and behavior of the support element of the Dutch armed forces in Kunduz. Roger takes his role very seriously and is very happy with his new task. *'I found a very important task, because I was able to create certain opportunities for the taskforce if I wore the yellow cord around my shoulder, because for Germans it really makes a difference if you have such a yellow cord, or not.'* In the German army the yellow cord is given to the person responsible for the non-work related conditions of the unit. In the eyes of the Germans the yellow cord symbolizes a certain status. However, hardly anyone in the taskforce agrees with Roger's new role, and how he performs it. *'Roger acts as if he is a company sergeant-major, but there is not acceptance for him in that role'*, and *'He walks round like he is a king with that yellow cord, every other Dutch soldier looks at him, like what is wrong with him? He thought that he was all that, yet he arranged nothing!'*

Next to fact that Aaron, and Roger feel Jim is incapable of leading the construction team, they also do not trust him. They think Jim purposely distorts communication, and incites negative behavior towards the contractor team. Take, for example, the vehicles issue. The taskforce has one vehicle for the whole taskforce. During a daily meeting the contractor team and Jim discuss ways to share the vehicle. They agree that the vehicle is generally used by the contractor team. However, if the construction team needs it they can walk up to a contractor team member and simply ask whether they can borrow or reserve the car. The day after this specific meeting one of the construction team members calls out to Roger, and says: *'We were told that we cannot use the vehicle, that only you guys can use it.'* Roger tells him that this is not the case and explains what is agreed upon. Roger and Aaron interpret the 'vehicle incident' as evidence that Jim is feeding distorted information to his men.

Along with the role conflicts about the chain of command, Jim is also uncertain for a while about his own role. He is supposed to be the link between his men and the contractor team yet half of his team is in MeS while the other half in Kunduz does not work for the contractor office. *'In the beginning Jim asked me 'what is my role?' I told him that everything to do with your men is your task, but Jim said that Zack also interfered with his men, so that he was confused about where he stood'* (company commander in the Netherlands). And even though, Zack and Jim did agree to work closely together during the deployment Jim is seldom involved in important decisions. Jim is therefore somewhat uncertain of his role and tasks in this new situation.

In the meantime in MeS

While the irritations between the contractor and the construction team, and within the contractor team, increase in Kunduz, things are mostly going well in MeS. In MeS Jonas acts as the commander of the construction team and Ralph is his second in command. The living conditions in MeS are good, as there are a lot of facilities and many events. The construction team is a team during and after work. They enjoy each other's company, talk, eat, drink coffee, play poker, or go to the gym together. The construction team members are very positive about the deployment, there is a good atmosphere, and everyone helps each other.

Everything is going well within the construction team but things are not going so well between the construction team and Derrick. Derrick is responsible for all electrical objects built in Afghanistan yet he hardly monitors the work the construction team does and does not guide the construction team in the projects. Derrick thinks Jonas does not really need his help or guidance. Interestingly, Derrick's lack of guidance irritates Jonas as he perceives it as a lack of interest for the work he and his men produce. Subsequently, even though Derrick and Jonas sleep in the same room they hardly talk, Derrick never joins the construction team for dinner, nor does he talk with the construction team during the day.

The machine incident

After about three weeks Matt and Floyd arrive in Kunduz. Both Matt, as Floyd feel the tension within the contractor team and between the contractor and the construction team. Before Matt left the Netherlands the news reaches him about the shortage of work in Kunduz. This message really surprises Matt because he can name several projects that need to be done. Matt visits Kunduz for ten days. At first he silently sits in at the meetings. However he notices the contractor team lacks overview. Subsequently, Matt decides to overrule Zack and he takes charge. Aaron, Max and Roger are very happy with the clarity that Matt introduces, however, it also fuels the frustration with Zack's leadership. *'See, this is how a real leader acts.'* One day during Matt's stay in Kunduz the international contractor tells him the project is even further delayed because a certain machine broke down. Matt knows that the taskforce also has this specific machine, so he retrieves the machine from the storage unit of the construction team. Because the machine does not start, the construction team member responsible for equipment maintenance is called in to have a look. The construction team member, however, already knows there is nothing he can do, because the machine is waiting to be repaired. *'After the machine incident, then you get gossip about us, like 'they did not take care of the equipment.'* The gossip infuriates the construction team. *'They just lend out the machine to the external contractor without even asking us, so they assume that the machine works, so they just take it, and without even letting us know they take it with them.'* In the middle of

this roaring in the taskforce Jim returns from MeS where he visited the other part of the construction team. He finds several of his men in distraught about how they are treated by the contractor team. *'I was just glad I was there to soothe the situation. I was constantly soothing the situation, as there were many conflicts between Freddy, my guys and the contractor team.'*

Along with the distraught of his team Jim himself is surprised to find his personal belongings scattered over the tent, and his bed occupied. Roger called Jim during his stay in MeS with the announcement that it might be wise for Jim to sleep in the other tent with his men. Jim agrees, and in a way is relieved that he no longer has to sleep in the contractor tent filled with tension. Nonetheless, finding all his personal belongings on the ground and in the corners of tent really gets to him. The construction team members are offended by the way Jim is treated. *'They cannot treat you this way lieutenant, they cannot just throw you out of the tent!'*

Aaron receives an unwelcoming attitude in MeS

Aaron is in MeS during the machine incident. Aaron visits MeS to assist the construction team with a project he has designed. He is, however, not welcomed with open arms. According to the construction team Aaron is too late. Jonas already has arranged everything himself because *'The contractor team'* did not do it. For instance, when Aaron asks Jonas how he can help, Jonas tells him: *'You can get us coffee.'* Aaron is really offended by the remark. The cool welcome Aaron receives is also caused by stories Jonas has heard about how Aaron, and Roger treat Jim. Even when Aaron compliments Jonas: *'Everything looks good.'* The compliment is met with: *'Well we are the ones who fixed all this. You guys did not arrange a thing! So leave, go back to Kunduz and strut your stuff there.'* Subsequently, Aaron leaves MeS angry offended, and with a bad impression of Jonas.

Tensions in the contractor team rise

Before Aaron leaves for MeS the contractor team discusses whether or not it is wise to already start preparing a certain construction-engineering project. Aaron feels the project can wait, while Roger thinks it cannot. During Aaron's stay in MeS the project comes up again, as supplies need to be ordered. Since Aaron is in MeS, Zack tasks Roger with the preparation of the project. Following his return Aaron learns Roger prepared the project and that infuriates Aaron. Since the project only encompasses construction engineering work, Aaron feels Roger 'stole' his work when he turned his back. In the next meeting Aaron confronts Roger and they get into a big row. According to Roger he just did what Zack asked him to do. Subsequently, Roger is very upset with Zack, because Zack does not intervene while Aaron attacks Roger. The next day Roger tells Aaron what happened during his absence and he agrees with Aaron that construction engineering is Aaron's job.

The row between Roger and Aaron increases the dissatisfaction with Zack as a leader even more. *'Now we are even fighting amongst each other.'* Zack also feels the irritation against him rise, so he decides again to ask the contractor team how they think things are going. Max warns him: *'Do not do it Zack, they are going to eat you alive!'* Zack hopes to initiate an open conversation. However the meeting instantly becomes a discussion. The bomb bursts. Aaron and Roger pour out all their frustration with Zack's leadership. Zack does not agree with their 'accusations', and asks them to give examples. So, Roger, Max and Aaron provide examples. Yet, Zack then tones down every negative example, until at one point Roger is so aggravated he shouts: *'Don't you get it?! We do not trust you!'* Zack responds: *'Ok, then I will leave.'* At the time the leadership-bomb bursts Derrick and Bruce are in Kunduz. Derrick is kept out of the loop intentionally by the rest of the contractor team about the problems within the team. *'We do not need to bother him with what happened.'* Moreover, Derrick also does not feel that the problems with Zack are his business. Subsequently, Derrick does not attend the meeting that seals Zack's fate as the taskforce leader. However, before Zack leaves Afghanistan several procedures need to be set in motion. During this time Zack sleeps in the same tent as the contractor team and the tensions create an unbearable situation. Zack feels betrayed by Roger. He thinks Roger purposely forced him out of his position for some sort of personal benefit. One day Zack comes up to Roger furiously because he suspects Roger of telling other Dutch colleagues the real reason behind Zack's upcoming departure. After this incident Roger is so fed up with Zack that he arranges for Zack to sleep elsewhere during his last days in Kunduz.

After Zack's resignation Max steps up to the plate. Even though, Max is the highest in rank, and managed complex construction projects before, not everyone agrees he should be the new taskforce leader. Jim feels there is no need for a new leader, or for the whole contractor team to be there. The construction team can manage quite well on its own. Roger thinks a civilian is not capable to act in such a complex military environment. He even tries to convince the contractor office in the Netherlands to send someone else. However, the commander of the contractor office and Matt believe Max is the right man for the job. Max describes his role as *'putting out fire after fire [...]* *People listened, agreed, and then there was peace until the next incident.'* Max mediates between the contractor, and construction team. *'Roger's behavior was something that unfolded in the sidelines of our main assignment; however it really influenced the work. I worked non-stop on personal issues, because of all the internal struggles. I tried to talk with men every time I saw them, always isolate one and start a conversation, try to explain Roger's behavior. Roger feels that he is executing his task the way he sees fit. So, I tried to create acceptance, and add nuances to everything. I also told Roger that he should not interfere in construction team business anymore. Everything Roger wanted to say to them, needed to go through me. Of course he was not happy with this, but I*

saw no other way to prevent the situation from escalating.' From the moment Max leads the taskforce the situation changes. Max, for example, treats Jim with respect, takes him seriously, backs him up, and uses his skills. *'Jim has the same education background as me, so he can easily do what I can. You have to respect his intelligence, and knowledge. [...] I never criticized Jim in the meetings. I felt that would be disrespectful and unprofessional. So, if there were some issues I always took him aside and discussed it with him in private.'* Max also helps Jim with internal leadership issues. Max overhears several construction team members talk negatively about Jim. Subsequently, he pulls the construction team together, and tells them Jim's presence is not really useful, so he is thinking of sending him home. The construction team members all start to defend their leader. *'No! Jim is our pal, you cannot send him home!'* Jim is unaware of Max's plan, but he really appreciates Max's effort. Max's mediator approach seems to work. *'It is definitely going better under the leadership of Max. It helps that he is a civilian in this way he is not a threat for the two sergeant-majors in the contractor team so there is less macho behavior.'* Within the contractor team the opinions about Max as taskforce leader differ. Some feel he is too soft, while others are very satisfied: *'Max is no longer the civilian in the lilac sweater, no, he is the Captain.'*

The final straw

In the last days of May an incident takes place, which pushes the tense relationship between the contractor and the construction team over the edge. On this particular day a certain major visits the construction site. Max works closely with the major in the Netherlands, so he wants to make a good impression and tells the taskforce to look presentable. Max, Roger, and the major are touring the site, when Roger sees Jim approaching without the proper uniform. Roger runs towards Jim and... well this is where the story gets blurry. According to Roger he merely points out to Jim that Jim is not properly dressed. Jim's version of the story has Roger cursing, and calling him names in front of the major and Max. Max states Roger indeed raised his voice, but that it is not as big of a scene as in Jim's version. The effects of the incident, however, are more important than what exactly happened. Jim is so angry after what happened and pour out all his frustrations on the last weeks in a phone-call with Jonas. Jonas explodes: *'How did THEY (contractor team) dare?!'* This is the last straw! All those incidents in the last months, all those times the contractor team overstepped their roles, and *'touched his men.'* Additionally, Jonas worries about Jim's well-being. In their construction company a colleague suffered a burnout because of a bad taskforce experience. Jonas worries that Jim is heading in the same direction. Subsequently, Jonas writes a very angry email to the company sergeant major in the Netherlands. In this email Jonas tells his version of what is happening in Afghanistan. The email eventually ends up at the desk of both the battalion, and the contractor office

commander. The email coincides with Zack's return and a call of a colonel in Afghanistan about 'those engineers.' Subsequently, everyone in the Netherlands wonders: What is going on there?!

To keep the tense situation between the contractor and the construction team from escalating further Max takes action. *'I told Roger he should not interfere with the construction team anymore. Everything Roger wants to say to them needs to go through me. Of course he was not happy with this, but I saw no other way to prevent the situation from escalating.'* Additionally, Max orders all communication to strictly follow the chain of command, or to go through him. The formalization of the communication lines leads to strange situations. Take for example an incident with Roger, an external sub-contractor, and a construction team member. Roger and the sub-contractor are walking over the construction site, when Roger sees the construction team member who is going to work with the sub-contractor. Roger walks over, and says *'Shall I introduce you to the sub-contractor?'* The construction team member answers: *'No, I am not allowed to do business with you'* Roger replies: *'But you know you are going to work with the subcontractor right?'* Construction team member: *'Yes, but I still have to wait for the second-in-command.'*

Around the time Jonas sent the email Derrick moves to Kunduz for the last weeks of his deployment. Before he leaves MeS he hears a rumor that two sergeant majors that are going to be sent home. The contractor team members are very surprised to hear the rumor and Roger and Aaron decide to call the contractor's office in the Netherlands to verify the story. A colleague in the Netherlands tells them about Jonas' email and all the commotion it is causing. The contractor team now knows about the email, yet they do not know what is written in the email. All Aaron, and Roger know is that their names are mentioned with regard to several incidents. The incident, the email, and confrontations increase the already tense atmosphere between the construction, and contractor team. Subsequently, to prevent a large irreversible blowout Max decides from that point on he is the only one from the contractor team who communicates with members of the construction team. Max freezes all communication between both teams to de-escalate the situation, especially since the MeS construction team arrives in Kunduz within several days.

After the construction team reunion

In the second week of June the MeS part of the taskforce joins the rest of the taskforce in Kunduz. The MeS part of the construction team is not very enthusiastic about spending their last weeks in Kunduz. Kunduz is a lot less luxurious, and the construction team members heard negative stories from their colleagues about the contractor team. Zack's presence in MeS on his way to the Netherlands reinforces the negative stories about the contractor team. The story goes that Aaron and Roger pestered Zack until he left. Even though, the MeS construction team is anxious about

working with the contractor team, they are set at improving the situation and atmosphere for their colleagues in Kunduz. Jonas is determined to stand up for the construction team, and to fend off anything 'contractor-ish.' He is *'A sergeant on a warpath.'* Upon arrival of the MeS construction team no tents are available near the other construction team tent. So, during the first three weeks in Kunduz the MeS part of the construction team sleeps in a tent far away from the rest of the taskforce. The two construction teams keep their own daily routines. Jim and Jonas also decide to stick to the Kunduz, and MeS working groups, because people got used to each other. Later the construction team housing consists of a MeS room, a Kunduz room, Jim and Jonas share a room, and Freddy and Ralph share a room.

Jonas arrives in Kunduz with war on his mind, however Jim tells him not to make a fuss, because things *'are finally somewhat peaceful, let's keep it that way.'* Subsequently, Jonas stops talking to all members of the contractor team, except for Floyd. He fears that if he talks with certain individual contractor team members it will turn into a fight. The contractor team, however, interprets Jonas behavior as provocative, uncooperative, arrogant, and childish. Several MeS construction team members copy Jonas' behavior towards the contractor team. For example, if individual construction team members see the contractor team or members of that team none of them greet. Another example is *'one of the guys had his birthday and since he was not very happy, we arranged cakes to celebrate his birthday. What you see is that one part of the construction team interacts normally with the contractor team, while the other part of the construction team isolates themselves. They do not want anything to do with the contractor team. I tried to talk with them and so on, but I can try as hard as I want it will not make any difference, because Jonas just has a hold over them.'* The contractor team members react differently to this blatant form of shunning. Roger is very angry. Aaron does not care. And Derrick finds the construction team dumb. At a personal level Max also does not care. However, as taskforce leader he does care. *'I do not care if you greet me or not, but please be so polite enough to greet other Dutch colleagues when they pass by, because you are a representative of the Dutch engineers. And I do care what people think about them.'* Floyd is the only contractor team member who the construction team men talk to. *'Floyd is from the logistics department of the contractor office. So he falls in a void between the construction, and the contractor team. He does not belong to any of the two. [...] He and I shared many laughs. It was really a very nice experience working with him. I would do it again in an instance.'* On the one hand Floyd is not seen as a real contractor team member, yet on the other hand he is seen as one. *'Of course the guys had an opinion about the contractor team, but they did not tell me directly, since in principle I belonged to the contractor team.'*

Snowball effect of Jonas' mail

Four men of the contractor office fly into Kunduz to assess the situation. The four men are met with suspicion, because they are all from the contractor's office. *'I was perceived as a contractor office member, and I definitely noticed that.'* For example, when one of the visitors greets Jonas, and offers him his hand, Jonas takes very long time to shake it. Afterward Jonas abruptly turns around and goes back to work. The visitor is very surprised about this behavior, Derrick on the other hand is not surprised at all, and says: *'Don't mind him. He ignores people all the time.'* All four visitors describe the situation in Kunduz as tense. *'Something is in the air.'* The visitors also observe two construction teams that are each led by their own commander. To them it comes across as if Jim has no power over Jonas, and Jonas is just doing what he wants to do. The visitors wonder whether the construction team members respect Jim, as they see the men make a fool out of Jim during a party.

Troubles are not over yet...

The next incident takes place in the first week of July. Roger has a meeting with external partners about the delivery date of a project. On his way to the meeting Roger passes the project so he stops. He asks the construction team men present how many days they still need to finish the project. Roger shares this information at the meeting. Once Jim and Jonas find out what Roger did they are furious. *'How dare he ask a corporal for such kind of important information?! He should have asked us!'* That evening Roger is confronted with the fury of the construction team thru Jim (Jonas does not attend the meetings). According to Roger, Jim is overreacting because the date of the men matched the date in the original planning. Nonetheless, Roger is afraid the situation will worsen between the construction and contractor team so he contacts the construction company sergeant-major Felix in the Netherlands. He tells Felix that Jonas does not talk to the contractor team which frustrates the work. He asks Felix to come before things get even more tense. The phone call is taken seriously, and within a couple of days both Felix and the contractor's office commander Tyrel land in Kunduz. Felix's main goal is to get people to talk with each other. He asks Roger why he never tried to talk to Jonas. Roger answers that at first he and Aaron felt Jonas should take the first step because Jonas is the one who wrote the email. Later on, however, Roger wanted to talk to Jonas but one of the earlier visitors advised against it. Felix encourages Roger to take the first step. Roger immediately takes action and that same evening Jonas and Roger talk. After this talk things change. The next day, for example, Felix drives with Jonas to the construction site, and on the way to the site they pass Roger. Jonas decreases speed, rolls down his window, and loudly greets Roger. Felix looks at Jonas, and asks: *'Was that for real?'* Jonas just looks at him with a smile. Felix also talks with Jim and Jonas about how everything is going within the construction team. *'We were already expecting that question.'* Jim and Jonas also heard the rumors about the problems they are presumed have. Jim and Jonas tell Felix

how both they and the construction team needed some time to get on the same page after the reunion. At the time of the conversation the MeS construction teams sleep at different locations. However, both Jim and Jonas are convinced everything will be fine when the housing situation changes. When Felix and Tyrel leave Afghanistan they are relatively assured that things in the taskforce are going to improve and it is going to be fine in the last few weeks.

The last weeks...

In the last weeks there are hardly any clashes between the contractor, and construction team. The absence of both Derrick and Roger relieves much of the tension between the teams. In the last weeks Bruce replaces Derrick. Bruce has a very different relationship with Jonas than Derrick did. According to Bruce, Derrick's attitude of *'I am from the contractor team, and I am God, so I decide'* caused the problems. So, the first thing Bruce asks Jonas is what Jonas expects from the cooperation, and then he explains how he sees it. Bruce emphasizes Jonas' input, and opinions matter to him Bruce's approach works, and the cooperation goes very well. *'I had a really nice collaboration relationship with Jonas. We really worked well together. Jonas was very assertive and active and I gave him the space to be like that.'* Bruce also builds up a relationship with the other electricians of the construction team. If Bruce notices something is not in line with the drawing he merely asks why they decide to something a certain way. The electricians feel Bruce teaches instead of monitors them. Moreover, Bruce compliments the men on their work, and helps them. In those last weeks Aaron and Max are a close management duo. Max tries to teach Aaron the importance of interpersonal interaction. Jim really notices how Aaron tries to approach the construction team differently. Interestingly, Jim even goes as far to state that the cooperation with the contractor team goes very well in the last couple of weeks.

Problems within the construction team

The construction team experiences problems within the own team in the last couple of weeks. The MeS-Kunduz divide starts to influence the teamwork with the construction team. Ralph, who leads the MeS group, and Freddy, who leads the Kunduz group, are the main actors in the conflict. Ralph and Freddy openly fight with each other about responsibilities, leadership skills, tools, and rules. *'They are blaming each other of stealing each other's tools.'* The issues between the two group leaders influence the behavior of their groups. For example, while Ralph's group works on a roof, Freddy's group sees the ladder Ralph's group allegedly 'stole' standing against the side of the building. Freddy's group decides to take the ladder back, leaving Ralph's groups stranded on the roof. Jim is so tired of all the prior issues in the taskforce that he hardly has any energy left to cope with

these new issues in his team. Hence, Jonas tries to put out fires and mediate. *'Every night one or two people knocked on my door asking if I had time for a talk.'*

4.3.3 Post-deployment phase

After a deployment military personnel normally goes through an adaptation program in Greece. The idea behind the adaptation program is to provide a safe setting in which deployed military personnel can unwind, and relieve some stress of the deployment. The adaptation program foresees in a relaxed holiday-like environment, activities, entertainment, and group sessions led by psychologists. At the start of the deployment Jim learns the taskforce is too small for the standard adaptation program. Jim is aggravated as he feels that it is the right of the men to go through such a program, so convinces the battalion staff in the Netherlands of the necessity of such a program for his group. Eventually, the battalion staff agrees to an alternative adaptation program that is set-up in the Netherlands. So, when the taskforce arrives in the Netherlands the adaptation program staff and battalion commander await them at the airport, instead of their family. The Dutch version of the adaptation program is not well received in the construction team. Many of the construction team members looked forward to 'the Greece-experience' that they heard so much about. Moreover, many members are disappointed they missed out on the proud moment of being hauled in by family at the airport. Lastly, for some members the adaptation program is torture, as it literally takes place around the corner from their home, yet they are not allowed to see their family. Not all taskforce members partake in the adaptation program. The construction team is complete, but the contractor team is not. Derrick and Floyd do not even receive an invitation. Bruce, and Aaron are still in Afghanistan, and Roger is on a holiday. Zack and Max are the only two contractor team members who attend the program. The taskforce members hardly talk about the problems during the deployment, yet during a night into town there are several confrontations between construction team members. There are no confrontations between the contractor, and construction team. However, the Zack and Max were not the people the construction team had problems with in Afghanistan.

The problems in Afghanistan resonate in the Netherlands and influence teamwork. The new lieutenant is confronted with a platoon that is divided into two groups. *'People are fighting at home, and with each other, they have trouble sleeping, are easily irritated, and very de-motivated.'* *'The MeS- Kunduz divide never left, even now in the Netherlands! Last we week we had an evaluation with the whole construction platoon, and the colleagues who stayed behind said that they noticed a divide. It is going very very bad at the moment. People gossip about each other. Freddy has been calling in sick, and Ralph is about to have a burn-out.'* Also colleagues who stayed behind notice the divide. *'You really notice that some things are going on, the way people act, and react towards each other.'*

The problems people had there are still visible here. Additionally, the deployment also influenced future plans. Jonas, for instance, was very enthusiastic about the company prior to the deployment. However now he says *'I am grinning and bearing the last months, before I can leave for my next position.'* Moreover, Ralph lost all his enthusiasm for the construction company and withdrew for a position as platoon sergeant major. The deployment also influences the cooperation at the contractor office. The conflict between Zack, and Roger, for instance, remains unresolved. Zack feels Roger has pushed him over the edge on purpose, and therefore demands disciplinary action against Roger. Roger, on the other hand feels he is not to blame for Zack's performance, and early return. The negative emotions are still much alive yet they have to face each other every day at the office.

4.4 Qualitative data analysis

The taskforce in the storyline is a Multiteam system (MTS) with two component teams (CTs): the contractor component team and the construction component team. Several issues stand out after coding and re-coding the qualitative data.

4.4.1 Development of intergroup behavior

In the pre-deployment phase both construction and contractor CT members express the notion that the MTS is not a team. Hence, MTS members only joke about their own team members and not about members of the other CT. Some MTS members think a we-ness will develop during the deployment, while others state the MTS will never be one team due to the task divide between the two CTs. However, the amount of MTS we-ness does not seem to change during the deployment. A good indication of the lack of we-ness is the use of possessive pronouns, such as *'my men'*, *'where is your office, and where will be ours?'*, *'then he return to his own little group'*, and *'our tent'*. Apparently, the CTs feel they own things. Take for instance the machine incident. Objectively speaking it is in the MTS best interest if the international contractor is able to work. Yet, the construction CT feels the machine is theirs, and not of the MTS, hence they feel something is taken from them. *'It cannot be that Roger is going to grab our stuff without asking us!'* Moreover, both CTs show a lot of ingroup favoritism. *'The contractor CT members are amateurs!'; 'It is just weird the same mistakes are made over and over again. [...] They (contractor CT) will just never learn!'; 'It seems as if they feel they are better than the ones who are actually doing the work.'; and 'The construction CT leader and his second are only thinking about their own gains, they only focus on their own tasks, and whether their own group as well taken care of. It seems as if they are unaware of the bigger picture.'*

Not only is there no sense of a 'we' a strong ingroup identity combined with ingroup favoritism create an us versus them dynamic. *'There really was an us-versus-them situation, definitely no we!'*

Jim, for instance, feels he has to fight against the contractor CT. *'They, Roger and Aaron, were teaming up against me in the meetings.'* Both CTs feel they need to defend themselves. The contractor CT members feel they have to defend themselves in every meeting with Jim. *'Jim always reacted with 'well yes, but...', so you had to constantly defend your own ideas at the meeting.'* Another good example is that Roger tells Max before he leaves Afghanistan that he *'[you] must really attend the adaptation program, because otherwise the construction team will make the contractor team the bad guy in the whole story, so Max really, you need to go to 'protect' the contractor team.'* A lack of contact also strengthens ingroup/outgroup, and us versus them feelings. The MeS construction CT, for instance, shows more negative feelings towards the contractor CT, than the Kunduz construction CT. *'Roger and Aaron said the construction team was an undisciplined bunch. I will go to Kunduz and I will straighten Aaron and Roger out!'*, and *'I went to Kunduz with the idea 'you touched my commander. You touched my men. I do not care that you are a sergeant-major I will get you!'* Moreover, the contractor CT also has pre-existing ideas about the MeS construction team members. *'Everyone was afraid of Jonas when he came to Kunduz. Me too! I really had a preconceived opinion about Jonas. I thought he was a bully, he liked to start fights, and all kinds of stories went around about him. But when you get to know someone, and sit down and talk to him, you learn that he is really a sweet guy, he just wanted to protect his boss. That is all.'* Seeing as there is hardly any contact between the CTs the MTS members do not really know each other. *'We missed a team building, in a teambuilding we would have gotten to know each other, created a team, and team spirit'*, and *'We could have really resolved several issues in the MTS, however we did not know each other, and we could not get to know each other because he was stationed in MeS. That is why a teambuilding is so important!'* Subsequently, jokes are often misinterpreted and stir up the us versus them atmosphere. *'Jokes are being misunderstood. Really they act just like little children.'* During the deployment the CTs seldom make jokes that cross CT boundaries.

Additionally, role related problems stir up the us versus them atmosphere in the MTS. According to Jim and Jonas a lot of problems are caused when contractor CT members overstep their role, and do not follow the chain of command. Most of the role conflicts occur between Jim, Roger and Aaron. Jim is of the opinion that Roger and Aaron do not have the right to interfere with disciplinary issues in the construction CT. Roger and Aaron disagree. This leads to many clashes about issues such as sunbathing, and uniforms. Role conflicts like these fuels the negative relationship between the two CTs.

Moreover, both CTs do not tolerate any mistakes from the other CTs. Little issues are immediately put under a magnifying glass, and reinforce negative ideas about the other CT. There are plentiful examples in which members of the CTs blame the other CTs for mistakes or problems. *'We had clear*

agreements about the tasks before we left, and then it still goes wrong in the field. I blame the contractor teams culture', 'As the contractor team we ate together, we could not eat with the construction team, because Jim had made his own planning, which did not coincide with our planning', 'There are many struggles within that team, everyone works in isolation, subsequently the cooperation is not good', and 'After the machine incident, then you get gossip about us, [...], well if they would have asked us for information first, we could have explained the situation. So, if they had cooperated this would not have happened.'

The only time the two CTs defend each other, and the MTS, is when a common 'enemy' picks a fight. For instance, during the deployment someone remarks the construction men did not work *that* hard: *'It is their job to fix roofs while it was 50 degrees, so they did not do any special.'* This not only angers Jim, and Jonas, but Aaron also gets angry. Aaron defends the construction CT, and underlines his appreciation by buying the entire construction CT a presents for their hard work.

Interestingly, before the deployment the construction CT members distinguish between the contractor CT members who will be part of the MTS, and the contractor office in general. *'These guys of contractor team are ok, but there are guys in that office, really they are horrible! These ones are more open and social like us.'* Jonas and Jim both have had negative experiences with the contractor office. *'The people there act as if they are God almighty himself.'* However, both men think the contractor CT members joining them are different from the people working at the contractor office. Jim is even confident the cooperation with the contractor CT members will go well. Hence, before the deployment the MTS members are able to distinguish the contractor CT from the contractor office. They also see the contractor CT as one of them. However, this changes during the deployment. Now the contractor CT is horrible, and there are only a few exceptions. Yet, those few exceptions do not change the attitude towards the entire CT. So, when each construction CT member is asked to give their opinion about each individual contractor CT member, they answer *'he is ok, and he is ok, and he is awful.'* If then their general opinion about the whole contractor CT is asked, they state the whole team is awful. A good example is given by one of the corporals of the construction CT. This corporal describes how he really appreciates Floyd, but he says that Floyd is not really from the contractor office, because he is a logistician. Additionally he says *'the civilian [he means Max] was very nice to work with, but the contractor CT I did not take serious, because they made so many mistakes! I really have no team feeling with the contractor CT, only irritations. Next time they can stay home! Max for example, I could really work well with him, but Roger and Aaron, they cannot be trusted'*. Interestingly he names two men he does not trust, and two men he likes working with, yet the corporal still states he really does not like the *entire* contractor team. Moreover, it seems that

just one or two individuals can influence how their whole team is perceived. Take for instance Roger. Roger's behavior significantly influences the way the construction CT acts towards, and thinks about the whole contractor CT: *'Just because you guys do not like Roger, does not mean that we all have to suffer', 'The guys are very easy. The contractor team sucks; it does not matter whether there are good guys in that team, it sucks as a whole. Because of Roger.'* and *'Roger presence has really marked the sphere and dynamic between the groups.'* Jim even states he appreciated Aaron more, when he hears that Aaron does not like Roger either. Jonas does not speak with the entire contractor CT, because of the problems he has with Roger, and Derrick. It does not matter that Jonas has no negative experiences with both Max and Aaron, no they are all part of the contractor CT, and hence Jonas does not want anything to do with them.

The amount of we-ness differs per CT, and there are even differences between members of the same CT. In the pre-deployment phase Aaron, Roger, and Zack, for example, state that the contractor CT does not really feel like a team, as they do not really know each other, and there are two 'odd' team members. Interestingly, the odd team members are the ones who indicate they really feel part of a team. *'We are all engineers right?'* However during the deployment it is interesting to see how interpersonal jokes are possible in contractor CT in the pre-deployment phase, while it is not possible during the deployment. For instance, in the pre-deployment phase jokes are made about Zack's height, yet such jokes are impossible after several weeks in the Kunduz. At one point Zack interprets the mere laughing of others as people making fun of him, or talking behind his back.

The construction CT members really perceive themselves as a team in the pre-deployment phase. *'We know each other already, we have gone through exercises together, so will click together better than with those sergeant majors. Additionally the boys have collected money to buy a beamer so that they can watch movies together after work, and they are planning poker nights, and a pool for the world cup soccer, plus we ordered seventeen matching baseball caps.'* Yet, this we-ness also changes during the deployment. In the MeS part of the CT there is a strong team bond, while in the Kunduz part there is not. After the reunion of the CT the MeS-Kunduz divide stays salient, subsequently there is no strong we-ness in the construction CT. The problems within the construction CT resemble the problems between the two CTs in the MTS, as there the groups show clear signs of ingroup favoritism, and have the same use of possessive pro-nouns. For example, in MeS everything is better. *'In MeS everything was very nice. We played cards, talked at night, here there is nothing',* and *'The MeS group feels that everything is worse in Kunduz, less luxury, no internet, and so on'*. An example of the use of possessive pronouns is the fight about the ladder. According to the Kunduz group it is THEIR ladder.

4.4.2 MTS teamwork development

The qualitative analyses of MTS teamwork development are discussed separately in a paragraph about the component variables, and a paragraph about the coordinating mechanisms.

4.4.2.1 Component variables

Mutual performance monitoring

In MeS Derrick does not really monitor the work of the construction team, as he trusts the capabilities of Jonas, and leaves it at that. At the start of the deployment the MTS members in Kunduz cannot start their planned work; hence a lot of mutual performance monitoring of the new ad-hoc tasks occurs. For instance, while Zack tries to arrange an extra tent everyone asks him whether he already arranged something. *'Everyone was on it'*. The daily MTS meetings need to facilitate mutual performance monitoring, yet the meetings are tense, and every CTs feels they have to defend themselves. Later on in the deployment Max monitors most of the work to prevent conflicts between the contractor and the construction CT. The only ones who monitor each other's work without feeling attacked or checked are Bruce, and Jonas. *'Derrick only demanded things, while Bruce teaches us things'*.

Supportive behavior

In the MTS there is hardly any cross-CT supportive behavior. On one occasion, for example, Derrick asks Jonas to design a bar, which is actually a nice assignment. However, Jonas' reacts with: *'I have to design a bar? [...] That is not my job that is you guys' job!'* Moreover, if an MTS member does show supportive behavior it is also not necessarily appreciated. *'I arranged the materials to be send to Kunduz, so we can work there, and the only thing Aaron says is 'Oh and what does that cost?' What does that cost? Really, that is your response?'* At the start of the deployment there is a lot of supportive behavior in both CTs. The contractor CT members try to support Zack with his difficult home situation. And Jonas mentions to his superior that everyone helps each other in MeS. However, the amount of supportive behavior decreases over time. Zack's home situation is seen as something he should stop whining about, and at one point MeS construction CT, and the Kunduz construction CT compete instead help each other.

Adaptability

The unwelcoming attitude, a lack of basic facilities, and a delay in the work of the international contractor catches the taskforce of guard. The MTS quickly makes the decision to leave part of the MTS in MeS, so that some of the planned work can still be executed. In Kunduz, on the other hand, the MTS adapts less quickly. It takes, for instance, a week before the MTS officially knows they are staying and initial plans are revised. *'There was nothing to do in the beginning, and therefore people*

start to watch each other. It isn't until the MeS part of the construction CT arrives in Kunduz that the MTS is able to work on their initial tasks. *'Things are going better now, because people can finally start the work that they came for'*. Hence, it takes more than two months before the MTS functions as planned. The only MTS member who tries to adapt the MTS processes is Max. His decision, for instance, to forbid all inter-CT communication might seem drastic; however at that time it is the only way to stop things from escalating.

Team orientation

Generally, the MTS members lack an MTS team orientation. The teambuilding discussion in the pre-deployment phase nicely illustrates the lack of a team orientation. Most MTS just do not want a teambuilding, because it takes up extra time. Time they want to spend with their families instead of investing in the MTS. Moreover, Zack literally states he *'[I] really have other priorities at this moment'* in the pre-deployment phase. Also during the deployment there are several examples that reveal a lack of team orientation. Derrick, for instance, does not want to stay an extra 24 hours in MeS to ensure a proper hand-over-take-over with Bruce, Roger who does not join the adaptation program, and Jonas who is on a warpath when he arrives in Kunduz. The only MTS members with a strong team orientation are Max, and later Aaron. One could also state that Jonas' silence treatment also implies team-oriented behavior. Jonas knows if he interacts with the contractor CT there is a large chance it will turn into a conflict, hence he decides to just ignore the entire contractor CT. Unfortunately, Jonas' behavior is not interpreted as team oriented behavior by the contractor CT. The MTS members actually get very annoyed if they feel other MTS members are not team orientated. Aaron and Roger, for instance, are annoyed with Jim. According to them Jim only thinks of himself and his CT, and not of the bigger picture. For example, once Aaron asks Jim if the construction team can work a bit longer, because something needs to be finished. Jim refused, because he had just promised the men a day off. Subsequently, Aaron interprets the refusal as *'the construction team leader plus his second only focus on their own winnings'*. Moreover, the contractor CT members feel Zack does not give 100%, and is pre-occupied with getting the MTS send home. The MeS construction CT is the only CT that shows a certain amount of team orientation. When the MeS construction CT transfers to Kunduz they are set at improving the atmosphere there so their colleagues enjoy their last weeks.

Leadership

At the start of the deployment the MTS misses a strong leader. *'Zack just did not have the charisma, nor the energy that says 'let's go! We will go in this direction'* Additionally, the contractor CT members doubt whether Zack has the leadership capabilities to function in a complex environment. After Zack's resignation Max takes over which positively effects the MTS. Max leads the MTS

differently, and focuses only on the MTS. *'From the moment Max and Aaron were a duo, it really went well.'* Moreover, Jonas even perceives Max as neutral at one point. At one point the construction CT members question Jim's loyalty to the construction CT. Since Jim sleeps in the same tent as the contractor CT, and interacts a lot with them, his men feel Jim is collaborating with the contractor CT. They are unsure about whether or not Jim 'has their back'. However, after the machine-borrowing incident Jim 'proves' his loyalty to the construction CT, and the men are reassured that their commander is on their side.

4.4.2.2 Coordinating mechanisms

Trust

In the pre-deployment phase MTS members give each other the benefit of the doubt. *'I know Zack, and I think things will be all right with the other sergeant majors',* and *'I have got a good feeling about the group of the MGI'*. This changes in the first weeks of the deployment. A good example is the vehicles issue in the beginning of the deployment. What might have been a simple misinterpretation of information by one of the construction team members is interpreted by the contractor CT as evidence that Jim twists the words of the contractor CT. Subsequently, the contractor CT does not trust Jim anymore, and starts to double check messages Jim gives to his CT. This suspiciousness is mutual. Jim also does not trust the contractor CT: *'Several messages were send to the Netherlands about the problems in the construction team, and it talked about problems between Jonas and me. Well, none of my men send these messages, because I told them that we would keep internal issues to ourselves in Afghanistan. Those message were spread by them, and nobody else but them.'* Some trust is regained over time; for example, Jim does trust Max, and Aaron more and more over the course of the deployment. The contractor CT also has internal trust issues. In the pre-deployment phase Aaron, Roger, and Max independently express their concern about the leadership capabilities of Zack.

Shared mental model

The MTS is not on the same page even before the deployment. The contractor CT, for instance, do not understand why Jim and Jonas kept have so many questions about the projects, and why they need so many details. *'We asked certain things so many times, but it felt as if we were talking against a brick wall, we were not taken seriously.'* Moreover, the MTS members have different ideas about whether a teambuilding is worth investing time in, and about everyone's roles. This does not change during the deployment. Max, for example, is often surprised to hear Roger talk in the meeting about the people he spoke to that day. Max often does not know Roger planned to talk to these people, he often even does not agree with the fact that Roger did. Likewise, the MTS members are unaware of what everyone is working on. Daily meetings provide the opportunity to monitor, and share

information, however, several MTS members feel threatened by other MTS members, and hence not everyone is open and honest about things which go sideways in their responsibility realm. *'Derrick did not talk about certain issues in the meetings, issues which I found important for others to know'*. Moreover, the MTS members are not on the same page regarding the chain of command, and they disagree on what is best for the MTS. *'I also wanted to protect and help the construction CT, but that sometimes conflicts with the ideas of the contractor CT. For example: health. It was very hot there so the guys wanted a siesta, when I told this to the contractor CT, they did not understand'* Furthermore not everyone is kept in the loop. Derrick and Bruce, for example, do not know what happened between Zack, and the rest of contractor CT, nor do the rest of the MTS.

Closed-loop communication

The lack of closed-loop communication is a major issue within the MTS. In the pre-deployment phase there is not a lot of communication between the two CTs. If there is communication it is mostly work related. For example, Jim and Jonas ask many questions about drawings, computers, dates, and equipment in Afghanistan. The amount of communication decreases during the deployment. Within a few weeks the barriers to talk with each other are so high it decreases the amount of communication even more. To keep the CTs talking Max decides to fully formalize the communication lines, however the formalization does not prevent more incidents. In the end the only one who talks with either CT is Max. Next to a lack of communication the communication is also not closed-loop communication. Take for instance the incident in which one of the construction CT members says to Roger that it is unfair that the construction CT cannot use the car. Roger immediately assumes Jim is telling lies to his men to discredit the contractor CT, and he does not ask Jim what he told his CT. There is also a possibility the individual merely misunderstood what Jim told his CT; hence Jim did not check whether everyone really understood what he had just said. Another example, of the lack of closed-loop communication is that while Jonas is in MeS he hears Roger, and Aaron called the construction CT *'an undisciplined bunch'*. Jonas has no way of knowing whether Aaron and Roger really said this or what they meant, yet the message fuels his anger towards both individuals.

Although the CTs hardly communicate a lot is being said about them. Each visitor brings back his own version of the truth back to the Netherlands, which leads to even more stories, and assumptions. The commander of the construction company in the Netherlands notices the unrest which the variety of stories creates in the MTS. Aaron, for example, receives an email from a colleague saying: *'I heard you are provoking things up there'* Even though, this email is meant to be funny, Aaron feels he is being blamed for things he did not do.

4.4.3 Relationships between MTS intergroup behavior and MTS teamwork over time

The attitude of a leader strongly influences the behavior, and attitude of a group. *'A leader is key in resolving group problems. S/he can direct people in the same direction.'* In the pre-deployment phase Jim, and Jonas talk discuss the need to hide their annoyances with the contractor CT from the rest of the construction CT. *'We really need to prevent an us versus them situation, because the men need to be able to do business with the contractor team members in a normal fashion.'* However, keeping up appearances during the deployment is difficult. *'If Jim had a bad meeting with the contractor team, and he was cranky or annoyed he came back to the tent; the men see these things.'* Hence, the negative experiences Jim and Jonas have with the contractor CT influence the influences the behavior of them and the rest of the construction CT towards the contractor CT members.

The behavior of certain MTS members also influences how CTs feel about each other. *'Roger's behavior was something that unfolded in the side lines of our main assignment, however it really influenced the work.'* Roger's behavior significantly influences the way the construction CT acts towards, and thinks about the whole contractor CT: *'Just because you guys [construction CT] do not like Roger, does not mean that we all [contractor CT] have to suffer', 'The guys are very easy. The contractor team sucks; it does not matter whether there are good guys in that team, it sucks as a whole. Because of Roger'* and *'Roger presence has really marked the sphere and dynamic between the groups.'* Furthermore, the negative stories from Kunduz in addition to Derrick's haughty attitude towards the construction CT creates even more antipathy within the construction CT towards the contractor office. This antipathy translates in less inter-CT communication, less cross-CT supportive behavior, less trust and less MTS team orientation. In his role as MTS leader Max tries to reduce the negative effects of Roger's behavior by explaining Roger's behavior to the construction CT. He tries to mend fences.

'If a team leaves for a deployment without trusting each other, than it will all fall apart there.' A lack of trust causes people to look at the behavior of others under a magnifying glass subsequently reinforcing preexisting ideas. Every time Zack is unable to arrange something it reinforces the contractor CT's ideas about Zack's leadership capabilities. Another example is the change of heart Jim has regarding the contractor CT. In the pre-deployment phase Jim is confident things will work out with the contractor CT, and he is convinced these contractor office men are different from the ones he knows. *'I know Zack, and I think things will be all right with the other sergeant-majors.'* However, during the deployment he says the following about the contractor CT: *'I have never trusted the contractor team, not even from the start.'* Hence, Jim's stereotypes about the contractor office are reinforced. The salient stereotypes increase ingroup versus outgroup feelings, which in turn influence the way Jim perceives everything the contractor CT does. Ingroup identity strength also increases,

because the construction CT feels they are not taken seriously nor are they treated with respect. Jim, for example, is disappointed about the amount of input he is allowed to give regarding MTS issues in the first weeks of the deployment. He thought Zack agreed to let him play a worthy part in leading the MTS. Additionally, on other levels the construction CT members also feel disrespected, as in the case of the machine incident, and the way Derrick instructs the electricians. Hence, a lack of trust influences the way MTS members perceive the behavior of the other CT, increasing ingroup favoritism, and antipathy towards outgroup.

Not knowing each other, and not talking to each other increases the impact of for instance a negative experience with a member of the other CT. Several MTS members indicate that a teambuilding would have made a difference. *'We should have given priority to the teambuilding'; and 'We missed a teambuilding, in teambuilding we would have gotten to know each other, created a team, and team spirit.'* Subsequently behavior and body language are misinterpreted. The lack of communication does not help. One of the MTS members describes the deployment as *'an extreme version of the bold and the beautiful'*. As the MTS members do not talk openly assumptions and preexisting ideas fester. *'I think the worst of all is that Jonas never said anything to us; we hear everything through other people. [...] I have to hear through Mes and then the Netherlands, that something I did was not appreciated by members of the construction team. They did not tell me that themselves, and that is something that is feel is regrettable.'* Both Aaron and Roger, for instance, feel Jonas should have taken the first step, as he is the one who send the email. Jonas silence is interpreted as arrogance, and unwillingness to work on the problems. Not being on the same page increases the numbers of assumptions and stories. Take for example Zack's resignation. Even some members of the contractor CT do not know why Zack resigned, nor does the entire construction CT. However, the resignation does trigger a lot of stories, and assumptions. The assumptions people make all originate from people's pre-existing ideas, hence people interpret the situation in accordance with the way they see the world. Subsequently, the MeS construction team is convinced that the contractor CT has pestered Zack until he left. Does not matter whether this fact is true or not, it is true in the mind of those construction CT members, and it influences the way they perceive the contractor CT. Also third party involvement and the many visitors have played a role in the abundance of stories and assumptions present during the deployment. For example, visitors spread the stories about how things are going in Kunduz, which trigger reactions from the Netherlands towards the MTS, in the form of emails, and telephone calls. Additionally, some visitors are send to talk with the MTS members in the hope to aid the process. Roger for instance does not talk with Jonas earlier, because he is advised not to by one of the visitors, who spoke with Jonas. Moreover, the MTS members do not talk with each other, they only talk about each other.

4.5 Quantitative data analysis

For the quantitative data analyses paired-sample t-tests and Pearson-r correlation analyses are used. The first measurement in Afghanistan takes place in the first week of Max's leadership. The second measurement takes place in the first week of July at the time Felix and Tyrel are in Kunduz.

4.5.1 Development of intergroup behavior

The quantitative analyses consist of t-tests and Pearson-r analyses. The t-tests investigate whether CT and MTS identity strength differ significantly, and whether the changes in CT and MTS identity strength differ significantly over time. The Pearson-r analyses investigate whether CT and MTS identity relate at the same point in time, and whether they influence each other over time.

Paired-samples t-tests investigate whether there is a statically significant difference in MTS compared to CT identity strength. The results indicate a statically significant difference in MTS identity and CT identity during and after the deployment (see annex 2). MTS members identify significantly more with their CT during and after the deployment. There is one exception. If the results are split up for the two different CTs it becomes evident that this conclusion is not true for both CTs (see Table 9).

Table 9: ID strength ranking scores for all MTS members

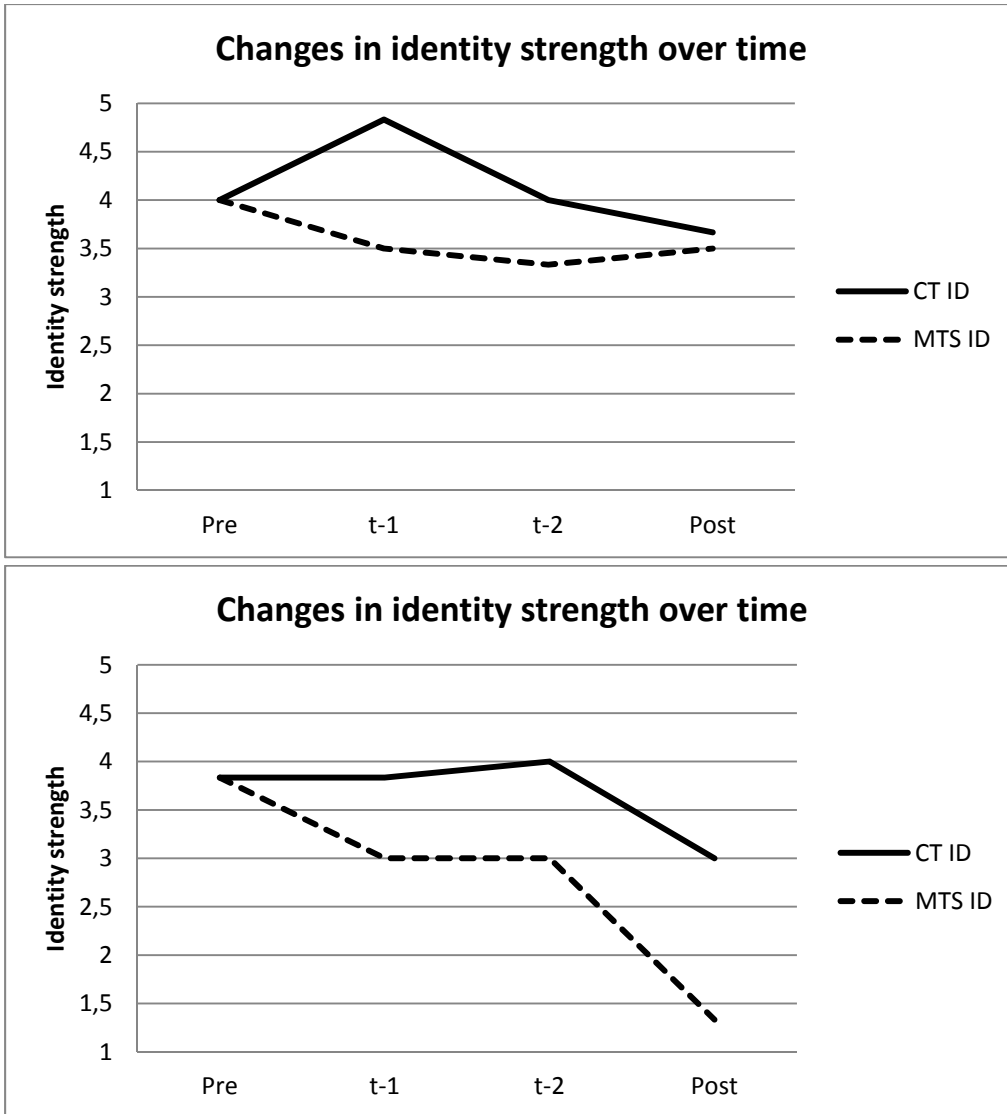
	Number of MTS members with this particular ranking							
	Pre-deployment (n=18)		t-1 (n=20)		t-2 (n=18)		Post-deployment (n=18)	
ID strength ranking	Contractor CT (n=5)	Construction CT (n=13)	Contractor CT (n=4)	Construction CT (n=16)	Contractor CT (n=4)	Construction CT (n=14)	Contractor CT (n=4)	Construction CT (n=14)
CT ID strongest	1	7	1	14	3	12	3	11
MTS ID strongest	4	1	1	1	1	2	0	0
CT = MTS	0	5	2	1	0	0	1	3

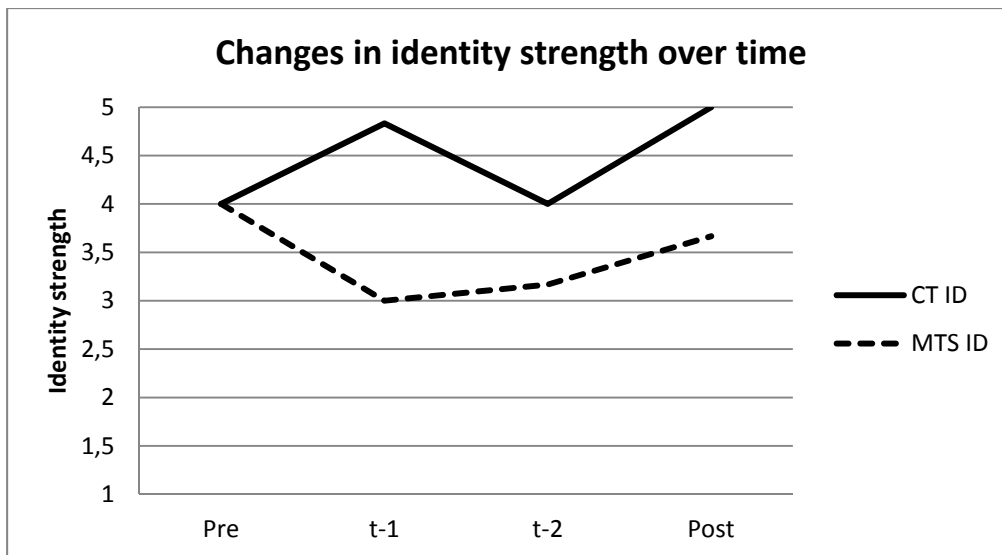
Before the deployment the majority of the contractor CT members identify more with the MTS than with their CT. At t-1 half of the contractor CT identifies as much with the MTS as they do with the CT. Then at t-2 and after the deployment the majority of the contractor CT members identify more with their CT. In the construction CT identity strength develops differently compared to in the contractor CT. In the pre-deployment phase there are almost as many CT members who identify more with the CT, as members whose CT identity strength equals MTS identity strength. However, during and after the deployment the majority of the construction CT members identify more with their CT than with the MTS.

The individual identity scores of eighteen (four graphs could not be used due to missing data) MTS members are analyzed to see how CT and MTS identity develop over time. Figure 11 portrays the results of three random participants. The x-axis shows the four measurements in time: pre-

deployment, first measurement in Afghanistan (t-1), second measurement in Afghanistan (t-2) and post deployment. The y-axis shows the average identity strength scores.

Figure 11: Changes in identity strength over time for three MTS members





In all eighteen graphs none of the lines are straight. The absence of straight lines indicates the fluctuation of identity strength over time. The results of paired-samples t-tests indicate only the change in MTS identity strength ($t=3.16$, $df=16$, $p>0.006$) from pre-deployment to t-1 is statistically different. CT identity strength does not change significantly (see annex 2).

The relationship between CT and MTS identity is also explored with Pearson-r correlation analyses. The results of the Pearson-r analyses show a positive relationship between MTS identity and CT identity before, during, and after the deployment. Only CT identity at the start of the deployment does not relate to any of the MTS identity categories. The correlation even lingers around zero. Hence, MTS and CT identity relate at the same point in time, and the two identity categories influence each other. The only exception is CT identity at t-1. This identity category is not related to MTS identity at any moment in time (see annex 2).

4.5.2 MTS teamwork development

The t-tests explore whether or not the differences between CT and MTS teamwork variables and changes in the MTS teamwork variables over time are statistically significant. The Pearson-r analyses investigate whether the MTS teamwork variables are related and whether they influence each other over time.

There is a statistical significantly more monitoring, more supportive behavior, more adaptability, more team orientation, and more appreciation of the leader in the CT versus in the MTS. Yet, this changes over time. During the second part of the deployment the amount of supportive behavior ($t=-3.27$, $df=15$, $p<0.01$), adaptability ($t=-2.96$, $df=15$, $p<0.01$), and team orientation ($t=-3.34$, $df=15$, $p<0.01$) increase significantly. CT team orientation remains larger in the CT compared to in the MTS.

However, the statistical significant difference between CT versus MTS mutual performance monitoring, supportive behavior, adaptability, and leadership disappears (see annex 2).

At the start of the deployment all component variables are significantly related to each other. However, during the second part of the deployment the number decreases to only two statistically significant relationships, namely supportive behavior with team orientation, and adaptability with team orientation. Over time leadership appreciation and team orientation influence the adaptability of the adaptability. Moreover, leadership appreciation influences later leadership appreciation. And supportive behavior and adaptability both influence team orientation (see annex 2).

The component variables and coordinating mechanisms are all related at the start of the deployment, except for trust with mutual performance monitoring. However, this number decreases to merely five significant relationships in the second part of the deployment. Leadership is related to trust and closed-loop communication; and team orientation relates to trust, closed-loop communication and a shared mental model. Leadership influences the amount of trust; the amount of a shared mental model is influenced by supportive behavior, and adaptability; and closed-loop communication is influenced by all five component variables (see annex 2).

There is significantly more CT trust; more CT shared mental model, and more CT closed-loop communication. Although, the amount of MTS trust ($t=-5.98$, $df=15$, $p<0.001$) and MTS closed-loop communication ($t=-4.20$, $df=15$, $p<0.001$) increases significantly over time the mean scores of the CT coordinating mechanisms remain significantly higher than MTS coordinating mechanisms (see annex 2).

The three coordinating mechanisms are significantly related both at the start as in the second half of the deployment. The coordinating mechanisms also influence each other over time. Closed-loop communication influences the amount of trust and shared mental model later in the deployment. The extent of a shared mental model influences the amount of trust and closed-loop communication later on, and the initial level of trust influences later trust (see annex 2).

At t-2 MTS members are asked to indicate variables that they think are important for MTS teamwork. Thirteen people mark 'respect' as the most important variable. Good communication comes in second with twelve votes, trust and team orientations both receive eight votes. Interestingly enough, good leadership receives merely three votes (see annex 2).

4.5.3 Relationship between MTS intergroup behavior and MT teamwork over time

The Pearson-r correlation analyses explore the relationship between MTS identity and MTS teamwork measured at the same moment in time. Additionally, it is used to investigate the influence

of MTS identity on future teamwork. In this situation MTS teamwork is the dependent variable, and MTS identity the independent variable. Moreover, the Pearson-r correlation analyses explore the influence of MTS teamwork on future MTS identity strength. Identity is then the dependent variable, and MTS teamwork the independent variable.

MTS identity relates to mutual performance monitoring, supportive behavior, leadership, and team orientation at the start of the deployment. In the second half of the deployment there are no relationships between MTS identity and any of the component variables. MTS identity strength prior to the deployment influences mutual performance monitoring in the first, and leadership appreciation in the second period of the deployment. MTS identity strength at the start of the deployment influences leadership appreciation and team orientation in the second part of the deployment. MTS teamwork does not influence future MTS identity strength (see annex 2).

At the start of the deployment MTS identity relates to all three coordinating mechanisms, compared to no relationships in the second half of the deployment. MTS identity strength does not influence any of coordinating variables, nor do the coordinating mechanisms influence MTS identity strength over time (see annex 2).

4.6 Conclusion

Many of the construction CT members have prior negative experiences with the contractor office. Nonetheless, at the start of the deployment they believe these contractor CT members are different and they are optimistic. The contractor CT members do have some doubts prior to the deployment. These doubts are however directed at one of their own: the MTS leader. It is very clear that the leader does not want to be deployed, and he started his preparation very late. In the pre-deployment phase there is hardly any contact between the CTs.

The initial level of trust and optimism quickly disappears during the first weeks in Afghanistan. The situation in Afghanistan differs from what was expected and the MTS has trouble adapting. In the first weeks there are several role related and interpersonal related conflict that increase the tension in the MTS. At the start of the deployment the MTS identity plummets significantly and an us versus them atmosphere develops. In the first part of the deployment MTS identity strength positively relates to communication, trust, supportive behavior, leadership appreciation, team orientation, adaptability, and a shared mental model. Irritations and confrontations increase inter-CT tensions leading to more negative MTS teamwork experiences, which in turn reinforce pre-existing stereotypes about the other CT. An email to the Netherlands causes even more gossip, third party involvement, suspiciousness, and cross-CT distrust. Subsequently, people are not open towards each other and mutual performance monitoring feels like checking. During the deployment

communication is formalized to prevent more confrontations. At one point the MTS members just ignore each other. Subsequently, there is not much of a shared mental model. There is no supportive behavior attitude between the two CTs, and no team orientation. After Max takes control of the MTS the situation in the MTS slowly improves. Max is able to both stop, and counter the downward spiral. The quantitative data seem to support this statement, as all the MTS teamwork means increase. Max mostly focuses on preventing new incidents, mediating between the CTs, and explaining behavior. At the time there is some improvement in the MTS, problems start within the construction CT. Interestingly, the internal struggles within the construction CT resemble the problems in the MTS. The deployment results in many negative emotions and problems afterwards.

Chapter 5 Case study 2

5.1 Introduction

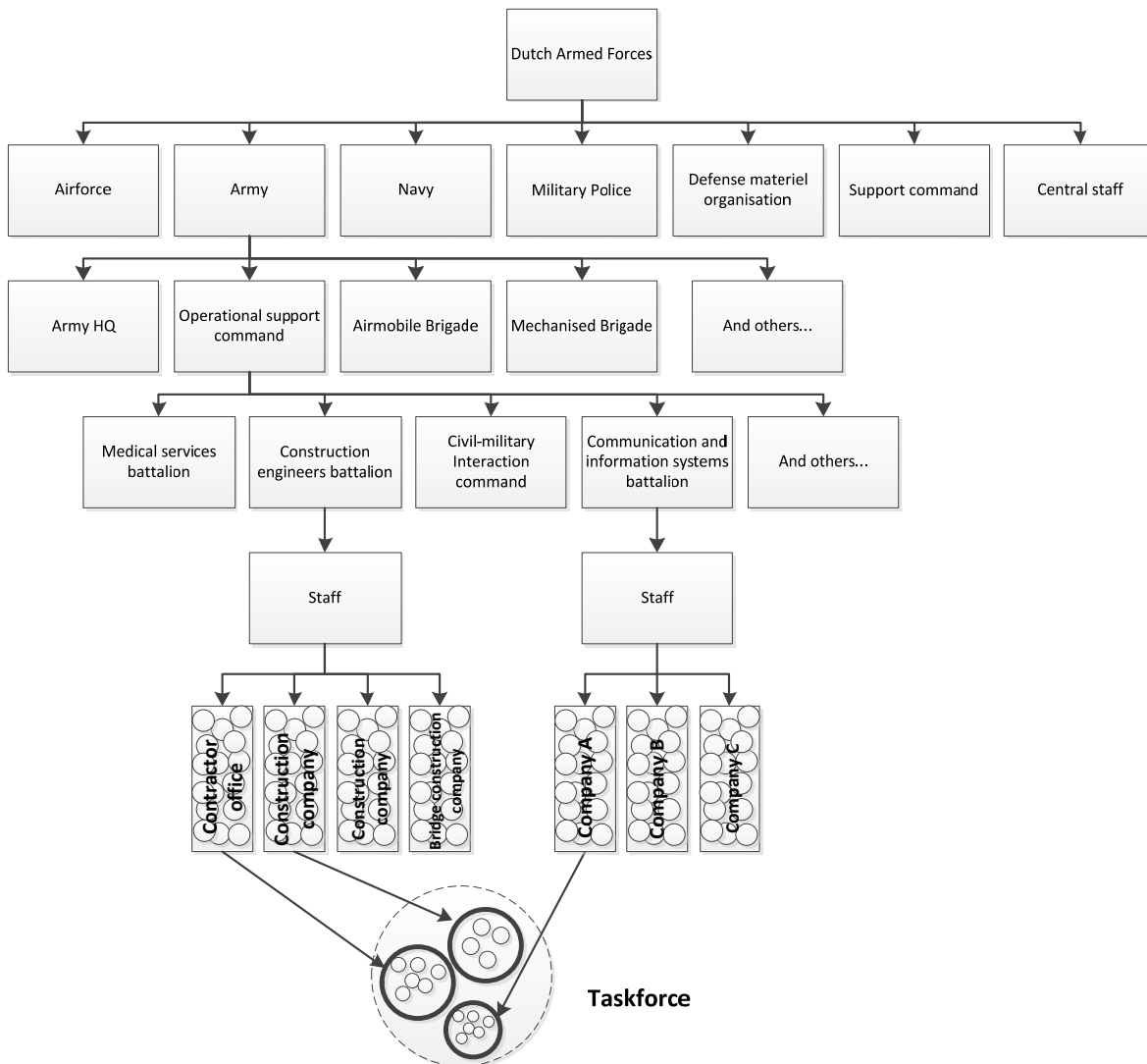
The engineering taskforce that occupies center stage in this chapter succeeded the taskforce from chapter four. Similar to the taskforce in the previous chapter the taskforce in this chapter conducts smaller construction project in Mazar-e Sjarif (MeS) and Kunduz (Afghanistan).

5.2 Description of the taskforce

5.2.1 Compositional attributes

In the Dutch armed forces there is an operational support brigade that consists of various battalions. The three teams in this taskforce originate from two different battalions. There is one team from the communication and information (CI) battalion, and two teams from the construction engineering battalion. The CI battalion creates all communication and data-exchange possibilities during military exercises, and deployments. The construction engineering battalion is tasked with all infrastructural works outside of the Netherlands. Hence, these military construction engineers are trained to build bridges, and compounds in dangerous, and complex environments. Figure 12 provides an overview of the Dutch armed forces in the form of an organization chart. The circle at the bottom of Figure 12 depicts the taskforce. In the following three paragraphs the three teams are described in more detail.

Figure 12: Organizational chart of the Dutch Armed forces



The contractor team:

The contractor team consists of four individuals: Frank, Leo, Simon, and Dillon. The ages of the four members range between twenty-seven, and forty-nine years. Frank is the oldest, and Dillon the youngest. All members finished lower vocational training. Leo is a warrant officer who has been part of the contractor office for two-and-a-half years. He has been assigned to be the second of the taskforce leader. The deployment is his second deployment, yet his earlier deployments were over ten years ago. He has tenure of twenty-four years with the army. Warrant-officer Frank has been part of the contractor office for two-and-a-half years as well. Hence, Frank, and Leo know each other well. *'If Frank is stress he becomes a very different person, only thinks of himself. I know him.'* It is going to be Frank's seventh deployment in his thirty-one years with the army. The third member is sergeant-major Simon. Simon is officially not part of the contractor office. He works for the engineer training school that trains construction engineers. Nonetheless, he is asked for the deployment, because they needed someone with his body of knowledge. Beforehand Simon is promised that the deployment

will take a maximum of eight weeks. Simon has been part of the army for more than sixteen years, and this is going to be his sixth deployment. The last member is Corporal Dillon. Dillon is from the logistical center of the contractor office. He just transferred six months ago to the contractor's office from the construction company from which all the members of the construction team are a part of. Dillon is with the army for ten years, and this deployment is his fifth. The logistical center of the contractor office is located on the same base as the office, yet it is on the other side of the base. For a long time the only thing Dillon knows is that he is going to be deployed. *'I do not even know which contractor office members are joining the taskforce!'*

The construction team:

The construction team consists of nine individuals, whose ages range between twenty, and thirty-three years. The tenure with the armed forces ranges between one to eleven years, and with the own company between six months and seven years. The construction team is divided in three groups: an installation engineer group, an electrical engineer group, and a construction engineer group. Except for the commander, everyone has completed lower vocational training in his or her line of work. The commander of the taskforce is Chris for whom this is his second deployment. He is also the platoon commander from which the members of construction teams originate. The two other important members in this team are Sergeant Jamie, and sergeant Bratt. For Sergeant Jamie this is his first job as a construction engineer in his ten years in the army. His previous jobs have always been in the field of combat engineering. It is going to be Jamie third deployment. The deployment is going to be sergeant Bratt's fourth deployment. The other six members of the construction team are somewhat younger, and for some it is their first deployment.

The communication and information team:

The communication and information (CI) team consists of eight members, six of which originate from the CI battalion. Those six members do not belong to the same company. The other two members do not work in the battalion. One member teaches at the CI school, and the other member is a civilian who works for the CI regiment. The ages of the CI team members varies between twenty- and thirty-six years. Sergeant-major Paul is the commander of the CI team, and has tenure of nineteen year with the army. Corporal Tim is his second. Tim has been part of the army for three-and-a-half years, and this deployment is going to be his third. He is the second, because Adam, who is higher in rank, enters the team a lot later. Paul knows Adam. *'I am glad that they picked you.'* Sergeant Adam has been part of the army for eighteen years, and it is going to be his second deployment. The rest of the team has never been deployed before, except for the civilian. It is going to be his fifth deployment. An overview of the taskforce members is provided in Table 10.

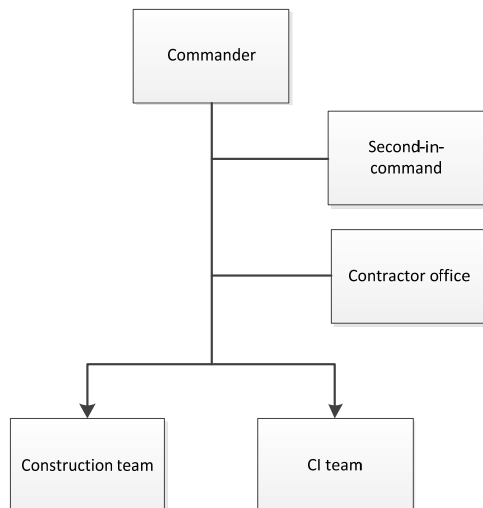
Table 10: Overview of the central figures in the taskforce

Team	Name
Contractor team	Leo (second in command), Frank, Dillon, and Simon
Construction team	Chris (commander), Jamie, and Bratt
Communication and information team	Paul, Adam, and Tim

5.2.2 Linkage attributes

The first interdependency within this taskforce stem from the specific tasks that the three teams have. *'I think it is important for me to know your tasks, because otherwise I cannot plan.'* In several preparation meetings the roles of the teams have been discussed. The contractor team plans, monitors the progress and the quality of the construction objects. Additionally, the contractor team members have contact with international partners, with the contractor office in the Netherlands, and other parties on the compound. The construction team is responsible for the actual construction tasks. They depend on the contractor team to provide them with good construction drawings, the right materials, and equipment support. Vice versa contractor team depends on the construction team for the right information and feedback for the planning, timely and quality execution of the work. The CI team depends on the contractor team for information about material, and they borrow equipment. Yet, the work of the CI team is somewhat separate; hence they do not have to cooperate closely with neither the construction, nor the contractor team in order to do their work. However, the output of the CI team is definitely of importance for the contractor and construction team. *'If you guys are done with your task, and leave, yet the connections are not working, then the conclusion will be that the Engineers did not do their job. Hence, it is very important that we are on the same page!'* Each teams has their own vehicle, however they do share office space, a refrigerator, and computers.

Furthermore, the hierarchical arrangements in the taskforce create the formal chain of command (see Figure 13). Clarity of the chain of command is a very important topic in the taskforce, as previous taskforces have experienced conflicts due to a lack of clarity. Moreover, Chris himself had a bad deployment experience in the past with a team where the chain of command was not upheld. Chris is therefore prone to make sure there is a consistent chain of command. *'I saw the organization chart of the taskforce, and it says there is a leader of the construction team, and a leader of the contractor team. That is really strange!'*

Figure 13: Chain of command in the taskforce

5.2.3 Developmental attributes

The taskforce is newly formed, and appointed for a specific period. The number of teams and the linkages between the teams in the taskforce do not change over time. The number of taskforce members in the teams is constant. However there are two exceptions. The taskforce does not leave for Afghanistan as one group, nor does it return as one. Frank and three CI team members depart three weeks earlier than the rest of the taskforce. After two weeks the rest of the CI team arrives, then one week later both the construction and the contractor team arrive in Afghanistan. Furthermore, the entire CI team returns to the Netherlands six weeks before the construction and contractor team.

5.3 Story-line

5.3.1 Pre-deployment phase

The pre-deployment activities differ per team. The CI team, for instance, already know that they are going to Kunduz from November, while the contractor and construction team aren't assigned till January. At the start of the research the CI team thinks they are going to be deployed around mid-July, hence they do not cooperate with this contractor, and construction team, but with the taskforce currently in Afghanistan. It isn't until June that the CI, the contractor, and the construction team start interacting.

The members of the CI team see each other for the first time mid-May; however Paul has spoken to all members personally beforehand. Tim and Paul try to figure out what the task is going to be, and how they can best prepare the men. Paul does not receive a lot of information; hence he needs to be assertive to get the information he needs. At the end of May Paul and Tim attend a briefing from the CI project manager. After they parked their car in the parking lot a man approaches them. They soon

learn that this man is Adam, and that Adam is ordered to join the team. In the briefing the CI project manager briefs them on the specifics about their tasks, and the equipment they are going to be using. *'It is going to be something we have never done before, so I am positively curious. It is going to be a cool job.'* The engineers order the equipment, so the CI project manager himself is unable to track the equipment. In the meeting it also becomes clear that three CI team members fly to Afghanistan three weeks earlier to do preparatory works. Although Paul enjoys the meeting the extra information he can give to his men is meager. His men already know the task at hand, and are more in need of practical information. *'What is most important for me is that the men will have a good deployment, and know what they can expect.'*

In the Mission Oriented Instruction (MGI) in May the CI and the contractor team meet each other for the first time. Not everyone from the CI nor the contractor team attends the course. At that time it is still unclear who will join the taskforce from the contractor's office. *'I am not sure who will join, it is still changing.'* In the first few days of the MGI there is a divide between the two groups. *'This side of the class knows each other; however I am not sure whether that is sure for the other side of the classroom.'* However, over the occurrence of the week the amount of interaction increases, especially between Paul and the contractor team members. Mid-June the construction CT has the MGI all to themselves.

In June Paul drives to the contractor office to meet Matt. *'Matt is the project manager right?'* Even though Matt is not present Paul learns the departure date is pushed back a month. The CI team will be working with the contractor team they met during the MGI instead of the taskforce which is present in Afghanistan right now. After it becomes clear that the CI team is going to be part of the taskforce Matt, Leo, and Paul meet each other later that month. In this meeting Paul learns there is yet again a new departure date. Additionally Matt introduces the organization chart, and points to the strange position of the taskforce leader. According to Matt the contractor team is responsible for the quality of the projects not the taskforce leader. Leo adds: *'what the captain tries to say in a political appropriate way is: there are always issues in the taskforces. The problem is there are various small teams who all have their own tasks and somehow this always leads to problems.'* While the three men discuss the tasks they already stumble over grey areas. Leo gives Paul the planning of the pre-deployment program, proposes to arrange a car for the CI team, and arranges someone to meet them when they arrive. The meeting is very relaxed, and there is a lot of laughter between Leo and Paul. They seem to share the same kind of humor. Paul is pleased with how the meeting went. *'Thank you for the information. I already knew a lot, but it was nice to finally see some faces.'*

The Family Information Day

The CI team attended the Family Information Day (FID) with the taskforce members who are currently in Afghanistan. The only CI-member who attends the FID with members of this taskforce is Adam. Yet none of the other taskforce members is interested in him, nor do they make an effort to talk to him. Of the contractor team Simon does not attend the FID. No one really knows where Simon is or why he is not there. Frank and Leo arrive together, and introduce themselves to the men and their families. Frank gives extra attention to Bratt's family, because he will be mostly working with him. Chris follows Leo and Frank's example. Dillon sits with the construction team, as he just transferred to the contractor's office from that specific construction company. *'I belong with the contractor's office, but my buddies are in the construction CT.'* During the morning presentations Dillon jokes around with a colleague in the corner of the venue where the FID takes place. Dillon's behavior annoys Frank so in the break Frank directs Chris to the situation. Successively, Chris talks to Dillon's colleague while Frank talks to Dillon. This confrontation is the first interpersonal contact between Dillon and one of his team members.

From the moment Jamie and Bratt are appointed they operate as a team. Together they visit several contractor team members to introduce themselves and hunt down information. *'We have to find every piece of information ourselves.'* Both Jamie and Bratt are not happy with the way things are going. For instance, the contractor office is responsible for a technical training course for the construction team yet nothing is arranged.

The attitude of the construction team members about the contractor's office is quite negative before the teambuilding. During previous deployments and military exercises many of the construction team members have had bad experiences with members of the contractor's office. *'I know exactly how things are going to go when those guys of the contractor office are involved! I always hear stories about how they push their plans and do whatever they want.'* Subsequently, the construction team members are quite combative towards the contractor team. *'They do not have to even try to lead my guys, and I will make this very clear to them!'* and *'We will relieve them from that attitude during the teambuilding!'* Not everyone in the construction team shares this negative attitude, Bratt, for example, defends the contractor's office several times.

Teambuilding activities

This deployment is Chris' second deployment in a construction taskforce. Unfortunately his last experience was bad, and he hears similar stories from his predecessor. *'It is unbelievable that the problems that I had within the taskforce around two years ago are still happening now.'* So Chris is somewhat agitated for the upcoming cooperation with the contractor's office. Chris has a clear idea

of what went wrong last time, and he goes about differently in the pre-deployment period compared to two years ago. *'The minute I received the assignment I went to the contractor's office, and asked for drawings and information.'* For example he interrupts a course so he can attend the contractor's office yearly barbeque so he can meet the men who will be on the taskforce. Additionally Chris initiates two teambuilding days; one for the leadership of the taskforce, and one for the whole taskforce. The goals of the first teambuilding at the end of June are to create a new organization chart, discuss roles, and responsibilities. On this day several taskforce members meet each other for the first time. The organization chart is also part of the teambuilding activity because there is some uncertainty about the chain of command. *'I saw the organization chart of the taskforce, and it says there is a leader of the construction team and a leader of the contractor team. That is really strange!', 'It is all about clarity towards the men, if the contractor office has something to say, then the men have to listen because the contractor team members are the experts', and 'The contractor team is not in the right position in the organization chart because it is supposed to be placed above the construction team. However now it seems to be more about rank instead of expertise. This creates tension.'* The taskforce members also talk quite some time about the position of Dillon. Even though the taskforce members agree Dillon holds an important position, Dillon is not invited to the teambuilding. Eventually Dillon is placed under the aegis of the contractor team. During this first teambuilding activity Leo and Paul do most of the assignments together, and they joke around a lot. The taskforce members are unable to create a complete new organization chart that morning. Chris finishes the chart by himself and sends it to the taskforce members. After the morning session, the taskforce members go for lunch in a large city near the military base. The lunch does not last very long because most people want to go home, as it is Friday afternoon. Most taskforce members think the teambuilding that morning was useful. *'We have to be perceived as one team. That is the goal. We have one task, hence we have to be one front', and 'Now there is more clarity about the chain of command.'*

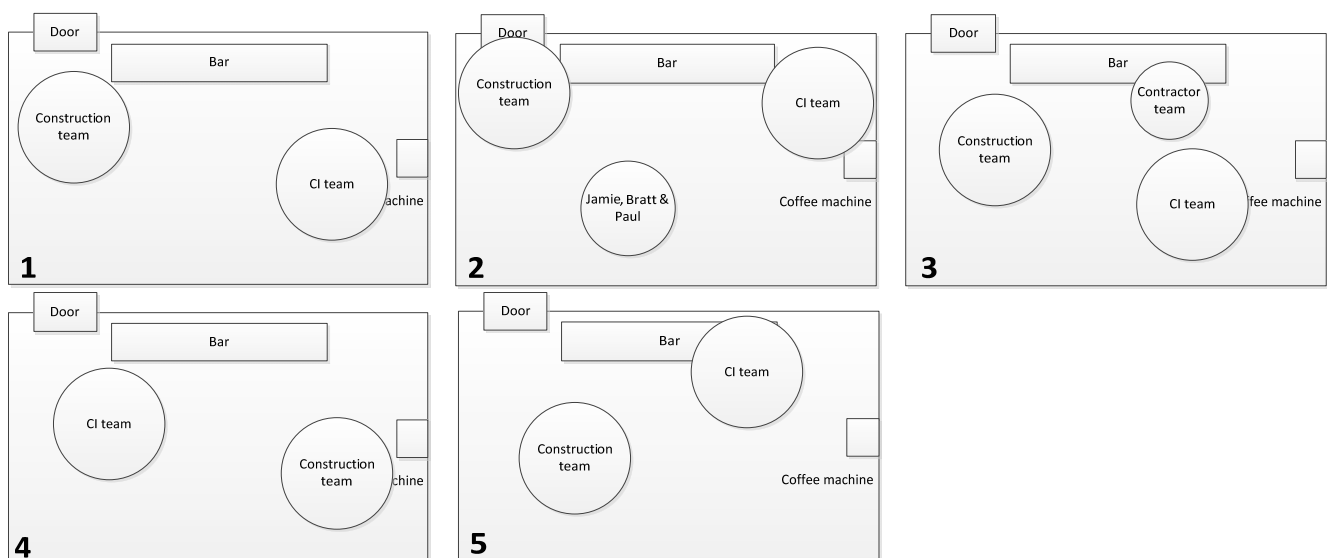
In-between the two teambuilding activities Matt debriefs the taskforce about the current state and future of the projects. Not everyone is happy with this briefing, as the briefing implies there will not be an official military order that describes the assignments. Officially in the military there is no assignment without an official order. All the taskforce has is a PowerPoint slide with bullets that represent the tasks. After the briefing several taskforce members are upset with the contractor's office: *'What the hell are they doing?'*

The second teambuilding activity is for the whole taskforce. The teambuilding day consists of both a morning and afternoon program. The morning program comprises a presentation about the tasks, situation in Afghanistan, and one-on-one conversations between the CI men and Chris. Chris comes

in a bit late and without greeting anybody he walks into the auditorium to set up the presentation. Several construction team members comment this behavior with *'wise ass.'* After Chris is ready setting up the presentation he asks everyone to huddle up and introduce himself. The taskforce members form a circle yet everyone still stands with members of their own team. After everyone introduced himself it is Chris turn: *'In the Netherlands I am the commander of this eminent construction platoon. Now I am the commander of the taskforce. The taskforce consist of the engineering taskforce and the CI taskforce. I am the boss of both taskforces.'* After the introduction everyone enters the auditorium to listen to the presentation. In the presentation Chris talks about the tasks, the planning, group norms, honest communication, and he warns that the reality might be different there.

Upon arrival in the auditorium both the CI team and the construction team tend to interact with people from their own team. This does not change during the breaks. In the breaks both the CI and the construction team members stick to their *'own'*, leaving Simon alone in the middle. Simon is the only contractor team member present this day. The lack of interaction stands out. People even start to joke about it: *'Where is everybody? Did everyone run away from here because of the teambuilding?'* The leadership tries to mix the teams and show initiative through talking with member of the other teams. *'You can also talk to each other.'* At one point the CI team calls out to the construction team: *'Do you guys have What's App?'* Hinting that this might be a good way to talk to each other, as everyone is playing with their phones anyway. Figure 14 shows the position of the two teams and Simon during the breaks in the morning. The overview clearly shows how the teams cling together.

Figure 14: Overview of the position of the three teams during breaks in the morning program



In the goal of the second part of the program is integration between the teams. During the drive to the activity location Chris rides with the CI team. The afternoon consists of several games in which the teams have to compete with each other. The construction team cheats a lot during the games. Throughout the afternoon the team still does not really mix. *'I noticed that my guys thought that the engineers are a bit weird. Engineers and communications guys are just very different.'* Chris on the other hand really makes an effort to mingle. The opinions about the usefulness of the teambuilding day are mixed: *'we are not exempted of our normal duties therefore we do not have much time to prepare ourselves for the deployment. So such a day is useful'*, *'You talk a bit and that is it'*, *'It provides a baseline situation'*, *'The goal will be achieved with or without a teambuilding, however the process will be more relaxed and it is more fun if there is one'*, *'Teambuilding does not help. We are not going to be able to prevent things in Afghanistan because we had diner here in the Netherlands'*, and *'Teambuilding is useful to get to know the CI-people, because we are a lot more direct in our communication.'*

General attitude before the deployment

Most taskforce members feel the teambuilding does not suffice as a pre-deployment program. *'A few days here, and a few days there'*, and *'Officially we are not even formed, nor is there a military order.'* Nonetheless most taskforce members are optimistic about the other taskforce members and the upcoming deployment together. *'The contractor team that is joining us, is very different from the one that joined me two years ago'*, *'The fact that we are all military personnel binds us. We have to do it together. We have the same goal'*, *'My first impression of the construction team is good. I have a feeling that everything will be all right there'*, *'I think we are all on the same page'*, and *'I think there is room in the taskforce for everyone to be open and honest.'* Yet there are some doubts about Chris. *'This is a weak lieutenant, especially when it comes to communication'*, *'Generally speaking Chris is a good officer, however he is too sweet sometimes'*, and *'Chris arranging something? Ha-ha, yeah right!'* Jamie is added to the taskforce to help Chris lead the taskforce. Chris however is not aware of Jamie's extra task. Chris himself is quite optimistic about the deployment. *'It is going to go a lot better this time, because now I am the commander and Leo agrees.'*

5.3.2 The deployment

Arrival in Afghanistan

Frank and part of the CI team are in Afghanistan two weeks before the rest of the CI team and three weeks before the rest of the taskforce arrives. Frank meets Paul and the two other CI members at the airport and they talk on the plane.

Upon arrival in Afghanistan the three CI members find out that the material has not arrived yet, hence they are unable to work on their pre-assigned tasks. *'It was not a problem. We used the week to make a new planning and we helped the other communications guys there.'* The rest of the taskforce is also surprised to find a situation very different from what they expected. *'There was no material and not enough work.'* The planning needed to be revised by Chris and the contractor team. The members of the contractor team member and Chris react differently to the fact that the situation is very different in Afghanistan. Leo laughs: this was to be expected right? Chris and the other contractor team members interpret Leo's laughter as an expression of disregard. The differences in 'coping' styles immediately lead to an interpersonal clash between Leo and Simon on the third day of the deployment. *'How could Leo even think of roaming the compound while we had to rethink all our original plans? How could he laugh at that? Does he not care at all?'* The clash consists of harsh and disrespectful words in which Leo's professional capabilities are questioned. This clash immediately tenses up the atmosphere within the contractor team.

Housing

The taskforce is housed in a large two-story new concrete building. On the far right corner on the first floor resides the construction team in one room and later in two rooms. Next to them sleeps the majority of the CI team. While in the far left corner on the second floor Jamie-Bratt, Chris-Simon, Frank-Leo, Paul- Tim, and Adam-other team member have their rooms. The building next to the sleeping quarters is the workplace of the CI team. The CI team spends most of their time installing a communication system in that building. Subsequently the CI team members do not have a lot of contact with the rest of the taskforce. In front of the building in which the CI team works is a small street which houses several offices. In this little street the contractor and the construction team each have an office. The two offices are next to each other. Chris takes resides in the contractor office throughout the deployment. Paul does not have an office. If he needs a computer or phone he uses the ones in the contractor's office.

Leo's first few problematic weeks

A new plan is created, and the taskforce goes to work. Unfortunately the clash between Leo and Simon at the start of the deployment impacts the atmosphere within the contractor team as well as the atmosphere between the contractor and the construction team. The taskforce members do not trust each other. Leo feels his skills and expertise are questioned non-stop. The situation worsens when Leo makes several mistakes in the first few weeks. For example, Leo miscalculates the amount of concrete canvas. Leo's main task, and according to him his only task, is the concrete canvas project. Concrete canvas is a material that makes it very easy to pave roads and ditches. It is the first

time concrete canvas is going to be used. When the truck with the concrete canvas rolls arrives in Afghanistan the contractor team inspects the load. All of a sudden Leo panics; there are not enough rolls in the container for the amount of square meter he has to pave. Leo hurries back to the office; runs numbers and looks up receipts. Then Simon notices that the label on the rolls does not say square meters but square feet. There is more than enough material to pave the ditches. Instead of laughing about this small mistake, this error in combination with several other small errors that week decreases the faith the contractor team members have in Leo's skills. Simon, Frank and Chris are annoyed as all those small mistakes cost time and create frustration. Leo's professional mistakes in the first period of the deployment cause the construction team to doubt the level of professionalism of the contractor team members. *'We have the feeling that they have no clue what they are doing. They all so focused on their own little island. Things are not good between them.'*

The contractor and construction team members start to check every piece of information Leo gives them, and they pay extra attention to his work. At one point Leo wants to help some of construction men and asks whether he can operate the shovel. Leo's good intentions lead to the following reaction: *'Look now he is operating the shovel! Really, you got to be kidding me, this is not kindergarten!'* The professional mistakes, interpersonal tensions, and side hits in combination with Leo's *'after I have done my concrete canvas I will go home'*-attitude gives the taskforce members the idea that Leo does not want to be part of the taskforce.

Daily structure

Throughout the deployment the three teams do not join each other breakfast, lunch, and dinner. Chris always eats with the contractor team. The three teams say they do not eat together because their schedules do not misalign. However most of the time the teams arrive within a span of 15 minutes of each other in the dining hall. In the dining hall some men greet, others acknowledge each other with a small nod, and some do not greet. After breakfast all three teams have a separate coffee moment in which the plans for that day are discussed. At ten o'clock there is a coffee break in the 'street' in front of the two offices. The construction team always drinks coffee together. Most of the time the CI and the contractor team join them. Then it is time for lunch. After lunch the contractor team and Chris have their first internal meeting. Then there is a coffee break around three o'clock, followed by dinner around five-thirty. After dinner the contractor team and Chris meet again, followed by a meeting with Paul, Jamie, and Bratt at seven.

The atmosphere of the contractor team-Chris meetings is often tense. Everyone feels criticized if questions are asked or opinions are given. For example, at one point there is some disagreement about the attendance at a party. Chris wants everyone to go while the contractor team does not

want to go. This leads to the following conversation: *'We are going to talk about it warrant officer', 'No lieutenant', 'Yes we are', 'Oh, all of a sudden this is your decision?'* The meetings at seven with Paul, Jamie, and Bratt break some of tension between Chris and the contractor team. Paul's presence actually lightens the atmosphere. *'Paul is a good one to have around.'* Paul mostly jokes around with the contractor team. Sometimes Chris joins. Jamie and Bratt hardly ever join in. They are more serious during the meetings and sometimes they even seem to disapprove of all the joking around.

In the evening meeting Paul, Jamie, and Bratt tell the others what they have done that day. What the difficulties were, and what tomorrow's schedule is. Paul is always done fairly quickly, because none of the others have much to ask. *'The meetings are more a formality. A game. I can tell them anything. They won't be able to check whether I am lying or not.'* After some weeks Chris tells Paul he does not have to join the meetings if he does not want to, because the meetings are more about engineering work anyway. Paul however wants to join the meetings, because he feels obliged as part of the taskforce and the meetings are also a source of practical information for him.

If Jamie and Bratt report back about their day both the contractor team and Chris have comments and questions. *'Frank interferes with everything! It seems as if he wants to control everything.'*, and *'Can't he just act normal for a change?! And Leo has asked about the truck five times already! I did not say anything, because I believe you have to be respectful.'* Jamie and Bratt often look like defendants in a courtroom defended chair. This feeling is amplified by the fact that both Jamie and Bratt feel the contractor team does not take their suggestions into account, nor use their expertise. *'Simon still did not ask me for input for a solution for the roof. I could have told him ten solutions already, but he insist of doing it himself'*, and *'The meeting at seven is more for them than for us. We hand them ideas. They talk about it during their meetings and then we do not hear anything.'* Jamie and Bratt talk about this issue several times with Chris, however the situation does not change. Subsequently the two men become more and more reluctant to share their knowledge, discuss projects, or be pro-active for the benefit of the entire taskforce. *'Three days ago they already knew that the roof needed to be moved. They could have planned it to be moved earlier. I already knew that we had to move everything but this time I made the conscious choice not to say anything. The last time we were 100% ready. We had the trucks, crane, and the people. We could have lifted the roof in a second. However they do not like it if I think ahead in time'*, and *'I just do what I think is right, and do not even ask them anymore. In the end I will hear if things are ok or not.'* There are several projects where the construction team members' input is not used. This leads to frustration. *'It just sucks because you want to do a good job'*, *'It is frustrating that we have to build poor objects'*, or *'It is frustrating to deliver something what you think looks really bad.'*

The mail incident

Dillon's position creates tension between the contractor and the construction team. Although Dillon is officially a contractor team member, and has viable logistical information, he is not included in any of their meetings. A good example of how Dillon's knowledge could have aided the taskforce is the sandbags issue. The contractor team wanted to order a large amount of sandbags, however the official procedure was going to cost months. Via-via Dillon learns about the sandbag-need of the contractor team. He walks to their office and says he knows that a certain amount of sandbags is lying somewhere. If they want he can make a call, and then the bags will be in Afghanistan within two weeks. Dillon feels the contractor team and Chris: *'still do not know what to do with me'*. Jamie and Bratt work closely with Dillon and feel Dillon is not guided by the contractor team. The lack of clarity about Dillon's position is like oil on fire for the negative attitude Jamie and Bratt have towards the contractor team. The mail incident illustrates this even more. Next to his logistics task Dillon helps the construction team with small tasks. One of these tasks is that he retrieves their mail. One day Dillon walks into the contractor's office to get the mail. He is stopped by Frank who tells him he cannot take the mail because Bratt is getting it. Dillon flushes. *'Why is Bratt getting it? It is my job.'* Frank gets authoritarian. Reminds Dillon of his rank and tells him to watch his tone. Dillon storms out of the office, and starts looking for Bratt. Dillon aggressively asks Bratt why he is bothering with the mail because that is not his task. Bratt is very surprised. He was not planning to retrieve the mail at all. Dillon returns to the contractor's office and says: *'Bratt does not mind if I take the mail with me.'* Frank reacts: *'Do you understand that I was only preventing a conflict between you and Bratt?'* Dillon is furious when he leaves the contractor office. *'How dare they? They already do not know what to do with me. Then they try to take my jobs and boss me around?'* Every time Dillon is in the contractor's office Simon is there as well. Simon is Dillon's point of contact; however he does not interfere with Frank's behavior. *'I now learned that I cannot trust Simon. I think that they still see me as a member of the construction team. Not part of their team.'* Later that day Bratt and Jamie call Dillon into their office and ask him what happened. Dillon immediately apologizes to Bratt: *'Sorry I snapped at you this morning, but I was just so angry. That anger was directed at Simon not at you.'* Dillon tells his story and Jamie and Bratt side with him. In the meeting that evening Jamie brings up the topic, as if he does not really know what went down. From the contractor team members there is no support for Dillon. Frank says: *'The mail agreement was probably an internal agreement. My advice is next time let's communicate such things better.'* Simon says: *'If Dillon has problems with me, he should come to me. I am not going to sit down with the man every week.'* Chris and the contractor team members are even of the opinion Dillon should be reprimanded for losing his temper like that. More than once Jamie and Bratt try to make the contractor team aware of their responsibility towards Dillon.

The position of the CI team in the taskforce

In the first month the CI team does not have much contact with the contractor or the construction team, because they work inside the building while the rest of the taskforce works outside. At the start of the deployment the CI team works very long hours. Sometimes even up to 14 hours. *'Sometimes I really have to tell them to stop; otherwise they would still be working.'* Near the end of their term the work is running thin, and some of the men are asked to help out the construction team. The jobs the CI men have to help with are simple. Most of the time the men have to wait until there is something to do for them. Two CI team members volunteer most for these jobs. At night the same two guys also hang out with the men of the construction team. They are actually thinking about transferring to the engineer regiment. The other CI team members are a bit more ambiguous towards helping the construction team. *'We are ok with helping the engineers, however if we do they have to come with clear tasks.'* Some really do not want to work with the engineers. *'I am not going to work too hard, because otherwise I have to help the engineers out. I really do not feel like helping them! It is just a lot of waiting. Plus I am really a communications guy not an engineer.'* There is actually some bickering within the CI team between the men who do help out the construction team and the ones that do not. *'We are one team and it cannot be that some of us are working while others are not!'*

The attitude of the construction team men towards the CI team is somewhat abstruse. On the one hand they appreciate the help; however they also say things like *'CI pussies', 'I am not a babysitter'* They never know their names. The construction and the CI team have their morning briefing in the same tent. The CI sits outside the tent while the construction team sits inside. Every morning when the CI team gets coffee they walk in on the morning briefing of the construction team. Hardly any words are exchanged during these morning run-ins. The only thing is: *'Do not mind us'* or *'Are you stealing the coffee again?'* Interestingly if certain CI members know they are assigned to work with the engineers that day, they still only attend their own morning briefing. The departure of the CI team is a good example of the difference in attitude towards the CI team between the contractor and the construction team. The CI team leaves Afghanistan four weeks earlier than the rest of the taskforce. On the last morning Chris and the contractor team get up to help the CI team with their bags, have breakfast together, and wait for their ride to the airfield. *'The CI is a good group. They did their work well. Paul is a good guy. He made things easier.'* The atmosphere is relaxed. Paul, Frank, and Leo joke around. The CI team even has a little surprise for the contractor team; as a good-bye gift they filled the contractor team car with confetti. That morning no one of the construction team is present. They just go about their normal routine. And when a plane flies over the camp during their

morning briefing, someone jeeringly states: *'Bye-bye CI! Hopefully for you there is Wi-Fi or fiberglass in the plane.'*

A confrontation in the contractor team

Leo is Chris' second. The cooperation between Chris and Leo does not go well. According to Leo Chris does not share information with him making it impossible for him to do his job. Subsequently they are often not on the same page. *'I thought that you were doing that?' 'No, we agreed that you would do it.'* Chris is uncertain whether Leo has his heart in the deployment. Leo's initial mistakes and the gossip about Leo make Chris distrust Leo. On the other hand Leo feels that Frank and Simon have taken over, and lead the taskforce instead of Chris. The tension in the contractor's office is very volatile. Chris is unsure how to change the negative vibe. Slowly a negative spiral sets in that Chris is unable to stop. *'At one point we stayed in a modus which prevented things from escalating, yet they also did not get better'*, and *'It is a straitjacket-cooperation. There is no sociability, only formal communication. Everything we do is functional.'* Moreover Leo feels the negativity building up against him: *'Everything is ammunition now...'*

After about a month the situation within the contractor's office becomes unbearable for all of them. *'I ignore Leo. Around two o'clock I am fully drained of energy. The atmosphere is just so tense.'* Every time Leo turns his back he thinks the talk about him, and watch his every move. The only two people who are getting along just fine are Frank and Simon. The thing that binds those two together is their common annoyance with both Leo's and Chris' behavior. In the fourth week the bomb bursts. During the lunch meeting the Frank, Simon and Chris confront Leo with his behavior and the quality of his work. Leo is very surprised. He feels ambushed and scapegoated. Although Chris does not trust Leo 100% he wants to give Leo confidence and decides to keep him as his second in command. After the confrontational meeting Leo is very angry and confused. He feels he is seen as outcast. Leo thinks it is Frank and Simon who set him up, and that Chris is just a puppet. Besides the researcher Leo has no one to talk about what just happened. Frank is also not very happy with the way the meeting went down. *'I am not sure whether the conversation had the right effect. It all started with the dissatisfaction of the group commanders with Leo's work, but in the conversation is seemed as if it was all about my dissatisfaction [...] We agreed that we would note down some agreements, to check the progress in a week or so, but we did not make such agreements. The goal was to get out stronger.'*

A new second and an important email

After a night of sleep Leo made up his mind. He is not going to let it get to him. He is going to be a professional: they need to work together to achieve their goal. He does however decide that he does

not want to be Chris' second anymore. *'How can I be someone's second if that person does not share information, is not open with me, and questions my loyalty.'* Leo suggests to Frank he should be Chris' second. Leo also composes a concept email to his commander in the Netherlands in which he explains what has happened. In the after-lunch meeting Leo shares his attitude with the rest of the team and informs them about the email he wants to send. Due to the issues in previous taskforce they decide to keep their problems inside the team. Leo does not send the email.

In that same meeting the team also decides Frank will succeed Leo as Chris' second in command. Chris is happy to have Frank as his second in command. *'It goes well with Frank as my second. I trust him and he has much experience.'* Frank is not very happy with his new position. *'We will never be four peas in a pie. He is dishonest, suspicious, and stiff. Plus he does not share information.'* Right after Frank assumes his new position he finds out Chris wrote an email to his Dutch commander outlining the problems the taskforce. In the email Chris blames the contractor team for most of the problems. Frank confronts Chris with the email. At first Chris defend himself. *'Why are going through my mail?'* Frank explains he saw the email, because it stood opened on the desktop. Frank gives Chris an ultimatum to tell Leo and Simon about the email. Not long after Frank finds the email Leo hears via-via about the email. Leo conveys to Frank what he has heard. Frank replies to Leo that he knows about the email, and that Chris will explain everything in the next meeting. Frank tells Chris Leo knows about the email too, and that Chris has to come clean in the next meeting. The entire contractor team is furious about the email Chris sent. *'We were going to be open and honest! And then you send a negative email about us while you are the black sheep!'* The negative event drains the trust between the contractor team and Chris and creates a tense and difficult atmosphere. *'Bad atmosphere. Short sentences. Sometimes even just a murmur. No jokes', 'I wonder whether we will escape unscathed', and 'There is no talking during dinner. There is not talking at night in the room. In the morning he always gets up ten minutes after me. [...]During the workday everyone sits in their own bubble. Only Frank and I talk but that stops the moment either of the other two enters the room. There is no trust and no cohesion. This makes working together difficult.'* Frank, Simon, Leo and Chris all cope differently with the tension. Chris becomes even more defensive. Simon is very quiet and finds refuge in being alone. Leo makes contact with other Dutch colleagues. Frank tries to keep everything going. There is an atmosphere of suspiciousness towards each other, and every little issue has conflict potential. For example, one day someone comes to clean the air-conditioner in the contractor's office. Simon moves Leo's desk to prevent it from getting dirty. Nevertheless dust falls on Leo's desk. When Leo enters the office and sees the dust on his desk, he immediately thinks the worst: *'Why did no one move my desk?'* He angrily cleans his desk and bangs with the doors.

Tensions between the contractor and the construction team

Jamie and Bratt try several times to make informal personal contact with the contractor team members. Jamie and Bratt invite the men for their morning exercise rounds, for drinks in the evening, and sometimes they invite themselves over to the contractor team table at dinner. Most of the times these dinners are no success. Jamie and Bratt often end up talking with each other or with Chris. *'In the beginning you want to make something of the situation. In the middle it has to flow naturally. Near the end you want to let it go.'* Jamie and Bratt notice the tensions in the contractor team and between the contractor team and Chris. *'Friction within the own team sometimes radiated to outside the team.'* *'They were acting like children!'* Jamie and Bratt are annoyed because the work is suffering due to bad interpersonal relationships, mistakes, and lack of communication. The contractor team also notices the negative effects of the tensions. *'We are not getting to an oiled-machine like state. There is a lot of resistance from the construction team because of wrong project descriptions.'* The construction team members do not trust the products of the contractor team anymore. They double-check everything. *'We find our way just fine. What we do not know, we look up. Those guys next door are our last resort if we need to know things.'* The distrust between the contractor and construction team leads to problems in projects like the concrete canvas project. *'Jamie does not accept anything anymore of Leo. If Jamie has better ideas he does not share them, this is unacceptable.'* When Simon and Frank check the first piece of concrete canvas they see many errors. That evening they confront Leo with their observations. Leo blames some of the errors on the construction team. Yet, earlier that evening Jamie told a different story to one of the Frank. *'Both men tell us different stories on how and why the concrete canvas is the way it is. So, one of them is lying.'* At one point Simon is so annoyed he calls for an intervention. Jamie is fetched from his room, and together with the contractor team members he walks to the concrete canvas ditch. That evening they come to an understanding on how to go about putting down the rest of the concrete canvas. *'After the intervention by Frank and Simon, Leo communicates much better with me',* and *'I asked Jamie what he wanted and immediately incorporated his feedback. I let him think with me. I also asked for his opinion, so that he understands the whole picture better.'* Bratt on the other hand does not experience many problems with his counterpart in the contractor team. *'Frank often walks over to me and comes with tips and tricks which I really appreciate. We get along well.'* The men sometimes find Franks' interest annoying, because he always finds something to comment on.

The tensions between the construction and the contractor-Chris team, and within the contractor team, are catalyzed by a multitude of misinterpretations. One day, for example, Leo enters the contractor office to tell Simon that some actions are taken which affect Simon's work. *'If you want to see it before...'* Simon immediate reacts with a loud 'NO.' This was meant as a joke. Leo is surprised

by this uncouth answer and walks out of the office. One more misinterpretation occurs when Frank asks a CI team member to take his laundry to the office. Upon arrival at the construction site the CI member throws the laundry into Jamie's arms and asks him to put it in the office. Jamie is already not amused with the way the laundry is thrown into his arms. Then when Jamie enters the office Simon says: *'Laundry... isn't that Dillon's task?'* Jamie replies: *'Hmm, I do not think so...'* Chris smiles conspiringly and backs Simon up. Jamie is very annoyed and he does not notice that Simon and Chris are fooling him. Jamie walks out of the office to find Dillon. After Jamie leaves the office Chris says: *'You are going to tell him it was a joke right?'* Simon replies: *'No why? He should toughen up a bit.'* Another example takes place during one of the coffee breaks. One of the construction men pokes his head into the contractor office to ask whether there is fresh coffee. The reaction he gets is: *'No, because you guys drink all the coffee, but never put on a new pot. You scum.'* Confused by the reaction the construction team member tells his colleagues what just happened. *'I already have trouble just entering their office, and then this happens. We always put on a new pot of coffee! They really suck! It is a game, they always bitch about everything.'*

Chris as taskforce leader

Both the construction and the contractor team are not happy with the way Chris leads the taskforce and behaves. *'We never see him', 'He walks around with his soul under his arms', and 'He never greets.'* The construction team feels Chris only adheres to the needs of the contractor team and not to theirs. Chris talks with Jamie and Bratt about the problems in the contractor team several times. *'Chris does not want to interfere with technical aspects of the project; however he depends on information of the contractor team. Sometimes he is very annoyed and angry with them. He tries to hide these feelings from them.'* In these talks Jamie and Bratt offer their help, and give advice while they discuss certain projects. One of the projects that they discuss is the placement of barriers around a recreational area. Compared to the contractor team the construction team has very different idea about the best way to place these barriers. Several discussions take place, and every time Jamie feels his suggestions are not taken seriously. One evening Jamie, Bratt, and Chris talk about the issue. Chris agrees with many of Jamie's ideas, and says he will take action. The next day, however, Jamie and Bratt find out that Chris changed his mind. The barriers are going to be placed according to the plan of the contractor team. Events like this happen several times; subsequently Jamie and Bratt do not believe nor trust Chris anymore. They feel that *'Chris is the drudge of the contractor team.'*

Then there is the issue of communication. Chris often forgets and sometimes chooses not to pass along information. For example, at one point the taskforce is tasked to set up several tents for a

military ceremony at the end of October. Except for Chris no one of the taskforce knows about this task. At the time Jamie and Bratt learn about the extra task the task interferes with their plan. Another important communication issue is the return date. The return date is not set at the beginning of the deployment, as it is unclear what the amount of tasks is and whether a new taskforce is sent. The taskforce members are eager to find out the exact return date, so they can tell their families. At one point Chris knows the date, and even though Chris knows everyone is eagerly waiting for the information he chooses not to disclose the date until the meeting later that evening. *'How can he let us wait so long for the most important information?'* The new departure date gives the taskforce fourteen extra days. *'The misery is going to last two more weeks'*, and *'The late date feels like a heavy burden.'*

A week apart

At the start of October Frank, Simon, Bratt, and three other construction team members leave for Mazar-e Sjarif (MeS) to install solar power systems. MeS is a large military compound about an hour away from Kunduz by plane. The group is divided for about a week. In this week apart things are very different. In Kunduz the taskforce members communicate more, the atmosphere is better, people eat, and spend more time together. *'Now we are talking without all the negativity and undertones'*, and *'Leo is blossoming. He is smiling more and making jokes.'* The same is true for the situation in MeS. *'Everything is going well. The work is going faster than I expected. The communication lines are shorter, less coordination, and you know what everyone is doing'*, and *'It was very different in MeS. Frank and Simon were now helping. They were also very social all of a sudden, like they were our best friends. Everything immediately changed back to the old situation upon return in Kunduz.'*

Problems in the construction team

The difficulties in the cooperation with the contractor team really get to Jamie. *'The guys have had a bit and so have I.'* Jamie's heart has never been in construction engineering, and due to all the issues he voices his dislike of the field more openly. However, the construction team consists of construction engineers and several of them feel offended by Jamie's negative remarks. At the beginning of October some of the construction team members start to ignore Jamie.

Inter-team connections at a personal level

Throughout the deployment the amount of contact between individual members of the contractor team, Jamie and Bratt increases. *'They often also had to let of some steam about how things were going.'* Simon often talks one on one with Jamie about work but also about personal things. Over time they start to understand each other better. *'I had a conversation with Simon yesterday evening.'*

The funny thing is that we are actually pretty similar and think about things in the same way. However we deal with it differently. Actually he is a sweet man once you get to know him.'

Leo finds his way both in and outside the taskforce. Leo socializes with other Dutch engineers on the camp. He sometimes has dinner or drinks with them. Leo also has more contact with the construction team men. During the mid-term BBQ Dillon and Leo have to haul in several containers together. Dillon and Leo joke and talk. For example, Dillon asks who of them has to sign the paperwork. Leo replies: *'You or me, or together, then we are important together. I do not care.'* While Dillon and Leo are working a member of the construction team arrives with pizzas and cold drinks. Leo asks Dillon whether the guy came especially for him. *'Yes, he is my buddy, but he is also your buddy. He is our buddy.'* After this evening Leo makes more contact with the construction team men. He sometimes sits with them behind the building at night and drinks coffee with them in the coffee breaks. Also if Dillon has an issue Leo takes the time to discuss them. Over time the men actually start to appreciate Leo. *'Leo is cool.'*

The last days in MeS

Before the taskforce leaves for the adaptation program in Greece they fly to MeS and spend some days there. Even though there is no work for the taskforce in MeS Chris wants to keep the daily structure as it was in Kunduz. Everyone is really fed up with Chris. *'Just bugger of with your five o'clock meeting. I am not coming.'* The tensions present in Kunduz are still present in MeS. One evening Chris is chatting with Jamie and Bratt, when Leo walks up to him with a piece of paper. *'Chris here is the flight information.'* Chris immediately loses his cool. *'Why did you ask for that information? I was supposed to pick up the information at five. You are doing my job!'* Leo explodes *'What? I just bumped into someone who gave me the piece of paper to give to you.'*

5.3.3 Post- deployment phase

The tensions present in Afghanistan continue to be present during the adaptation program in Greece. Nobody wants anything to do with Chris. *'Everyone ignores Chris. There is no personal contact.'*, and *'I do not want to sit next to him in the bus. Not in the same room. I just do not want anything to do with him.'* When one of the contractor team members wants to sign up for a hike and he sees Chris' name on the list he changes his mind and signs up for another activity. Also when Leo and Chris join the table where Simon, Frank, Jamie and Bratt are having drinks the four men stand up and leave. Leaving Leo and Chris behind. Leo is stunned by the lack of empathy and social skills of the others. He rather not hangs around with Chris but he feels it is very rude to totally ignore him. Additionally, he also worries about Chris and the effects that the attitude of the others has on him. He shares these worries with some of the counselors there.

'There has been no form of debriefing what so ever.' Frank really wants such a debriefing to take place while Chris thinks *'What is done is done. It is of no use to open old wounds.'* The taskforce members all cope differently with the experiences of this deployment. Chris is of the opinion that things were actually not that bad, while others really have problems with what happened. *'This is my third deployment. It is the worst I have been on!', 'The most important thing is that the goal is accomplished, however it is a lot nicer if it can be accomplished in a more pleasant way', and 'I am having problems with the effects of the deployment. I have to work with the same colleagues... I keep wondering what I could have done different to prevent something like this from happening?'*

5.4 Qualitative data analysis

The taskforce described in the storyline is an MTS that consists of three component teams (CTs): the contractor, construction and CI team. In the next paragraphs the issues that stand out after coding and re-coding the qualitative data are discussed.

5.4.1 Development of MTS intergroup behavior

In the pre-deployment phase there is no 'we' or MTS identity. The MTS members do try: *'I keep pressing that we are one group and that we need to work together as one group when we are there.'* And when Leo tries being inclusive to Paul he still uses a lot of words like 'you guys', 'our people', and my guys.' Everyone agrees that during the deployment the MTS is also not a team. This is nicely illustrated by two examples. One is a conversation between a contractor member, and two construction men: *'You guys', 'No, we', 'No, it is you guys, because it is also 'you construction guys' and this is the second time that the measurements are incorrect!'* The other example is the group photo process. One of the contractor team members warns Chris that he should fix a date quickly because the CI team is almost leaving. Chris reacts with: *'I do not care; I never really understood why they were placed in this taskforce anyway.'* When Jamie tells the construction men about the photo one of the guys replies: *'Without the contractor team right, only with our own group?'* During the photo moment itself the CI and construction team members all stand next to each other while the contractor men and Chris stand scattered around. At one point one of the contractor team members jells towards Paul: *'Now a picture without the CI team.'* Immediately a reply is given by one of the construction team members: *'Now one without the contractor team.'* The following quotes also underline the absence of a team spirit: *'There is no 'we' in the engineering taskforce', 'The taskforce is absolutely no team', 'The taskforce is no team, it consisted of four groups: electrician, school, civil engineering and the construction team', and 'The taskforce was also no team, however it was not bad. The CI team was incorporated with us, yet they just did their thing.'* The CI CT feels that they are *'added instead of integrated. 'We do not know each other; they do not know us, or our work. I think we have a better idea about what their work entails, than they have about our work', and 'I keep*

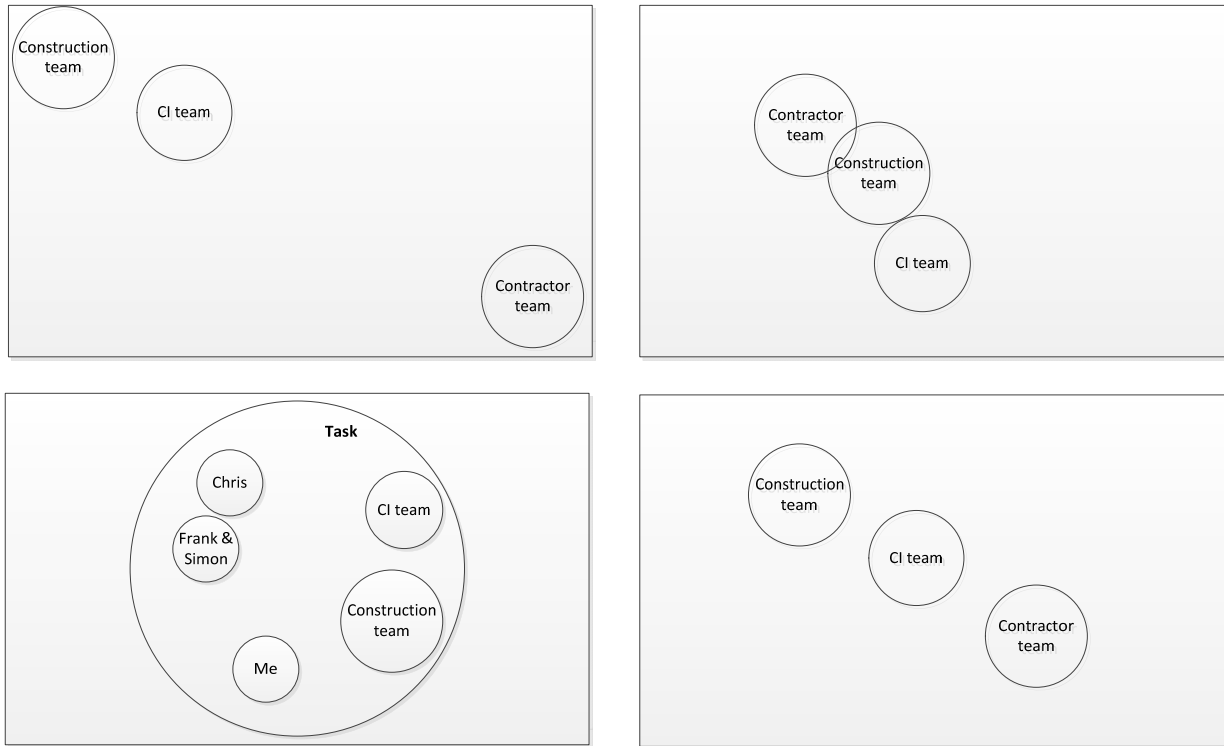
coming to the meetings, because we belong to the taskforce.’ ‘The CI moved as a group through the taskforce. They are part of the taskforce. They helped and attended the meetings.’ The only time that the MTS members express a we-ness is during the security briefing. That evening the MTS gathers at the headquarters of the Dutch military mission. Everyone mingles and at one point Simon jokingly says: *‘Take a close look around guys; we are going to tear everything down. We will start with the office of the commander, ha-ha.’* According to Chris it is impossible to form a ‘we’ within the MTS, because *‘of the different roles of the construction and the contractor team. One executes while the other monitors.’* Another contractor members says something similar: *‘It is less important that I am ‘friends’ with the construction team. I am above them. They just have to do what they have been told to do.’*

There is a lot of talk about ‘they’. *‘They do not do anything. They sit in their tent the whole day!’*, *‘Those guys will only do their own thing. They never listen’*, and *‘There are always problems if the contractor office is involved. Who would be to blame you think? It is all about communication. They think that they are the boss.’*, *‘That is just the way they are. They cannot help it’*, *‘I keep having the idea that they are all just very stubborn at the contractor’s office’*, and *‘They are a bunch of amateurs!’* These stereotypes and pre-existing ideas about the contractor office are prevalent within the construction CT. The contractor CT hardly talks about the construction CT in this way. Of course there are stereotypes, like *‘Chris is a real officer. He holds back information and makes decisions without any contemplation.’* Yet the number of remarks is a lot lower.

At the CT level there are differences in the amount of we-ness. The CI is quite a close-knit group. *‘During the teambuilding day they all cheated. They are engineers, I am a communications guy’*, and *‘I probably have the most boring people of the communication regiment with me to Afghanistan. I do not mean anything by this because they are good guys. Most of all they are my guys however they are still a bit lethargic.’* The contractor CT has no team-feeling whatsoever: *‘I do not feel part of the team and apparently I am not’*, *‘We will never be a team and I am not going mask it. It just costs me too much energy’*, *‘How lonely you can feel yourself in company’*, *‘Very difficult group process. Everything just seems to go difficult here’*, and *‘The contractor team is not a team.’* Within the construction team the opinions differ. Jamie feels that the CT is not a team. *‘It was not a tight group when we left for Afghanistan.’* and *‘It is a team which consists of smaller groups.’* The guys themselves feel differently. *‘The construction team is my group. That is why I placed them in the middle. The contractor team stands close, but not that close, because the check our work. They do not work with us’*, and *‘Good atmosphere in the construction team. We ate pizza together every Friday.’* During the deployment the researcher asks every MTS member to draw out MTS family

arrangements. Figure 15 depicts some examples of the drawings. What stands out is indeed the lack of we-ness in the MTS.

Figure 15: Some examples of family arrangement drawings made by MTS members



Many of the MTS members describe the team spirit within the MTS as 'us versus them'. *'The taskforce was not a team. It was them against us'*, and *'The taskforce is not a team, more of an us-versus-them.'* The 'us' versus 'them' attitude increases through the misinterpretation of jokes. *'You have to be careful with humor, because sometimes jokes can escalate things when it is interpreted differently.'* This is exactly what often occurs in the taskforce.

Jokes are also used as a way to increase the status of the own group as it decreases the status of the group that is made fun of. For example, *'I do not see them that often. They are always inside planning and measuring. Ha-ha yes everything has to be measured correctly!'*, and *'The fantastic four! Which are the contractor team and Chris.'* Ingroup favoritism is also displayed through statements like: *'All of a sudden the contractor office realizes that they have to go about things differently. Now all of a sudden they want a teambuilding'*, *'You guys say that you prepare the work, yet we are here together. We are a team. We have to do they work together. You are all islands. You do not collaborate. Everything we did so far has gone wrong. You guys just have to start to collaborate. You are like little children!'*, *'They are just a bunch of botchers!'*, *'We do not act different when there is a woman around. We just act normal, but those guys next door really change'*, *'We should not lower ourselves to their level'*, *'I am not going to move the wall again. They are probably going to ask us to*

do so. They really suck like that', 'It is really amazing how they always seem to choose for the most ugly solution', 'They just do not know how stubborn they are and which mistakes they make' and 'They just cover for each other, like 'we of the contractor office, we do not make mistakes. At least we are honest to each other and talk about certain things. Not if they are there, because it is none of their business!' It is mostly the construction team members who utter negative remarks about the construction team.

The only time there is some form of 'we' and ingroup favoritism during the deployment is when the MTS members compare themselves with the previous taskforce. *'We are cleaning up the mess of the previous taskforce', and 'Compared with the previous taskforce the way things are going is not that bad.'* The days that six members of the MTS work in MeS spark ingroup favoritism between the electricians and the construction engineers. *'THEY should have prepared their work better. Now we (construction engineers) are working on the roof, while we see them smoking cigarettes', and 'All of a sudden Rob had to unload their stuff while he was working on something for us. This kind of selfishness is unknown to me!'*

5.4.2 MTS teamwork development

5.4.2.1 Component variables

Mutual performance monitoring

There are several reasons for people to monitor each other's work, for example to stay on the same page, to show interest, and because it is part of their job. *'It is also my task to check the work. I trust my men, because even though they try hard, sometimes the work does not quite cut it.'* How mutual performance monitoring comes across depends on the situation, for instance if there is no trust mutual performance monitoring feels like being checked. The relationships between CT members differ; subsequently the opinions about monitoring differ. For example, some of the construction men find it very annoying, especially if people walk by more than once. *'When I asked the contractor team something they would react with 'Why are you keeping tabs on me'? While if I would ask the same question to the construction team, they started to explain full enthusiasm what they are doing', 'The other two were constantly nagging if they just left their office for five seconds', and 'We often clash with the contractor team. They are the ones who hand out the assignment, yet they often interfere with small things. For instance during the day they come to check on the work. You know that is ok if it happens once a day but 5 to 6 times is annoying.'* One of the contractor members can understand this: *'I can understand that they have the feeling that we are checking up on them. Especially if all three of us pass by. At one point I saw Frank leaving the tent, then Leo, and then I was there. It is ok that we walk by and the progress of the work. It should not be seen at checking.'* Several

MTS members are open to feedback. They see mutual performance monitoring behavior of others as something positive. *'I see the comments as supplements to my work. I am not able to catch everything',* and *'You have to complete each other because I do not see everything. Complete each other, not correct each other.'*

Supportive behavior

The supportive behavior within the construction CT is very high, people fetch water, and tools for each other all the time. Jamie, and Bratt ask each other daily whether they can help. *'If we had some preparatory courses together we could have helped each other more.'* The only person who showed sincere supportive behavior across CT boundaries is Dillon. He helps the construction CT a lot. He is also rewarded with supportive behavior shown to him. The construction CT men help Dillon out with small issues, and when Leo and he have to receive the concrete canvas roles during the mid-term barbeque one of the construction CT members brings him pizza. Even though most of CI members do not really feel like helping the construction CT they do help the construction CT several times with their work. The contractor team members do not help each other, nor do they really help the other CTs. One evening, for example, two contractor CT members see Chris' jacket on the hat stand. *'Shall we take his coat with us?', 'No, let's not, then he knows that he forgot his coat', 'Today Simon was cranky again... I do not know why and I do not really care. This will probably be how the rest of the deployment will be',* and *'In the contractor team it is stalemate. Everyone corrects each other constantly, but they do not help each other.'*

Adaptability

At the start of the deployment the situation in Afghanistan is different than the taskforce expects. *'In the first three weeks they really had to figure out their tasks. It took them a while before it was clear to everyone.'* The individual adaptability of people influences the adaptability of their CT and the MTS. Chris is unable to let go of the planning when it does not match reality. One day Jamie's men sweep the premise which infuriates Chris because it is not in line with the planning. *'What do you want me to do? Otherwise the men have nothing to do the whole day!'* Another example of the inflexibility is the meetings. Chris keeps holding on to the meeting schedule even though everyone tells him to let it go. *'He even wanted to have the five o'clock meeting right after we arrived in MeS. We had to tell him what happened in the hour we were at MeS.'* Chris is not the only one who has trouble adapting. Simon, for example, is not pleased when he realizes Simon is planning for 10 weeks instead of 6 to 8. *'I was told it was going to be a deployment of 6 to 8 weeks!'* Moreover, when Simon is asked to do some extra work, he reacts with: *'What do they expect of me? That all of a sudden I will make four extra bridges?'* The construction and CI CT are more flexible. If something happens within both teams it is immediately addressed. Additionally the leadership these two CTs often shift

things around to improve the situation for their team members. For example, Paul knows that not all of his men like to work with construction CT, so he tries to find them other work. *'I am sorry guys, I tried to find work, but there is none, so you guys have to help the engineers...sorry.'*

Team orientation

In the pre-deployment phase there is hardly any team orientation. *'I am only there for a specific task. If that is done, I am out of there'*, and *'I was promised to go for a short amount of time, however I want tasks in that time, otherwise I will book a plane home'*. Another example is the teambuilding day. Chris tries to find a date that fits the calendar of every MTS member. Since Frank and the CI CT members are almost leaving Chris proposes to plan the teambuilding after the FID. However, not everyone agrees with this date. *'They want the teambuilding on the family information day, because otherwise Frank cannot join. Well you know what otherwise we cannot join! Why should I have to give up my afternoon and evening?'*

At the start of the deployment the construction CT shows team oriented behavior towards the contractor CT. Jamie and Bratt really try to work with the contractor CT. After several disappointments their team orientation turns inward. The contractor CT members are not really team oriented. Take for example the clash with Leo and its aftereffects. Leo does show team oriented behavior after the confrontational meeting. *'It is important that the outside world does not know what is going on. We have to stay professional. The goal is the task that we have. It has to stay a workable situation.'* Leo also decides it is better for the MTS if he resigns as second because the relationship with Chris is too damaged. *'I think it is better if I will no longer be the second. It is not about me.'* Leo also focuses on how to make these last weeks work. *'We should keep having each other's back, because we are all good in what we do. We just have a different approach to the work and different personalities.'* Interestingly enough Simon, Frank and Chris do not acknowledge Leo's team orientated behavior. *'I am 100% about the task, while Leo is 50%. Leo thinks more about himself which clashes.'* Frank also shows team oriented behavior when he accepts the position of second: *'I did not want to take on the second position, however I had to. You just try to keep the taskforce afloat. It costs a lot of energy and was not easy.'*

Chris is more concerned about his own tasks, his career, and how he is perceived instead of what is best for the MTS. For instance when Jamie and Bratt suggest an evaluation meeting midway in the deployment Chris first reaction is: *'Why? Do they have complaints? If they have complaints about me they should come to me and say it in my face [...] Can't you guys do it?'* Eventually Chris agrees to the evaluation however he does not invite the contractor team members. *'Chris did not want the contractor team to join. He is probably scared of what they will say.'* A common evaluation would

have a good moment for the MTS to come together and talk about how things are going. Another example of Chris' lack of MTS team orientation is the situation with Leo. At one point the situation in the contractor CT is so tense that Leo, Simon and Frank all agree it would be better if Leo returns to the Netherlands after the concrete canvas project. This choice would have relieved the pressure and stress level tremendously for all three men. Nonetheless, Chris does not allow it. *'I could send Leo home after the concrete canvas is done, but I have my pride. No one is going to be send home during my watch.'*

Leadership

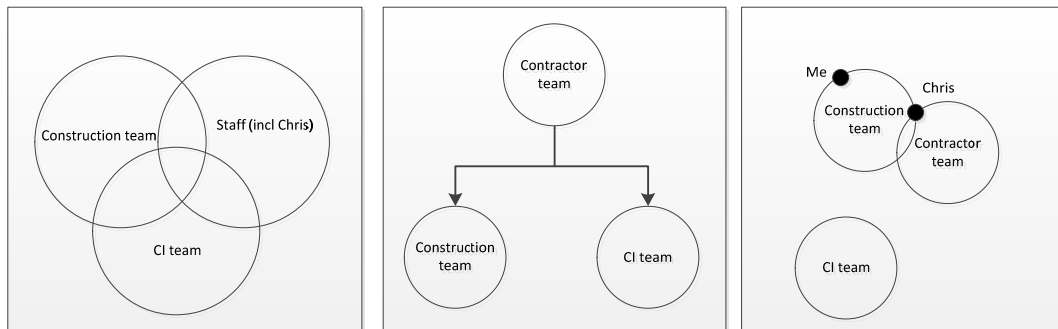
'In the end everything has to do with leadership', and 'Leadership is very important. Bad leaders have a lot of influence.' At the start of the deployment several MTS members doubt Chris' leadership capabilities. Some base their doubts on experience while others base them on stories. The weak position of Chris is also something that strikes the CI team. *'We were very surprised with the way the men just made fun of Chris. In our regiment such behavior is absolutely not allowed', and 'They do not take the lieutenant seriously. Once I saw them hiding behind a container when the lieutenant was looking for them. When he walked around the container they did so too.'*

'In the beginning it was difficult to find your place as the leader. You are looking for a connection and you know you will find it the easiest with your own sergeants. However you want to prevent that you miss the connection with that new group.' Chris puts much effort in connecting with the contractor team and has less attention for the construction team. *'I did not worry about those guys [construction CT]. They would be fine. If something would be the matter the sergeants will tell me', and '[...] over time I did lose sight of Jamie and Bratt because I was so focused on the contractor team.'* Successively many of the construction CT members feel that Chris no longer represents them or has their back. *'Actually Jamie is more our platoon commander than Chris.'* A good example is the issue of listening to music during work. *'One day the order came that it was no longer allowed to listen to music while you work. That definitely did not come from Chris. We are not obeying the order, because the contractor team also does not obey certain agreements like wearing a helmet on a construction site.'*

Chris does not notice that the construction CT distanced itself from him. He is even under the impression everything is going well. He feels more relaxed and in control compared to his first deployment. Chris does not really pay attention to the CI team, for example he does not call the CI team when they are in Afghanistan to ask how things are going. *'They just do their own thing.'* Nonetheless he feels he stands in the middle of all three CTs. Chris is of the opinion that everything is going well yet the results of the 'family arrangement' assignment paint a different picture. Chris

draws an MTS with is in balance and places him in the staff (first picture in Figure 16). Other MTS members see the situation quite differently. Two examples are provided in Figure 16. One member is of the opinion Chris is not leading the MTS, but the contractor CT is (see second picture in Figure 16). Another MTS member feels Chris is the leader of both the construction and the contractor CT, yet not of the CI CT (see third picture in Figure 16).

Figure 16: The family arrangements made by three MTS members



The contractor, and construction CT have problems with the way Chris leads the MTS. *'He is not really a strong leader', 'We told Chris we expect more of him as a leader', and 'He does not make decisions.'* There are several instances in which Chris does not share information, there is the email incident, and he makes decisions without consulting others. At one point there are talks about an MTS t-shirt yet not everyone wants such a T-shirt. Nevertheless Chris designs and orders the T-shirts anyway. *'He spends money which belongs to the entire taskforce without discussing it.'* Most MTS are fed up with Chris' behavior. *'I do not trust Chris one bit!'*, *'Chris is also one of the reasons why things went the way they went with Leo. He could have de-escalated the situation. He should have acted differently'*, *'If I can help it I will never go on a deployment with Chris'*, and *'Chris has clashed with everyone'*. As the deployment continues the MTS members actually bond over their shared annoyances with Chris.

5.4.2.2 Coordinating mechanisms

Trust

Personal trust lacks in this MTS. There are trust issues within the contractor CT: *'I don't think I trust them. This morning I talked to Chris about my role as second, and this afternoon he says he feels that I do not want to be here. How did he get that idea?!'*, as well as trust issues between the CTs: *'If Frank and I make a joke Leo immediately thinks it is about him'*, *'There was no trust that people said things with the best intentions'*, *'I feel that the contractor men sometimes give me advice that has more to do with their own personal preferences than what is best'*, and *'Games were played.'* Chris is the most distrusting member of the MTS. *'If they are talking softly I feel like they are pulling a contractor-trick. I feel made a fool of. I have become over sensitive for people from the contractor*

office. I do not have a large buffer for them. I am very suspicious. Although it is going quite well Leo's behavior increases my suspiciousness again.' Chris also 'feels attacked all the time' and checked upon. Chris is not only suspicious of the contractor CT; he is also suspicious if Jamie or Bratt say something. Once Jamie is at the headquarters of the Dutch mission and notices a different time schedule for the taskforce to hand in their bedding. So Jamie walks over to Chris and tells him about the different date. 'What the hell are you bugging in for?! What are you even doing at that office?' Chris even asks Bratt later whether Jamie is checking up on him. Jamie and Bratt are both hurt by the fact that Chris seems to distrust them so much. They feel they did not do anything to lose his trust.

Furthermore people also do not trust each other's expertise. 'I saw how they were measuring hence we have to check it', 'They do not know what is coming. I ask everything at the infrastructure office. they at least have some information', 'Leo is definitely not THE civil engineer Bratt is'. Over time there are more interpersonal relationships and some of the distrust disappears. For example, if Chris makes remarks about Jamie's work to Simon, Simon reacts with: 'What are you bugging in for? It is my responsibility and if something is not going well I will hear it from Jamie.'

Shared mental model

A shared mental model is a prerequisite for a team to cooperate effectively. 'This week I heard from the contractor's office that we might be coming back in December. Hell no! An extension of a few weeks is ok, but not of several months!', 'All of a sudden the CI is part of the taskforce! They have never told us!', and 'I heard from the contractor's office that Chris is not going to be the leader'. Even though there is contact between the CTs in the pre-deployment phase they are not on the same page regarding a variety of issues. For example several MTS members are unsure about their task during the deployment. 'It is one week before departure, and I still do not know what my tasks are', 'Nobody tells me what my tasks are', and 'The tasks need to be clear before we leave. We need to be on the same page'.

During the deployment the MTS members often find themselves thinking differently about what is good for the MTS. For example, Jamie likes to plan ahead it gives a feeling of control so he can anticipate what is coming. The contractor team members feel that by planning so far ahead Jamie is doing their job. 'Things are not going well. We hand out the project descriptions, and you guys have to use these to make a plan. However what I see happening is that you [Jamie] are already doing things which you have not received an assignment for.' The construction CT and the contractor CT often hold different opinions as what is the best solution for a construction problem. Take for example the barrier conflict. 'Their role is the planning and that things look nice. Our role is to build in the best and most functional way. Those two roles clashed more than once.' Additionally there are

several role conflicts. *'People are interfering with the work of others', 'Chris makes the classic commander mistake that he wants to also be the technical commander', and 'I do not think it was clear to Chris who had what responsibilities. One time he and another officer were working on a solution of something which was Leo's work.'*

The lack of a shared mental model continues throughout the deployment. *'He has very different idea of why he is here. He says he is here just for the concrete canvas while I am here to build a good camp. Very different ideas and subsequently very different priorities', 'One moment we talk about something and make an agreement. The next moment he already breaks the agreement and says: 'o sorry, I just did not think about it'', 'Internal agreements are not followed up upon. At night they ask me to arranged barbeque and the next morning they tell me they have arranged the meat', and 'Assignments were handed down differently by the contractor team. You wonder whether this was not understood or whether they just wanted to it their own way.'* The meetings are a way to stay on the same page. However Chris takes this so literally he holds on to the information until the next meeting even if the information is needed earlier. At one point Jamie hears something very useful for his planning and tells Chris. Chris then reacts with: *'I heard that this morning but I wanted to tell you tonight during the meeting.'* Jamie is really frustrated by this attitude: *'Well next time tell me sooner!'* The daily meeting is the only moment either the contractor or the construction CT hear what the CI CT did or is planning to do. Over time Jamie and Bratt attitude is not to share everything with the contractor CT because it only leads to more questions and interferences. At one point Jamie and Bratt have one-on-one conversations with their respective contractor CT before and after the daily meeting to limit the time needed for meetings.

The CI and construction CT members do share a mental model. The members of both CTs all know what everyone is doing and where they are working. Every morning the CI and the construction CT sit together and talk about the tasks for the upcoming day. The CT members also talk during coffee breaks, lunch, and dinner and after work. Subsequently it is possible for the construction CT members to help each other. *'I saw this wooden beam would that be of use to you?'*

Closed-loop communication

The communication problems start at the beginning of the deployment. *'At the start people already did not want to talk to each other anymore.'* There is a lot of talking within the MTS yet this kind of talking wears MTS members out. *'I am getting tired of all the talking', 'I am talked out', 'There is just so much talking, and gossiping it is really tiresome', and 'Stop all the talking. Just start working!'* At the same time the lack of communication creates a lot of frustration in the MTS. *'We have to communicate. Not work against each other.'* Some CT members even feel a barrier to ask other CT

members something. *'I rather not enter that office [points to contractor office], I rather go to the other office',* and *'I often felt a barrier to ask something.'* The barrier is especially present between the contractor and the construction team, and less between the CI team and the contractor team. Paul for instance does not even knock when he enters the contractor office while the construction CT members always knock and wait until they are permitted to step in. *'[...] communication was difficult, and stayed formal while informality would have lowered the barrier.'* At one point the contractor office has three to four meetings a day. Much of the information is not shared until the next meeting which frustrates the process. *'I am not going to wait till seven. I just need to know certain things when I am working.'*

5.4.3 Relationship between MTS intergroup behavior and MTS teamwork over time

Before the deployment the MTS members are optimistic about their fellow MTS members and the upcoming cooperation. The contractor CT immediately faces internal problems at the start of the deployment. The deployment setting catalyzes the internal struggles. The deployment acts as a pressure cooker for emotions. *'The problem is that you brought the tension with you to the bedroom which creates extra pressure and stress.'* The context also makes it more difficult to get out of the negative spiral as there is no way to relieve the pressure. *'In a deployment it is very difficult to look at your own behavior and to steer things. As a team you then sort of get stuck in a certain situation.'* At first the contractor tries to keep up appearances towards the construction CT. However the internal problems affect the teamwork processes with the construction CT. At first the construction CT really tries to work together with the contractor CT, yet after several disappointments their efforts subside. The construction CT members feel they are not taken seriously. *'It is very annoying if you give someone advice and that someone does not use your advice while later it becomes clear that you were right.'* The negative experience reinforces negative pre-existing thoughts about the contractor office which leads to a stronger ingroup identity and more negative stereotyping of the contractor CT. *'They would always stand there and watch. Why not help?', 'They are like children!',* and *'No feedback is given.'* Leo's mistakes at the start of the deployment add to this process. At the same time the contractor CT is very annoyed that Leo's mistakes damage their CT image. *'Leo's mistakes lead to a loss of trust in our expertise as the contractor',* and *'This is already the fourth time that Leo is told that his performance is very weak. He decreases the support within the taskforce. The construction team members question his capability and he brings the whole team down.'* Their contractor CT identity increases because they want to prove even more that they are indeed the experts.

The negative experiences also cause the construction CT to start blaming the contractor CT for things gone wrong. *'I told them, but they are not going to do anything with the information. They only think*

about their own things', 'They are the experts and you are not allowed to question anything.', 'In the first week those guys also held back information!', and 'The contractor team members just do not communicate! I am going to tell them that because I just cannot work like this!' The salient CT identities lead to a construction CT that does not share information with the contractor CT anymore. 'I just do what I think is right and do not even ask them anymore', and 'We find our way just fine [...] those guys next door are our last resort if we need to know things.' Furthermore the focus shifts from MTS to CT goals, and more CT orientation than MTS orientation. 'I just heard that X is coming tomorrow, that will probably get a priority from them. Well, it does not have a priority with me!' There is less supportive behavior, trust, and less communication. Some construction CT members describe how they feel boundaries to ask contractor CT members questions. 'I rather not enter that office [points to contractor office]. I rather go to the other office', and 'I often felt a barrier to ask something.'

Pre-existing stereotypes are also re-enforced, because the MTS members hardly know or have contact with each other. Not knowing each other is a source for even more misinterpretations of behavior and jokes. Take for instance the incident in which one of the construction CT members wants to get coffee in the contractor office and Leo makes joke. The construction CT member however does not interpret the Leo's remark as a joke, subsequently he says behind Leo's back to his fellow CT *'They suck, it's a game, and they always bitch about everything.'* The incident heightens ingroup identity strength and leads to even less contact and communication between the CTs.

However, there is a positive relationship between teamwork processes and MTS identity strength. In the week when a part of the MTS visits MeS the following happens. The contractor CT is ready to go to dinner while the construction team is still working. *'At first I felt cheated, we are working with the three of us and they leave again. I am not going to take that! After they joined us and we were working together it was nice.'*

The influence of Chris on the intergroup behavior and MTS teamwork processes is an interesting one. *'Chris is going to be the taskforce leader, yet he is also the commander of the construction CT. Will he manage to stay independent? Because he has to be the taskforce commander.'* At the start Chris chooses to focus on the contractor CT instead of on the construction CT or CI CT. *'Over time I did lose sight of Jamie and Bratt, because I was so focused on the contractor team.'*

At one point the construction CT feel the contractor CT uses Chris as a puppet to get their way. Chris himself reinforces this idea, as he gossips about the construction CT with the contractor CT and vice versa. Chris has had several bad experiences with the contractor CT, hence even the smallest thing

already makes him doubt the contractor CT. *'He questions my loyalty, due to the words that 'I can leave after the concrete canvas, because there are no more tasks for me.'* He thinks I want to leave. *That is not the case at all!*, *'I found it easier to talk to Jamie and Bratt, because I already know them. I know what they mean if they say something in a certain way. It was easier for me to go and sit there and talk'*, *'No that is not how I meant it'*, *'It happened several times that I interpret their communication wrong.'* These misinterpretations increase Chris' suspiciousness towards the contractor CT. In an email to his Dutch commander Chris even blames the contractor CT for many of MTS problems. Chris also increases the intergroup tensions by his actions. For example the choice to exclude the contractor CT from the evaluation moment with the construction CT increases the contractor team's suspiciousness towards Chris. *'Chris is probably telling a different version of the story over there.'* It happened several times that Chris looks at Jamie's work then walks over to Simon and says: *'I do not think that things are going accordance with the planning.'* This infuriates Simon *'What are you bugging in for? It is my responsibility, and if something is not going well, I will hear it from Jamie.'*

Furthermore a lack of teambuilding also influences the relationship between MTS identity and MTS teamwork processes. *'Forming process at the start of the deployment causes confrontations and misinterpretations.'* Moreover not knowing whom you work with makes it impossible to know what the capabilities of the person are and how to work with him. *'We do not know each other capabilities. You find them out during the task which causes problems'*, and *'At the start you are still getting used to each other's way of communicating.'* Both issues lead to less MTS' identity and more conflicts that, in turn, affect teamwork processes.

Over time however the salience of CT boundaries decreases as the contractor CT is not really a team and the construction CT is disintegrating. The contractor and construction CT members focus more on interpersonal instead of inter-CT relationships. At the start of the deployment the lack of informal interpersonal interaction in combination with not knowing each other caused misinterpretation of behavior. For example, if someone experienced troubles at home, nobody knew, they only thing people see is the grumpiness of that person. The grumpiness was then experienced as non-cooperative behavior which was then mirrored onto the CT. *'If you do not know each other some things just start to have a life of their own.'* If the amount of interpersonal interaction increases MTS members have more sympathy and understanding for the person. *'It was difficult to work with Simon, however if you look past this you see the burden he carries at home.'* The same thing happened during the week in MeS and the volleyball game. As stated: *'Because then you see another side of people.'* At first the construction CT is very susceptible for all the negative stories Chris tells about the contractor CT as these stories reinforce their own ideas about the contractor CT. However

after the increase of interpersonal contact the construction CT members and the contractor CT now bond over their common annoyance with Chris.

5.5 Quantitative data analysis

For the quantitative data analyses paired-sample t-tests and Pearson-r correlation analyses are used. The first measurement in Afghanistan took place right after the confrontational meeting with Leo in the contractor CT. The second measurement took place after the CI CT left Afghanistan.

5.5.1 Development of intergroup behavior

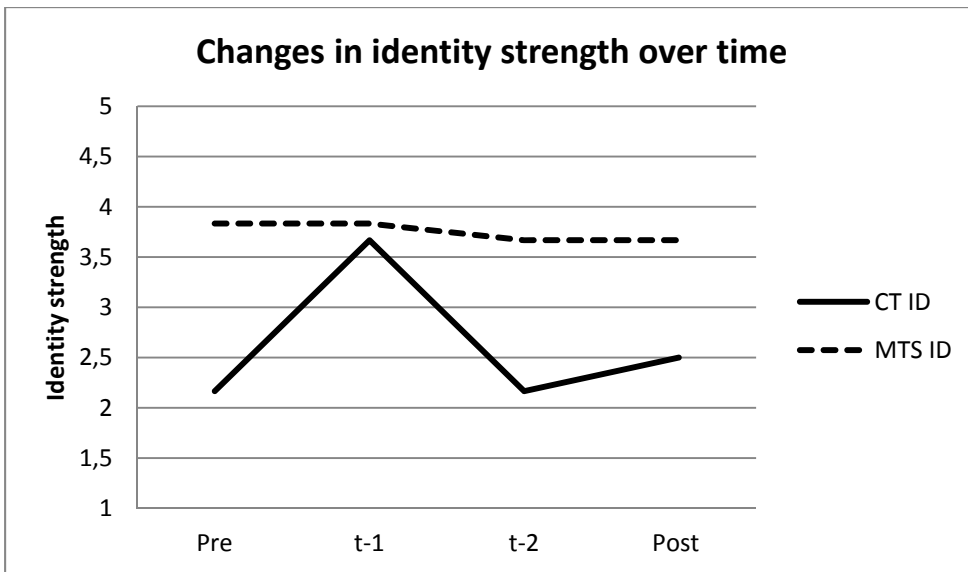
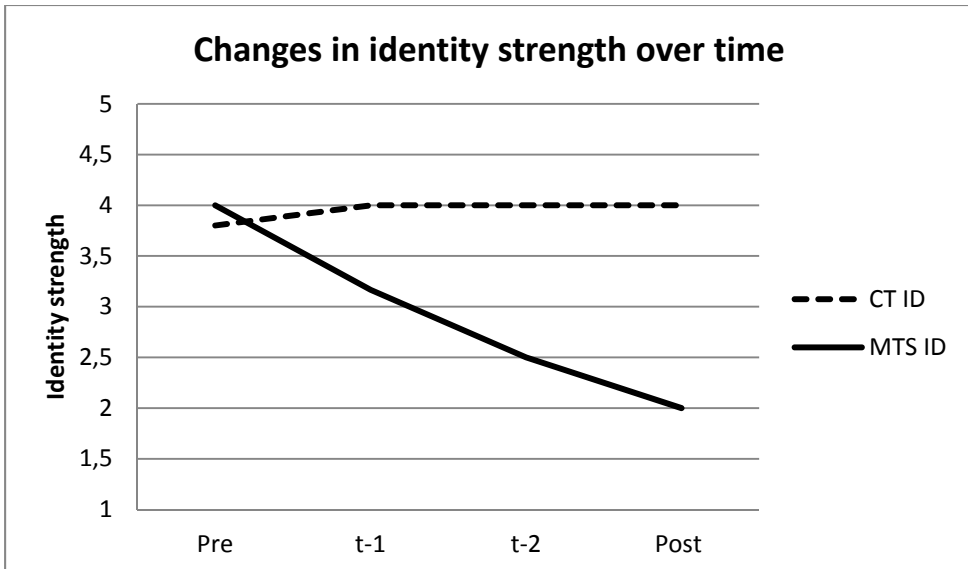
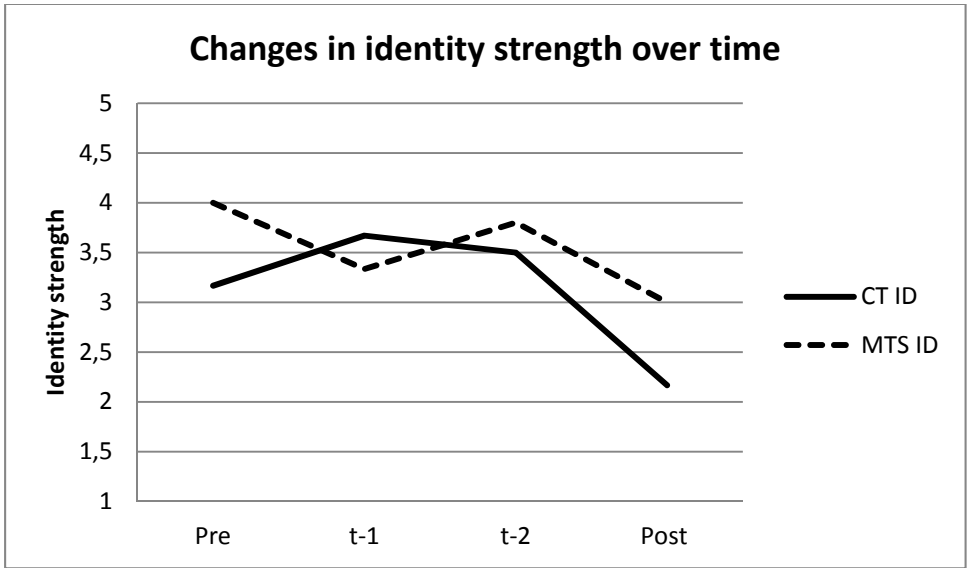
The quantitative analyses consist of t-tests and Pearson-r analyses. The t-tests investigate whether CT and MTS identity strength differ significantly, and whether the changes in CT and MTS identity strength differ significantly over time. The Pearson-r analyses investigate whether CT and MTS identity relate at the same point in time, and whether they influence each other over time.

There is no significant difference between MTS and CT identity strength before, after and during the second part of the deployment. The only time there is a significant difference between MTS and CT identity strength is at the start of the deployment. At that time the CT identity is stronger than MTS identity. The CT identity strength also increased significantly during the first period in Afghanistan. The changes in MTS identity strength are not significant, except for the decrease of identity after the deployment. Table 11 provides an overview of the percentage of participants who have a certain ID strength ranking. The results display how CT and MTS identity rankings fluctuate over time and differ per person. This diversity becomes even clearer in graphs that display identity changes over time for each MTS member (see Figure 17).

Table 11: Percentage of MTS members with a certain ID strength ranking

ID strength ranking	Percentage of MTS members with this particular ranking			
	<i>Pre</i>	<i>t-1</i>	<i>t-2</i>	<i>Post</i>
CT ID strongest	29%	67%	39%	57%
MTS ID strongest	38%	19%	39%	14%
Identities equally strong	19%	14%	22%	5%
Data missing n	14%	0	0	24%

Figure 17: Changes in identity strength over time for three MTS members



The Pearson-r correlation analyses indicate that MTS identity and CT identity are not related before, during, and after the deployment. Apparently identifying with either CT or MTS does not influence the extent with which MTS members identify with either category. Initial MTS identity strength on the other hand does influence MTS identity strength later on in the deployment, and MTS identity strength during the deployment significantly influences MTS identity strength after the deployment. The relationship between the CT identity scores shows a different pattern. CT identity strength prior to the deployment significantly influences CT identity strength at the start of the deployment and after the deployment (see annex 3).

5.5.2 MTS teamwork development

The paired-samples t-tests explore whether or not the differences between CT and MTS teamwork variables and changes in the MTS teamwork variables over time are statistically significant. The Pearson-r analyses investigate whether the MTS teamwork variables are related, and whether they influence each other over time.

Throughout the deployment the mean CT teamwork scores are higher than the MTS teamwork scores. However, the results of the paired-samples t-test indicate that the only significant difference is at t-1 for leadership. At that moment during the deployment the taskforce members rate CT leadership significantly more positive than MTS leadership ($t=-2.19$, $df=20$, $p>0.05$) (see annex 3). MTS and CT teamwork mean scores decrease over time with the exception of mutual performance monitoring. The amount of mutual performance monitoring in the MTS increases. The MTS teamwork variables that decrease significantly are the component team variables team orientation ($t=2.97$, $df=12$, $p>0.05$) and leadership ($t=2.94$, $df=12$, $p>0.05$), and the coordinating variable closed-loop communication ($t=2.80$, $df=12$, $p>0.05$).

Annex 3 shows the correlations tables for the coordinating variables and component mechanisms at the same point in time, and over time. Of the component variables supportive behavior is related to team orientation and adaptability at t-1. Team orientation and adaptability are also related during the first period of the deployment. The situation changes in the second half of the deployment, as t-2 only mutual performance monitoring and leadership are related. At t-1 there is a positive relationship between trust and closed-loop communication, while at t-2 all three coordinating variables are positively related.

In the first part of the deployment trust is related to adaptability, a shared mental model to team orientation, and closed-loop communication to adaptability. The number of significant relationships between coordinating mechanisms and component variables increases from three to eight significant relationships in the second part of the deployment. Trust is related to adaptability and team

orientation. Shared mental model to supportive behavior, adaptability and team orientation. Closed-loop communication is related to supportive behavior, adaptability and team orientation. Hence, the three coordinating mechanisms are mostly related to supportive behavior, adaptability and team orientation.

The Pearson-r correlation analyses indicate that of the component variables previous supportive behavior influences the amount of supportive behavior later during the deployment. The coordinating mechanisms do not influence each other over time. One coordinating mechanism influences a component variable over time, which is closed-loop communication. Closed-loop communication influences the amount of supportive behavior later in the deployment (see annex 3).

The taskforce members themselves point to communication, coordination, trust, clear allocation of tasks, and sociability as the most important aspects of effectively working together (see annex 3).

5.5.3 Relationship between MTS intergroup behavior and MTS teamwork over time

The Pearson-r correlation analyses explore the relationship between MTS identity and MTS teamwork measured at the same moment in time. Additionally it is used to investigate the influence of MTS identity on future teamwork. In this situation MTS teamwork is the dependent variable, and MTS identity the independent variable. The Pearson-r correlation analyses explore the influence of MTS teamwork on future MTS identity strength. Identity is then the dependent variable, and MTS teamwork the independent variable.

Pre-deployment MTS identity strength does not influence teamwork processes at the start of the deployment it does, however, influence the amount of trust ($r=0.67$, $n=11$, $p>0.05$) and team orientation ($r=0.61$, $n=11$, $p>0.05$) later in the deployment. Teamwork experiences at the start of the deployment influence MTS identity strength in the second half of and after the deployment. A shared mental model influences MTS identity at t-2 ($r=0.63$, $n=13$, $p>0.05$), and team orientation influences post-deployment MTS identity strength ($r=0.50$, $n=17$, $p>0.05$)(see annex 3).

At the start of the deployment MTS identity strength is not related to any of the teamwork variables. At t-2, however, MTS identity is related to two component variables (adaptability and leadership (-)), and one coordinating mechanism (closed-loop communication) (see annex 3).

5.6 Conclusion

The intergroup behavior in this MTS is very interesting as they change a lot over time. In the pre-deployment phase the MTS members are quite optimistic about the cooperation in the deployment. In spite of negative experiences which the construction team has the contractor office, and doubts about Chris' capabilities. Every MTS member gives the other MTS members the benefit of the doubt.

However, this quickly changes in the first weeks of the deployment. Because the situation in Afghanistan is very different the team has to adapt both mindset as well as the schedule. Every MTS members adapts in their own way, however as people do not know each other that well these coping differences lead to irritations, and even a harsh confrontation between two contractor team members. Moreover, one of the contractor members makes several mistakes in the first few weeks. Since the atmosphere in the contractor team already tense each mistake is carefully weighted, and heightens the interpersonal irritations. The problems within the contractor team influence the work of the construction team, as they receive faulty drawings, and are caught in the middle. Subsequently, the CT identity of the construction team members increases, as the problems with the contractor team reinforces their gut feeling, and earlier experiences. At that time the construction team members show a lot of ingroup favoritism, and negative jokes. The CT identity of the contractor team members decreases, as there is not we-feeling whatsoever in the contractor team. The CI team hardly notices the problems within the contractor team, and between the contractor, and the construction team, as their work is less dependent on teamwork. As time progresses the problems within the contractor team increase, subsequently the contractor team members make an effort to create interpersonal relationships outside their team. Hence, there is more contact between members of the different teams. At the same time one of the construction team members is also having problems within his team. The quantitative and qualitative data show a decrease in CT identity, hence the boundary between the contractor, and the construction decreases.

The just described identity changes are also visible in teamwork. At the start of the deployment several teamwork variables are significantly better in the CT compared to in the MTS. However, near the end of the deployment these significant differences have disappeared. Nonetheless, there is definite negative spiral in the MTS. MTS members do not trust each. Leading in distrust is Chris. He is suspicious of both contractor team and construction team members. The lack of trust also makes mutual performance monitoring a sensitive issue. For some all the mutual performance monitoring activities feel like negative criticism, and signs of distrust, while others are happy with the feedback they receive. The ones who are happy often have a good and trusting relationship with the person doing the mutual performance monitoring. The MTS is slow to adapt. Chris' inflexibility leads to a lot of frustration in the MTS. Communication is another prevalent issue. From the beginning of the deployment there are communication problems. There are a lot of instances of misinterpretations. People also feel barriers to talk to members of the other teams. While there are a lot of meetings not everything is being told or it is only being told at meetings. As the interpersonal relationships grow, so does the quality of the communication. In general the communication in the MTS stays meager. The communication quality impacts the extent to which people have a shared mental model. The

MTS members are not always on the same page, leading to miscommunication and irritation if people show unexpected behavior. The problems with the shared mental model coincide with role ambiguity and instances of role conflict. All these elements only worsen the teamwork quality. Moreover there is hardly any cross-boundary supportive behavior. The CI team does help out the construction team a lot yet they are not really helping because they really want to. The contractor and the construction team members do not show any helping behavior. The amount of team orientation differs per person. In the construction team and contractor team there are various individuals who show team orientated behavior. One main figure does not show this kind of behavior and that is Chris. Subsequently some very important decisions are not made in the advantage of the MTS as a whole.

Chapter 6 Case study 3

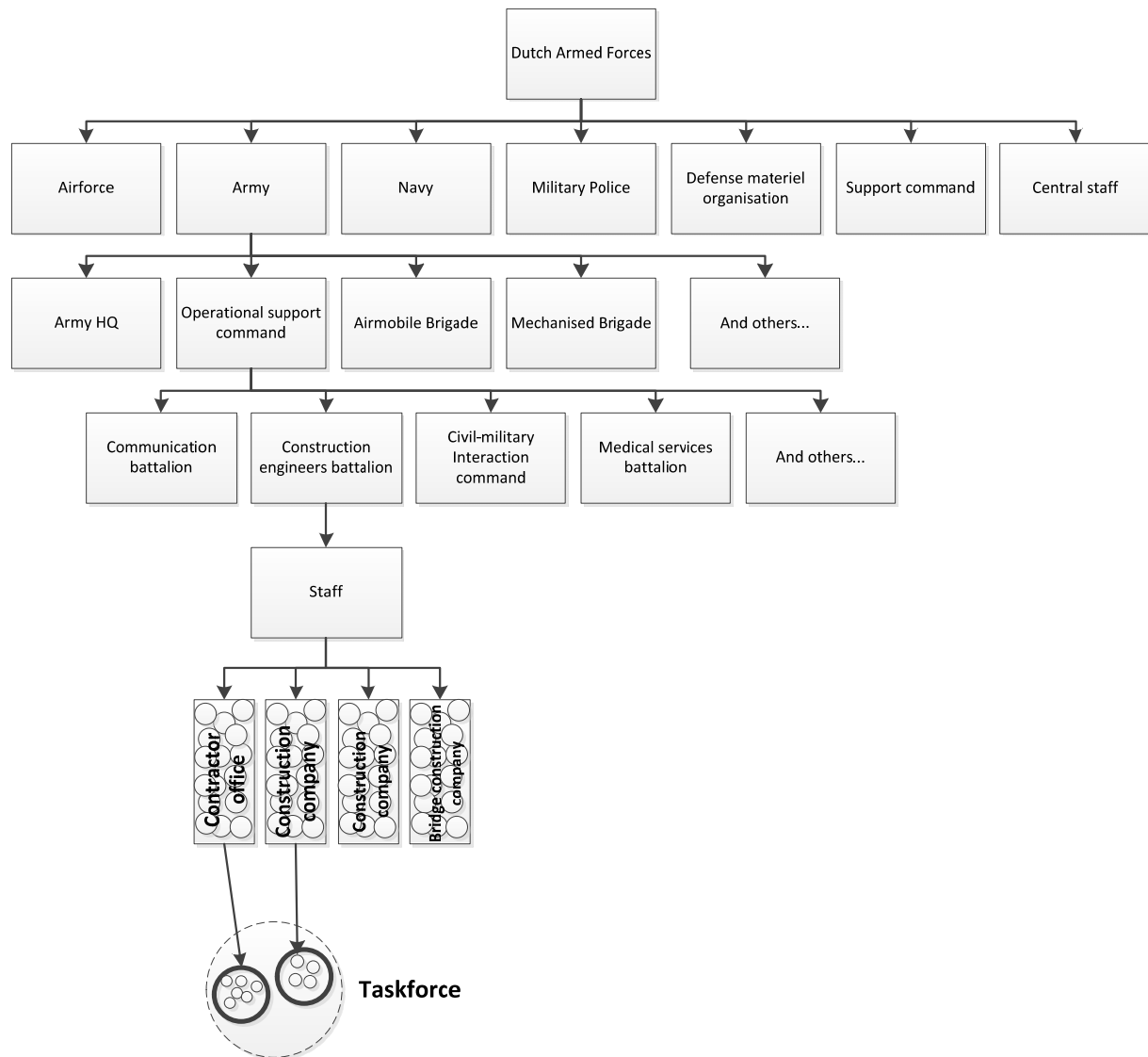
6.1 Introduction

The engineering taskforce that occupies center stage in this chapter succeeded the taskforce from chapter five. However the taskforce in this chapter only works in Mazar-e Sjarif (MeS). Similar to the taskforce in the two previous chapters the taskforce in this chapter conducts smaller construction projects.

6.2 Description of the taskforce

6.2.1 Compositional attributes

In the Dutch armed forces there is one construction engineering battalion. This battalion is tasked with all infrastructural works outside of the Netherlands. These military construction engineers are trained to build bridges and compounds in dangerous and complex environments. Figure 18 provides an overview of the Dutch armed forces in the form of an organization chart. The organization chart indicates the construction battalion falls under the auspices of the Operational support command of the army. The construction engineer battalion consists of three construction companies and a contractor office. The two construction companies are divided into four disciplines, namely installation engineering, electric engineering, construction engineering, and civil engineering work. The third company is specialized in hydraulic engineering, and bridges. The taskforce consists of a team from a construction company and a team from the contractor office. The circle at the bottom of Figure 18 depicts the taskforce. In the following two paragraphs both teams are described in more detail.

Figure 18: Organizational chart of the Dutch Armed forces**The contractor team:**

The contractor team has of four members: John, Jane, Fred, and Matthew. The ages of the four members range between thirty- and thirty-nine years. All members finished lower vocational training. Sergeant-major John stands at the cradle of the taskforce as well as of the project. He is the one who made an assessment in Afghanistan and lined up the projects. John is an installation engineer. He is part of the contractor office for over four years and with the military for more than seventeen years. Sergeant Matthew is an electrician who just finished his non-commanding officers course. He is part of the military for more than ten years and new to the contractor office. Matthew is very happy he got a job at the contractor office. Then there is Corporal Fred. Fred is a draughtsman and construction engineer. He is part of the military for seven years. Fred is part of the contractor office for one year. He really likes working there. Prior to working at the contractors' office he worked as installation engineer at the same construction company from which the members of the

construction team originate. Fred joins the taskforce as a draughtsman. It has never happened before that a draughtsman joins a taskforce. *'My work kind of stands alone from the rest of the work of the taskforce.'* Sergeant Jane is from the logistical center of the contractor office. The logistical center consists of both engineers and logisticians. She is a logistician. Jane is the only woman in the taskforce. She is works in the military for seven years. All four contractor team members have been deployed before. John leads with six deployments, Matthew three, and both Fred and Jane were deployed once.

The construction team:

The construction team consists of nine individuals whose ages range between twenty-two and thirty-two years. The tenure with the armed forces ranges between three to ten years. Tenure with the own company ranges between half and one and a half years. There is one exception. Seth has been part of the company for more than five years. The construction team is divided in three groups. An installation engineer group, electrical engineer group, and a construction engineer group. Except for the commander everyone has completed lower vocational training in his or her line of work. The commander of the taskforce is Pete. He is also platoon commander of the platoon from which the members of construction teams originate. Pete is a young lieutenant who has just started his career. The deployment is his first deployment. The platoon is his first platoon. Another important player in this team is Sergeant Ryan. Ryan is an installation engineer who has just become a non-commanding officer. Corporal Shaun is the commander of the construction group which is interesting since he is not a non-commanding officer yet. Most of the members of the construction have been deployed before. Otto, Andrew, and Pete are the only ones for whom it is the first deployment. An overview of the members of both contractor and construction team members is provided in Table 12.

Table 12: Overview of the central figures in the taskforce

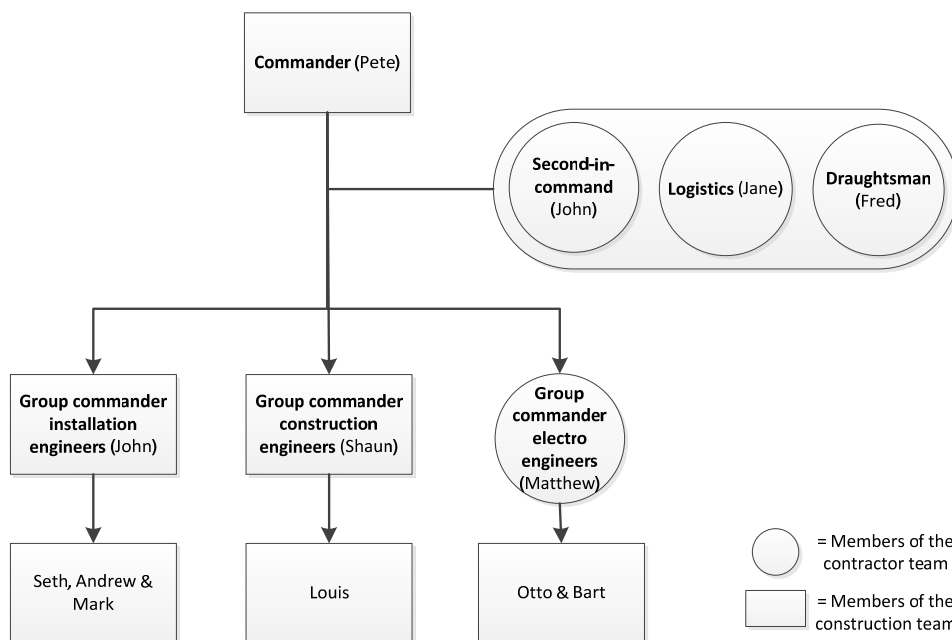
Team	People
<i>Contractor team</i>	John (second in command), Fred, Matthew, and Jane
<i>Construction team</i>	Pete (commander), Ryan, Shaun, Seth, Mark, Stanely, Andrew, Otto, and Bart

6.2.2 Linkage attributes

The construction projects are the main linkage attribute between the contractor and the construction team. Members of each team need each other to execute the tasks. Additionally there is the chain of command which links the two teams. Previous taskforces experienced problems. According to Pete these problems are caused by the chain of command. *'I do not understand the chain of command of the other taskforces. Sure separate the taskforce in two groups, why don't you, like that will work!'* Hence he and John design a new chain of command. Another reason for changing the chain of command is the ratio construction team members to contractor team members. The

ratio is 2:1, so one contractor team members monitors the work of two construction team members. *'I would already get nervous if I would think that there is someone watching everything do every day.'* The contractor members do more than just monitor work, for example John is also assigned to lead one of the groups. Pete and John use the chain of command to remove the boundaries between the construction and the contractor team. Figure 19 shows that contractor and construction team members are spread throughout the taskforce. The grey colored shapes in Figure 19 are members of the executive staff. Thru integrating the taskforce John and Pete hope to prevent team members having multiple roles or loyalties. *'In the taskforce they will not act as contractor office representatives but as taskforce representatives.'* For some this distinction is very clear while for others it is not. *'My role is clear. I am the second in command. I am not a representative of the contractors office.'*

Figure 19: Chain of command in the taskforce



6.2.3 Developmental attributes

The taskforce is newly formed and appointed for the period of January 2013 till the end of May 2013. The number of teams and the linkages between the teams in the taskforce do not change over time. The number of taskforce members in the teams is constant with two exceptions. The taskforce does not leave for Afghanistan as one group nor does it return as one group. John leaves the Netherlands two weeks earlier than the rest of the taskforce to prepare for the arrival of the taskforce. One member returns to the Netherlands two weeks earlier than the scheduled return date and four members return two weeks later.

6.3 Story line

The time frame of the case study spans approximately six months. In the story line these six months are divided in three time slots: 1) pre-deployment, 2) deployment, and 3) after the deployment.

6.3.1 Pre-deployment

Morning roll calls

The story of this taskforce starts January the first 2013. On that day the members are officially assigned to the taskforce. From this day on Pete demands that every taskforce member takes part in the morning roll calls of the battalion. Pete hopes that if people see each other every day the taskforce members will stay aware of the fact that they are part of the taskforce, even if after the roll call people return to their original department. During these daily roll calls the taskforce stands together as a separate entity within the construction battalion. The reaction of most of the taskforce members regarding to the mandatory nature of the daily roll call is: *'Is the roll call really necessary?'* Some of the taskforce members quickly see the use of the roll calls: *'It helps to remind you, oh right, we are the taskforce.'* At first the two teams in the taskforce are somewhat reserved, as many members do not know each other. There are some interconnections between the two teams. Fred and John for instance know several of the construction team members from earlier deployments and jobs placements. These interconnections help loosen up the interaction between the two teams. Next to the mandatory roll call Pete orders everyone to wear his or her deployment uniform from the moment that the uniform is provided. In this way he hopes to stimulate a sense of togetherness and show other colleagues that they are a team that is scheduled to go to Afghanistan. Pete also demands that all the taskforce members are relieved from their normal duties. *'I do not want people to miss things because they have some dumb task, no way. You are part of the taskforce now, and the only tasks you will do are for the taskforce.'*

Introduction to the projects

In the second week of January John presents the results of his trip to Afghanistan and the projects that resulted from it to the rest of the taskforce. After the presentation Pete and John split the taskforce up in their expertise groups and tell them to provide feedback on the draft plans. The installation engineers think about the installation projects while the electrical engineers think of the electro projects. The groups make alterations in the drawings, come with new ideas, and think of the materials they will need. John then takes these ideas back to the responsible departments within the contractor office. Normally taskforce members are not involved in the planning phase of the projects. The taskforce often just receives the final drawings. The way this taskforce approaches the deployment is therefore very different from earlier taskforces. Not everyone is happy with this new approach of the taskforce. A member of the contractor office says: *'the way things are going right*

now is not desirable. The taskforce is doing our work, they are making mistakes, and there is no communication.' The taskforce members on the other hand are very positive about this way of working. *'It is nice, because you have influence on the process', 'It was good, because we have a clear idea of what is going to happen. For instance I know what material is coming, because I ordered it, prepared it for shipping, and I will be receiving it', and 'We actually saved 10000 Euros!'* While the drawings are finalized in the contractors office, the taskforces starts of a week extra job training related to the projects. This week of extra job training is one of the mandatory activities on the pre-deployment activities list. The pre-deployment activities list is a standard procedure order by the commander of the armed forces.

The teambuilding week

Pete feels the standard list of mandatory pre-deployment activities misses something crucial: teambuilding. Pete therefore sets up a five-day teambuilding program. The first two days consist of core military exercises. The taskforce members march, run, and sleep in the rain for two days. After a couple of hours on the first day the first taskforce member start to complain. *'Why do we need to train these military skills? In the deployment we will never need use them!'* People are angry with Pete for coming up with such a program. Pete tries to listen to the complaints, yet he does not really react. Pete does not want to explain how these two days fit into the overall teambuilding program, because he does not want to spoil the teambuilding effect. A member of the executive staff is complains the loudest on that first day. That person does not understand the value of these exercises. The trainers who lead the two-day military exercise take the person aside. They tell him that his behavior is inappropriate for someone with his rank. Especially because he negatively influences the behavior of the soldiers. The second day the taskforce members stop nagging at Pete, instead they start to take their frustration out on each other. *'I saw one person really tell off his friend who was just trying to cheer him up.'* After the two days in the field the taskforce goes the Amsterdam Arena to confront personal fears. The assignment is to take an obstacle course high up in the roof structure of the arena. The idea behind this exercise is to see how the taskforce members act when they themselves or their colleagues are afraid. Later that day the taskforce members talk about the last couple of days during a nice dinner and drinks in Amsterdam. At one point during the dinner Bart leaves without saying anything to anyone. Nobody knows where he went. Bart returns within the hour. He just went to get a massage across the street. This is the first time the taskforce members are confronted with Bart's need to do what he feels like.

The next day the taskforce visits a military facility specialized in teambuilding exercises. In this teambuilding session the goal is to reflect and provide feedback on how people acted in the last days. An additional goal is to get to know each other better. A neutral person leads the exercises and Pete

participates like any other taskforce member. At the starts of the exercises he encourages the taskforce members to be honest and provide him feedback on his behavior as well. The Monday after the teambuilding week several taskforce members are still a bit cross about the fact that they had to run and sleep in the rain, yet others now understand Pete' goals. *'We really got to know each other. The positive and the less positive sides [...] is really good for the group. [...] Creates fellowship';* and *'We learned a lot about the personal side of each other, but not the work-related side and that is a shame.'* John is the only team member who does not participate in the teambuilding week. His wife is sick that week, so he has to take care of the children. In the teambuilding week the idea of a team logo is born. Several taskforce members draw up their ideas for a logo. Two taskforce members then take those ideas and design a logo. *'That's a sign of some sort of commitment to the taskforce right?'* The logo is printed on sweatshirts and everyone in the taskforce, except for Matthew, buys one and brings it with them to Afghanistan. *'We can wear those shirts when we are going to the gym together in Afghanistan.'*

The executive staff has an additional teambuilding moment about role expectations and day-to-day deployment issues. In this session the members of the executive staff each describe their own tasks and responsibilities, and what they expect of the other executive staff members. Matthew, for instance, wants to report his progress to himself because Pete has no background in electric engineering. Pete, however, wants Matthew to report to him just like everyone else. *'Because we talked about it now, I hope that it will not be a problem during the deployment.'* The staff also talks about the daily structure in Afghanistan. Pete really wants to incorporate mandatory things in the weekly structure, like sport moments, having breakfast, lunch and dinner together. *'I am not sure yet how much you can prescribe, how much people need their privacy, until it will lead to aversion.'*

Other pre-deployment activities

The last weeks before the deployment are filled with other mandatory activities, such as the shooting range, military first aid, picking-up the deployment uniform, and checking-in their luggage. The first activity is the Mission Oriented Instruction (MGI). The MGI is an educational week filled with presentations linked to the deployment. Most of those topics are not relevant for the tasks of the taskforce because they will hardly leave the base. The atmosphere during the MGI is good. The taskforce members talk and joke around with each other. During lunch the taskforce splits up in a group that brought their own lunch and those who did not. The two groups consist of both contractor and construction team members.

Then there is a day at the shooting range. At the shooting range the atmosphere is very relaxed. People share experiences of earlier deployments, mingle, and jokes are made. Even jokes about the

task force itself. They call themselves *'taskforce 70%'*. The 70% indicates that not everything is ready yet or goes as planned. For example the taskforce drove one-and-a-half hours to the distribution center to pick up their uniforms only to find out that their appointment was cancelled. The taskforce members also joke with each other, like *'Matthew the electro guru'*; and:

Seth: *'Do you want a chewing gum?'*
 John: *'Why do I need one?'*
 Seth: *'Well, let me check' ... [he smells John's breath]... 'yeah you better take one'*

The jokes are made openly and group boundaries do not seem to play a role. People also talk about each other roles and tasks. An interesting conversation takes place between Seth and Matthew. Seth asks Matthew: *'Matthew are you also part of the contractor office?'* Matthew answers he is, and that Jane, Fred, and John are as well. Seth then replies: *'Well John is not really right now, because now he is our second in command.'*

The next day the taskforce members clean their weapons together. John starts with a short update of new developments and explains why Jane, Pete, and Matthew cannot attend. The atmosphere is very relaxed. Everyone chats, jokes, they help each other, and cultural exchanges take place. For example, at one point the construction team members talk amongst each other about the 'knuppel'. The 'knuppel' is a symbolic artifact that you are nominated for if you have done something stupid. While the construction team men talk about this tradition, Fred jumps in and explains that the contractor office actually has the same tradition just with a different artifact. So during the small moments that the taskforce is together they get to know each other better.

The last pre-deployment activity is a first aid class in Wezep. Again the taskforce members mix, talk, laugh, joke around, tease, and help each other. It is a relax atmosphere. Interestingly enough, during lunch everyone scatters over the military base and disappears. The taskforce team members do not even wait for each other not even if they go in the same direction. Matthew and Bart for example are already enjoying their meal in the dining facility when Jane and Ryan arrive. During lunch the conversation dies down quickly. Then all of a sudden Bart gets up, grabs a coffee, and leaves without a word. Several minutes later Ryan does the same. Jane and Matthew are left at the table and start talking about projects related to the taskforce. After lunch everyone is back in the room and the atmosphere is cheery again.

The atmosphere in the taskforce is generally very social and everyone mingles during breaks. Seth is the one who is most in forefront, joking, and talking. The contractor team members do 'stick' together a bit more, as they have the same age, and similar tasks. *'It is really a team. Of course at the start you are drawn to the other members of the contractor office, and the men to the construction*

team, yet it is really one team, it might also have to do with the fact that the contractor team is the executive staff.' There are also 'cliques' which cross team boundaries, such as Bart and Fred. Both men were part of a company that was dissolved a year ago, they live in the same town, and carpool to work together. Two men of the taskforce stay a bit on the sidelines, namely Ryan and Bart. Bart just likes to be on his own while Ryan is more serious than the younger men in the taskforce.

Interaction between Pete and John

John and Pete spend much time together. Thinking about the projects, possible barriers, problems, the teambuilding aspect, and individual taskforce members. *'I knew that there was a click the moment Pete agreed with an 8-hour workday. Many young officers go for their own career and see the deployments as ways to further that career. They use the men to do this.'* The relationship between John and Pete is very natural. A good example of this is when John sees a picture of Pete during the activities in the Arena on the front of the military newspaper. John immediately sends Pete a text saying: *'Hero! How cool!'* Pete and John have a lot of confidence in the taskforce members. *'It is a good group. There is a lot of experience [...] I know 80% of the people so that builds trust.'* Of course there are always some people who need extra attention. *'Because this is all new to him and a lot of things going on at home.'* There is one person Pete and John worry about and that is Matthew. *'I worry that he will not work in a team formation, that he will go solo.'* Pete's worries might be valid because one day during lunch when Matthew tells a colleague that he is going to Afghanistan he says: *'I see this deployment more like an individual deployment, because we are with three electro engineers and have our own program.'* John about Matthew's home situation *'I am not sure whether or not he should go on a deployment at this time, because his wife is pregnant with their first child.'* John's worries are also valid because Matthew is very clear about this deployment. *'Neither my wife nor I will stand it if the deployment lasts longer than the promised seven weeks.'*

The departure

Then the moment of truth arrives. The departure date. The taskforce members are excited. *'Everyone is looking forward to going. We are well prepared. We know what we can expect. We want to accomplish the tasks. Everyone has healthy jitters.'*; *'Everything is well pre-pared. There is nothing left to prepare anymore'*; and *'We are ready!'* Some of the taskforce members say good-bye to their families at home and others at the military airport. It is very busy in the departure hall. Pete divides his time between his own family, other colleagues, and taskforce members. Jane, Matthew, and Fred stand together and observe the many families.

6.3.2 The deployment

The second day

'Everyone get up! Now! I want you in your gym clothes outside in ten minutes!' The second day of the deployment starts with an angry John. He is upset because everyone overslept. John is in Afghanistan for about two weeks when the rest of the taskforce arrives. John left earlier to make sure that everything is ready for the taskforce when it arrives. The first day the taskforce members are very excited. They roam around the base, drink coffee, and visit the shops. The atmosphere is that of a school outing. John understands that there is a lot of new things to take in, yet he wants to set the stage for the rest of the deployment. *'Maybe I was pushing it a bit, but I felt it was necessary.'* John's military wake-up call triggers different reactions. Some find excuses: *'I thought we had someone waking us up.'* Others get very angry: *'Come on man be real why do act like this?'* When everyone is in their gym clothes, John starts with a jog over the base to show the men around. He asks everyone to not run that fast, because he has to keep up. Seth purposely speeds up the tempo. When John calls him back Seth does not react. Then John orders him to come back. Seth still does not listen. The reactions to Seth's behavior differ. Some taskforce members think *'Here we go'* while others think *'Come on, just forget it, we have to accomplish this job together.'*

Housing situation

At arrival the taskforce is set up in a transition tent. A transition tent is a large tent filled with bunk beds for approximately twenty individuals. These tents are mostly used for people who stay a few nights as a layover or a short visit. The National Support Element (NSE) is responsible for all facilities and services for Dutch military personnel in Afghanistan. The taskforce is told by the NSE that their stay in the transition tent is temporarily. However, after a week the NSE notifies the taskforce that the taskforce will not sleep in containers after all. The NSE wants to keep the containers available for visitors. John and Pete are infuriated. *'Sure we are working for you, yet you do not care whether we are safe!'*; and *'You see us as transition? Feels very unwelcoming.'* Pete and John visit the NSE every day to try and change their minds about the housing situation. After a week or two the taskforce members do not really mind that they are housed in the transition tent. They tell Pete and John not to worry about it anymore. *'Why bother? Actually the tent is not that bad, because we have a lot more room now than we would have in the containers.'* The taskforce re-arranges some of the beds in the tent to create a small recreational area. Jane is offered a bed in one of the containers. She refuses: *'the men are staying in the tent thus so will I.'* Most of the time Jane has the whole tent to herself.

Officially the taskforce falls under the aegis of the NSE and needs to wear NSE badges. Around the time the NSE refuses to place the taskforce in pre-fab housing one of the taskforce members orders

badges with the taskforce logo. At first John has some doubts whether or not wearing the badge is a wise thing to do, because *'it really signals, we are a different team'*. On the other hand the badge also signals *'Fuck you NSE! It is hot, the work is though, we are proud of what we do! Fuck you for letting us sleep in tents instead of containers.'* Everyone except for Matthew buys the taskforce badge. *'He does not really have the team feeling, he was more of the contractor office, the whole bonding thing did not appeal to him'*; and *'Matthew thought the badge was too expensive [four US dollars]. We all thought come on man, if we do it together than it is a lot more fun!'* Throughout the deployment the taskforce members do not receive any negative remarks about the badge.

The daily routine

Pete really wants the taskforce to eat, sport, and relax together, yet he understands it might be too much to ask. Especially as next to working together people now also sleep together in one tent. So after two days Pete announces it is no longer mandatory to eat with the complete taskforce. The taskforce starts the day around six o'clock when some taskforce members go to the gym to work out. Afterwards everyone meets at the arbor for an early morning coffee and to assemble for breakfast. Around eight o'clock everyone is at their workstations. Coffee at nine thirty then lunch. Every group has a different schedule, therefore the taskforce members do not meet for lunch. However if taskforce members work in each other's proximity they try to have lunch together. If taskforce members see each other in the dining hall they sit together. After lunch it is back to work till six. At five o'clock Pete is debriefed by the NSE, followed by the internal executive staff meeting at five-thirty. The executive staff often run for about twenty minutes. The rest of the taskforce drinks a coffee and waits until the executive staff meeting is over before they go for dinner. If the meeting runs late the other taskforce members leave earlier. At MeS there is a German and an American dining facility. The taskforce often splits up in a group that wants to eat German food and a group that wants American food. If certain taskforce members join later the others wait until everyone is finished before leaving the table. A coffee often follows dinner and then the evening program starts. In the first week most of the taskforce members go to the Dutch bar together to talk, however this soon dies down. A group of ten taskforce members does Insanity together on the square in front of their tent every night during the first month. Insanity is a very intensive work-out that eventually causes everyone to be injured within a month. *'Insanity was a lot of fun. We really tried to pull each other through the work-out.'* Each taskforce member finds his/her own structure. Some look for interaction while others try to find some time for themselves. Bart, for example, likes to be on his own. One time a taskforce member joins Bart while he watches television in the common area, subsequently Bart gets up and leaves without saying a word. *'That is just who he is. He did the same thing in Amsterdam when we were there.'*

The executive staff attends the daily executive staff meeting. After several weeks Fred also joins the meetings as Pete has to debrief him anyway since he is not part of any of the groups. It is useful to have Fred in the meetings, because he is immediately informed of changes which need to be incorporated in the drawings. These meetings give everyone the time to confer daily progress, discuss possible problems, and make decisions. The atmosphere in the meetings is open, people are able to add points, and they help each other. Pete and John also walk around during the day to see how everyone is doing and how projects are progressing. Later in the deployment the projects are executed more in each other's proximity and the taskforce members actually see what everyone does. The morning coffee moment at 9.30 is another important moment during the day. *'Then you hear the problems that people face while working.'* *'Other people just did not perform their tasks. Then I went and took care of it. However I had to be careful when I did that, because I was working around someone. Doing their tasks.'*

The taskforce members form a team. *'Really one team, so it is taskforce XX.'* Like in each group there are cliques. The contractor and construction team members spend more time with members of their own team. *'The contractor team members do spend more time with each other. That makes sense because they are all about the same age. They are all somewhat older.'*

The task changes

Halfway through the deployment Dutch parliament votes for the redeployment of the Dutch troops from Kunduz. The consequence of this decision for the taskforce is that it loses three weeks' worth of work in Kunduz. Even though the Kunduz tasks are cancelled the taskforce cannot yet leave Afghanistan, because they need to finish certain tasks in MeS. However, the equipment for these tasks has not yet arrived. Pete and John look at the calendar and think about to fill the extra month of time. They both agree they have to find work for the men, because the men will otherwise get bored which will then lead to problems. *'These men seem to have ADHD [...] If you let them carry heavy objects the whole day, they will see it as a warm-up, then you have them do excessive physical exercise, only then they will be tired enough to go to sleep.'* Pete and John think the redeployment news might create chances for the taskforce, as there is a need for a redeployment area. The contractors' office in the Netherlands contacts Pete and John about the new plans for the redeployment area. The office asks them to gather information and take measurements. The cooperation between the contractor office, Pete, and John does not work well. *'They were on their own little contractor office island and started to demand all sorts of things.'* Logisticians in MeS tell Pete the plans of the contractor office does not suit their needs for a redeployment area at all. Pete's premonition that the contractors office only focuses on its own benefits instead of on the benefits of the Ministry of Defense is reinforced thru what he hears from the logisticians. The attitude of the

contractors office really irritates him. So Pete and John start to make their own plans for the redeployment area. They reason that if the taskforce is allowed to develop and build the deployment area, it is a chance to illustrate the advantages of advanced construction platoons. Advanced construction platoons are a new phenomenon within the construction battalion. These platoons must be capable of designing plans, work independently, and be flexible. While Pete and John work on the redeployment area plans, they let the taskforce know that there are some developments regarding the role of the taskforce in the construction of the redeployment area. An assessment team of high-ranking officials of the Ministry of Defense is on its way to Afghanistan to assess the redeployment works. Pete and John decide to take advantage of their visit. They design and present an alternative plan for the redeployment with the taskforce in the lead. *'I can make it faster, cheaper, and it will be ready per the first of May instead of the first of July.'* Pete's presentation of the plans is successful, and the taskforce is ordered to build the redeployment area. The contractor office in the Netherlands is not happy with the way Pete and John 'hijacked' the assignment and 'cheated' it out of a possible extra deployment.

Within the taskforce the news of the new task is met enthusiasm as well as irritation. *'Of course we want a new assignment, because a lot of our work fell through'; 'We had clear tasks, why do you need to change that and add things?'; 'He is only doing this to further his own career'; and 'Come on son, step back you are going way too fast'*. Most irritations are about whether the new assignment is doable. *'I have an assignment, what happens if I cannot finish my own assignments on time? Then too bad of your new job. How will you fix it then?'; and 'Did he even think about where is he getting the materials? He did not even ask me if it is doable!'* Fred is not happy with *how* the taskforce got the extra assignment. He feels that Pete and John stole the assignment from the contractor office, as Pete and John trespassed many people in the contractors' office to get the assignment. Even though there are mixed emotions about the motivations behind and the way Pete and John got project the project in itself really excites people. Especially after Pete and John assign every group their own little project area that they have to design, plan, and build. *'The new assignment really fitted well into the deployment. It was really nice to do, really creative, and really gave a sense of satisfaction!'; and 'I really liked the new assignment. If you think of the fact that it was a bare piece of land partly washed away by the flood, and we were allowed to think out a plan ourselves. It really motivates if you are able to accomplish something together.'* Apart from two hick-ups the redeployment area project progresses well. The first hick-up is the time it takes to get extra material from Kunduz to MeS. Several men cannot start their work, because they wait for material. This is agitating as they want to finish before the set departure date in May. The second issue is caused by the course of nature. At the end of April there is a major flood which delays the work two weeks. Several taskforce members

are afraid the taskforce needs to stay longer now. Pete and John clarify that no one is forced to stay. Only volunteers will stay longer to finish the project.

Atmosphere

The general atmosphere in the taskforce is good. *'The taskforce members really help each other. Does not matter whether you are from the construction or the contractor team'*; and *'There were no boundaries. You could just ask anyone something.'* The context of MeS is not perceived as stressful. *'No stress. It was not a very exciting environment'*; and *'The only thing that could happen was that a window would fall on your head, and then you are really unlucky if that happens.'* People laugh and joke around. *'Jokes are necessary. They break down barriers, so that you get to know each other.'* The taskforce also has inside jokes that only they find funny. One of the inside jokes is if someone tells a story, you sarcastically reply with *'Great story; nice and short'*. It is one of the standard replies within the taskforce. Taskforce members sometimes also reply this way when they speak to members of the NSE. NSE however feels offended. *'Ha-ha, if they do not get it that is their problem.'* Not all jokes are nice and collegial. Several taskforce members make unfriendly jokes about a certain taskforce member. This behavior is condoned by some taskforce members, and they stand up for their colleague. Pete also participates in these unfriendly jokes.

Escalating interpersonal problems

Over time the good atmosphere in the taskforce starts to change. Interpersonal work related irritations develop. Several taskforce members are not happy with the way Jane does her work. The men feel that while they are working hard, she merely sits in the sun smoking cigarettes, and never helps them. *'Jane was a member of the taskforce, but a little less of a member. Everyone knew that she is the one who does the least.'* One specific incident reinforces the pre-existing ideas about Jane. Jane is sent to Kunduz to assess the state of logistics center there and to plan its dismantling. After her return she summons the men who will execute the task in Kunduz to a room to brief them about the project. Jane shows the men six pictures of Kunduz and then asks: *'Are there any questions?'* The men are perplexed. Is that all the information they get? *'Ehh yeah, what do we need to do?!'* *'She had no plan, nothing! While she did an assessment!'* Fred tries to defend Jane. He feels sorry for her so he always invites her to come along. Fred also tells the other taskforce members that even though they do not see her work he knows she works hard. Nonetheless the notion is there and remarks like *'she cannot even operate a forklift'*; and *'there she is on her lazy ass again'* are hard to get rid of. Although several taskforce members are really annoyed with Jane's behavior they do not confront her directly. Shaun states that he does not confront Jane directly in the daily meetings, because he does not want to walk out on her in the presence of others.

Next to work related irritations interpersonal irritation develop and impact the effectiveness of the taskforce. One of these issues are the problems between Seth and Ryan. Ryan is the installation group commander. He is the one who gives the assignments and checks installation works. Seth is his second. So Seth steps in when Ryan is not there and supports the group with other smaller tasks. Seth has problems with the way Ryan leads the group. He feels Ryan spies on them, does not tell them everything, and treats them like children. Ryan listens to Seth and tries to adjust the way he approaches Seth. He tries everything from giving Seth more freedom to being more strict. Nothing helps. Seth approaches Pete and tells him that he does not want to be part of Ryan' installation group anymore when he returns to the Netherlands. Pete promises he will give that information to the company commander, yet he asks Seth to focus on the mission for the duration of the deployment. Seth promises he will. Nonetheless, the problems between Seth and Ryan escalate and start to influence the effectiveness of the taskforce. There are several task related issues, however what is worse is that Seth pesters Ryan personally by isolating him. For instance, in the dining hall Seth greets everyone but Ryan. If Seth gets coffee, he gets everyone a cup except for Ryan. Seth's behavior really gets to Ryan. *'I am really falling apart.'*

At first not every taskforce members is aware of the extreme tensions between Seth and Ryan. Yet over time the problems become more obvious. *'I did not really know until I asked someone why he was so grumpy, then the whole story, and all the frustrations poured out.'* Seth and Mark isolate themselves more and start to act as a separate group within the taskforce. They wear their hair in a mow hawk, wear lighting-shaped sunglasses, and talk very loud and animated. The behavior of Seth and Mark annoys many of the taskforce members, because it rubs off bad on them. *'He ruins everything we have been trying to build up here'*; and *'People start to think 'Look, it is those weird engineers again!''* Seth also gets into conflicts with other colleagues besides Ryan. The conflicts with other colleagues start when those colleagues confront Seth with his behavior. Tensions in the taskforce rise. The atmosphere starts to become mischievous, especially if Seth and/or Mark is/are around. *'Really two fronts, for instance in the dining hall there were two groups, group of Seth and group of Ryan. The two groups sat at opposite sides of the dining hall. You really noticed that it is not going well.'* Taskforce members even get up earlier just to avoid both the early-morning coffee moment and breakfast. During evaluations taskforce members stop giving their opinion. *'What if Seth gets angry?' 'The whole taskforce is suffering because of one little men'*. Especially the electro engineers notice the change in atmosphere when they return from a three-week tour around different military bases. *'Tensions and people are not talking to each other'*; and *'Fronts had developed. People did not talk with each other, and we heard all kinds of stories about Ryan and Seth.'*

The electro engineers

The electro engineers are a small group of three who visit several bases in Afghanistan to test electrical stations. *'They are really a separate group doing their own thing.'* In those weeks they only have each other. *'You have to wait and see who they are as you hardly know them [...] we needed to get used to each other and find a modus operandi.'* *'Otto and I really work well together He knows me. We could be honest.'* Bart and Otto both have problems with Matthew. Matthew is a serious man who takes his work very serious. At the start of the deployment Matthew's attitude is interpreted as a 'sergeant-knows-it-all'. This attitude really annoys the two other men. Through jokes Otto and Bart try to let Matthew know that they dislike his superior attitude towards them. Matthew calls the contractor office in the Netherlands a couple of times a day to get permission for certain actions. He is not allowed to make certain decisions on his own. Yet this asking for permission all the time really drives Otto and Bart, as well as Pete and John, crazy. Halfway through the deployment Otto steps into Pete office and says: *'I really cannot stand it anymore! He treats us like children!'* John talks to Matthew and from that moment on Otto is allowed to work on solitary tasks a bit further away from Matthew.

A taskforce member is send home

John and Pete decide that there have been too many incidents related to Seth. The last straw is an email of a befriended officer of Pete in Kunduz asking him *'What kind of guys did you send?! 'If we let him stay, it will be the end of the taskforce [...] I do not want people to have psychological problems, because of what happened in this taskforce.'* Pete and John carefully plan the process of letting Seth go. First, they have to get approval and find a way to let Seth go without hurting his future career. Then they let the construction battalion in the Netherlands in on what is going on and that someone is coming home early. The battalion commander in the Netherlands is very surprised to hear one of the taskforce members is send home. *'Why did you not let us know earlier that something was going on?'* This is a discussion Pete and John had earlier in the deployment. Pete does not want to tell the battalion commander what is going on, because he received the order that if something goes wrong keep it within the taskforce and fix it yourself. John is of the opinion they should at least tell officials in the Netherlands something is going on. Pete admits to John that John was right, and he should have told the officials in the Netherlands earlier about what was going on. The issue with Seth really gets to Pete. He does not like taking this decision, but he feels it is best for the team.

One morning Pete and John call Seth in and notify him that he is being send home. Seth is furious and shocked. Pete orders him to go to the tent, cool-off, and meet up with them in a few hours. Outside the social worker 'coincidentally' walks by and calms Seth down. Then Pete and John notify the rest

of the taskforce that Seth will be send home. Seth's plane leaves in two days. During these two days Seth will work with another group on the base. The reactions of the taskforce members are very diverse. Ryan is very relieved and feels supported by the leadership. Seth's 'posse' is stunned and disappointed. Others are surprised. *'I did not know that the tensions were that high.'* Some taskforce members feel that it is too late in the deployment to send Seth home, since it is only two more weeks before the whole team leaves Afghanistan. Certain taskforce members feel that Seth's is unfairly judged. *'Pete choose Ryan' side instead of Seth's side, this was predictable, because Seth is just a corporal, and the executive staff are very close with each other.'* The news is not new to the executive staff, because they were notified the day before. Their task now is to start the normal day routine and see how everyone takes the news. At first most of the taskforce members react emotional, however within a few hours this turns into the general opinion of: *'It could not have gone on like it did, so it is better this way';* and *'there was really unworkable situation.'* Most taskforce members just feel sorry for Seth and the team. *'He is a team member. You do not want to see a team member go';* and *'It really is too bad. You came as a group and you want to leave as a group. Is a piece of solidarity.'*

When Pete, John, and Seth talk that afternoon Seth is calm. He agrees that his behavior was out of order. He asks whether it is possible for him to direct some words to the taskforce later that afternoon, as he will still be working with them in the Netherlands. Later that afternoon Seth apologizes to several colleagues for his behavior towards them. The apologies are accepted, but all is not forgotten. *'I never want to work with him again.'* Most of the other taskforce members appreciate Seth's gesture of the apologies.

The knowledge that Seth is leaving immediately impacts the atmosphere and cooperation processes in the taskforce. *'It is like a light switch was flipped on. People were laughing again. Getting coffee for each other. There was music playing';* *'The effect was astonishing. After Seth left the atmosphere sky rocketed. People started to talk again, no more groups that tried to single themselves out';* and *'After he left within a day the atmosphere was good again. We ate together every day from that day on, even if people actually preferred going to the Americans they still joined to the Germans.'* Everyone is able to focus 100% on the projects that lie ahead and not be distracted by all the tensions. *'Everything went back to normal. People were complaining again about another colleague, and how that person was not working hard enough.'*

The last days

Near the end of the deployment personal fuses are shorter, subsequently people also confront each other faster. The taskforce members are even more focused on achieving the deliverable deadline of

the redeployment area. People start to work earlier without being told, because they want to finish before they leave Afghanistan. The redeployment attracts a lot of media attention, and the opening is grand with many high officials. The taskforce receives much praise for their hard work. *'They almost accused us of walking over water. So much praise.'* In his speech Pete thanks the taskforce members for their dedication and hard work of the last couple of months. The flattering remarks makes the taskforce's pride grow. *'It is a really nice result. It is something that we can look back at with pride that we achieved together as a group.'* After the opening the taskforce has a final dinner together, and then eight of the twelve members leave for MeS. The four taskforce members who choose to stay behind are Pete, John, Stanely, and Otto. Pete and John feel obligated to stay behind and tie up any loose ends. Stanely and Otto thought it would be fun to stay behind with John and Pete. Plus the money is another benefit. During those last two weeks the four men finalize contracts, clean up the work areas, and hang up the last lamps. The atmosphere is very relaxed and fun. *'Here we are, the lieutenant and a sergeant major installing lamps.'*

6.3.3 Post- deployment

On the day of the opening ceremony of the redeployment area eight members of the taskforce fly to MeS and from MeS to Crete. *'We left Afghanistan as one team.'* Not everyone agrees with the fact that both John and Pete stay behind. *'We had to arrange everything ourselves [...] there should always be a leader present';* and *'Maybe not good that no leader goes to Crete, yet you do not miss a lot really. Stories are always a matter of perception.'*

During the counseled group talks in Crete one of the taskforce members confronts a colleague with his irritations about her work attitude and how nothing changed even though remarks were made. The colleague is totally taken aback and claims she had no clue people were dissatisfied with the way she worked. *'It was good to get her perspective on things, because now I know that she never got feedback. That is why she did not change her behavior. Now I am less bothered.'*

After the deployment there is no official closure of the deployment. Everyone just takes leave and then returns to their original jobs. Even though they really enjoyed each other's company John and Pete also do not have contact. *'Pete can still call me day and night if he needs something.'* In the Netherlands there are no real problems with the contractor office and the construction company. Several people in the contractor office are not happy with John and the way he and Pete handled the re-deployment assignment. At the same time John is also very disappointed in his colleagues at the contractor office. During the deployment John heard that his contract at the contractor office is not prolonged. *'Nobody put up a fight for me.'* Seth and Ryan stay out of each other's way which is possible, because Seth no longer belongs to the installation group of Ryan.

6.4 Qualitative analyses

The taskforce in the storyline is a Multiteam system (MTS) with two component teams: the contractor and construction CT. In the next paragraphs the issues that stand out after coding and re-coding the qualitative data are discussed.

6.4.1 Development of intergroup behavior

'From the first day we were one group. Of course at first, more like who are you, but it was one group', 'No contractor team versus construction team issues', 'There were no islands. Actually it was one big island and that was us together. That was the power', and 'We are one group now, so we are no longer the contractor or the construction team. We are the taskforce'. The MTS members perceived the MTS as one large team and did not really distinguish between the two CTs. *'Really taskforce XX. For example John is not seen as someone from the contractors office, no he is the second in command of the taskforce. So yeah, during deployment we [as: we the military] do not perceive people as being from another office'.* The common identity is also reinforced by the success of the MTS during the deployment. For example an article about the redeployment area is put up in the office.

Not everyone identifies that strongly with the MTS. *'Matthew is the only one who always protected his contractor office island.'* A good example is this quote of Matthew: *'I definitely think we form a taskforce. Not a construction or contractor group. You know the guys of the construction team joined us, so that is who I have to work with'.* What is interesting about this quote is that Matthew consciously states that the MTS feels as one team, while at the same time unconsciously he states that the construction team joined *them*. Them being the contractor team. Sometime later in the interview he does the same thing. *'Those questions about the contractor office and the construction team, what were those all about. I am a very down-to-earth kind of guy. I do not really care what people think of me. [...] Well it is of course not very nice if people talk bad about the contractors office, especially if they talk about the electricians in the contractor office [...] Really I do not care what people think, and I do not see how identity will influence a little taskforce that is deployed for nine weeks.'* Thus while Matthew thinks he is not subject to any feelings of identity he is actually the one who portrays these feelings the most.

Possessive pro-nouns provide hints about the strength of the MTS identity. Throughout the research most MTS members talked in possessive pro-nouns indicating the MTS. Merely one or two times they also indicate their CT. *'Interestingly most of the contractor team wore the sweater, however our people also wore it', and 'At those points in time we from the contractor team help the construction team. The job needed to get done, and we really did it together'.*

Jokes also provide information about the intergroup behavior. *'If no more jokes were made then it was a signal that something is up. If things are sensitive people are afraid to make jokes.'* The MTS members made fraternizing jokes before and during the deployment. For example, during the first aid practice day the executive staff left the room to reflect on the day. The rest of the MTS members stayed behind in the classroom and waited for the feedback. *'It is really top secret what they are discussing, they will probably not tell us.'* *'Oehh yeah, I think you are right, hahaha!'* Jokes made about each other are not perceived as offending. *'I know many of the men. They look at me differently now, because I am part of the contractors office. That is an office job. And there is always a bit of a competition between the office and field jobs. Of course they make jokes about me being an office men, but I can handle it. I know who is saying it!'*

A strong MTS identity has different effects on the salience of CT identity. In some cases the CT identity disappeared. *'I have no contractor feelings at all, Matthew really annoys me for instance.'* While in other instances both CT and MTS identity seem to occur alongside each other. For instance, the construction company from which the construction CT originates has a strong esprit de corps. The *esprit de corps* of the construction team pops-up several times during the deployment. Pete writes messages on the construction company's Facebook page throughout the deployment. Pete also names the re-deployment area *'area XX'*. XX is the name of the construction company. *'I made a joke about the name, but somehow everyone uses this name now. Is that not funny?'* *We also put our name in the cement.'* John does not agree with these branding 'jokes' and advises against it.

The MTS members displays more MTS ingroup favoritism than CT ingroup favoritism. A good example of the MTS ingroup favoritism is the logo. Remarks like *'the logo is really cool'* and *'It is a tough phoenix'*. There are more general remarks about the MTS: *'We do not safe lives. We do not transport people from A to B. We do not shoot. Nonetheless people are very happy with what we do and with who we are'* or:

American: *Where did you guys buy those roof-constructions?*
 Pete: *At the best guys in town*
 American: *Which company?*
 Pete: *It is not a company, it's the Dutch engineers!*

The amount of ingroup favoritism also becomes clear through the attitude of the MTS members towards non-MTS-members. First of all, MTS members care about how people perceive them. *'For instance in the dining hall there were two groups: the group of Seth and group of Ryan. The two groups sat at opposite sides of the dining hall. This is really strange for outsiders, because it is one group of engineers, why are they sitting in two groups?'* Moreover there is the example in which Jane's states that if the NSE does not get their humor that is the NSE's problem not the MTS's.

Additionally, the contractors' office in the Netherlands is also perceived as the 'other'. *'They call themselves specialists! Just because you take on a position there, does not instantly make you a specialist. They really think they are something. John agreed with me while Matthew felt personally offended. The people from the contractors office do not add anything. We have the same skills in our company.'* John initial reaction to the criticism of Pete on the contractor office in the Netherlands is to defend them. *'Pete is really fed up with the contractor office in the Netherlands, because of some bad experiences during the deployment. He thinks they are not of a very high level. I tried to change his mind, but I did not succeed.'*

6.4.2 MTS teamwork development

6.4.2.1 Component variables

Mutual performance monitoring

The MTS' members monitor each other's progress in the daily meetings. When they work in each other's proximity, they help each other, and walk around on the base. There is a lot of mutual performance monitoring in the MTS, yet the MTS members do not feel 'spied' upon. *'I never had the feeling that John was checking my work in a negative manner, because I know what he thinks about me, and my work. He did not check. He just stopped by to see how things were going. He showed interest, gave many compliments, and was enthusiastic.'*

Supportive behavior

The MTS members help each other a lot throughout the deployment. In the last days before the opening of the redeployment area Pete, Fred, John, and Jane are all at different workstations hammering away. *'At those points in time we from the contractor team help the construction team. The job needed to get done, and we really did it together.'* While Jane is convinced she helps all MTS members many of the MTS members feel that she does not help them at all. Subsequently several MTS' members feel less of an urge to help her. A good example is Ryan. Ryan is someone who normally always helps others out. He is very meticulous. This is what he says about helping Jane: *'I will not do anything. It is her task and I am not going to take over.'* Another exemplar of supporting behavior is backing people up. Matthew does not really have a supportive attitude towards Pete and John. It happened several times throughout the life span of the MTS that Matthew does not back-up Pete. For example, during the teambuilding and with Seth. *'When we announced that Seth was leaving, everyone kept silent, except for, of course, Matthew. And of course he did not agree with the choice. Instead of him supporting us and the fact that people should not behave this way as is stated in the code of conduct of the military. Again he is not showing exemplar behavior.'* Matthew also

stated very clearly that he would not go the extra mile for the re-deployment area. *'I just washed my hands of off it.'*

Adaptability

The MTS shows much work and context related adaptability. Work related adaptability is mostly shown in the way the MTS responds to the new assignment of the redeployment area. Generally speaking the MTS' members are excited about the new idea. The task is executed much full enthusiasm. The changes in the context is another issue that the MTS adapts to quickly. Take for instance the housing issue. At first the MTS members are very disappointed that the MTS is put up in tent. In the first week John and Pete fight really hard to get the situation changed. Yet within a week the MTS members are no longer bothered. *'The tent also created fellowship, because we were all 'stuck' in this tent. It was actually not that bad',* and *'The cool thing about a tent is that nobody could get very isolated, and there are no groups'.* The loss of privacy is in an issue of course. Thirteen men in one tent asks for adjustments from everyone. Yet even Bart states the loss of privacy was not that big of an issue. *'A tent leaves no room for privacy. You just have to adjust, because it is not going to change so...'* Furthermore, after saying good-bye to a team member the MTS quickly moves on and is able to focus on their work. *'I never thought that anyone would be send home. It is really a big deal if a colleague is send home'.* Not every MTS member has a flexible attitude. Matthew seems to be the least flexible MTS member. *'Matthew fought every change it seemed. He just did not adapt, while all the others did. Maybe he was just not happy with his wife being pregnant and all.'* Matthew did not agree with the teambuilding week in the pre-deployment phase, Matthew did not agree with the new assignment of the redeployment area, Matthew did not agree with having to arrange everything to do with third parties through John, Matthew had problems adjusting to his 'mere' group commander role, Matthew did not agree with the way the Seth issue was solved, and *'Matthew is only used to working from a drawing. I gave him freedom. He did not know what to do.'*

Team orientation

On several accounts the MTS' members show team orientation. *'I wanted to join the teambuilding, because even though my job kind of stands on its own, I am part of a larger team, and I thought it would be fun.'* However choosing MTS goals above CT goals also leads to some loyalty issues. Balancing CT and MTS loyalties is difficult. People react differently to this balancing act. A good example is the relationship between the MTS and the Permanent Infrastructure Team (PIT). This team is deployed for six months and maintains the compounds infrastructure. The MTS needs to cooperate closely with the PIT. The PIT has the resources and is responsible for all Dutch infrastructure in Afghanistan. The main point of contact of the PIT in MeS is Jake. Matthew and John know Jake well. He also works at the contractors office in the Netherlands. Matthew even shares his

office with him. Even though the men know each other well the cooperation between the MTS and the PIT is difficult. Jake is surprised that John chooses MTS goals over the goals of the contractors office and that he protects Pete. John chooses the MTS 'side' in this balancing act while Matthew chooses the contractors office 'side'. *'In the end Jake is responsible. As a little taskforce you can have an opinion about this fact, yet you have to work with it, and therefore discuss issues with him.'* Matthew sees Jake as a friend. Someone he can trust. Fred also experiences loyalty issues. The moment that Pete and John 'took away' the contractors office's redeployment assignment Fred really starts to dislike the way John and Pete lead the MTS. Fred feels that the contractor's office is unjustly treated.

Leadership

Pete and John are two peas in a pod. They enjoy working together, and feel that they are doing a good job. *'Other officers told me that there will come a time that you will stand alone. Then it will be your problem and your problem alone. That never happened with us. We always did it with the two of us. We always fought together, be it against the own taskforce members or against people outside the taskforce. We always did it together!'*

'The standard answer if someone asked 'where is the lieutenant' was 'he is probably working somewhere outside.' If your men think about you in this way they will go the extra mile for you. It makes it possible for a leader to make unpopular decisions. Of course people get grumpy, yet they accept those decisions.' Most MTS members are very satisfied with Pete as a leader. The MTS members really appreciate that Pete does not stay behind his computer the whole day, but that he also helps them with their work. *'I have never seen a lieutenant do this.'* MTS members describe Pete as smart, fast, *'one of the guys'*, monitors the work well, makes decisions, social, shows interest, and has a good overview of the work. One of the MTS members even ascribes the redeployment area success to Pete instead of to the MTS: *'Really a good lieutenant. He really was able to accomplish something. We just did our job. He is the one who got the new assignment and put everything together.'* John also really likes working with Pete. *'Pete listens, is reasonable, very enthusiastic, and no high personal ambitions.'* Next to Pete's leadership the executive staff in itself also forms a strong unity. *'The lieutenant, John, myself, and the others in the executive staff formed a block. There was no visible friction. This is very important and has a lot of influence on the men.'* It also helps that Shaun is part of both the executive staff and part of the men. In this special position Shaun learns what goes on in the heads of the men and is able to explain the reasoning behind decisions of the executive staff. *'After the announcement that Seth was going home many people started to gossip. 'This did not have to happen', 'the lieutenant acted to late', and 'Every night Seth was scapegoated in the daily*

meetings.’ Especially this last statement was something that I tried to counter, because I was there in the meetings and that did not happen.’

Although most MTS’s members are satisfied with the leadership it does not mean they are always happy. Shaun is not happy with the way John handles feedback about Jane. Shaun is frustrated with the way Jane works. Jane is, for instance, responsible for the keys of the storage containers, however if Shaun comes to get the key, she often does not have the key, does not know where the key is, or the container doors are wide open. Shaun mentions his irritations to John several times. John answers *‘I will take care of it’*. However nothing changes in Jane’s behavior. Shaun later learns that according to the Jane John never talked to Jane about the issues put forward by Shaun. The whole process of how the plan for the redeployment came to be does not sit well with everyone. Jane for instance is not even asked whether there is enough material to execute the plans. Fred is bulged about the fact John and Pete steam-rolled the plans of the contractors’ office. Pete and John also overrule a logistical plan of Fred and Jane. Jane proposed the plan to John, who said the plan looks really good. Then two hours later in the daily briefing Pete announced a totally different plan. Some taskforce members are also not happy with the way Pete behaves socially. They expect more proper behavior from an officer. *‘He wanted to be one of the guys.’* For instance, there is a colleague from the air force who hardly has any work and sits in the arbor the whole day. Everyone who passes him by jokingly calls him the *‘commander of the arbor’*. Pete does this as well. However he does it so often that the air force colleague gets very angry with him. Pete also gossips along with the men about whether or not two colleagues are having affair together. Additionally, Matthew has issues with the way tasks are divided. In his earlier deployments Matthew acted very independent. He is of the opinion that certain things can be organized better than they were. Even though some taskforce members do not always agree with the way Pete and John lead the MTS they still trust and appreciate both men. *‘I always give him the benefit of the doubt in the end, he is just young, and full of inexperienced enthusiasm [...] I also defended Pete when people from other groups said bad things about him [...] I feel he is my commander, and that I can rely on him if I need to’*; and *‘John tried his best with Seth, however it did not help.’*

Matthew and Fred really do not like the way Pete and John lead the MTS. Matthew does not agree with the extra assignment nor with the way it is gained. *‘I told them what I thought and the problems that I foresaw. I you then still proceed, that’s fine, you are the one later on that has some explain to do not me. [...] Fine, if feel you need to do this for some reason, go ahead [...] They already had their minds made up and just pursued their own ideas. I just washed my hands of off it.’* Fred also finds it difficult to support Pete and John after the way they got the redeployment assignment. Fred is stuck in the middle of the contractors office in the Netherlands and the MTS. He receives calls from

colleagues at the contractors office while at the same time he draws out Pete and John's ideas of the redeployment area. Both Fred and Matthew place question marks by the way Seth is send home. *'Did they really warn Seth? If yes how is it then possible that Seth did not see it coming at all?'* Fred is also of the opinion that Pete does not show proper leadership behavior, such as making jokes about Jane behind her back and the way he 'talks' to the air force officer.

6.4.2.2 Coordinating mechanisms

Trust

At the start of the deployment there is a fair amount of trust in each other and each other's skills. *'I trust the level of the man that I have with me. I told them that I will give them a lot of responsibility, and they should show me that they are up for that much responsibility.'* Throughout the deployment this general level of trust seems to stay. *'I always give him the benefit of the doubt in the end.'* There however some individual differences. The level of trust in Jane's professionalism for example decreases during the deployment. Fred and Matthew lose trust in John and Pete. Nobody loses trust in the entire team or the CTs. They just loose trust in specific people.

Shared mental model

In the pre-deployment not everyone agrees with the extensive teambuilding program. Most MTS members find the program a bit too much. During the deployment the MTS' members seem to be on the same page most of the time. The shared mental model is updated daily through the executive staff meetings, additionally the MTS' members help each other, work in each other proximity, and talk with each other a lot. Before the deployment the executive staff worked on a shared mental model about tasks and responsibilities to help avoid problems during the deployment. *'This deployment went well, because of the way we prepared ourselves for the deployment, the way the chain of command was set up, and the quality of the people.'* There are no signs of role ambiguity in the MTS. The extensive pre-deployment program *'really worked very well that we were involved in the preparations for the projects. We knew the assignment. We understand the context. We knew every detail. We knew which materials were going come. We made a planning.'* A good example is a pump that needs to be implemented in Afghanistan. Ryan sees the pump in the Netherlands and realizes that to connect the pump to pipes he needs to braze. In Afghanistan it is impossible to braze because there is no gas at hand. So before the pump is shipped to Afghanistan Ryan brazes the pipes to the pump. If Ryan merely received drawings about some pump he would have found out in Afghanistan that he cannot install the pump. The preparation does not only lead to better products it also increases the motivation of the MTS members. *'Interest the men also more. People feel responsible. From a work perspective this deployment was picture book perfect', 'The goal of the*

deployment needs to be clear. That motivates', and 'Preparing the project with the men is really useful. They have had input, feel appreciated, and they really liked it.'

There are only a few instances in which the MTS' members are not on the same page. For example, for a certain amount of time Seth does not provide input about his progress to Ryan, and not everyone is happy with the re-deployment area assignment. The initial concerns with the re-deployment area assignment are mostly about the feasibility of the plan, and that Pete did not ask certain members for input from their point of expertise, than with the assignment in general. Pete and John also keep the other MTS' members in the loop during the time that they are planning the assignment.

Closed-loop communication

No communication issues are mentioned between the CTs. The MTS' members are satisfied with the communication in the MTS. It is described as open and honest. A good example is during the teambuilding exercise before the deployment Pete encourages the MTS members to be honest to him as well and to give him feedback on his behavior. He sets the stage for the rest of the deployment.

6.4.3 Relationship between MTS intergroup behavior and MTS teamwork over time

In this MTS the relationship between MTS identity and MTS teamwork processes is very evident. The MTS members feel really connected with the MTS, and do not think ingroup memberships. MTS members do not identify other MTS members as being from other CTs, hence there are no barriers for cooperation. At the same time the MTS teamwork processes are going well.

The strong MTS identity creates an MTS that can handle some bumps without immediately falling apart in CTs. Even the disruptive behavior of one MTS member does not create an us versus them based on CT boundaries. It *'created an executive staff versus the rest of the taskforce kind of atmosphere.'* Actually the conflict re-unites the MTS as all MTS members are irritated how one person 'ruins' the status of the MTS and influences the atmosphere. Even transgressing role boundaries does not cause the MTS to fall apart in CTs. When John talks to the soldiers directly instead of going through their group commander it is not perceived as a problem. *'Sometimes he would ask why we would work a certain way, and then he would give some other ideas. He gave them directly to the men, which I liked, otherwise I had to tell them it, waste of time to use the chain of command. It is not a problem to do so, if you have a good working relationship together. Then you live and let live. It is not like he is standing there like an angry schoolteacher telling us wrong.'* The extra step in the chain of command is even seen as a waste of time! It seems that since the CT

boundaries are not an issue, people are also less territorial of their tasks. There is really an attitude of 'doing it together'.

The extensive pre-deployment program influences the development an MTS identity and the way MTS teamwork processes developed. For one spending so much time together also creates a wellness. *'In the preparation period you get to know each other better, and we acted as taskforce XX. This already creates fellowship and a better atmosphere'*, and *'The morning roll calls really made a difference. You would not say that it matters, yet it subconsciously creates team spirit and fellowship.'* Spending several months in one tent with the entire MTS was seen as something positive instead of negative. *'The cool thing about a tent is that nobody could get very isolated, and there are no groups.'*

The pre-deployment program also created an MTS in which people know each other. *'Really one team. Good integration and we knew what we could ask of each other.'* Knowing what you can ask from someone and how someone reacts are very important aspects in a cooperation process. *'We were used to each other, which helps, because you know how people will react. You take that into account which helps in the atmosphere.'* As it leaves less space for misinterpretation that can lead to conflicts. Take for example Bart's behavior. If you do not know that Bart likes to be alone you might be offended by his behavior and link his behavior to his CT.

Everyone's involvement prior to the deployment makes it impossible for the MTS members to blame each other for mistakes. *'If you did the preparations yourself, and something is wrong, you cannot say 'those people from the contractors office failed again!' You have to take responsibility yourself, cannot blame anybody else.'* People blame each other less which leads to less friction. *'Number one cause for 'us versus them' attitude is the blaming each other for mistakes in the work, but now it was our fault, and therefore our problem.'* Moreover MTS members are less frustrated if things turn out differently direction. *'Another positive point of the deployment preparation is that all the materials arrived, some things did change, but those changes are received as less frustrating, because they worked on it together and could not blame the contractors office.'*

Furthermore the pre-deployment program gave the MTS a common history. *'The preparation was very important, because otherwise it would have gone very different with Jane and Matthew. We already had something of a bond, so when people started to be irritated, they tried to deal with it first instead of blurting it out.'* This common history also created something common that people could refer to. *'During the deployment you share memories of the pre-deployment teambuilding program time together.'*

Since the MTS members do not distinguish between the contractor and construction CT they are not ashamed to admit mistakes. The MTS members trust in the best intentions of their colleagues. *'I never had the feeling that John was checking my work in a negative manner. I know what he thinks about me and my work.'* Throughout the deployment the MTS members are open for input of others. *'The leadership was always open for suggestions. If my idea was better he just let his idea go.'* A good example of this is the discussion between Pete and John about whether or not to tell the construction battalion in the Netherlands about the problems between two taskforce members. Pete later admits to John that John was right. The openness and space for apologies really helps with keeping a good working relationship. Near the end of the deployment this is especially important, because everyone's fuses are shorter. For example in the last week John apologizes for pushing aside Fred and Jane's re-deployment plan. John told Fred and Jane he likes their plan, yet during the meeting a few hours later Fred and Jane hear their idea is put aside. Afterwards both Jane and Fred are really angry with Pete and John. Subsequently they do not join them for dinner. John notices the reactions of Jane and Fred, and he realizes his mistake. So after dinner he looks them both up, apologizes and explains the situation. John's apology immediately repairs the damage. Conflicts and irritations do not get a chance to fester and turn into an us versus them attitude.

Over time some issues do develop in the MTS, yet these issues resembles intra-group behavior rather than intergroup behavior. Some people form cliques and there are some interpersonal irritations. Take for example Ryan annoyances with Jane's work attitude and level of expertise. Such annoyances also occur in teams, however the interesting part is that Ryan does not link Jane's behavior to her membership of the contractor CT he only links it to her.

6.5 Quantitative analyses

For the quantitative data analyses paired-sample t-tests and Pearson-r correlation analyses are used. The first measurement in Afghanistan is in the second week of the deployment. The second measurement takes place several days after Seth left Afghanistan and a week before the majority of the MTS returns to the Netherlands.

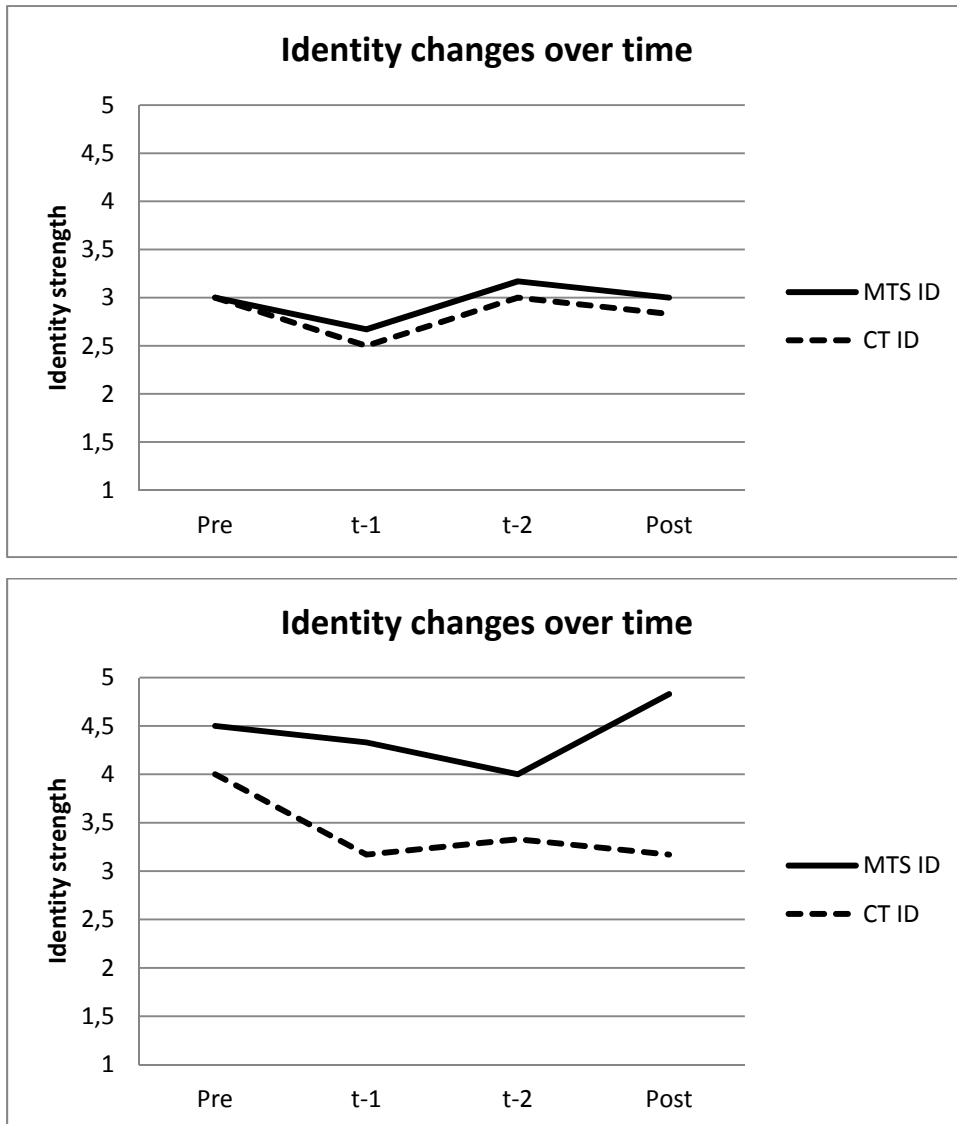
6.5.1 Development of intergroup behavior

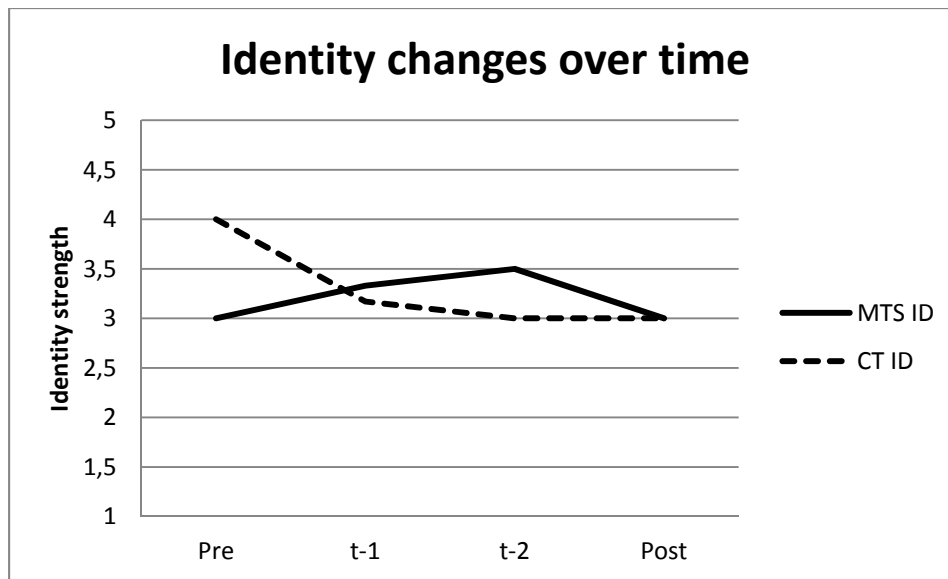
The results of several paired-sample t-test indicate no significant difference between CT and MTS identity strength throughout the life span of the MTS (see annex 4). Hence, MTS members see the members of the other CT as part of their MTS. CT identity strength is related all throughout the life span of the MTS. The same is true for MTS identity strength, with one exception namely MTS identity on t-1 is not related to MTS identity after the deployment. Pre-deployment and t-1 CT strength influences MTS identity strength at the second part of the deployment. MTS identity strength in the

second half of the deployment influences post-deployment CT identity strength. Pre-, post- and at t-2 MTS identity strength are related to CT identity strength at t-2 (see annex 4).

An overview of changes in identity strength over time of several MTS members is provided in Figure 20. One graph portrays information of one MTS member. Even though, changes are visible, none of the changes in MTS and CT identity strength are statistically significant.

Figure 20: Changes in identity strength over time for three MTS members





6.5.2 MTS teamwork development

The t-tests explore whether or not the differences between CT and MTS teamwork variables and changes in the MTS teamwork variables over time are statistically significant. The Pearson-r analyses investigate whether the MTS teamwork variables are related, and whether they influence each other over time.

In the first period of the deployment there is no significant difference between the means of the CT and MTS component variables. Almost all mean scores are around 4.0 (out of 5), which means that there is a lot of mutual performance monitoring, supportive behavior, adaptability, team orientation, and leadership appreciation. During the deployment the mean CT and MTS component variables almost all decrease significantly (except mutual performance monitoring; no data for supportive behavior) to a mean of around 3.5. At the same time the mean CT teamwork scores also decrease (not significantly) and in the second part of the deployment the only significant difference between CT and MTS teamwork component variables is between CT and MTS adaptability. There is more CT adaptability than MTS adaptability (see annex 4).

The same trend is visible in the coordinating mechanisms. At t-1 there is no difference between CT and MTS shared mental model and closed-loop communication (no data available for trust). The means of the two variables is high; around 3.7. Over time the amount of trust, shared mental model, and closed-loop communication decreases significantly in the MTS. There are no significant changes in the CT. At t-2 there is significantly more CT than MTS closed-loop communication (see annex 4).

At the start of the deployment MTS all the component variables are related to each other except for with the variable mutual performance monitoring, and adaptability with team orientation. However, the relationship between adaptability and mutual performance monitoring is high. Later on in the

deployment the situation remains same, as all the component variables are related to each other (except for mutual performance monitoring). All the component variables also influence each other over time. Again with the exception of mutual performance monitoring. Mutual performance monitoring only influences the amount of mutual performance monitoring later on in the deployment (see annex 4).

Component variables are also related to several coordinating mechanisms at the start of the deployment. Supportive behavior is linked with all three coordinating variables; adaptability with closed-loop communication; leadership with shared mental model and closed-loop communication; and team orientation with shared mental model and closed-loop communication. The situation in the second part of the deployment is very similar. However, the data of supportive behavior cannot be taken into account at that time. Mutual performance monitoring is not related to any of the coordinating mechanisms at t-1 nor at t-2 (see annex 4).

Throughout the deployment the three coordinating variables are related to each other. Trust only influences the amount trust over time, while closed-loop communication influences trust and a shared mental model. Shared mental models only influence the amount of future closed-loop communication. Over time the coordinating mechanisms also influence several component variables. Trust influences for instance future adaptability and team orientation. The shared mental model on t-1 influences future mutual performance monitoring behavior and adaptability. Earlier closed-loop communication influences adaptability. However, several of the relationships between the coordinating mechanisms and component variables that are not significant are very high (range between 0.44-0.57) (see annex 4).

At the start of the deployment the opinions differ about which variables are most important for MTS cooperation. The MTS members then point to communication, respect, common team feeling, trust, sociability, and supportive behavior. Later on in the deployment the opinions show less variety. The top three is then communication, trust and respect (see annex 4).

6.5.3 Relationship between MTS intergroup behavior and MTS teamwork over time

The Pearson-r correlation analyses explore the relationship between MTS identity and MTS teamwork measured at the same moment in time. Additionally, it is used to investigate the influence of MTS identity on future teamwork. In this situation MTS teamwork is the dependent variable, and MTS identity the independent variable. Moreover, the Pearson-r correlation analyses explore the influence of MTS teamwork on future MTS identity strength. Identity is then the dependent variable and MTS teamwork the independent variable.

Pre-deployment MTS identity influences leadership appreciation and closed-loop communication at the start of the deployment. However the relationship with the other component variables and coordinating mechanisms are also very high (range between 0.43 and 0.53), except for mutual performance monitoring. Furthermore, the pre-deployment MTS identity influences the amount shared mental model, closed-loop communication and leadership. Again the relationships with the other variables are high (range between 0.4 and 0.47). At the start of the deployment MTS identity is related to merely component variables (leadership, supportive behavior, and adaptability). Additionally MTS identity at t-1 influences the amount of leadership and closed-loop communication later in the deployment (the relationship with the other variables is all very high; ranging between 0.44-0.59). Several of the component variables and coordinating mechanisms influence the MTS identity strength at t-2, however only one of those relationships is significant (leadership). They also influence post-deployment MTS identity strength, however then four out of eight relationships are significant (shared mental model, closed-loop communication, leadership and team orientation) (see annex 4).

At t-2 MTS identity is only significantly related to shared mental model. The teamwork experiences at the end of the deployment do influence the identity strength after the deployment (shared mental model, closed-loop communication, and leadership). These three teamwork variables coincide with earlier teamwork variables that influence post-deployment MTS identity strength (see annex 4).

Hence, there are several instances in which MTS identity relates to MTS teamwork variables, where MTS identity influences teamwork variables and where MTS teamwork variables influences MTS identity. Thus both MTS identity and MTS teamwork variables act as independent and dependent variables. Additionally there are several high correlations that are not statistically significant. It is very likely that the small sample size is the reason why these correlations are not significant.

6.6 Conclusion

The MTS members in this taskforce do not differentiate between the MTS, and the CT. Their identity strength does not significantly differ for these two identity categories. Over time the MTS identity decreases, however the difference between MTS, and CT identity remains insignificant. Moreover, at the start of the deployment there is also no significant difference between the way teamwork is going in their own team versus in the MTS. This changes over time. Near the end of the deployment the MTS members indicate that things are not going as well as before within the MTS. All MTS mean teamwork scores (except for mutual performance monitoring) are significantly lower than at t-1. Subsequently, there are now also differences between teamwork in the CT and in the MTS. The MTS members rate both adaptability and closed-loop communication higher in the CT. The changes in

MTS teamwork are in line with the problems that the MTS is experiencing with one of its members, and the dissatisfaction several MTS members feel about the way Pete and John got the re-deployment area project. Near the end of the deployment the individual fuses are also shorter, and people are working long hours to make sure that everything is finished before they return home. Nonetheless the incidents, conflicts and issues which the MTS encounters never lead to an us versus them attitude in the MTS nor do CT boundaries influence the MTS teamwork processes.

Chapter 7 Case study 4

7.1 Introduction

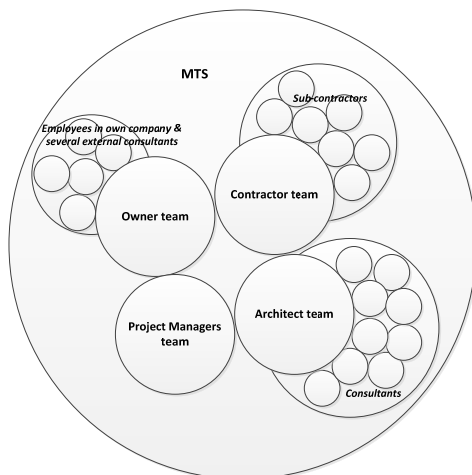
In beginning of 2013 the CEO of one of the world's leading computer technology firms announced it would build a new office in the United States. The two-story building consists of floor plates of around 250000 square feet each, and houses 2500 employees. The project team tasked to make this building reality is the center of attention in this chapter and at the time of the research the project is in the design phase.

7.2 Description of the project team

7.2.1 Compositional attributes

Compositional attributes are the overall demographic features of the project team (Zaccaro, et al., 2012, p.23). The project directory at the beginning of May 2013 states that the project team consists of seventeen teams from different organizations. However, not all seventeen teams are evenly involved or time-invested in the project. Four teams form the core of the project team, as they are all heavily time-invested in the project. The other thirteen teams are consultants on issues such as lighting consultants, landscape architects, security consultants, sustainability consultants, food service consultants, acoustical consultants, elevator consultants, and geotechnical consultants. The four core teams of the project team are the main players in the project team. These four teams are the owner team, the contractor team, the architect team, and the project manager team. An overview of the project team is provided in Figure 21.

Figure 21: Overview of the team that make up the project team



The owner team

The owner team consists of four employees of the world's largest computer technology firm. The main office of this company is located in the United States. The four employees assigned to the new office-project are all from the infrastructure and facilities department of the company, and they work on this project in their spare time. Thomas is the manager of the infrastructure department, and also the daily manager of the owner team. He is a reserve lieutenant-colonel who has served in Afghanistan, and this background characterizes how Thomas talks, works, and thinks. Thomas has been with the company for two years. Then there is Alex. Alex is an Australian national who works in the USA for more than a decade. In the project Alex is tasked with the sustainability aspect of the building. He has also been with the company for about two years. Leo is interior designer who transferred to the company one-and-a-half years ago. Lastly there is Matthew. Matthew is the immediate boss of Thomas, and in the owner team. Matthew has decision-making authority, and is in direct contact with the CEO. In the office Thomas, Alex, and Leo sit in very close proximity of each other.

The contractor team

The contractor company is a family-employee owned organization that provides preconstruction and construction services, ranging from estimating, constructability reviews to sustainable construction. The company has never worked in Northern California, and this large project is supposed to be their way into the Northern Californian construction market. On paper the contractor team consists of fifteen members, however not every employee works in each phase of the project or has the same amount of time invested in the project. At the time of the research six employees actively participated in the project team. Three of them (Earl, Luke, and Hank) are senior staff that are part-time involved in this phase of the project for a diplomatic stance. At the time of the research Vince, and Nick are the only two employees who work on the project full-time. Vince is the senior project manager. He has a lot of experience in with special clientele, and projects, such as museums. Nick is more technical, and has a lot of experience in coordinating work on construction sites. The last contractor team member is Gus. Gus is the estimator. He is from Chinese descent, and his English is not very good. However, his talent for numbers makes up for his lack in language skills.

The architect team

The architect team comes from the largest architecture firm in the world. The architects firm is active in a variety of sectors, and has 3500 employees scattered over 44 locations worldwide. At the start of the research the architect team consists of fifteen people that increases to twenty-two people at the end of the research. The members of the architect team are divided in three sub-groups: an interior design group, an exterior design group, and a management group. The interior design team consists

of six individuals, five of whom originate from the LA office, and one is from the SF office. Every Monday the five interior designers fly to SF, stay in a hotel, and fly back to LA on Thursday. The principal architect of the interior design group is Dwain. The interior design group is very culturally diverse as there are members from Canada, South-Africa, Nigeria, Germany, and South- Korea. The exterior design group consists of four individuals, two of whom are from the SF office, one from Switzerland, and one from San Jose office. The architect who won the competition, namely George, leads the exterior design group. George is also part of the management group together with Paul. Paul manages the process and coordinates the sub-contractors while George oversees the drawings. All the other architect team members aid the three groups by enter drawings in computer models, and making calculations.

The project manager team

The four members of the project manager team come from a large privately held commercial real estate development, project management, investment, and property management firm, which does work all through the western United States. Two of the four project manager team members work full-time on the project, while the other two members work part-time. Paula is the project coordinator of the project. She works closely with the members of the owner team. Ethan assists her with administrative elements of the project. Scott and Roy are senior consultants. They advise both Paula, and the owner team. The project manager team is hired by the owner team to manage and oversee the daily issues that come with building an office.

Consultant teams

The project team also has several consultant teams working on the project. The architect team, the contractor team, the owner team, and the project manager team all hire consultant teams. The presence of the consultants is prescribed by the phase in which the construction process finds itself. Each phase asks for different expertise.

Table 13 provides an overview of the main players in the project team during the time of the research by name, and organization.

Table 13: Overview of the main players in the project team during the time of the research

Name person	Name company
Alex, Thomas, Leo, Matthew	Owner team
Vince, Nick, Luke, Hank, Earl, Gus	Contractor team
Paul, George, Dwain, Kevin, Gabriel	Architect team
Scott, Paula, Roy, Ethan	Project manager team
Debby, Jack	Consultants

7.2.2 Linkage attributes

Linkage attributes present the different ways in which teams within an MTS are linked with each other, such as input, process, and outcome interdependencies (DeChurch & Mathieu, 2008, p.274). The teams in this project team are mostly linked through information, and income interdependence. The teams need information as without information none of them can effectively do their job, nor can they effectively work together. Income interdependency is linked to the hierarchical arrangement in the project team. The owner team is the one who provides the funds to build the building, and therefore provides the organizations with money to pay their employees. Additionally, the architect, contractor team, owner, and project management team provide both consultants, and subcontractors with an income. In a construction project process interdependency is mostly sequential. For example, if the architect does not make drawings, the structural engineer cannot make his calculations, nor can the estimator come to a realistic budget. As the owner's wishes change over time, so does the design. Thus, much interaction is needed between the different teams to keep everyone on the same page. All the teams in the project team want the building to be constructed for their own reasons. The owners, for instance, wants a building that complies with all the pre-set standards, while the project managers wants to see the process through without too many problems. The contractor wants to show to the construction sector in northern California what they are capable off, and the architects want the building to look as iconic as possible to increase their status. In this phase of the project the drawings link the teams. The drawings create both input, and process interdependence. The project team members use the word 'waiting' to point these interdependencies. *'A lot of what we do depends on what the architects design, and a lot of times what they design depends on what the owner wants. We are constantly waiting'; 'We have 23 days left. How fast can you give us some decent drawings?'; and 'You cannot do the mechanical when you do not have the design. So this is part of the growing pain right now working with the architects: to get to the point where the design is very clear the design as to what we want.'*

The linkages between the teams also determines the structure of the project team through the existing power hierarchy in the project team. The owner team holds the reigns together with the project manager team. *'... ultimately there is still a hierarchy in how these components are organized. Obviously the client has the money and the ultimate decision-making authority. I think the way everyone relates to them is a little bit different, for instance a consultant with whom you might feel more of a peer-to-peer relationship.'* The effect of the power hierarchy is illustrated by the fact that the owner team is treated as the main audience in the meetings, or by the tone of voice when the project manager 'asks' for something: *'Can you send the proposals before that meeting, so that we do not see them for the first time then. We also want Gabriel in that meeting.'* Further down the

hierarchy ladder, the architect holds the reigns over several of the consultants. For example, *'Well, it was an interesting idea that came out of one of the conversations, but I should call Debby to tell her that she should not incorporate it in the drawings.'*

7.2.3 Developmental attributes

The start of the project team was in October 2012, and the project is scheduled to last till June 2015. The project team is a newly formed team. The CEO of the computer company chose the members of his team, and the architectural firm. Without asking the owner team the CEO also decides to add a project managers team to the project team. Although, the owner team hires the project manager team, the owner team members do not really why they are hiring the project manager team. Then together the owner, and the project manager team hire a contractor company. The number of teams that form the project team fluctuates over time, since each construction phase needs different experts. For instance, at the time of the research the project is in the design phase, hence the role of the architects is very large. When the drawings are finalized, the importance of the architects decreases, and the importance of the contractor increases, as the construction process starts. The same is true for the consultants, and subcontractors. Some of the consultants are very involved during the design phase of the project, while others play a larger role during the other phases. The four teams that form the core of the project team remain the same, yet the participation of certain members of those teams changes over time depending on the needed expertise.

At the start of the project each team operates from their own office. However, this situation changes in September 2013. In September the Big Room concept is introduced. The Big Room concept issues that having all relevant actors in the same room during a highly integrated project stimulates the cooperation between the actors. Hence, after the implementation of the BR the teams are co-located for several days a week.

7.3 Story-line

In 2013 the CEO of the computer company writes out a design competition for the new headquarters. George wins the competition. The CEO wants to keep the design a secret till the anniversary-day of the company. Between the time of the design competition, and the anniversary celebration a project team is put together. Normally a public call for bid is issued for contractors. However, the secretive nature of the project makes this impossible, therefore trusted contractor firm is hired. After several months there are problems with the contractor. The contractor is not performing up to standard, and there is an initial cost underestimation of 100 million dollars. Subsequently, there is no trust in the contractor anymore, and the company is let go. This time a public bid is set up to find a new contractor. At the same time both the owner, and the project

manager team are also dissatisfied with the quality of the work of the interior design group. They express their concerns to the project management group of the architects. Even though, *'the architect found it very hard to commit to a new design team'* the owner team forces the architect management group to replace the whole interior design group. The research starts right after the project team faced rough waters, and at the start of the project team in its current form. The data collection starts at the first meeting in which the new interior design group is introduced to the rest of the project team.

7.3.1 Pre-Big Room period

New kids on the block

The project team members do not know each other very well. The architects, project managers, and owner team are working together since the end of 2012, yet the interior design group, and the contractor team are the 'new kids on the block'. For example, the contractor team is unaware of the owner's dissatisfaction with the prior interior design group, therefore when the contractors are introduced to a new interior design group in that first meeting they are very surprised, and unsure how to interpret the news. *'Like now with this new design team: why were these other people replaced? Was it something we did? What was our role in that? We still need to work at least 2,5 years together on the project and so you do not want there to be any hard feelings.'* Even though, the project team members do not know each other, the only attempts to make contact is the chitchat at meetings. A member of the interior design group makes the most effort, as he really tries to establish contact with all the project team members. It often happens that project team members see new faces during meetings. The unfamiliar faces are often new project team members, such as new consultants or subcontractors. However, it is also possible project team members have just never met, because they keep missing each other at meetings. There is also a third option. One of the project managers has the habit of inviting visitors to meetings. Most of the project team members are not even bothered if they do not know all the people in the room.

Meeting schedule

The project team has a call-in project management team (PMT) meeting every Tuesday. A call-in meeting means everyone attends the meeting by phone and is not necessarily in the same room. Representatives from each team attend the weekly PMT meeting that lasts for about an hour. The goal of this meeting is to discuss plans for the upcoming week, attune tasks, and, ideally, take decisions.

Additionally, every Thursday the project team members meet face-to-face at the architects' office to discuss the design, and coordination issues. Not every project team member is present due to the

large number of project team members, geographical dispersion, and busy schedules. Subsequently, there is almost always someone calling-in. The Thursday meetings are often very unstructured, and long. The meetings sometimes last up to three hours without a break, subsequently people start to move around, take calls, go to the restroom, and talk. Although the Thursday meetings often run the entire day, lunch is not provided. In the lunch break the project team scatters, and independently from one another the teams search for lunch opportunities around the office. The owners and the project managers often grab lunch together, while the contractor team lunches alone. The architect team divides itself in the three sub-groups during lunch. Interestingly, the only San Francisco member of the interior design group eats lunch with colleagues of the San Francisco office instead of with the interior design group.

Next to the project team-meeting schedule, each team has its individual meeting schedule. Before the weekly Thursday meeting the owner, and the project manager team meet to discuss the progress, and money issues. On Tuesdays the owner team meets face-to-face in their office. *'Every Tuesday we have a project endeavor meeting internal to the owner team. So that is when we can frankly talk about everything. We sit and talk about how everything is going. We hold each other accountable, is there something that is lacking and so on. Matthew will ask for each one of us: how is programming going? How is critical environments going?'* The contractor team also meets on Tuesday. These meetings are partly face-to-face partly call in meetings, as several team members work in different offices. In their weekly meetings the contractor team tracks all the work in an Excel document. The weekly meeting of the project manager team are often call-in meetings, because it is often impossible to get everyone in the office at the same time. In these meetings the members coordinate their work and roles for the upcoming weeks. The architects meet on Mondays in their office. In these meetings everyone gathers around a large table, and they are briefed about new deployments, deadlines, and there is room for input.

The main topic during the meetings

The design is the main topics during the meetings in the first month of the research. Drawings are an important means of communication in a construction process. *'Drawings are the best way to communicate, because we all understand what is meant with the symbols in drawings. It tells everything. You do not need words when you have drawings.'* Drawings are a pre-requisite for progress. *'You have to get to the point where the conceptual design is a little bit stable before you can really collaborate.'* The design changes constantly and at a high pace. *'There are no drawings, so it is hard to keep track of all the changes and also what is now the number of dollars. Keeping an overview is difficult.'* It is even challenging for the architects themselves to keep up with the design

changes. On one occasion an architect presents the project to a new consultant when he notices he has different versions of the drawings in his presentation. It happens several times the consultants come to the meeting prepared to explain what they have done, only to find out the drawings that they had worked off are already outdated. *'Even the architect's consultants were somewhat hamstringing in continuing, because there was no sense for them to design electrical, structural systems for a space that was still evolving and changing every week. If they would change their work every time the architects would come up with something new, they would have been all out of money by now. I know that they were sitting around not doing anything, because there were no drawings. Structural was moving every deliberately for that reason. They are not going to draw the foundation four times. I got money to draw it once and do some revisions, but I do not have time to do it three times.'*

The changes in the design plus the difference in entrance date of the teams and the fact that not every project team member attends each meeting leads to many debriefings in the meetings. *'First people needed to get us up to date. When we were a bit up to speed, then the new interior team came in, and they asked the same questions. So then the original architect team and the owners already heard it three times',* and *'We were with the architects from the beginning, and they were working with the owners directly. Then the project manager got on board, so they were not necessarily in tune with why we decided to do things in a certain way. It took them a while to get mobilized and figure out what is going on. After a while questions kept popping up, like why is this like this and this. Maybe if they had got brought on sooner it might have gone a bit smoother, less bumpy.'* Many project team members feel the project is not moving forward. *'We are not going forward. We just move in a circular movement',* and *'Everyone is explaining everything a 100 times, but nobody is drawing.'* The project team members try to keep each other in the loop regarding changes. *'Sometimes we see something that the architect is working on and we say collectively amongst ourselves 'Jack needs to know this', for some reason then the structural engineer was not copied on. We then forward the email to what we think is proper people.'* The project team members try to stay on the same page, but it is very difficult. *'It is tough to stay on the same page. Sometimes the project manager and the owner are not on the same page. Sometimes we are not on the same page. It is the nature of the beast.'* The project team is quite often not on the same page. *'We are moving in the wrong direction here people. Why are we adding costs?'* How quickly a shared mental model is lost, is illustrated by the following example. At the end of one of the meetings, while everyone is packing up, moving around, and talking; a member of the owners team says to one of the architects *'There is much time pressure, because the council hearing in July is very important. After that hearing the council closes for more than a month, so than we are stuck waiting, so the design*

needs to be approved then, so that we can start.' The entire project team just missed this important piece of information.

Goal diversity

The teams in the project team have different goals. A good example of these differences is the roof design of the building. The architects always aim to design something unique. *'We want to do something smatter with the roof, because now it is just a normal roof like on a shed. We would like to invest more money in the roof.'* There is a large difference between the real budget and the estimated budget based on the design. *'We are still trying to chip away a 100 million dollars, so the focus is on that.'* The owner, project manager, and contractor team have proposed other cheaper options for the roof. *'We could sit down in a room and have a conversation about what Gus' idea looks like. I do not think it is something that is appealing to the design team, but we can show where we can pull costs out of this.'* Although the architects are told that the budget is leading they keep pushing the expensive roof. This really annoys both the project managers and the owners. *'The architect goals are very different from owner goals. The roof is precious to the architects, let them work on it in their own time. They need to let it go. The issue of the roof keeps coming back 'we need to kill it"; 'The architect wants the roof more than the owner'; and 'They are sending me all these emails: what about this and this. I love it, but it does not pan out. Here is the analyses, it does not pan out, so we are not doing that. They have got to stop the guerilla tactics of coming back with I know you picked this, but what if...'*

The schedule is another example in which the differences in goals becomes clear. The schedule talks are almost like horse trading, as each project team wants to create the most favorable schedule for its own team. For example, at one of those meetings one of the architects sits across from one of the contractors, both men have their arms crossed for their chest. Then the wheeling, and dealing about the deadlines starts. *'1,5 week?', 'No, 2 weeks.'* The 'bargaining' continues until they reach an agreement.

General atmosphere in the project team

Even though the project team members do not know each other very well the atmosphere is pretty good. Everyone is respectful, polite and friendly. The project team members are clearly probing. Some project members carefully try to make jokes, however the jokes are often misinterpreted, and lead to defensive reactions. The owner team members are the only ones who make jokes, which everyone laughs about, even though some of the jokes are quite confrontational. *'All architects are vampires. They all only wear black clothes.'* Additionally, the project members are optimistic about the teams they have to cooperate with. *'We really have the best consultants'; 'I have a lot of*

confidence in these guys'; and 'Each of the team is trying to do their best and work in the expertise that they have'. Furthermore, the project team members have flexible attitude and are open for input of the other teams. 'We have to listen. We have to be open....They wanted to do it like this, so will do it like that'; 'People have been very adaptive and flexible'; and 'Well the architect is willing to change. They are not fixated on just one design, and everybody needs to be willing to change in such processes.'

Nonetheless, there is a limit to the amount of flexibility the teams are willing, able, and think is wise to show. The contractor team, for example, takes on other tasks as it is unable to execute their own tasks due to the lack of drawings. At the start of the project the contractor team adjusts its efforts non-stop. *'I am not sure what that program exactly means, but we should to get smart about it or maybe some of us are already smart about it? Just try to start anticipating whatever that means.'* However, right before the implementation of the BR the contractor is fed up with it all the extra time their flexibility already cost them. Especially, when one of the project managers states: *'I do not want to review things that are going to change.'* Subsequently, the contractors re-negotiate their extra work allowances. *'I want to have my conference call with them tomorrow afternoon about what they are willing and not willing to pay for. I think we have gone above and beyond the level of services. Unlimited services it not what we priced for. I do not want to make a big deal out of it, but I do want to have a conversation about this with those guys.'* More cracks appear in the cooperation process around the same time as the flexibility limit is reached. *'We have an interesting dynamic in this project team. The project manager somehow thinks they are big picture designer and opposed to moving the process along. They seem perfectly happen to let it ferment. Seemingly they do not care whether we get on to the next thing, which is a little puzzling to me'; and 'I would hope that at some point they would really have some better information'.* There are even some conflicts. *'We are ears and hands for the owner. We take our direction from them. I do not think our role is always clear to the others. It is a bit fuzzy. For instance one of the senior architects got angry, said we are micro-managing them, but is my task to do what the owner told me to do.'* Apparently, *'the role of the project manager and the architect is a grey area. People are stepping on each other's toes. The roles are unclear.'*

Implementation of the Big Room

The project manager team's firm has experiences with the BR concept, and they want to introduce this way of working in the project team. Most of the other teams have not even heard, let alone worked in a BR, subsequently they are somewhat hesitant about the whole idea. *'I am not sure what the idea of the BR is or what the plan is.'* The project manager team members side-bar with the different teams, with extra focus on the owners, and convince them of the advantages of the BR for

the project. The most effective BRs are located in a neutral space near the construction site. Hence, the project managers want move the entire project team to an empty office building located several blocks from the construction site. The construction site is in a city approximate an hour drive from the architects' office. The architects oppose the relocation, because they feel their employees will be less creative in a bare office building. Some architects object to the extra commute the re-location causes. A diplomatic back-and-forth follows. Eventually the project team agrees to locate the BR in the architects' office until the start of the construction process. The architects offer to facilitate and host the BR. *'I think there is something about doing it in a design environment when you are in the design phase. Sometimes these things take place in trailers, not really inspiring space. That is difficult for designer. So we suggested to give up our space to do it and modify a bunch a things. Our young design team needs this. You have to keep them happy. If we start the construction we will move there, than that is the best place to be.'* Hence, the architects work on a seating arrangement, ICT issues, security clearances, and new furniture to facilitate each project team member. The project managers agree to architects' proposition, because they are already happy the concept of the Big Room is introduced. Yet, *'It is not really a Big Room. We normally try to get the Big Room on site or at least somewhere else, but so far we have already come to this point, so that is ok, at least it is a common place for everyone.'*

Partnering day

Since the Big Room concept is new to many of the project team members the project managers decide to 'open' the Big Room with a 'partnering day'. An external consultant specialized in teamwork leads the partnering day. The day consists of three events: a morning meeting, a Big Room meeting, and a social. In the morning meeting the contractor, owner, architect, and project manager team members talk about how they think things are going within the project team, and which obstacles they foresee in the future. The project members underline the importance of communication. *'Most important thing is accurate communication'*, and indicate they are satisfied with how the communication process is going. *'Communication is very good and very direct. If there is a problem it is directly talked about. No concern about whispering behind closed doors. If people are happy with us we get told and if not as well. That makes you feel comfortable because you know where you stand.'*; *'The communication on the project is very good. The consultants are very engaged, fast responsive, respect, quick information, and they value your input.'*; and *'There was a lot of willingness to talk openly and that was good.'*

The Big Room meeting takes place after lunch. Several consultants join the Big Room meeting, and the social in the afternoon. In the Big Room meeting two consultants from the project manager

team's firm share their experiences with Big Rooms. After this empirical implementation of the Big Room the project team members ask questions, and share their concerns regarding the Big Room. Together the project team members list the possible advantages and disadvantages of the Big Room (see Table 14).

Table 14: Overview of the advantages and disadvantages indicated by the project team members during the partnering day before the Big Room is introduced

Advantages	Disadvantages
<ul style="list-style-type: none"> - takes of the pressure of meetings - a lot of important impromptu conversations - people come in regularly - people will overhear and give advice - is going to speed up the process - easier to ask quick questions, which you might not have asked otherwise - get to know people - more collaboration - more communication - less meetings - easy to go to lunch together - reduce response times - better than Webex and phone call meetings - fewer changes in design - foster sense of camaraderie, more cohesive team - get the feeling for what is going on on a day-to-day basis -faster decision making in real time 	<ul style="list-style-type: none"> - not every day, because can also be very distracting - cannot talk tactics - privacy gone, need to be more conscious of behavior and presenting your organization - not useful for people to listen in on everything - lot of noise - I also need to be at my own office, and meet with my team face-to-face

Especially, the architects are concerned with the loss of privacy. *'Ideas take a while to mature and sometimes there are things that you are not ready to share and you sort of hold back and keep to yourself. It is not necessary a bad thing, things are just not ready to be shown yet. That might be an instance where the work of one portion of the team is not aligning with the work of another part of the team, but that is not bad. We are just testing things or exploring things still...There are tactics involved in the way we cooperate and share information.'* Even though rationally the advantages take the upper hand, the general attitude of the project team members is a 'sit on the fence'-attitude, even a bit skeptical. *'The outcome is wanted, but process is for many still a bit unclear'; 'Yes now they are going to do this Big Room thing. I have never done that before. We will see'; and 'The question is still in the back of my head: what is the purpose of the Big Room?'*

The external consultant guides the project team members to come up with rules for and agreements about the Big Room. The members of the architect, owner, contractor, and project manager team promise to attend the Big Room several days a week. The consultants, however, hesitate to promise the same thing. Many of the consulting firms are small and work on multiple projects at the same time. Subsequently it is very impractical, even impossible, for them to not be in their own office.

Hence the implementation of the Big Room is a bit of issue. *'We want this to be a space that people want to come to, not feel like they have to. It is a fine line. I think we need to start of cautiously with the time requirement.'*

As the partnering day progresses the attitude and atmosphere is more and more energetic. People are enjoying themselves. Especially the architect, contractor, project manager, and owner team members are joking with each other. Everyone is as jolly as kids on a school trip. In the morning session the project team has to answer the question *'Do the team members call each other out.'* The expression 'calling someone out' starts a debate as everyone interprets this expression differently. The debate leads to several 'I will call you out'- jokes throughout the day. The consultants are like new kids who join a school trip right when everyone gets off the bus. They do not join in the whole buzz of energy and are even a bit shy. Compared to the contractor, architect, owner, and project manager team the consultants are very quiet during the exercises. Next to the fact that the consultants socially stay in the background they are also seated in the 'background'. The consultants sit along the sides of the room while the four core teams sit in the middle of the room. The difference between the architect, owner, contractor, and project manager teams, and the consultant teams is more evident when the architect provides the project team a tour of the Big Room space. The four core teams are jolly, talkative, and introduce colleagues. The consultants, on the other hand, only talk to people they know, and one of the consultant sits alone and plays with his phone.

The partnering day ends with drinks, snacks, and karaoke. It is the architects' tradition to sing karaoke during socials. They believe karaoke loosens everyone up, and connects people. However, karaoke appears to be more the architects 'thing'. The architects are the only ones singing. The goal of the social is to bring the project team members closer to each other, yet a significant amount of the project team members does not attend the social. In the end Roy, Scott, and Paula attend of the project manager team. Paula only stays for a short while. The majority of the architects attends the social, except for the interior group. They have to leave for the airport. The entire contractor team and one of the consultant teams stay. That teams has one drink, talks to some people, after which they leave. At first the teams mingle, people shake hands, introduce each other, and talk about non-work related topics. After a while, however, the work related topics take over and people start snuggling up to their team again.

7.3.2 During the Big Room

Being a guest in the Big Room

The project team members are somewhat unsure when they step into the architect's office on the first day of the Big Room. The contractors, for instance, act like new kids in a classroom. They are

overexcited, constantly looking around them and giggling. The newness quickly wears off and then the complaints start. *'We do not know how to use the big room [...] We need a facilitator'*; and *'It is on the job training right now. We need a Big Room facilitator'*. In the months after the implementation of the Big Room remarks there are many impracticalities, such as printer, internet, and network access problems. Over time most of the impracticalities are solved, however somehow the project team members still feel like they did on their first day in the Big Room. Even though the architects try to make the Big Room a space for everyone most of the project team members feel they are a guest. *'The analogy I use is cooking. If you have a cooking class and you bring everybody over to your kitchen, you are going to control the kitchen. If you went to a cooking class that was not owned by anyone else you would enjoy it and use it equally. But because we are in their house, it is their rules, and set –up in their way, so everyone is used to work at their desk in a certain way. And if they have a meeting they use their equipment like they always do. [...] I am using my kitchen tools, but I have to borrow the mixer and I am depending on the mixer. For instance we want to have a conference, we have to plan the conference as if this room does not exist, so we do the normal stuff like we would do without the big room.'* Hence, the location of the Big Room in the architect's office has drawbacks. *'If this room was in a different building, it will have a different feel I think. Then you are a group, you would be a new team. It would not be your team or our team, then we are all there on equal footing. It is nobody's territory.'*

The reality of the Big Room

After several months every project team member feels different about the effectiveness of the Big Room. *'I hear bit and pieces of information in the Big Room. I sit in crappy seats that have been assigned. I try to listen in on meetings. I cannot print, it is very distracting, there are not many people, and it is not very efficient as working in my own office. I think it is helping a little bit, but people are still getting used to it [...] It is a close-call whether it is useful'*; and *'I think it is going well. People come with questions. I like it because get information quickly, not writing mails or waiting for responses. And it does not hurt my team that I am here two days a week, it does not hinder our work'*. Next to the impracticalities there is also a problem with the attendance of important project team members. *'We do not have a critical mass of any sort yet. People are just coming in for meeting. Only Nick and Vince have regularly been here. We would like to have more activity and have the owners group in here as well.'* One of the consultant teams and the contractor team are the only teams which structurally attend the Big Room. *'There is nobody there. They gave us nice desks to sit on [sarcastic]. We can be efficient enough here, but it is not what we were expecting for instance the meetings are still via phone even if the people are in the space.'* The idea of a Big Room is that if people work in the same space and overhear things. However what happens is most consultants still

only come in for meetings and the Big Room is used as a big meeting space. *'The goal is not that people use the space as a large meeting room, which is happening now, but that we are working together and then at when you have a question you are at arms-length and can ask the question. Now still lots of emails back and forth. I would love to see it kind of pick up [...] I think that is a challenge.'*

Due to the inconsistent attendance of project team members and the lack of a feedback loop a lot of information is lost. For instance, the moment one of the contractor team members walks over to the architects to say good-bye the architects immediately ask questions: *Do you know....? When....?* *'In the Big Room there is a lot of informality. A lot of passage of information, but the way it is being communicated back is not very structured'*; and *'Things were happening in the Big Room, but there is no feedback mechanism. People missed decisions that we made'*. If an individual does not attend the Big Room for a day he/she is already behind. Even getting a cup of coffee can cause someone to miss decisions or information. The feedback-loops cannot keep up with the pace of the changes, and there is no way of keeping oneself updated. The lack of feedback mechanisms leads to miscommunication, and irritations. *'Because everyone is moving so fast there is a lot of miscommunication. That creates a very awkward something, like we think that we made these decision collectively, and then they are undone. One side we hear things are approved and then on the other side we hear that they are not approved. It is difficult to explain, sort of a circular movement, and the project cannot move forward.'* Not just the important issues are missed, but also practical things like meeting dates and times. Before the Big Room the project team members always knew when and where the meetings were. However in the every meeting after the implementation of the Big Room there are one or two project team members who are not aware the meeting took place or ask when the next meeting is. This lack of overview of the meeting schedule probably also due to the increase of the number of ad hoc meetings, while before the meetings were always on Thursday. Subsequently not all project team members can make every meeting. The members of the owners team, for instance, have job responsibilities in their office and cannot drive up and down between Santa Clara and San Francisco every day or during the day.

Inter-team relationships and irritations

Over time interpersonal relationships develop within, and across the teams. The atmosphere in each of the teams is good. The team members get along, and enjoy working together. The project team members in the architect, contractor, owner, and project manager team spend much time together, subsequently there are less instances of wrongly interpreted jokes or comments. However, the situation is different with the various consultant teams. For instance, during a call-in meeting

between two architects, and a consultant one of the architects tries to joke around with the consultant. *'We are just critiquing your drawing behind your back.'* The other architect laughs, because he knows his colleague is joking. The consultant on the other end of the line, however, does not know the architect is joking. In turn the consultant immediately defends himself. *'Yeah, well, yeah this is not the final version, because I was told 10 minutes before the meeting that we were going to do this.'*

After the Big Room is in place for a couple of week's diversification develops between the state of the relationships between the teams. Some relationships improve, while others start to show cracks. A relationship that shows cracks is the relationship between the owner's team and the architects. Incidents like these cause the cracks: the lighting consultant uses a computer program to simulate the lighting effects in a fully furnished office during a meeting between one of the owner team members and the consultant. The owner is surprised to see a furnished office in the simulation, since no decisions have been made yet about the furniture. The owner is even more surprised when he sees what the furniture looks like. It is the total opposite of what the owners want the furniture to look like. *'It [the furniture] was high, we do not want that. Plus it had overhead bins, which we have been taking out of our offices, we have been throwing them away. So, we were a little bit upset because all these people [architects] have been to our offices and have seen what we have been moving towards, and then they design something else, and then they try to defend it. And I am like: you are just making it worse!'* Moreover, the owners are also not happy with the way the architects treat them. *'I think the architect is regressing back in to managing the client. We do not want that! They would deny that they do that, but that is very typical. We REALLY do not like that, that is not who we are. For instance we said we did not like a system, and it somehow keeps appearing on the drawing. Then at the end of the month it is still on the drawings and in the package that is presented for pricing',* and *'We heard comments that the architect did not like the owner in involved in the detail design. We reacted with 'If you do not like it, you can leave'.* Hence, the owner team *'wants better communication and responsiveness from the architects'*. Money issues between the architect, and the owner team worsens the relationship between them even more. *'They have come back and said we need this amount of money to make it right and to bring us up to speed. And part of me thinks that is going back from their original bid, that was underbid, which we felt that was underbid. We even said to them, wow you are coming in short compared to other competitors and then they said 'o we got it covered', you know, and you wonder, did they misjudge the amount of time? It is hard to say right, because then you are getting into supposition right.'* The cracks create distrust. *'In the back of my mind I guess that I am not fully convinced, having been on that side, when someone writes down they worked 40 hours on your project, did they really work 40 hours or was that just an easy way of*

filling out the time sheet, because I am busy and did not keep good track of their time, and 40 sounds like a good number. The owner sees a timesheet that starts to add up, really I had 10 people working on that fulltime, really? And the firm will never admit, that 'o...', of course of course!' And then you know the product content development may not be were the owner feels that it could be when you look at all the hours that went into it. I just think that it is not blatant distrust or something that they have done, but it is just it human nature where we have seen that in the past, they will come back and say 'o we are short on money', well we are like, you agreed to do this entire phase for this and this amount so, how can you ask for more money?' According to one of members of the owner's team they waited too long when they had doubts about the interior design team at the start of the project. To prevent the same mistake the owners react immediately when they feel the architect team drifts off course. The owners tell the project managers to initiate a conversation with senior management of the architects, and request more for senior leadership. 'The owner was not happy, so the architect extended the team.' The relationship between the project managers, and the owners on the other hand intensifies over time. Money issues of course always lead to irritations. 'Thomas will say 'I just got another thing from the architects', then Matthew will say 'I just talked to their managing director and we talked it out, and now you are telling me you got another email?' Then we tell the project managers, you are owner's representative, that is why we are paying you, you need to understand what the disconnect is! Because otherwise what is their role, and we are paying them a lot of money! If everything worked ideally Matthew should only make very simple discussions, should not be he has to talk with the architects' director. Those meetings should be between the architect and the project managers. That is their role. They are trying. Relationship is still good. But hearing about money is not a good sign.' Nonetheless, the relationship between the owner and the project manager team is going well and intensifies over time. 'They [project manager] are doing a good job. I am a bit worried that we rely too much on Paula. Paula seems to be the center of a lot of the production stuff. She is very good.'

While the owners really trust the project managers the architect, and the contractor team seriously doubt the capabilities of the project managers. 'Somehow we do have to get updates from them. I think it is the project mangers' job to do that, but I think we need to poke our nose in there and ask questions... I just do not want to trust them...they do not see what they are doing!'; 'Paula is really in over her head. A lot of stress and then she cannot handle things any more'; and 'The project manager stays silent and we are picking up their tasks'. Moreover, both the architects and the contractors are very annoyed with a particular project manager. If that specific project manager is in the meetings it always leads to more quarrelling and the other project team members get more defensive. 'I do not think that anybody is going to come on the scene and look at the same drawings and come with a

different number than you. I am not suggesting that, but I do think that it is another set of eyes on the drawing, another voice in the room [...] We are sort losing sight of what we are trying to do here'

Remarks like this are meant for the best of the project team, yet in the end the project manager is the only one who is laughing. The other project managers are offended. To deal with their irritation the project team members joke, and gossip about this project manager. *'Scott, the king of the cheap flat roof!'; and 'Earl, next time you should bring more quarters for the project managers meter!'*

Additionally, the relationship between the project manager and the architect team is troubled because their roles often clash. *'The role of the project manager and the architect is a grey area. People stepping on each other's toes. The roles are unclear'; and 'We are ears and hands for the owner. We take our direction from them. I do not think our role is always clear to the others, it is a bit fuzzy, for instance one of the senior architects got angry, said we are micro-managing them, but is my task to do what the owner told me to do'.*

Subsequently, the project manager team is very sensitive to the behavior of the architect. Thus when the architect and the contractor casually mention in a meeting the discussion they just had about the schedule one of the project managers immediately feels trespassed and irritably says *'Ok, so just as a request I would like to be included on huge schedule updates like this. I know the correspondence seems to go immediately from the architect to the contractor, but I think the project manager and the owner really need to be involved in these schedule discussion, especially if it is about a two months shift like this.'*

The architects and the contractors, on the other hand, are very happy with cooperation process between them. *'It is easier for the contractor and us to cooperate. It is just fluid. They are here more often. We talk more often and things are smoother.'*

The only topic that really brings the teams in the project team together is board meetings about money. A major topic in the months after the implementation of the BR is the budget. It is impossible to build such an iconic building with the budget provided by the board of the computer company. Hence, the owner team wants to convince the board to raise the budget. *'There is just no more money. If we go back to the board this is the one and only time, and whatever the number is, is the number. There will be no other opportunity that is what we are debating right now with our CEO and CFOs. What do they feel, they are the ones closest to the board then we are. I can tell you their board's appetite is completely different then the CEO's is [...] that is why all the different meetings and why the information and having all the answers to the questions. That is why we are gathering all the information. This not just pick a number. We have got to be able to justify it.'*

Getting the board to approve the new budget creates a certain 'we-ness' as all teams have the same goal: to keep this project going, and to get some decisions. *'We have to demonstrate the worth of the design to the board of directors of the company.'*

Pointing fingers

Due to irritations, and the project not really moving forward the tone of voice in the meetings during in meetings starts to change. Project team members are easily irritated, and start to point fingers. The architect, for instance, points to both the owners, and the project managers for the missing guidance, while the owners, and the project managers point to the architect for excluding them in the decision making process. *'Options are not represented, decisions are being made without the owner, and I do not receive the information about the design decisions.'* Furthermore, the architects, and the contractors accuse the project managers of a lack of coordination. *'They are the project manager they should be coordinating. It is our job to coordinate all the consultants. It is a little unclear to us as well, let me put it that way!'* At the same time the teams point fingers at each other they also try to save their own skin *'I just want to make sure that we are all on the same page...'*; *'Make sure we are all aligned here...'*; and *'We just need to be clear on...'*. Project members also point fingers because it is very hard to stay on the same page. *'Not sure what the goal hierarchy of the project is, more clear than before, but still not 100% clear'*; *'The reason why I ask, because I am trying to get the priorities of the team clear'*; and *'It is a big challenge to get people aligned'*. There are alignment issues in the first months of the project yet over time the project team members are more irritated with such issues. *'And the architects and the other guys are like 'we do not see the problem', and I am like 'well let me show you the problem'.'*

Growing apart even further

Over time the deliverables as well as the interdependencies are even more tangible between the teams. The city council proposals, for instance, consist of a multitude of paperwork issues that need to be looked at by various players, such as the owner, the architect, and several consultants. These players work on the documents at the same time hence coordination is very important. Also the first sets of drawings need to get ready, so that the subcontractors can bid the work. There are multiple ways to start the bidding process. Many decisions need to be made and there is time pressure. These aspects increase the small pre-existing irritations, which are now expressed through the phrases as *'correct me if I am wrong'*, and ad hominem attacks. The project team members feel that the project team is growing apart even further. *'We do not have the same goal in mind yet'*; *'they are very focused on their own goals. They have a silo approach'*; and *'The first thing that jumps to my mind is the challenges seem mostly priority driven. I think it would be good for us to come back together about the mission statements for this project'*. In their own internal team meetings the teams are clear about their own goals and they voice their concerns. *'We have to make sure that we do get caught in stuff that we do not want to do or cannot afford'*; and *'When is that going to happen*

though I am really concerned about this notion of deferring things to later, because it is going to be a shift storm later, if we are going to keep with that mentality'.

Throughout the project the pressure to deliver also increases. Everyone needs to work harder. Over the duration of six months both the amount of contact, and the amount of supportive behavior, increases between the San Francisco and the LA group of the architect's team. There are now many examples of cross-team supportive behavior. *'I wanted to let you know that I am working on this, but I was wondering do you need what I am working on right now for the set. If not then I will stop working on it for now and help with the red lining.'* In the project team itself there are not many changes when it comes to the amount of cross-team supportive behavior. Actually one of the consultant teams feel more left out in the cold than earlier in the process. *'For example, in the heart area they added another whole floor, a week and a half before the deadline, so we were like, 'o ehh, we need another week, to kind work all this stuff out', and the request was 'well can't you just kind of make your best estimate, just do your best and use your expertise, can't you add people to help you out', so yeah... in the end we kind of just had to do it, with the same people, but we all worked very hard.'* Other teams even openly criticize some of the supportive behavior. The contractor for instance, keeps an overview of the tasks, and schedule for the whole project team. One of the project managers feels the way the contractor team keeping track is not useful. The effect of this criticism is that the contractor feels treated with contempt. *'Well again, you and one of the architects and I sat there for 20/30 minutes about this. Again we are happy to populate the schedule with a bunch of items, but we are going to request guidance as to the logic of it all. I am not sure how you are holding everybody's feet to the fire with this list of you to not know what has to come 1st, 2nd etc or know the connections between the disciplines. It can be done that way, but somebody has to sit down and think about it. The stuff that we have done here, you guys really take this for granted but it is like it is a big deal to note these things down!'* Moreover the critique on the supportive behavior also creates a form of territoriality. The attitude that this is *their* job.

7.4 Qualitative data analysis

The project team in the storyline is a Multiteam system (MTS) with seventeen component teams (CTs). Several issues stand out after coding and re-coding the qualitative data.

7.4.1 Development of intergroup behavior

At the start of the research there is only a sense of we-ness during meetings with the board of computer firm and during MTS meetings. *'As a team we need to figure out'* and *'as a team we need to justify'*. Also at the partnering day the MTS members all felt a we-ness. *'We are together in this thing, one voice', 'We know what we are all working for, we are in the same place',* and *'Let's make it*

a goal, to make this the most highly functioning team, a real example for future projects, and that we all always refer to it as the best experience we had'. Everyone is aware they need the other CTs to get the job done. 'Whole is more than the sum of its parts, responsibilities towards the architect, the project manager and others.' Yet, outside those few meetings none of the CTs ever spoke of 'we' in the sense of the MTS. The MTS members clearly distinguish between their own team, the other CTs, and the MTS. 'There is a difference between the teams and project team, everyone is their own company', 'Ideally there are no sides', '[...] within our own team, we [...] internally within our team...', and 'What does the rest of the bigger team'. Even though, the CTs are separate entities, some CTs are perceived as one CT, or view themselves as one CT. 'Owner and project managers are one team', and 'They are our client, we align ourselves very closely with them'. At one point one of the project managers says: 'In our climate in Santa Clara' The project manager firm, however, does not have any offices in Santa Clara while the owners do have office there. The owners on the other hand see themselves as a separate team, 'When I say 'we', I mostly talk about the client-team, the computer firm team', hence they do not feel as one team with the project managers.

The CT versus MTS distinction is also expressed by the tendency of the MTS members to speak with possessive pronouns like 'your pricing', 'your interior team', 'it is in their court now', 'we know our people do not like change', 'your sunshades', and 'Was the mockup, our idea or yours?'. The owner CT notices the use possessive pro-nouns: 'It is not their design, our design, it is a team!' Moreover, the MTS members show ingroup favoritism, and hold stereotypes about the other CTs. 'We are the ones you have to have, we make architects look great!', 'We are the ones that come up with great ideas and make it an exciting space. I think everything is humming around the center team of the architects', 'We have unique position as the owner, more above the team, then in it. [...] We are subject matter experts', 'We are the only firm who is committed 100% time wise to this project', 'We are different', 'They are the client, and they are the boss because without them there is not project, but we are the ones telling everyone how or what is possible', 'That is typical for architects...', 'Architects are never done...', and 'That's the problem with engineers...'.

Over time the MTS identity increases for some MTS members, while for others the identity strength did not change or even decreased. 'In some ways I feel more part of the team, and in other was I feel the same as before', 'the MTS has not 'gelled' yet', and 'It is moving from 'we' to 'I' now...'. After the implementation of the Big Room the situation does not change. 'The teams within the team', 'open dialogue between the teams', 'the team being the larger team', 'the sub-teams', 'the contractor team', 'the architect folks', 'we are looking at something amongst ourselves', and 'my team and the whole team'. Hence, the Big Room does not facilitate a common identity. 'If Big Room would be

somewhere else, then you form a new team that does not happen when you are in someone's territory.'

The need for privacy also indicates that the MTS members do not see the other CTs as their 'own'. The CTs strictly separate their internal issues from MTS issues, and they do not discuss internal CT issues with the other CTs. *'There are instances where you do not want anyone in your kitchen', 'It is like a family, you have your issues at the dinner table, but for the outside world you are one big happy family', and 'That is something we deal with inside, does not reflect outside'*. Additionally, the MTS members feel that they cannot be totally frank, and act like themselves in the MTS. *'I would not say everything to the project team', 'In your own team you can joke, have fun, not be all the time professional, when in the project team you need to give good example, be more professional', and 'People are not spies per se, but they [other CTs in Big Room setting] are on your back 24/7, we cannot be totally be ourselves, be open, the privacy is gone, everything is public.'*

Another distinctive behavior signaling intergroup behavior, and the lack of a we-ness, is the presence of an 'us versus them'-attitude. *'You guys', 'the contractor guys', 'That's Scott, he is with us', 'that's one of our guys'*. One of the consultants in a call-in meeting says *'I feel outnumbered'*, when he hears several people sit in a room together on the other side of the line. Even though, the consultant says it jokingly, the sentence clearly conveys that he does not feel the other MTS members on the line are part of his team. Moreover there are slip-of-the-tongues in the common meetings that point to an 'us versus them'-attitude, like *'It is us trying to facilitate your guys' process.'* After the implementation of the Big Room the MTS members even start to talk about 'sides'. *'Are there people joining from your side?' and 'from the contractors side.'* The CTs even compete which each other. *'Well we might educate ourselves on the process, because it might come up in this job. This job seems to be full of jargon, and that is one of the jargon words out there. Then maybe we can beat them [architects] to the punch.', 'Yeah, we won!', and 'I challenged the architect! [proud tone of voice].'* During one of the meetings, for instance, the architect tells the owners they already created part of the PowerPoint presentation for the upcoming meeting with the CEO. While the architect is telling this, one of the contractors sarcastically puts two thumbs up signposting that the architects are doing a great job sucking up to the boss.

Interestingly, the call-in meetings also create a geographical 'us versus them' situation. It happens several times that people who are in the room together made jokes about the people on the other side of the line. Being in the same room apparently fraternizes, even across CT boundaries. For example, during one of the call-in meetings Nick, and Paula talk with a consultant who at one point asks *'I don't know whether there is budget for these fancy displays.'* Nick, and Paula look at each

other, and start to joke about answers to this question, as getting down the budget is the most important issue the MTS is working on.

The last example shows how jokes can have a fraternizing effect across group boundaries. Both the previous interior design team, and contractor are favorite common outgroups to joke about. *'It is a very refreshing dialogue to hear Hank speak, ha-ha; he could answer a question without any bullshit! The other guys (former contractor) never had an answer.'* However, the CTs also use jokes to discredit other CTs, as a way to boost the status of, and fraternize within the own group. *'This client is kind of cuckoo about a waterproof garage'*, or *'We have an opportunity here to put poly-tile in all the kitchen areas, and the consultants were all like 'we really feel that you have to put in hypoxxy floors', that figures, this is the one time we actually got 5 inches to put the stuff in, and they are like 'no we do not want to do that...Of course you don't!'* Another example of such a joke is calling the CEO of the owners firm *'a little king.'* Over time the number of jokes made which discredit other CTs, or members of other CTs increases. There are also several examples of individuals of the same CT 'teaming' up against an individual of another CT. For example, one afternoon an architect asks the contractors whether they are also going to the city council meeting later that evening. The two contractors react provokingly *'ehh no, why would we? Our experience tells us that it is not useful to go.'* Yet, the architect is very serious about them attending: *'Someone of the contractor team should be there, what if they ask questions?'* As a reaction the two contractors tease the architect, and make fun of his seriousness. Something similar happens during a face-to-face meeting. One of the project managers asks the architects *'So now we are talking about this, I do not have a lot of visibility to how interior team works with roof team for example, that is just something we do not know much about, sometimes you are in sometimes you are out, it is not a negative, it is just something we do not know much about.'* This remark immediately bonds the architects: they look at each other, start grinning, shrug their shoulders, and make facial expressions like *'What is he talking about?!'* The instant reaction of the architects is to ridicule the remark of the project manager.

The fraternizing effect of jokes also occurs between CTs about other CTs. A good example of this occurs during one of the call-in meetings. At the end of that specific meeting the contractor wants to ask some last questions to the project managers, however both project managers apparently left the meeting without letting anyone know. The moment the contractor notices all the project managers signed off, he says: *'Earl, next time you should bring more quarters for the project managers meter [ha-ha] all right hopefully they were no longer on the line!'* Both the architects as the rest of the contractor team laugh.

7.4.2 MTS teamwork development

7.4.2.1 Component variables

Mutual performance monitoring

Mutual performance monitoring is aimed at keeping track of the process. In this MTS there is no system to monitor each other's work. The MTS members only monitor the tasks of others at an ad hoc basis. However over time the MTS members notice that ad-hoc mutual performance monitoring is not sufficient, subsequently near the end of the research period the issue of *how* to monitor each other's work is discussed in almost every meeting. *'How can we map things, so that we hold each other accountable?'* and:

Project manager 1: We need a way to track our joint responsibilities

Architect: Would it help to add in the meeting notes who does what, and then you can point to those and say you promised to this, and then in the next meeting you can ask/tell what you did and what the outcome is

Project manager 2: Maybe we should share those commitments with the team on a format that is on the wall, and everybody sees it and understands why everyone is doing what they are doing

The amount of trust influences how mutual performance monitoring behavior is perceived. For example, the question 'how are you coming along with ...?' can be interpreted as 'how nice of you to ask', or as 'why are you checking up on me? Are you spying on me?' The MTS members seem to 'check' their fellow MTS members more than monitor them. *'I will check in with the project manager to see if he is on it', 'I want to make sure that x and x is being taken care of... I want to make sure that you [project manager] have that on your radar', 'I called the sub-consultant, because I wanted to make sure that she would get enough information, so that she could do her job well', and 'We do not even know how many architects are working for us, all are saying they work 40 hours, so now we really check when someone mileage for a trip, we need to monitor whether not excessive, were they really here?'* The relationship between trust, and mutual performance monitoring is nicely described by one of the architects: *'As the design team has been producing documents the owners' group has always wanted to see into that process, so they wanted to be in every meeting and understand every detail, I think slowly they understand the process and what is being process, there is still a desire to know and be involved, but less of a desire be there for every minute of every day. That is natural, that is just people starting to trust, that the work we are doing is productive, that they are seeing the results and they understand the individuals, they do not have to oversee it anymore, it is like school, at the beginning of the school year parents always feel the need to watch the teachers for a while and question them when their drop the children off, and by the end of the year you do not do that anymore, because you trust them, then you just push you kid out of the car.'*

Supportive behavior

Whether or not the MTS members feel supported by other CTs seems to depend on the place within the MTS and also on the power of the CT. For example, the members of the four largest CTs feel supported by the other CTs. *'The architect is helping us', 'The last thing we want to do is send the drawings out, and sit here and wait and pray, so we are game to help you if we need to walk people through the design or something', and 'Do we know when the consultant are going to be in the big room? We are happy to gather that information if you would like us to'*. Yet, the supportive behavior between these four teams contrast with the help provided to the consultants. *'Teams do not really care how you do, they are only interested when it impacts them', and 'In the heart area they added another whole floor, a week and a half before the deadline, so we were like, 'oh ehh, we need another week, to kind work all this stuff out', and the request was 'well can 't you just kind of make your best estimate, just do your best, and use your expertise, can't you add people to help you out', so yeah...'*

The power difference also influences the amount of supportive behavior. The owner CT receives extra attention. At one point, for instance, one of the owner team members talks with the contractors about a certain construction material. The owner says he really likes the materials used in the LAX airport. Even though, the contractors do not know anyone involved in the construction of the airport, they offer to find out what the material is. Moreover, the project team members pay more than average attention to whether or not the owners need or want something, such as a cup of coffee. It happens more than once that one of the owners walks towards the coffee, and at the same time one of the architects or project managers jumps up, and asks whether he/she can get them some coffee. Sometimes it is impossible to help due to differences in expertise. *'I cannot tell the architect what I think this building should look like. Why should he care what I think right? I can help him build it, but I did not go to architectural school. So I cannot help him there. But when you move from the conceptual design to how do we build it and price it that is where we are helpful.'* Furthermore, if MTS' members helped each other out across group boundaries, they often have ulterior motives for doing so. *'I just want to make sure that the price we name at the meeting is based on the same drawing as the architect is going to show, because often we name a number (money) and then in the same meeting the architects say the drawing on which we base that number is no longer valid, because they have made all these changes. And I just want to make sure that everybody understands that we really gave very rough estimates. So, that people later cannot say, well you said this and this.'*

The amount of supportive behavior in the CT differs much from that in the MTS. For example, in the CTs there are no extra agenda's for helping other CT members. *'People helped each other, stayed*

late', 'In the end we kind of just had to do it, with the same people, but we all worked very hard', and 'Would be different when we would all be in the same company, because than if for instance electrical engineering would have a problem, I would want to see if I can help them from my field, however you do not do that now, because 1) why would you add extra risk to your own?, 2) why bother? Teams do not really care how you do, they are only interested when it impacts them.' The amount of supportive behavior in the CTs increases over time. *'Within our team things are very good. Very smooth, people really helped each other out, even people that finished early, then went to the next group, stayed late, people really put in a lot of effort in it. That was positive. I think everybody went home for the weekend feeling good about the effort.'*

Adaptability

Adaptability is the flexibility with which the MTS is able to react to changes within, and outside the MTS. *'Part of the resilience of the team is how we adapt to adversity.'* According to one of the members of the owner CT the owner CT reacted too slow regarding their dissatisfaction with the first interior design team, and the first contractor. Hence, later in the project they speak up more quickly, for example when they asked for more senior management in the architect CT. The individual teams try to adapt to what the process brings them. Especially, the contractor team is very flexible. *'We normally do not do it this way, but we could try to ...'*, and *'What is the expectation? We can go either way...Again we will continue with the X idea, but if you want us to put the system and stuff in there, we just need to know so that we can anticipate that....'* Subsequently the contractor tries to help process to move forward, even if it is not quite clear what the MTS wants the contractors to invest time in. However at one point the contractor CT is done with adapting all the time. They feel they have been more than flexible, and want to renegotiate the terms of the contract. *'Sometimes it is difficult to see which idea they really want us to look into and when they do not need us to do that'*. In general however the MTS is not very adaptable due to its size, and the lack of real decision makers in the MTS. Everyone in the MTS agrees there is need for more decision makers, for a leader, and a method to stay on the same page, yet nothing is really done about it. Nothing is done because of the lack of decision makers which decreases adaptability. The MTS is stuck in a vicious circle.

Team orientation

The presence of CTs and MTS level goals characterize MTSS. *'Of course we all want something different, the client just want to be done with it, bring the design, the architect want to have this cool design and contractor focuses on the costs'*, and *'Maybe a little bit of conflicting agendas, for instance a client always has a schedule, and a budget, as designers we try to push as much design as we can within budget and schedule, but sometimes to get there we have to push beyond what the schedule and the budget allows for, eventually we get there, but for a while we are not completely aligned,*

little bit of tension, but that is good, because that is how you give the client eventually the best results.' The different goals lead to different preferences. *'We want to get more raw communication, so that we can think together, and the process will go faster. Because the architect really is more of polishing, so they have idea, they want to think about it and then they want to show it only when they have made nice drawings, so they polish. So the architect polishes, but we want it raw. It is better is the process is more iterative, because saves time and money, so more efficient.'*

If the CTs have a fair amount of team orientation they weigh the benefits of pursuing their own goals against the effects that it has of the success of the MTS. Theoretically this is clear. *'We are all bound by a common purpose, and we need to understand the each other's goals, so that those can be aligned for the larger goal.'* Yet, choosing between CT goals and MTS goals is still an issue in this MTS. A good example is the way the architects push the idea of the roof. The owner is team oriented, as try to stimulate the process. *'If there is anything, you are like 'shoot I should have asked that' just write an email Scott, and we will deal with it', or 'I am on [in the call-in meeting], I do not whether I need to be, but I am going to be on'.* The owner CT can also use its power to make the meeting schedule more convenient for themselves, but instead they try to accommodate the other CTs.

Owner: Where is the meeting going to be next week?

Architect: Well we can come to Santa Clara

Owner: Are most people going to be here?

Architect: Yes

Owner: Well then let's do it here then

The contractor CT also shows a lot of team oriented behavior. *'That tells me they [project manager] do not think that this is particularly important, we will go ahead and do it, and next time we will not talk so much about it', and 'I think we should try to convince the project manager team to pay for these things [...] I think it helps give them a better product.'* Yet, sometimes the CTs think they act in light of the common goal, while they are not. A good example is the architects arguing against having the BR near the construction site. Subsequently, the BR is stays in SF that eventually negatively influences the effectiveness of the BR as the other CTs feel guest in the architects' space.

Leadership

'There are also many de facto leaders, such as George, Paul, Roy, Thomas, but who is really 'leading?...No real leader', 'Now it is leading by committee, there is nobody with real decision making powers', and 'There is not direct leader, ... like the leadership is three people. Everybody was trying to do it together, but that does not work'. The MTS experiences problems when it comes to the leader. Who is the leader? Nine out of the ten times the question 'who is the leader?' is returned to the

interviewer with 'the leader of what?'. See Table 15 for an overview of the variety of answers given on the question 'who is the leader?'

Table 15: Overview of the different answers to the question 'who is the leader?'

Team	Answer to the question: who is the leader?
One of the project managers	<i>'We take our direction from the owner CT.'</i>
One of the owners	<i>'Does everybody think that Matthew is boss? Absolutely...ehm...hmm yes.'</i>
One of the owners	<i>'Who is boss? The CEO of course.'</i>
Consultant	<i>'The owner CT is at the top, architect CT is our immediate boss, but also the project manager CT can make decisions that will affect us.'</i>
One of the architects	<i>'Of what team? Haha. The leader is George for sure, design director in charge of the corn shell, Philippe of the interior, and the Paul is PM. They are the direct contact to the client, as an architect you are actually representing the client on the construction site for instance. Both Thomas, and Matthew are the go-to person when the little king is not in town (=Jens-sun), they are the client, they are the boss because without them there is not project, <u>but</u> we are the ones telling, and the consultants are telling how or what is possible.'</i>

The MTS's leaderless-ness is very evident in the meetings. There is no chair, no official beginning of the meeting, no ending, and no structure. The meetings are just MTS members talking in one room. *'Early on I got the feeling that we just showed up for the meetings on Thursday, people would talk, and then people would just go away and then you were like 'o another week just went by'', and 'We really need to circle at the end of the meeting to get things clear. A lot of stuff are just architects brainstorming and thinking about possibilities and playing around with ideas, however sometimes it is difficult to see which idea they really want us to look into and which they do not need us to do that.'* One of the owner team members tries to act as the MTS leader. He speaks at the end of every meeting, talks, and listens to everyone, however neither he nor the owner team have any real decision-making power. *'The CEO has the power to just throw ideas from the table, and that really messes with the cadence of the team, so at a certain point the CEO needs to step back and say I trust you guys are the experts, 'go''.* Subsequently, *'The Project-Management-Team-meeting is not really effective, because we cannot make decisions...'*, *'A lot of the meetings do not have clear decision making process that is a challenge that we face on the project, makes it less efficient'*, and *'We do not have decisions makers in the meetings'*. The influence that the presence of a decision maker can have, becomes clear when Matthew is on the phone during one of the meetings. One of the architects says *'Let's ask the owners, what they would like?'* Matthew thinks about the question, then he makes a decision, and the CTs can continue their work.

The lack of decisions stagnates the process, and is frustrating for the MTS members. *'Well I have not given them an assignment and Hank has not given them an assignment, ...even Jack is still kind of sitting around waiting for direction of what the design is', 'There is a rhythm of us going to CEO every month, we do not make major decisions, we get guidance along the way from the owner and project*

manager CT. You cannot sign of on anything until the CEO approves [...] Only this week he cancelled [...] so we have a meeting in two weeks. It delays the process a little, it was a little bit deflating because we had worked really hard to get it done', and 'There is a level of frustration when you are giving the client a sneak preview the night before, and them saying 'pff, arghh', then you are like 'Crap tomorrow I have to go and present this to them and I know that they do not like it', and they had that on a weekly basis'. Just before the implementation of the Big Room the project team members voice that the lack of decisions is really problematic. 'It seemed we had to go through three months of discussions to figure out that the budget needed to change, hallelujah! Finally.' The topic is discussed in almost every meeting, and after the implementation of the Big Room a new meeting format is introduced. 'We need a clear check-point, a big meeting, it is important so everybody comes, what happens now is that we do not have that, plus we do not have the Big Room working either, so we are sort of in an in-between, does not quite work. So, we have decided that the Owner-Architect-Contractor meeting on Thursday morning is going to be that major checkpoint. Major decisions makers of the project are going to be there.'

Then there is the loyalty to the leader problem. 'Our clients are the architect, but also the owner and the project manager, so it is kind of a balancing act. Our biggest obligation is to the architect, but it kind of a grey line, do we talk to them first or go immediately to the bigger team?' The owner team is concerned about the position, and loyalty of the consultant, and sub-contractors. 'In these projects if you are not careful the clients is the one with no power at all, we did not want to have an advisor on the team that was loyal sometimes these advisors are more loyal to the architects because they are going to do one project for the computer firm every 20 years, one a year for the architects. Commercial loyalty is different, we needed people that understand that we are writing the check', and 'I think one thing that needs to be strengthened is the consultants responsiveness to the computer firm, I think their loyalties are to the architects, because the architect is the one who hired them. I think when the computer firm says something to the design team and the consultants need to pay attention to their wishes, now there is a little bit a dis-connect if architect does not agree with something the computer firm is saying, then the consultant listen more to the architect than to the owner, and that is really backwards in my opinion, the owner is paying for all of it'.

Contrary to the leadership issues in the MTS such problems do not occur within the CTs. At the MTS level everyone emphasizes the need for a leader, in one of the CTs someone actually questions the presence of a leader. 'I do not need one [leader], if we all know where our responsibilities are.' The MTS members all know who their CT leader is and trust him. 'We have control over the project, Thomas is going to reign them [architects] back', 'Roy always makes sure we are up to date/involved',

and *'I worked with him for two years, I know how he thinks, what he likes, he is just smart and quick with his decisions'*. Some even jokingly idolize their leader: *'My fearless leader Thomas'*, and *'Thomas and his followers'*.

7.4.2.2 Coordinating mechanisms

Trust

'You have to be able to work with people, you do not have to like them, it helps, but you have to be able to work with people, that is respect, but above all trust', and *'To trust each other is key without that it is hard to move forward'*.

Even though, the MTS members do not know each other that well yet at the start of the research, they are positive about the other MTS members. *'I have yet to be part of a team where everything is optimized from day one, you are dealing with humans beings, has everything to do with how well we know each other, how much we trust each other. And when you look at the progress we have made on that level, and in two months, I feel that we are trending in the right direction'*, *'We really have the best consultants'*, *'I have a lot of confidence in these guys'*, and *'Each of the team is trying to do their best and work in the expertise that they have'*. After some time, however, cracks appear in the initial level of trust. *'And again we could be wrong, but that is what we know right now, I would hope that at some point they would really have some better information'*. The 'lighting incident', management dissatisfaction, and money issues, decreases the owner's trust in the architects. The owners are also anxious about the loyalty of the consultants. *'Sometimes these advisors are more loyal to the architects, because they are going to do one project for our firm every 20 years, one a year for the architects. Commercial loyalty is different, we needed people that understand that we are writing the check.'* The level of trust between the owner, and the project manager, on the other hand, increases. While the architects, and the contractors seem to lose their trust in the capabilities of the project manager team. The wheeling and dealing between CTs also influences the level of trust in the MTS. *'One of the biggest killers of trust is, what we would call, third-party conversations, or what project manager would call sidebars. There are a lot of sidebars. What does that mean, you are saying something that you do not want me to hear?'*

Trust is not just about trusting others, it is also about feeling that others trust you. MTS members are agitated if other MTS members question their expertise. *'For me as budget men I do not want the number of the costs to change all the time. There needs to be trust in my number, and many times people say 'it cannot be that much', but you need to trust my number, I am just the messenger, I trust in their design, then they should trust my number, right? To trust each other is key. Without that it is hard to move forward, and when people challenge my number it feels personal, I get pride in what I*

do and I know what I am doing, so if someone doubts my number that blocks the process.' Near the end of the research period there are a couple of occasions in which people feel that their expertise is questioned, and immediately the conversation gets defensive, and tense.

Architect: We will get there, this was the first draft, we will do some tweaks, but Nick is doing a great job to keeping track of the information, let's keep it in one place
Project manager: It is always better to have too much than too little, so I am not complaining am not complaining, it is great information, I am just trying....

In the CTs the amount of trust does not change that much over time. It seems that even though the most CT members have not worked together before, they trust each other from the start. Some examples of this initial trust are: *'I knew he would be good, I did not think he would be this good!'*, and *'They have been doing this for a long time, they have dealt with some complex projects, as have I, more eyes, more thoughts, different skill sets. Olof is very good with construction sequencing and talking to owner about this'*.

Shared mental model

A shared mental model, 'being on the same page', is pivotal for the success of an MTS. *'Being on the same page is mandatory, otherwise we cannot build this building.'* MTS members need to share information to main a shared mental model, yet this proves to be difficult. The MTS members all crave information. *'We only get snippets of information.'* Every time the MTS members of different CTs meet they ask each other questions. *'Do you know...?'*, and *'When...?'* Moreover, the MTS members are also not on the same page regarding the way forward. *'I do not think the project manager has backed-off on the idea that this MEP stuff is design-build, but certainly it is not clear whether everybody in the design team is on board with that, in fact to the contrary, it sounds like the owners continues not to be convinced that this is the right way to do it, the consultant does not seem to be in sync with that.'*

At the CT level the everyone's roles are clear: *'We never interfere with each other piece of the pie, we do not challenge each other expertise'*, and *'There is a clear task divide and knowledge of what the other one knows within our team, however we are not sure what the other people want us to do'*. In the MTS however there are instances of role ambiguity, and role conflict. At the start of the project it is not quite clear to the owners what the role of the project managers is, compared to their own role. *'It took us a long time to figure out the project managers' role, it was not clearly communicated to us...You need to know your role and the role of others'*, and *'I was quite surprised, [...] the project manager was at the design meetings and making suggestions at the design. Is that there role? It was not clearly communicated in our firm what their role was, we were just told that they have been appointed'*. At the same time the roles of the architects, and the project managers also clash. *'There*

are a few anomalies with this project team that have become obstacles, like we are usually involved with building the team, participate in a lot of interview with architects and consultants, whereas with this team, the architects' presence at participation on the team pre-dates ours.' The fact that the architects are hired before the project managers complicates the relationship between the two teams even more. Furthermore, normally, the architect functions as both the project manager, and architect. *'Project manager [...] need(s) to make sure that the project is steered in the right direction. They help the owner understand information and make decisions. We are also doing that, so there is some overlap. They are doing higher-level project management and we are doing detailed project management.'* Now, however, they are 'just' another player in the MTS which leads to conflicts with the project manager team. *'Just this past week the owner has asked us to get more involved in setting up and organizing an agenda for some of the different meetings that we going on. I have shared that with the architects on one of our weekly coordination calls, and one of the architects got really pissed, he basically said 'Stop micro managing us', and 'We are ears and hands for the owner. We take our direction from them. I do not think our role is always clear to the others. It is a bit fuzzy, for instance one of the senior architects got angry, said we are micro-managing them, but is my task to do what the owner told me to do.'* That the role of the project managers is complicated is illustrated by two quotes from the same architect about the role of the project managers. *'The project manager is in a bit of unique spot because their client is the computer firm, but at the same time they have to bring the rest of the team together. Sometimes how you bring the team together maybe be different than what you would think. That is a more difficult role to play.'* versus *'The project manager is sort of a watchdog. They make sure we deliver what we supposed to.'*

The smaller number of team members within a CT makes it easier to keep everyone on the same page. *'I think I have shared this with you on Friday, but I do not think I have shared it with the rest of the team, I had this conversation with one of the project managers on the phone...'* Each of the CTs has their own way of maintaining a shared mental model. The contractor's Excel method is the most extensive. During the weekly contractor meeting the contractor CT goes over an Excel document that provides an overview of all tasks and status. Contrary to the CT, it proves more difficult for MTS members to maintain a shared mental model. There are several reasons for this difference. The first of all, although the meetings consist of a lot of checking and updating of the mental model. *'There are two options, correct me when I am wrong, this or that right?', 'Is the notion/this idea all set now? Because we were previously talking about it?', 'That's the whole idea of co-locating right? Parallel working?' and 'Originally yes, but now...'* The MTS meetings are very chaotic. 'Movement' characterizes both call-in and face-to-face meetings. People are distracted during call-in meetings, they take calls, and just step out of the room. Consequently MTS members still miss information, and

key decisions. *'I stepped out for a second so I do not know whether you already talked about the partnering session of the afternoon?'*

Another barrier for an MTS shared mental model are the different backgrounds of the CTs. Even though, all CTs work in the construction industry, they still use different jargon. In one meeting, for instance, there is a 45-minute discussion about the definition of 'design-build' versus 'design-assist'.

Furthermore, there are no technical drawings during the researched timeframe. *'There are no drawings, while drawings are the best way to communicate, because we all understand what is meant with the symbols in drawings, it tells everything, you do not need words, when you have drawings. Now everyone is explaining everything a 100 times, but nobody is drawing',* and *'We all had interpretations of thoughts, now we see drawings on the wall, we finally understand how they want to build it, and now we can take that and have real discussions.'* At the end of the research period several drawings are finalized, which creates a sense of certainty: *'Now we are finally in a place that we have a design, and we are continuing ahead with, what seems more certainty, in that process then we have had since ...ever. So that is good.'*

Additionally, the BR increases the problems in maintaining a shared mental model. *'Things were happening, there was a lot of activity, getting a lot of feedback, but a lot of people were missing it, because they were not here. So you got project managers or owners come in three weeks later and they are confused, because the project has progressed, and it happened in this space. There is no feedback mechanism to keep people up to date.'* Even if MTS members are present in the room, but not at the table they already miss things. For example, even though the contractor CT attends the BR several days a week, it still misses the decision of the architects to install a parking counting system. There is no feedback loop, no overview of all the information, nor is there someone who has a comprehensive overview of all the information, and actions within the MTS. *'There just needs to be someone who is coordinating that information flow to the consultants. You would hate to have that people are missing information, because they are not in the Big Room. That wrecks the work someone is doing.'*

Closed-loop communication

'It is all about communication, then you can overcome many problems.' At the partnering day the MTS members indicate that they are satisfied with the communication process between the CTs: *'Communication is very good, very direct, if there is a problem, it is directly talked about',* and *'The communication on the project is very good, consultants are very engaged, fast responsive, respect, quick information, value your input'*. The MTS members communicate via email, phone, and face-to-

face. Outside the Tuesday, and Thursday meetings most of the communication is via email. The project team members put the other teams in the CC of the emails they send around. *'The contractor team, they are always copied in the email, and the team here obviously.'* For example one of the architects calls people rather than send them emails. That same person complains about the large number of emails he receives per day. Apparently other MTS members rather email instead of call. In the meetings people use closed-loop communication to check their assumptions. Questions like *'From our understanding, please tell me if I am right, but ...'*, *'Can I ask a question, the diagram that you are showing does not include any testing, is that correct?'* and *'Are we saying...?'* Being in each other's proximity also aids the quality of communication, for example feedback loops are faster, and occur more natural within the CTs compared to in the MTS. For example, on a Thursday morning the contractor team sits outside a meeting room. While they are waiting for the meeting to start, Vince receives a phone call from another team member. This team member tells him about a recent development. Right after Vince hangs up the phone, he shares the new information with his team members sitting beside him: *'Just so that you all know and are not like... 'uhhh', when they start to talk about it in the meeting.'* *'In our CT we share information. We sit close to each other and just walk over to ask a question. In the MTS we do not always know what is going on.'* In the MTS there are several occasions in which information is not shared, such as the contractors do not know the interior design team is let go before they entered the team. There are also some problems with keeping the consultant teams up to date. *'My bigger concern is out conversation with the sub-consultants, always information delay between... we do not have a great mechanism yet where everybody shares and is invested in sharing that information.'* After the implementation of the BR MTS members feel a lot of information, because there is no information feedback loop in place. Additionally, MTS members are less patient with each other which influences the way they communicate. *'He basically said 'Stop micro managing us', I think it is good that he is expressing his feelings, but I do not think that is the most productive form of communication. And admittedly, I probably did not express that concern in the most politically correct way, I just said it like it was and gave the reasoning behind it. So, I think there is a lot of value in the way people say things, I not just what you say, also how say it. I think that is something the whole team needs to be more aware of. It has happened a couple of times, it is coming from a good place and I think it is kind of healthy, and it pushes us all to grow a little bit more. But nobody should feel 'hurt' during this whole process.'* Generally, the MTS members try to be very diplomatic when they talk with other MTS members. This is not for no reason, as both the previous, and the next example indicates. In the pre-BR period one of the project managers uses a more direct question when she is interested in the progress the architects made. She says: *'What is up with the...'* The way this question is asked, is not at all appreciated by the architect: *'What do you mean with 'what is up with it?!''*

The tone of voice MTS members use in their CT is a lot less diplomatic. For example, once the architect responsible for management issues walks over to where some of his colleagues are working on drawings. One of those colleagues enthusiastically tells him about this new idea they have for the design of the heart of the building. The architect who walks over, immediately reacts very irritated: *'You guys we need to talk about that kind of stuff!'* This reaction is a lot less diplomatic, than in an MTS setting. Additionally, the tone the CT members use if they monitor the work of their colleagues, is also far more direct. *'Did you check x yet?', 'Did you put in the budget dates in the new overview?'*, and *'Did you do ...?'* The MTS members themselves are very aware of the fact that they talk differently in an MTS versus CT setting. *'In CT there are more candid discussions, we talk about everything, the communication in larger group is different'*, and *'That is the only time we can let off steam and just discuss things and that does not always go as diplomatic and subtle as here.'*

7.4.3 Relationship between MTS intergroup behavior and MTS teamwork over time

Even though there is no us versus them atmosphere at the start of the project the MTS members are very aware they belong to a certain CT. This CT awareness influences the MTS teamwork processes in several ways. Take for instance the issues of privacy and openness. Several MTS members feel that they cannot be totally frank in the MTS. *'I would not say everything to the project team.'* Moreover, the CTs are competitive for the 'love' of the owner CT. During a roof meeting, for example, one of the contractors informs about the quantities of material. The architect replies 'jokingly' *'I am not going to give you that info!'* The architects are afraid that if they share such information can only hurt the, as the contractor is the budget keeper. Moreover, the MTS members do not think is wise or normal to help each other. If CTs do decide to help other CTs it is often for ulterior motives benefitting their CT. Furthermore, the CT members are very diplomatic when they talk with other MTS members, as a wrong tone of voice can immediately cause a conflict.

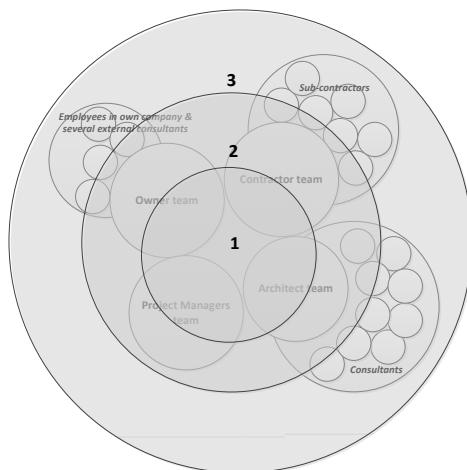
Along the way irritations develop between the MTS members. These irritations are sparked by lack of results, progress, stress and small incidents. From that moment on the MTS members are even more aware of the CT memberships, and their MTS identity strength decreases. For example, the fact that the architects do not let go of the roof bothers the other CTs. They feel the architects are not working in the best interest of the MTS. Additionally, interpersonal irritations develop and influence inter-CT interaction. One of the project managers gets on the nerves of both the contractor as well as the architect CT. At the same time the project managers CT and the owner CT are irritated with the lack of cooperation (according to them) of the architects. Eventually, these irritations split up the MTS in an owner-project manager 'side' versus the architect-contractor 'side'. An us versus them atmosphere starts to develop. The us versus them atmosphere stimulates ingroup favoritism causing CTs to point fingers to the other CTs if things go wrong. *'I think the architect is regressing back in the*

architect role, of managing the client. *They would deny that they do that, but that is very typical. We REALLY do not like that, that is not who we are*, and *'They keep on talking about it every week, and act like we have not done anything'*.

Additionally, the wheeling and dealing between CTs strengthens the in-versus outgroup atmosphere even more and decreases the level of inter-CT trust. *'One of the biggest killers of trust is [...] third-party conversations [...]. There are a lot of sidebars. What does that mean, you are saying something that you do not want me to hear?'* The wheeling and dealing also leads to politics, gamesmanship, and arm-twisting behind the scenes. *'There is politics', 'I will have an ally in him... It will mostly be convincing the owner that the design team needs to come down here', and 'You do not know what is all in play.'* Power imbalances in the MTS are strategically used in the advantage of the CTs. For example, the architect CT used the information advantage they have over the project managers, because they are hired earlier and they have direct line with the CEO through George. Of course, this does not sit well with the other CTs in the MTS, and decreases the trustworthiness of the architects.

'When we trust each other and respect each other, people tend to forget about those [organizational] boundaries.' The 'lighting incident' is a good example of how inter-CT irritation combined with a lack of trust and a shared mental model create even more inter-CT tensions. *'Just seeing designs that we have never seen before, 'what?!' [...] We are not being brought in to some design issues [...] what is it that we need to say to you for you to understand?'* According to the owner CT the lighting incident is yet another example of the architect CT not doing their work, which reinforces the owners initial hesitation and distrust of the architects. A similar example of how a small issue reinforces pre-existing suspiciousness is the fact that the project managers did not mention a certain partnering session at Stanford to the contractor CT. When the contractor CT finds out about this partnering session one of the contractor CT members comes up to the researcher, and whispers *'I know you are not working for Roy, but there was this meeting like four months ago at Stanford, do you know what that was about? We learned there was a session like this before, but we did not learn that through our partners, no we learned through our subcontractors.'*

The stratification within the MTS also leads to extra boundaries that influence MTS teamwork processes. Due to differences in CT involvement the MTS consists of different layers. Figure 22 provides an overview of these layers.

Figure 22: Overview of the different layers within the MTS

The MTS members in the first circle work on the project every day, they are very involved in the project, and very knowledgeable of what is going on. Together these MTS members form the core of MTS. In the core people know each other by first name, they often see each other, and work closely together. The second circle portrays MTS members who work part-time on the project. They are somewhat aware of what is going on in the MTS, yet their focus is more on their own task. These MTS members join some of the meetings, yet they do not always know who is who. The MTS members in the third circle are even less involved in the project. These project team members only know their counterparts in the MTS, and they often have not met any other MTS members in person. Stratification leads to a loss of synergy. For instance, stratification influences goal alignment, as there is a larger chance that a CT in the first circle will put MTS goals before CT level goals, compared to a CT in the third circle. For example, the main goal of the MTS during the months of research is to reach that ultimate innovative design which stays within the budget. This goal is decisive in the decisions the CTs zones one, and two make. The CTs in the third zone, however, work on more projects, subsequently are less engaged in the MTS, and all these members hear is: *'Can you do it for less money?'* A remark that they hear all the time, because every client wants the service to cost less. Even if the third zone CTs want to be pro-active, and innovative, they lack information. The CTs in the third zone only receive scraps of information of which someone else thinks they need to be able to do their job. Yet, that amount of information is not nearly enough to engage in out-of-the-box thinking. *'I do not need all the information, but little bit more would be nice and it would help'*. Furthermore, out-of-the-box thinking, and innovation requires taking a risk. Organizations only take risks if they feel safe, or if the risks are shared. Since, two large CTs have already been let go, it is very possible that the third zone CTs do not feel that sense of safety.

7.5 Quantitative data analysis

For the quantitative data analyses paired-sample t-tests and Pearson-r correlation analyses are used. The first measurement takes place before the installation of the Big Room and the second measurement takes place several weeks after the Big Room is implemented.

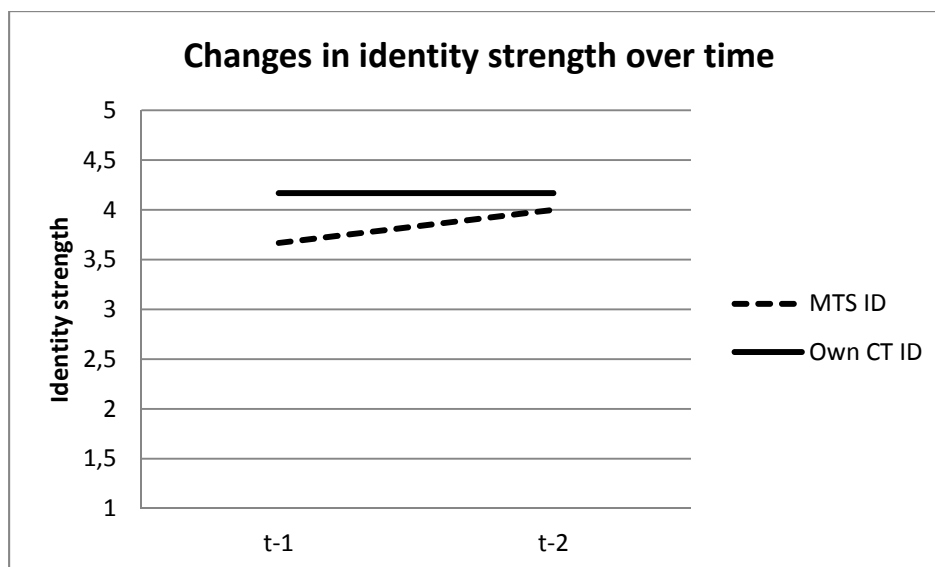
7.5.1 Development of MTS intergroup behavior

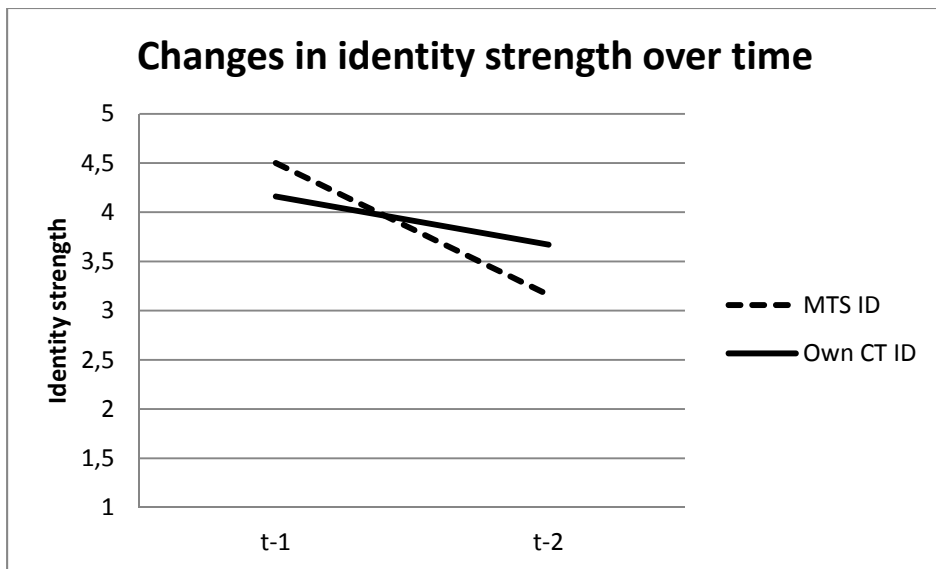
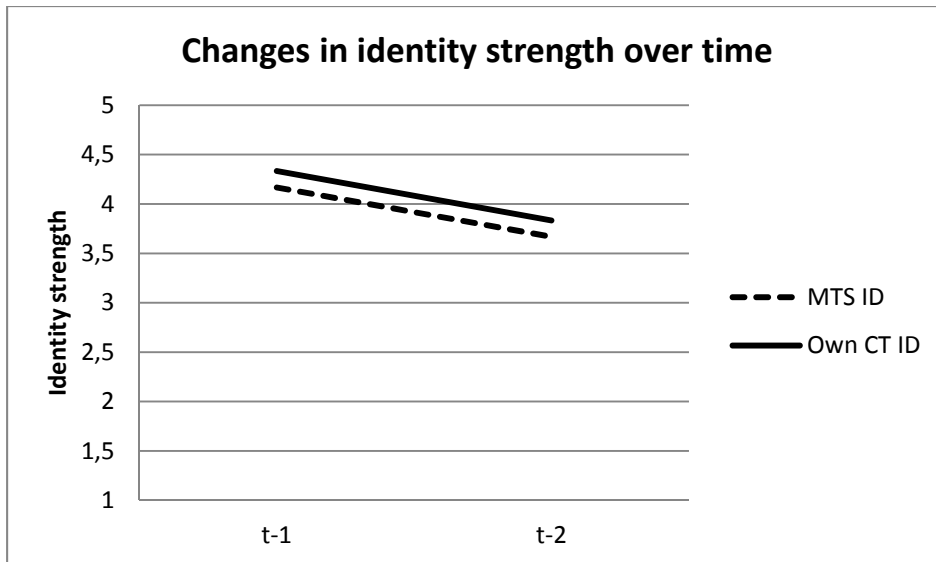
The quantitative analyses consist of t-tests, and Pearson-r analyses. The t-tests investigate whether CT and MTS identity strength differ significantly, and whether the changes in CT, and MTS identity strength differ significantly over time. The Pearson-r analyses investigate whether CT, and MTS identity relate at the same point in time, and whether they influence each other over time.

The quantitative data shows MTS members distinguish the MTS identity from their CT identity. The MTS members identify significantly more with their CT ($t-1$: $M=4.10$, $SD=0.69$, $n=27$; $t-2$: $M=4.04$, $SD=0.77$, $n=23$), than with the MTS ($t-1$: $M=3.76$, $SD=0.68$, $n=27$; $t-2$: $M=3.67$, $SD=0.68$, $n=22$) during the research. Moreover, the Big Room does not significantly affect the MTS or the CT identity strength. However, the changes in CT, and MTS identity strength over time are all linked significantly to each other. Thus an increase in CT identity strength coincides with an increase in MTS identity strength (see annex 5).

Although the changes in MTS, and CT identity strength are not statistically significant there are differences between MTS members in the way both CT, and MTS identity develop over time. The three graphs in Figure 23 provide the overview of identity changes over time for three separate MTS members.

Figure 23: Changes in identity strength over time for three MTS members





Interestingly, the mean MTS identity scores for the four main CTs (t-1: $M=3.94$, t-2: $M=3.79$) is a lot higher compared to the mean MTS identity of the consultant CTs (t-1: $M=3.24$, t-2: $M=3.33$). This difference in identity strength is not present in the CT identity strength (*Four main CTs* t-1: $M=4.11$, t-2: $M=3.98$; *Consultant CTs*: t-1: $M=4.07$, t-2: $M=4.08$) (see annex 5).

7.5.2 MTS teamwork development

The t-tests explore whether or not the differences between CT and MTS teamwork variables and changes in the MTS teamwork variables over time are statistically significant. The Pearson-r analyses investigate whether the MTS teamwork variables are related, and whether they influence each other over time.

Before the implementation of the Big Room the mean CT component variables are all significantly higher than the MTS component scores (data for adaptability and closed-loop communication is not

taken into account). Except for leadership. There is no significant difference between CT and MTS leadership appreciation before the Big Room is implemented. After the Big Room is in place the means of all CT component variables are significantly higher compared to the means of the MTS component variables. The amount of MTS mutual performance monitoring increases after the implementation of the Big Room, while in the CT the leadership appreciation increases (see annex 5).

The means of all three coordinating mechanisms are higher in the CT compared to in the MTS before and after the implementation of the Big Room. The Big Room actually negatively influences the amount of MTS trust and closed-loop communication, as the means of both coordinating mechanisms decrease significantly (see annex 5).

Before the Big Room MTS leadership is related to every other component variables, as well as there is a relationship between mutual performance monitoring and supportive behavior. After the implementation of the Big Room almost all component variables are related to each other. The only exception is mutual performance monitoring. Earlier MTS experiences with mutual performance monitoring, supportive behavior, leadership and team orientation influence several later MTS component variables (see annex 5).

The component variables are also related to coordinating mechanisms before the implementation of the Big Room. All three coordinating mechanisms are significantly related to all component variables, except for the relation between closed-loop communication and team orientation. The number of relationships between trust, shared mental model, and closed-loop communication and the component variables decreases after the implementation of the Big Room. Especially trust and closed-loop communication are less related to the component variables, as post-Big Room both coordinating mechanisms only relate to team orientation and leadership. A shared mental model is still related to all component variables (except for mutual performance monitoring). Over time trust influences all component variables except for mutual performance monitoring, hence initial trust is an important variable for later teamwork processes. A shared mental model influences future supportive behavior, adaptability and leadership appreciation. Closed-loop communication only influences future leadership appreciation (see annex 5).

The coordinating mechanisms are all significantly related before and after the implementation of the Big Room. Moreover, the three coordinating mechanisms also influence each other over time. Except for a shared mental model and closed-loop communication (see annex 5).

Before the implementation of the Big Room the MTS members indicated that trust, communication, coordination, common goal, good leadership and respect are the most important ingredients for

cooperation. Their opinion does not change that much after the implementation of the Big Room, as the MTS members then indicate communication, trust, respect, coordination, and a good leader as important variables (see annex 5).

7.5.3 Relationship between MTS intergroup behavior and MTS teamwork over time

The Pearson-r correlation analyze explores the relationship between MTS identity and MTS teamwork measured at the same moment in time. Additionally, it is used to investigate the influence of MTS identity on future teamwork. In this situation MTS teamwork is the dependent variable, and MTS identity the independent variable. Moreover, the Pearson-r correlation analyses explore the influence of MTS teamwork on future MTS identity strength. Identity is then the dependent variable, and MTS teamwork the independent variable.

MTS identity and supportive behavior are significantly related. MTS identity strength is related to supportive behavior prior to the Big Room situation ($r=0.56$, $n=27$, $p>0.01$). Additionally, supportive behavior experiences influences later MTS identity strength ($r=0.58$, $n=22$, $p>0.01$) (see annex 5).

7.6 Conclusion

At the start the research period the CTs in the MTS are positive about the other CTs, everyone is very willing to work together, everyone puts in a lot of effort, there is trust, and everyone is polite. The project managers introduce the idea of the Big Room, as a way to facilitate the cooperation between the CTs. Most people are a bit apprehensive of the idea, and have 'we shall see'-attitude. The Big Room indeed leads to more communication between several CTs, however there is no information management system and a lot of this information is lost. Moreover, the decision makers are hardly present in the Big Room, hence no decisions are made, and the process is not moving forward. Over time the lack of decisions, and budgetary problems lead to irritations, and prevalence of own goals over MTS goals. The MTS members are less polite, more direct in their communication, they blame each other, and interpersonal preferences develop. The architect and the contractor CT, for instance, work well together, as do the owner and project manager. However, the owner feels the architects are not really listening to them, and do not have their best interest at heart, while the architect and the contractor feel that the project managers are not doing a good job. 'Sides' develop in the MTS. Throughout the entire research period the CT identity is significantly stronger than the MTS identity, as are the mean CT teamwork scores compared to MTS teamwork. No relationships are found between identity, and MTS teamwork, except for a significant relationship with supportive behavior.

Chapter 8 Cross-case analyses

8.1 Introduction

In the first chapter of this book the research question is introduced: *What is the relationship between MTS intergroup behavior and MTS teamwork and how does this relationship develop over time?* In order to answer the research question both the development of MTS intergroup behavior and the development of MTS teamwork have been analyzed in the four case studies. The aim of this chapter is to identify differences and similarities between the cases by systematically comparing the data of the four cases. Eisenhardt (1989) proposes three strategies to conduct cross-case analyses without falling prey to information-process biases. The first strategy Eisenhardt proposes is to analyze the data per data source. The researcher compares the data obtained from the observations, interviews and questionnaires. The second strategy is to pair cases and note down both similarities as well as differences between the cases. The data of all four cases is then compared per variable. The last strategy is to choose several categories or dimensions and look for within group similarities coupled with intergroup differences. This last strategy is used to determine trends across case boundaries. For the sake of readability of this chapter the results of these three strategies are not discussed in separate paragraphs but they are integrated in one paragraph. Each paragraph starts with a general overview of the development over the four cases followed by an explanation of this development.

8.2 Development of MTS intergroup behavior

The first paragraph describes how MTS intergroup behavior develops in the four case studies. The second paragraph focuses on the underlying reasons for the direction of the developments.

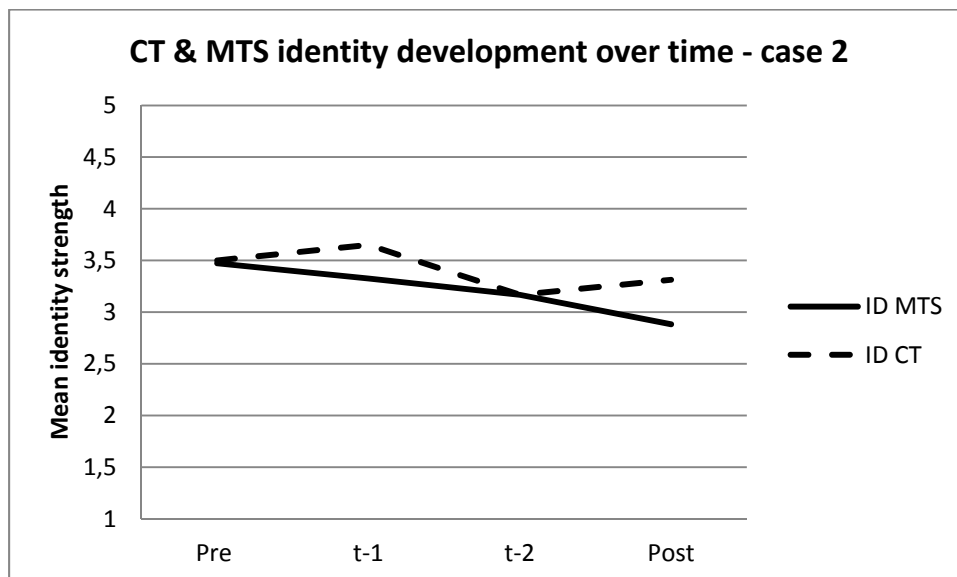
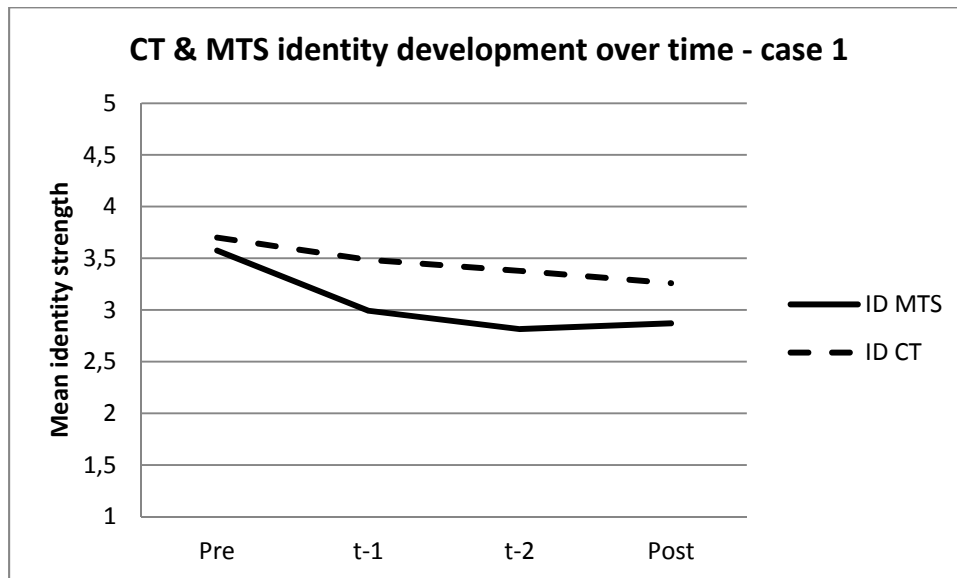
8.2.1 How does MTS intergroup behavior develop over time?

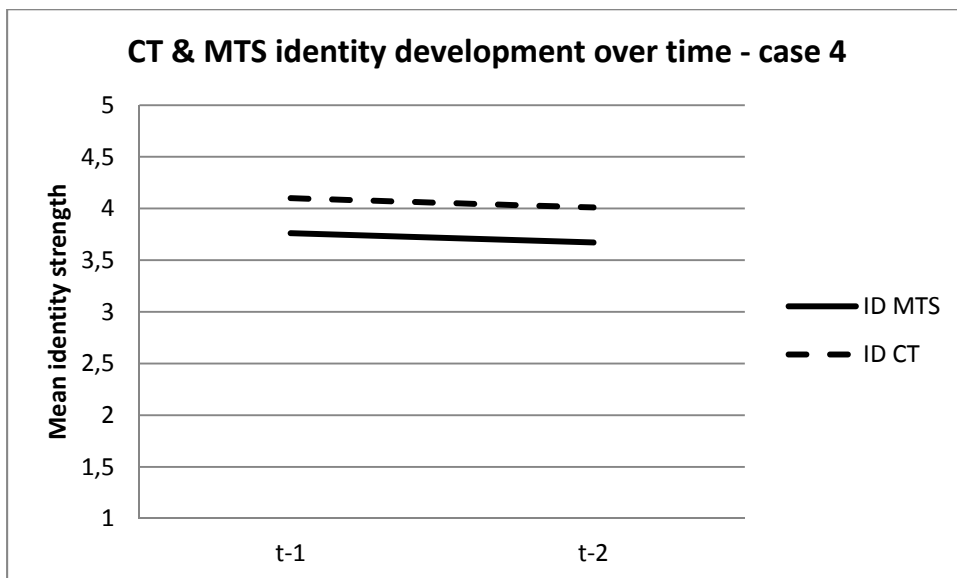
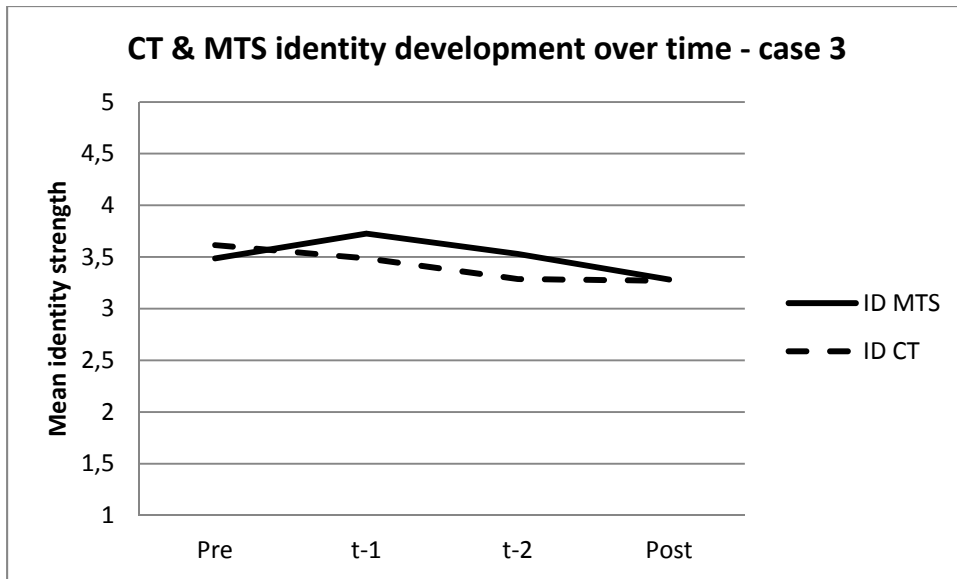
The within-case analyses in chapter four to seven gave insight in MTS intergroup behavior in the individual cases. A summary of these results is provided Table 16 and the graphs in Figure 24.

Table 16: Summary of the with-in case analyses regarding the development of MTS intergroup behavior in the four case studies

	Case 1		Case 2		Case 3		Case 4
	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre BR - post BR</i>
<i>CT and MTS identity development</i>	Significant difference between CT and MTS ID strength. CT ID increases, and MTS ID decreases	Significant difference between CT and MTS ID strength. CT ID and MTS ID decrease	Significant difference between CT and MTS ID strength at t-1. CT ID increases, MTS ID decreases	No significant difference between CT and MTS ID strength. MTS and CT ID decrease.	No significant difference between MTS and CT ID strength. MTS ID increases, no changes in CT ID	No significant difference between MTS and CT ID strength. MTS and CT ID decrease	Significant difference between CT and MTS ID strength. No changes in CT or MTS ID
<i>Are there signs of MTS intergroup behavior?</i>	Yes, develops from the moment the MTS arrives in Afghanistan	Yes, still apparent, however near the end of t-2 it does decrease	Yes, develops from the moment the MTS arrives in Afghanistan	No, more interpersonal and inter-CT contact	No	No. However, some MTS members develop loyalty issues	Over time sides starts to develop and intergroup behavior are more present

Figure 24: Overview of CT and MTS identity development over time per case





Both Table 16 and the graphs in Figure 24 show that MTS identity, CT identity and MTS intergroup behavior develop differently in each case. In the first, second, and fourth case MTS members identify more with their CT than with the MTS. This difference becomes statistically significant when the military MTSs arrive in Afghanistan (see annex 2 to 5), and is significant during the entire project in the fourth case. At the start of the deployment the CTs in the first case, for instance, blame each other for mistakes and MTS' meetings resemble battles. Additionally there is inter-CT rivalry about phones, desks, cars, and computers. In the fourth case the CTs are also rivals, as they all 'fight' for the approval of the owner CT. In the second case the group picture is also very illustrative the salience of CT boundaries. In the group picture each CT stands with his 'own'. Additionally, several CI CT members state they feel they are added to the MTS instead of being an integrated part. A last example of the salience of CT boundaries is the issue of privacy in the first and fourth case. In both cases MTS members state that if other CTs are around they feel less comfortable, as they feel they

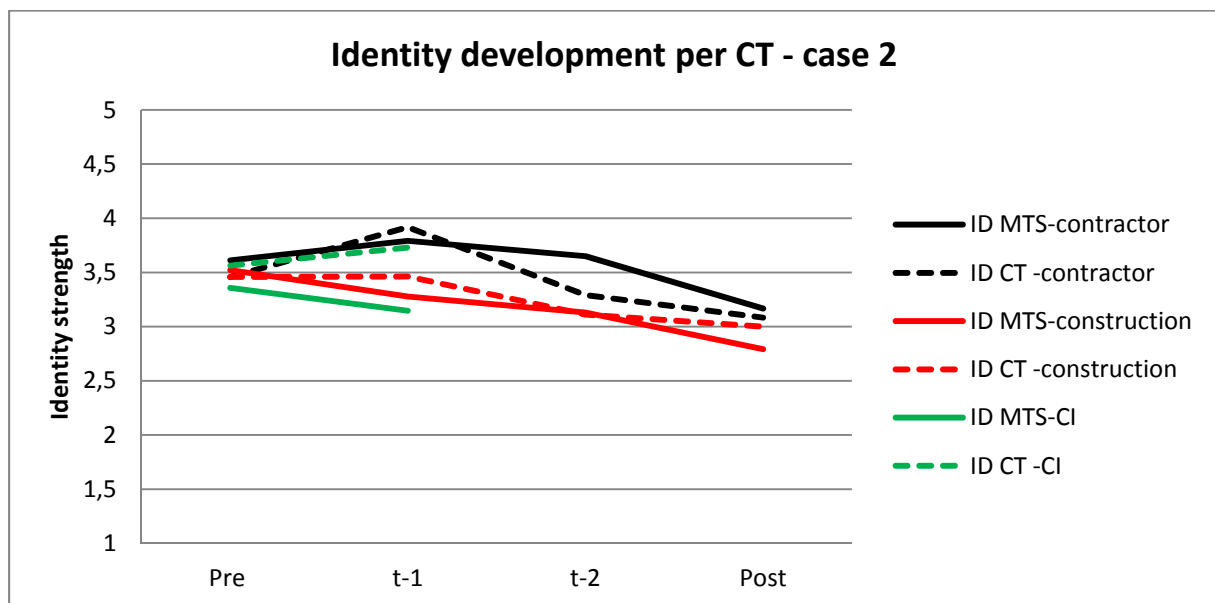
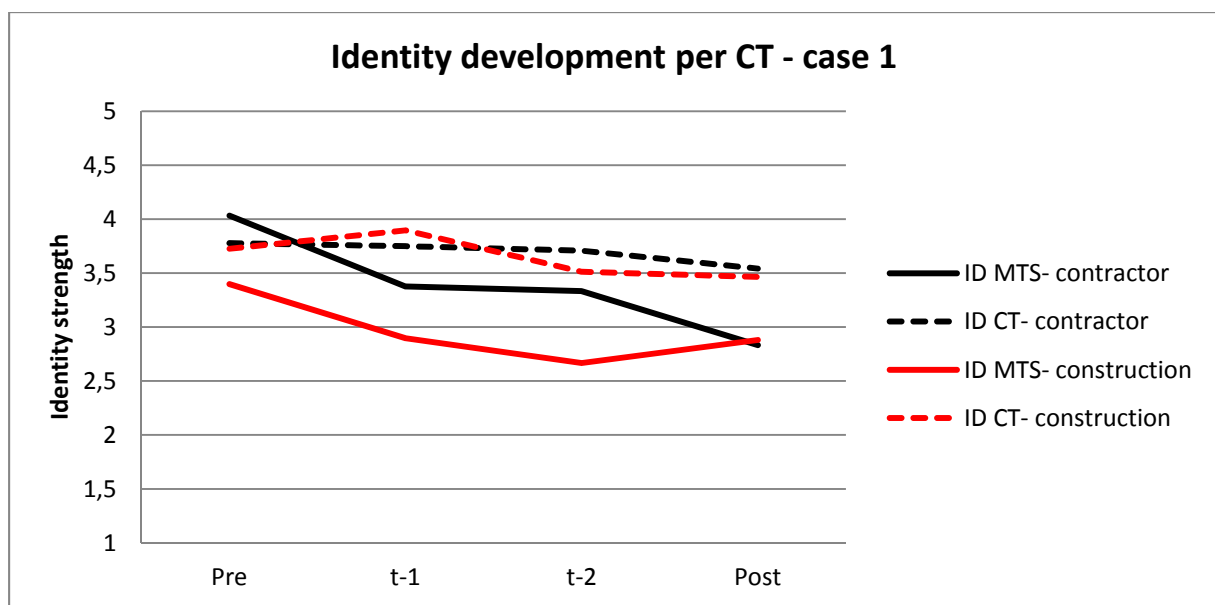
have to keep up appearances. That is why the contractor fought so hard for their own tent and why the architect CT was not very enthusiastic about the Big Room. The sense of a loss of privacy indicates that other CTs are regarded as 'others'. The words MTS members use underlines the present intergroup behavior. In the first, second and fourth case the MTS members use words like 'us', 'they', 'their', and 'our' when they talk about or with the other CTs. In the fourth case MTS members use the word 'we' in the meetings, yet the moment the CTs are alone they use words like 'spies' when they talk about the other CTs. Later on in the project the number of times people referred to the MTS as 'we' decreases and people start to refer to 'sides'.

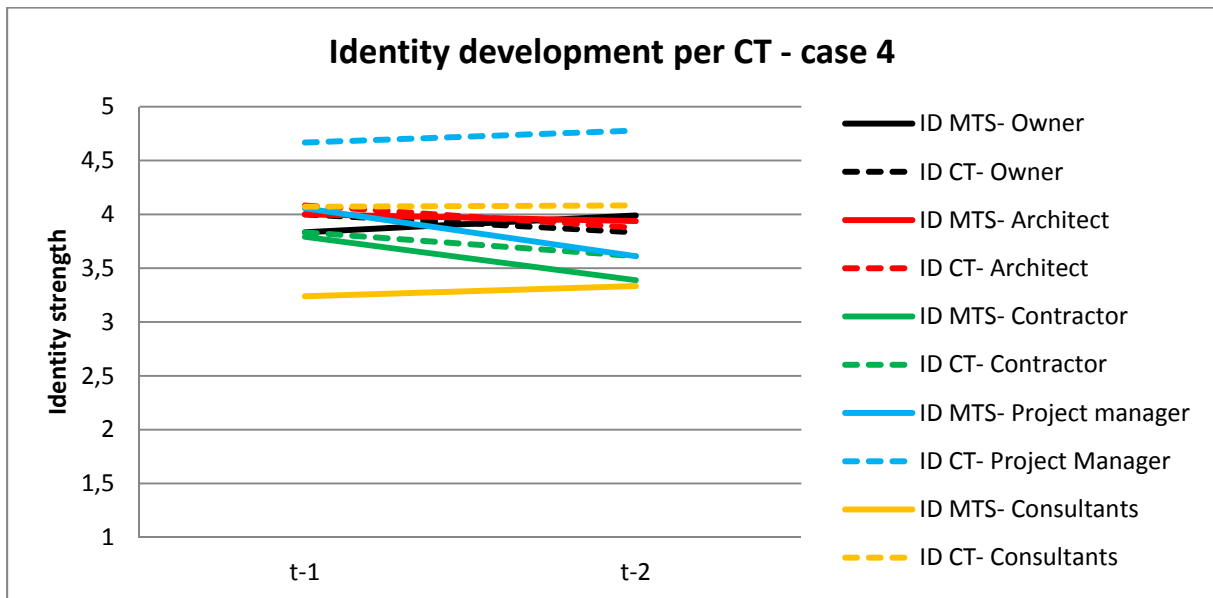
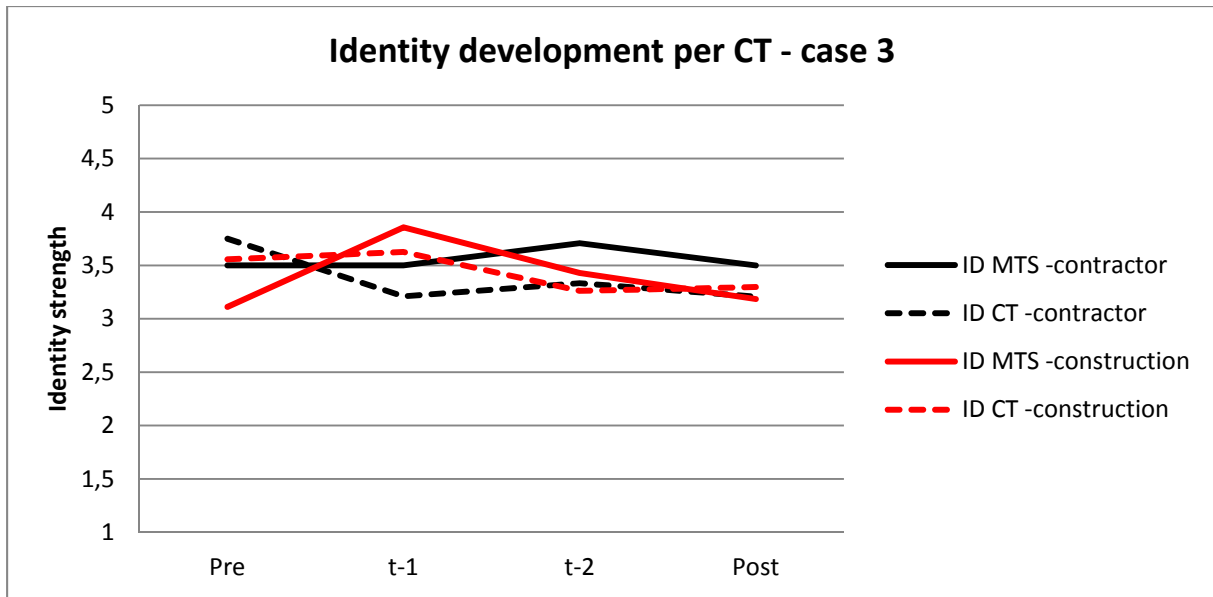
The data of the third case draws a very different picture of MTS intergroup behavior over time. Table 16 and the graphs in Figure 24 show that of the four cases the third case is the only case in which there is no significant difference between CT and MTS identity strength before, during and after the deployment/project. The MTS identity of the MTS members in this case is also stronger than the CT identity. The MTS members apparently do not distinguish between CTs in the third case apparently the CT boundaries do not play a role. The MTS members in the third case really perceive the MTS as one: *'There are no islands. The MTS is one island.'* A good example is the group picture: the CT members do not necessarily stand with individuals from their CT. Moreover the MTS members in the third case have a team logo, ordered team sweaters and a team badge. They clearly show and voice their presence as one team at the camp in MeS. In the third case the MTS members also use the word 'we' when they talk about the MTS or an MTS member.

Whether CT and/or MTS identity strength changes significantly varies both per case and over time (see annex 2 to 5). At the same time the case data provides a diffuse picture of the correlation between CT and MTS identity. In the first case, for example, MTS and CT identity are related over time while in the second case the two variables are not related at all (see annex 2 and 3). CT and MTS identity strength do not change significantly in the third and fourth case. These results are in line with the qualitative data as MTS intergroup behavior do not develop throughout the deployment in the third case, while in the fourth case MTS intergroup behavior only develop slowly. In the first case MTS identity significantly decreases upon arrival in Afghanistan. All the disappointments and fights between the two CTs immediately plummets MTS identity strength. In the second case CT identity increases at the start of the deployment, yet throughout the deployment it decreases significantly. The disappointments at the start of the deployment increase the aversion of the construction CT towards the contractor CT. Over time the problems within the contractor and the construction CT increases the amount of interpersonal contact and lowers CT identity strength.

The amount of identity strength and the changes in this strength differ over time, per MTS, and they differ per CTs within the same MTS. The graphs in Figure 25 display how both CT and MTS identity develop over time per CT per case. Apparently the CT and MTS identity of CTs develop differently per CT in the same MTS. In the second case the contractor CT members identify more with the MTS than with their CT while the situation is the opposite for the construction CT in that case. Additionally the MTS identity increases at t-1 in the contractor CT, while at the same time the MTS identity decreases for the construction CT. The fourth case also displays a lot of variance between the direction of identity development over time and the difference between MTS and CT identity.

Figure 25: Overview of CT and MTS identity strength changes over time per CT per case study





8.2.2 Underlying reasons for MTS intergroup behavior development

The quantitative data does not provide an explanation of the underlying reasons for the development of MTS intergroup behavior. The qualitative data inductively hints towards several underlying reasons. For one MTSs seem very prone to conflicts. For instance in the second case the construction CT is angry that the contractor CT does not take their experience into account and that contractor CT acts very unprofessional. At first mistakes are tolerated, yet over time the CTs grow more irritated with the mistakes of other CTs. CTs blame each other for things which go wrong. Mistakes made by the other CT are not easily forgotten. Additionally misinterpreted humor fuels latent intergroup tensions.

Furthermore, in three of the four cases the behavior of one individual seems to enhance CT boundaries leading to intergroup behavior. These individuals actually spoil inter-CT interaction and generate intergroup behavior. We introduce the term: boundary spoiler. A good example is Roger in the first case. Right from the start of the deployment Roger's behavior causes and/or increases inter-CT tensions. *'Rogers's presence has really negatively marked the atmosphere and behavior between the groups'*. Even though the construction CT members are positive about most of the individual contractor CT members, they rate the entire contractor CT very negatively. Hence, the behavior of the boundary spoiler rubs off on the rest of the team. Subsequently, the construction CT members behave negatively towards the whole team, even though they have problems with the behavior of only one member. This is nicely illustrated by the following quotes *'Just because you guys [construction CT] do not like Roger, does not mean that we all [contractor CT] have to suffer'* and *'The guys are very easy. The contractor team sucks. It does not matter whether there are good guys in that team, its sucks as a whole, because of Roger.'* The influence of the boundary spoilers seems most influential at the start of the deployment.

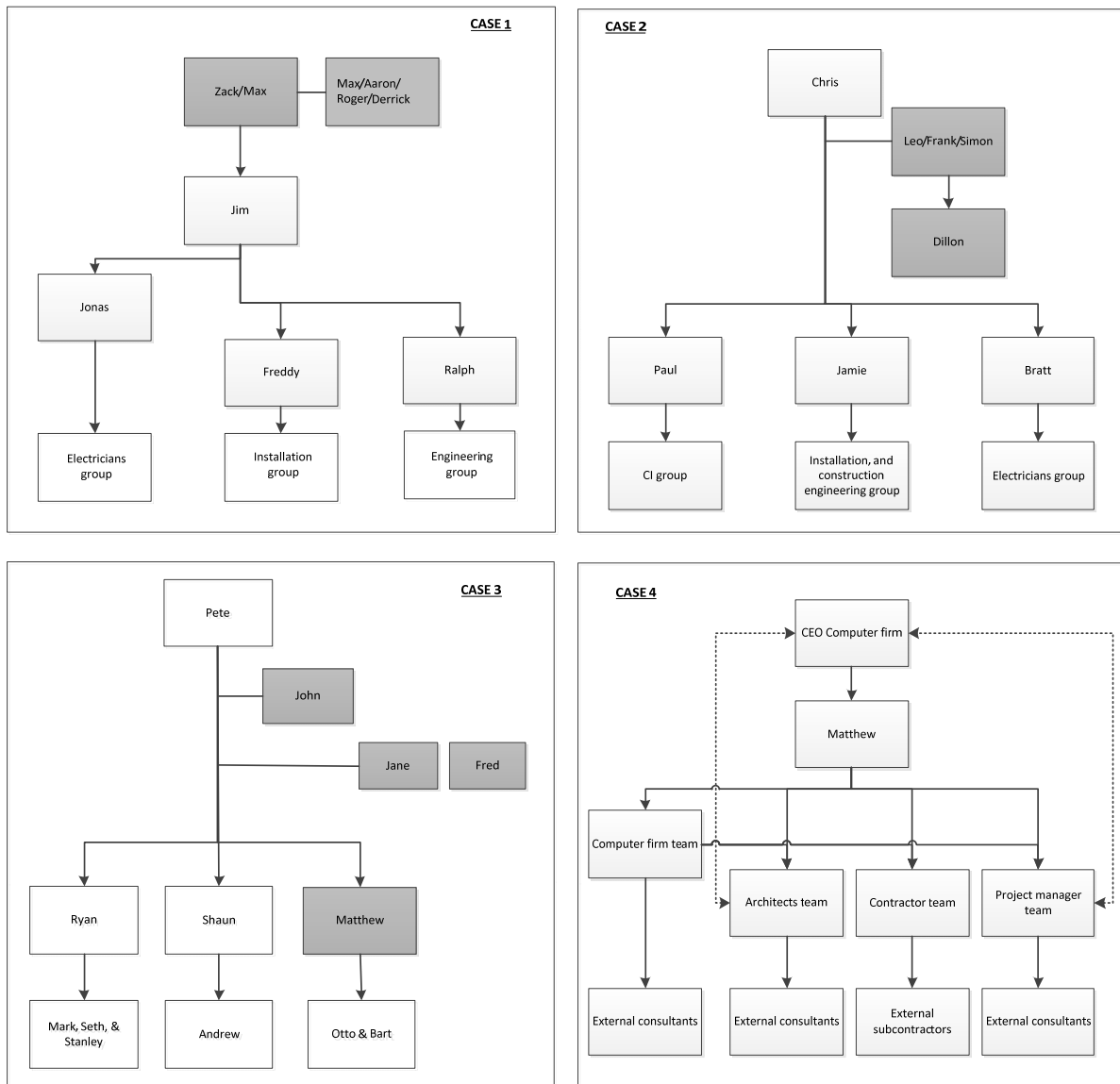
Additionally, the amount of inter-CT contact might also be linked to the development of MTS intergroup behavior. The third case is the only case in which the MTS members do not distinguish between CT and MT identity. At the same time the MTS in this case is also the only MTS that went through an extensive teambuilding project before the MTS left for Afghanistan. The MTS members have seen each other numerous times before they left. The first case on the other hand is a classic example of intergroup behavior within in an MTS, and these MTS members hardly met before they left for Afghanistan. At the same time the tensions between the construction and the contractor CT in the second case subsides when the amount of interpersonal contact between the MTS members increases. The same is true for the fourth case. The CTs that regularly visit the Big Room see each other more often, build relationships, and cooperate more closely together. Moreover, the geographical distance influences the amount interpersonal contact. In the first case, for example, the MTS is split up two, one part remains in MeS, and the other travels to Kunduz. The difference in location immediately leads to a 'MeS-Kunduz'- divide within the construction CT and the MTS. The MeS MTS members are convinced that the situation and the team spirit in MeS is a lot better than in Kunduz. *'The MeS group feels that everything is worse in Kunduz, less luxury, no internet, and so on'*. The housing situation creates a similar effect as geographical distance. In the first case the MTS lives in two tents: a contractor CT tent, and a construction CT tent. This divide in housing leads to less interpersonal contact and reinforces the divide between the two CTs. In the second case the CTs are housed in different rooms spread throughout a large two-story building. Subsequently, there is hardly any contact between the contractor CT, CI CT, and the construction CT after work. Some of the

construction CT men, and the CI CT men hang out behind the building at night and talk, however most of the men stay in their rooms to watch movies, play video games, and talk on Skype. When several contractor and construction CT members go to MeS for a week they interact very differently compared to how they interact in Kunduz. The Kunduz tensions between the contractor CT and construction CT totally disappear, as the men sleep together in one tent, have meals together, and hang out at night. Someone states: *'All of a sudden you see a different side of Simon.'* The data from the third case also supports the statement that the housing situation positively influences the amount of interpersonal contact. The MTS members in the third case all (except for the woman) sleep in one large tent during the deployment. Subsequently, there is much inter-CT interaction, and people have dinner together, talk, and play games after work. Hence, interpersonal contact influences the identity strength, and subsequently the presence of intergroup behavior.

Moreover, the structure of the MTS, or in military terms the chain of command, also influences the development of intergroup behavior.

Figure 26 depicts the MTS structure of the different cases in the form of organizational charts.

Figure 26: The organizational charts for the four different cases



Note: in the first three boxes the grey color indicates individuals who belong to the contractor CT. The dotted lines in the fourth box indicate the informal relationships present in the MTS.

The four organization charts show a difference in the level of integration of CTs (members) in the MTS. In the first case the contractor CT is placed hierarchically above the construction CT. The situation in the fourth case is actually similar to the organization chart of the first military case, as every MTS member is located in their MTS members are located in their CT. Thus, in the first and fourth case the CTs form islands within the MTS structure. In the second case, one member of the construction CT is placed hierarchically above the contractor CT. Subsequently, the contractor CT is still an island, yet the construction CT boundary is broken. Contrary to the other three cases, there are no CT islands in the third case. In this case the contractor and construction CT members are

spread throughout the entire MTS' structure (see organizational chart). Coincidentally the third case is also the only case in which there is no significant difference between the CT and MTS identity.

Lastly, the MTS stratification resulting from the MTS structure also influences CT identity strength. A definition of MTS stratification is given in chapter seven. All four MTSs have a core, which consists of several MTS members from different CTs. In the three military MTSs the core is formed by the leadership group, and in the civilian case the core is formed by the four largest CTs (owner, project manager, architect, and contractor). The individuals or CTs in the core of the MTS feel part of the MTS, the MTS is something tangible for them, and while for the individuals or CTs in the periphery the MTS is more of a theoretical concept. CTs at the periphery of the MTS do not identify with the MTS as much as the CTs in the core. This is nicely illustrated by MTS identity data of the fourth case. In this case the mean MTS identity strength of the CTs in the core is approximately one scale point (scale runs from one to five) higher than the average MTS identity of the CTs in the periphery. Thus MTS stratification influences MTS identity strength and subsequently influences the presence of intergroup behavior.

8.3 Development of MTS teamwork

Table 17 provides a summary of MTS teamwork development over time in each other four cases. In the next eight paragraphs the results of the cross-case analyses are discussed per component variable and coordinating mechanism. Followed by a paragraph that discusses the relationship between these eight variables.

Table 17: Summary of MTS teamwork development over time for each of the four cases

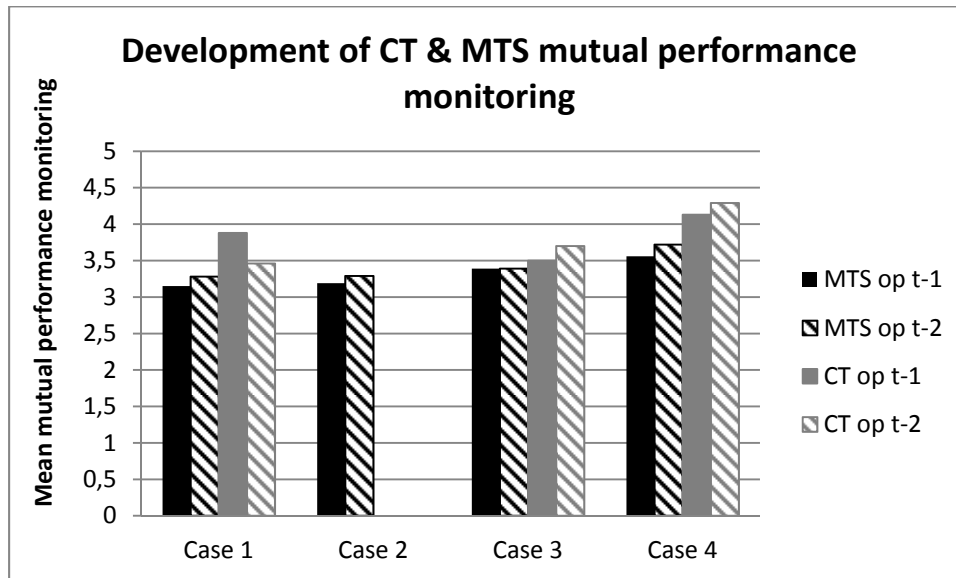
	Case 1		Case 2		Case 3		Case 4
	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre to t-1</i>	<i>t-1 to t-2</i>	<i>Pre BR – post BR</i>
Component variables							
<i>Mutual performance monitoring</i>	Monitoring was perceived as 'checking up'	More monitoring compared to at the start of the deployment	Monitoring is quickly interpreted as 'checking'	Things do not really improve nor worsen compared to at the start of the deployment	Things are going well	Less monitoring compared to at the start of the deployment	More monitoring compared the pre-BR situation
<i>Supportive behavior</i>	CTs did not help each other	More supportive behavior compared to at the start of the deployment	No one feels supported by the others	Things do not really improve nor worsen compared to at the start of the deployment	Things are going well	Less supportive behavior compared to at the start of the deployment	Less supportive behavior compared the pre-BR situation

<i>Adaptability</i>	Several problems related to adjusting to the new situation and new roles	More adaptability compared to at the start of the deployment	MTS is not very adaptable, especially the leader is inflexible with the planning	Things do not really improve nor worsen compared to at the start of the deployment	Things are going well	Less adaptability compared to at the start of the deployment	Less adaptability compared the pre-BR situation
<i>Team orientation</i>	Not present; MTS members blame each other for not having a team oriented attitude	More team orientation compared to at the start of the deployment	Everyone feels that the others are lacking team orientation	Less team orientation compared to at the start of the deployment	Things are going well	Less team orientation compared to at the start of the deployment	Less team orientation compared the pre-BR situation
<i>Leadership</i>	Problems with the leader excelled problems within the MTS	Things improved with the new leader compared to at the start of the deployment	Problems with the leader excel problems within the MTS	Leader has no merits. MTS members start to ignore him	Things are going well	Less leadership appreciation compared to at the start of the deployment	Lack of a leader becomes a more and more pressing issue compared the pre-BR situation
Coordinating mechanisms							
<i>Trust</i>	Initial trust is immediately lost at the start of the development	More trust compared to at the start of the deployment	No one feels supported by the others	Things do not really improve nor worsen compared to at the start of the deployment	Things are going well	Less trust compared to at the start of the deployment	Less trust compared the pre-BR situation
<i>Shared mental model</i>	Lost from the start, cause for many arguments	More shared mental model compared to at the start of the deployment	MTS is not very adaptable, especially the leader is inflexible with the planning	Things do not really improve nor worsen compared to at the start of the deployment	Things are going well	Less shared mental model compared to at the start of the deployment	MTS members have more and more problems with staying on the same page compared the pre-BR situation
<i>Closed-loop communication</i>	Communication is immediately negatively affected by problems at the start of the deployment.	There is more communication between certain MTS members compared to at the start of the deployment, yet some people still ignore each other	Everyone feels that the others are lacking team orientation	Less team orientation compared to at the start of the deployment	Things are going well	Less communication compared to at the start of the deployment	Less communication compared the pre-BR situation
General teamwork development	Significant difference between MTS and CT teamwork; CT scores better	Significant difference between CT and MTS teamwork disappears	Problems with the leader excel problems within the MTS	Leader has no merits. MTS members start to ignore him	No significant differences between MTS and CT teamwork Very high teamwork scores	No significant between MTS and CT teamwork, except for communication and adaptability. Still high MTS teamwork scores compared to at the start of the deployment, yet people are more negative at the end of the deployment	Slowly MTS teamwork starts to decrease, and more issues start to develop compared the pre-BR situation

8.3.1 Development of mutual performance monitoring

Figure 27 provides a general overview of the development of MTS and CT mutual performance monitoring per case. The bars indicate that MTS mutual performance monitoring increases in all four cases and it takes place the most in the fourth case.

Figure 27: Overview of the changes in CT and MTS mutual performance monitoring over time per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

The difference between MTS and CT mutual performance monitoring is significant at t-1 in the first case and during the entire project in the fourth case. Hence in these two cases there is more CT mutual performance monitoring than MTS mutual performance monitoring (see annex 2 and 5). The qualitative data indicates that MTS members are not open for MTS mutual performance monitoring. In the first, second and fourth case inquiring about the progress of certain tasks is interpreted as checking up on someone's work. In the first case, for instance, several MTS members feel they have to defend themselves and the work. The quantitative data of the third case shows no significant difference in CT versus MTS mutual performance monitoring behavior (see annex 4). At the same time the third case is the only case in which MTS mutual performance monitoring is not perceived negatively as 'checking'. In this case asking how someone is coming along is actually perceived as something positive: *'We learn from his comments.'*

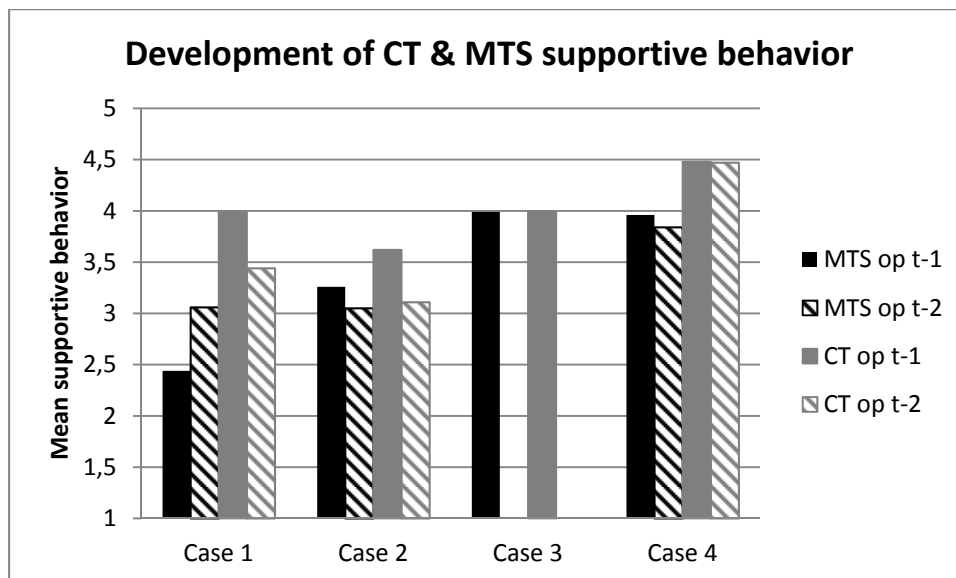
There is no significant change in the amount of MTS mutual performance monitoring in all three military cases. Even though there is no significant change in the first case the attitude towards the MTS mutual performance monitoring between certain contractor and construction CT members does change. The relationship between the first contractor CT electrician and the construction CT electrician, for example, is very different from the relationship between the second contractor CT

electrician and the construction CT electrician. The relationship between the second electrician and the construction electrician is respectful, they trust each other, and they discuss the work as professionals. The relationship with the first contractor CT electrician is characterized by irritation, silence, and lack of cooperation. In the fourth case MTS mutual performance monitoring increases after the implementation of the Big Room. Data from the interviews and observations indicates that the CTs check each other's work to ensure that they are not to blame for problems in the MTS.

8.3.2 Development of supportive behavior

Figure 28 provides a general overview of the development of MTS and CT supportive behavior over time per case. The bars indicate that at the start of the deployment/project there is generally more CT supportive behavior than MTS supportive behavior, except in the third case. In the third case not helping an MTS member is actually 'not done'.

Figure 28: Overview of the development of CT and MTS supportive behavior over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

The difference between CT and MTS supportive behavior decreases. In the first case there is significantly more MTS supportive behavior later in deployment. In the second case the amount of MTS supportive behavior decreases. Over time there is more MTS supportive behavior in the first case. At the start of the deployment in the first case the construction CT, for example, declines certain extra tasks, because of the extra time and risks involved. The contractor CT however interprets this declination as reluctance to cooperate on the part of the construction CT.

In the second case there is no significant difference between CT and MTS supportive behavior. Although the difference between CT and MTS supportive behavior decreases the total CT and MTS

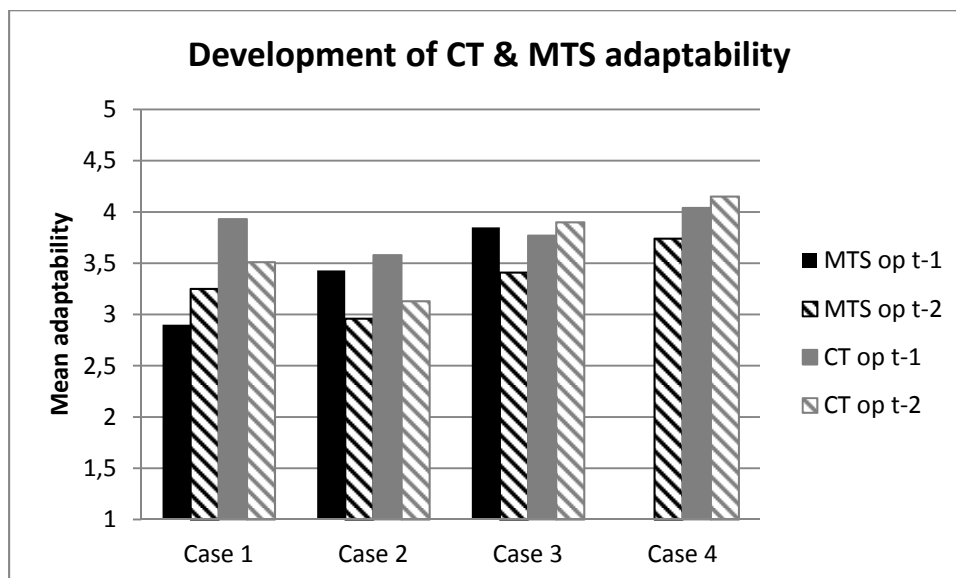
supportive behavior also decreases. At the start of the deployment there are instances in which MTS members purposely do not share information. Several MTS members state that they are really fed up with the whole deployment and the MTS members. The contractor CT, for instance, hardly shows CT supportive behavior. The only ones who do show MTS supportive behavior are the CI CT and Dillon. The CI CT offers manpower to the engineers during their last days in Afghanistan. Dillon of the contractor CT helps the construction CT and vice versa throughout the deployment.

While in the fourth case MTS supportive behavior decreases and CT supportive behavior remains significantly higher than MTS supportive behavior throughout the project. MTS members in this case state see MTS supportive behavior as taking an unnecessary extra risk as a company. The only time MTS members show MTS supportive behavior depends on the position and power of the CT they are helping. For example, the owner CT receives much help from the other CTs because everyone wants to make the boss 'happy'.

8.3.3 Development of adaptability

Figure 29 provides a general overview of the development of MTS and CT adaptability over time per case. The bars show different results per case regarding the changes in MTS adaptability. In the first case MTS members indicate adaptability increases over time, while in the second and third case MTS adaptability decreases. Additionally Figure 29 shows that the CTs are more adaptable than the MTS.

Figure 29: Overview of the development of CT and MTS adaptability over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

It is interesting to compare the initial MTS adaptability scores of the three military cases. These three cases encounter similar issues when they arrive in Afghanistan, yet they all adapt differently. The

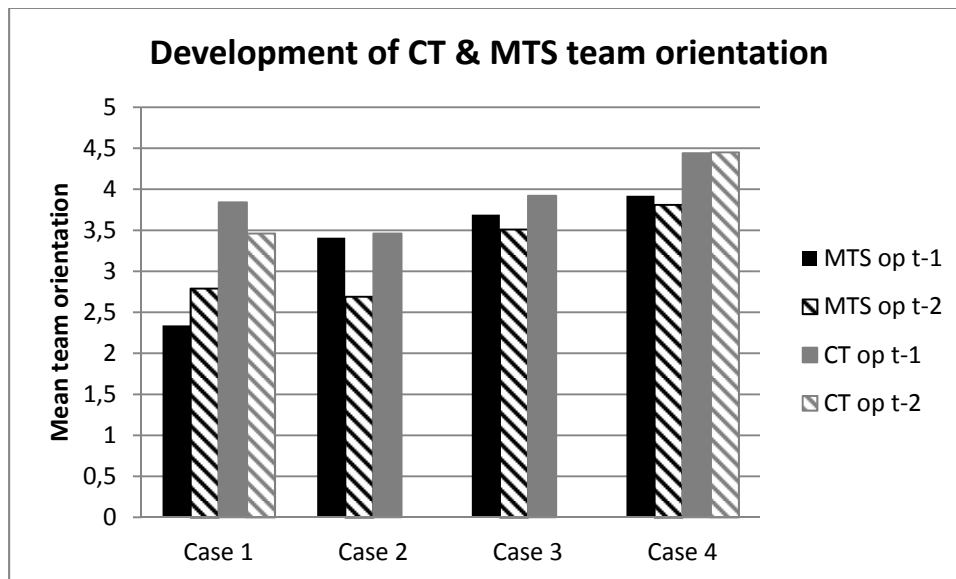
MTSs in the first and second case have trouble adapting to the different situation in Afghanistan. The difficult start of the deployment causes interpersonal and inter-CT conflicts in both these MTSs. Interestingly, the MTS in the third case quickly adapts to the disappointments encountered upon arrival in Afghanistan. This MTS could have waited for other decision makers to make a decision concerning their faith (like the other two MTSs did); however they decide to take matters into their own hand.

In the first case MTS adaptability increases, because the new leader is not afraid to make decisions and to redirect efforts. In the second and third case the adaptability decreases during the deployment. In the second case the MTS leader causes the decrease of MTS adaptability. For example, even though the MTS members tell him that the amount of useless meetings is bugging them the leader does not change the meeting schedule. The decline of MTS adaptability in the third case is probably related to the problems with one of the MTS members and the new plans.

The CTs in the fourth case show high MTS and CT adaptability means. The only CT in the fourth case that shows inflexible tendencies is the architect CT. The roof and their initial reluctance of the Big Room idea are very good examples of their inflexibility. The MTS also has problems adapting because of a lack of decisions and decision makers. The budget is a good example of an issue on which decisions have to be made; yet the MTS members themselves are not allowed to make these decisions.

8.3.4 Development of team orientation

Figure 20 provides a general overview of the development of MTS and CT team orientation per case. Again the quantitative data shows differences in MTS team orientation development per case. In the first case the amount of MTS team orientation increases significantly over time, compared to a significant decrease in the second and third case, and no changes in MTS team orientation in the fourth case. In the first and fourth case there is significantly more CT than MTS team orientation while in the second and third case CT and MTS team orientation do not differ significantly.

Figure 30: Overview of the development of CT and MTS team orientation over time and per case

Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

In the first case MTS members feel that the other CTs in the MTS lack team orientation. The reluctance of the construction CT in the first case to execute several extra tasks is interpreted by the contractor CT as the lack of team orientation of the construction CT. At the same time decisions made by the contractor CT are interpreted by the construction CT as proof of a lack of team orientation. Over time MTS team orientation significantly improves in the first case. This improvement coincides with introduction of the new leader who actively tries to improve cooperation between the two CTs.

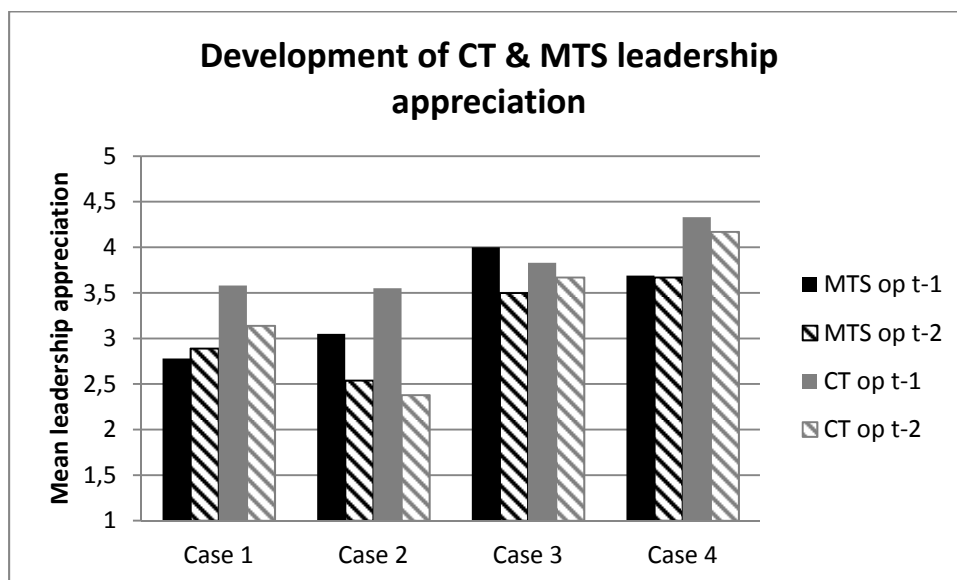
In the second and third case MTS team orientation decreases significantly. In the second case the disappointments and conflicts at the start of the deployment create an inward focus. The qualitative data provides several examples in which the construction CT clearly states they do not care anymore what the contractor CT says, wants or does. Additionally, the MTS leader in the second case omits setting a good example. The leader worries more about his own status than about what is best for the MTS. Take for instance the issues with Leo. Leo feels that it might be better for the MTS if he leaves Afghanistan, yet the MTS leader does not want to let Leo go, because this might reflect badly on his own leadership. The amount of MTS team orientation also declines significantly in the third case. Reasons for this decline might lie in the negative influence of one of the MTS members on the MTS atmosphere. The decline might also originate from a general decline in enthusiasm for the deployment or because not everyone is happy with decisions made in the MTS. For example, two MTS members experience loyalty issues, as the best interests of the MTS are not always in the best interest of the organization from which these MTS members originate.

The amount of CT and MTS team orientation remains constant in the fourth case as does the difference between the two. In MTS meetings the CTs voice a strong MTS team orientation, yet during CT meetings it becomes clear that the CTs focus more on their own interests than on the MTS's. For example, the architects want to create a signature building to please their client and because it brings them fame as well. So, when the budget issues became apparent the architects put more effort in trying to increase the budget than changing the design.

8.3.5 Development of leadership appreciation

Figure 31 provides a general overview of the development of MTS and CT leadership appreciation over time and per case. The appreciation of the MTS leadership decreases significantly during the deployment in the second and third case whereas there are no changes in the first and fourth case.

Figure 31: Overview of the development of CT and MTS leadership appreciation over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

Leadership appreciation in the first and fourth case does not change significantly over time. In the first case the mean score of MTS leadership appreciation is very low and does not change much for several reasons. First of all the MTS leader disappointed several MTS members during the first weeks in Afghanistan. Subsequently after several weeks a new leader is appointed. Although this new leader works very hard and is respected by all MTS members, not everyone is satisfied. The quantitative data does show an increase in MTS leadership appreciation yet the increase is not statistically significant. The MTS in the fourth cases struggles with the problem of an absent MTS leader. The lack of a leader slows down the decision making process and creates power-struggles between the CTs. During the project the situation does not change, hence the mean MTS leadership appreciation also does not change.

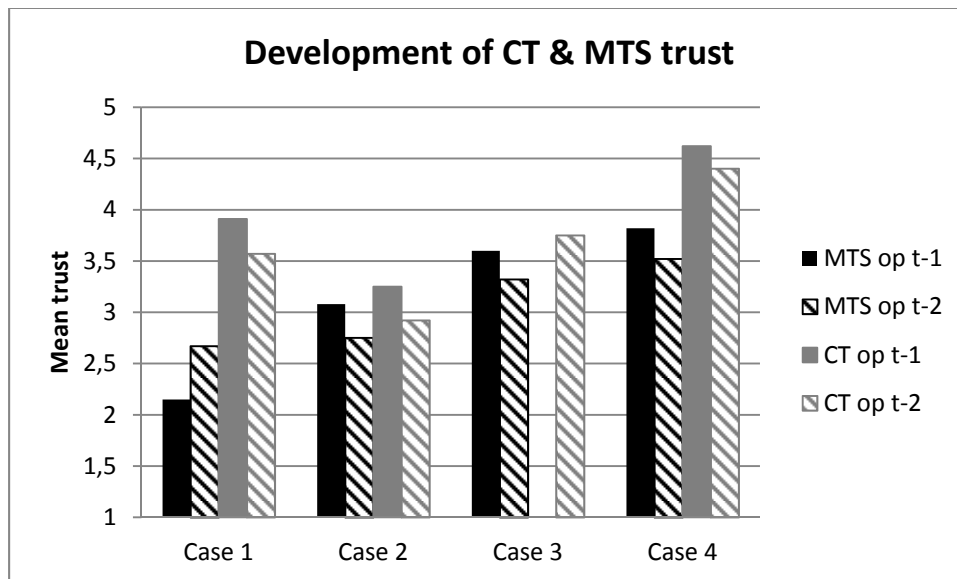
The significant drop in MTS leadership appreciation in the second case has to do with how the MTS leader leads the MTS. The leader really tries his best to lead the MTS well, yet he is unaware of how his own behavior influences the disintegration of the MTS. For example, his talks with the construction CT about the problems in the contractor CT, and vice versa, reinforces pre-existing stereotypes. Additionally his inflexibility negatively influences several other aspects of MTS teamwork. In the third case the drop in MTS leadership appreciation is linked to some the dissatisfaction some MTS members feel about decisions the MTS leader made regarding the dysfunctional MTS leader and the new projects.

Additionally, there tends to be a difference in the way MTS members appreciate their CT leader compared to the MTS leader. In the first and second case the MTS members appreciate their CT leader more than the MTS leader, yet this difference disappears over time. In the fourth case the opposite happens. Before the implementation of the Big Room there is no significant difference between CT and MTS leadership appreciation while after the implementation there is. At that time the mean CT leadership is than larger than the mean MTS leadership. The reason why there is no significant difference between CT and MTS leadership appreciation before the Big Room is probably because the standard deviation is very large. Apparently the MTS members all hold very diverse opinions. The third case is the only case in which there is no significant difference between CT and MTS leadership throughout the deployment.

8.3.6 Development of trust

Figure 32 provides a general overview of the development of MTS and CT trust over time and per case. The bars indicate that MTS trust decreases in three of the four cases. Yet whether these changes are statistically significant differs per case. The changes in the first, third and fourth cases are all statistically significant. In the second case there is no statically significant change in the amount of MTS trust.

Figure 32: Overview of the development of CT and MTS trust over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

In all four cases the MTS members start out with trust in the knowledge and expertise of their fellow MTS members. They are convinced of everyone's good intentions regardless of previous bad experiences. The only exception regarding this initial level of trust occurs in the first and second case where there are some doubts about the capabilities of the leader. Even though there are doubts about the two leaders everyone tries to be confident and optimistic. In the interviews MTS member express their high hopes for the success of the deployment. This initial level of pre-deployment trust is lost fast. In both the first and second case the MTS members quickly come to distrust some of their colleagues both professionally and personally. In both cases this loss of initial pre-deployment trust is translated in very low mean MTS trust scores at the start of the deployment. In the second case, for example, Leo's professional mistakes at the start of the deployment cause his colleagues to doubt Leo's professional capabilities. Moreover, the interpersonal conflicts at the start of the deployment in the first and second case also lead to a decline in MTS trust.

The significant increase in MTS trust during the deployment in the first case is related to the introduction of a new leader. This leader really tries to mend fences between the two CTs, and sets a good example for the rest of the MTS as he himself is very trusting towards other MTS members. Deployment experiences in the third case negatively influence the level of trust between some MTS members while at the same time these experiences increase the level of trust between other members. Although the mean MTS trust score decreases significantly during the deployment the average level of MTS trust is still very high compared to the level of trust in the other three cases. In the fourth case MTSs member appear positive about the professional knowledge of the other CTs at

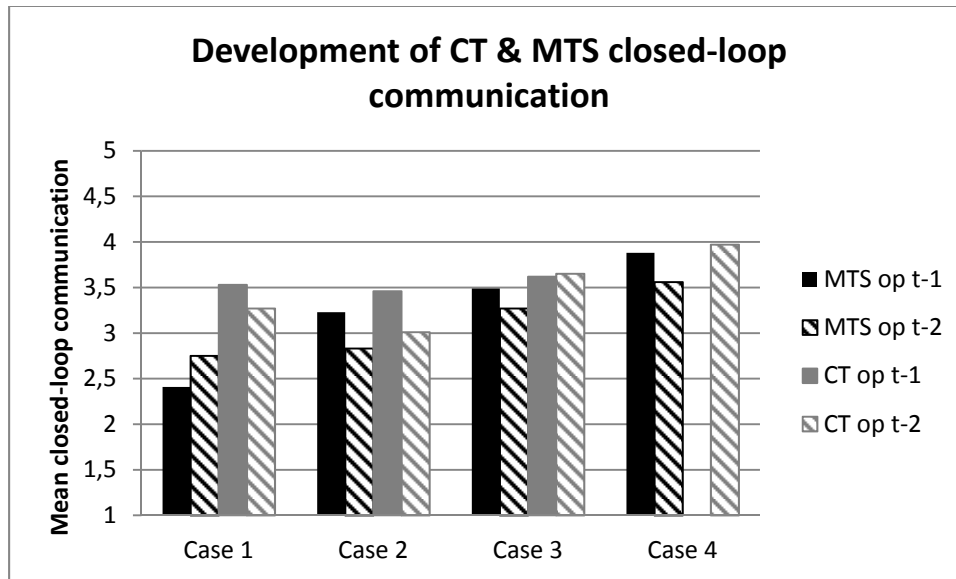
the start of the project. However from the moment the project hits bumps on the road the CTs start to lose faith and point fingers as to who is to blame. Additionally the third-party conversations and the gamesmanship create distrust in this MTS.

The bars in Figure 32 also signpost a difference in the means of CT and MTS trust. In the first and fourth case there is significantly more CT trust than MTS trust, while in the second and third case there is no significant difference. The qualitative data underlines these differences between the cases. In the first case the us versus them atmosphere is very strong, and the MTS members often voice their lack of trust in the other CTs. The mean scores of MTS trust are very low compared to the mean of CT trust. Likewise the MTS members in the fourth case clearly express their enormous faith in their own colleagues, while they are somewhat more hesitant to say this about the other CTs. Yet, the mean MTS trust score is quite high, especially compared to the first case. The low CT and MTS trust scores indicate that the MTS members in the second case generally lack trust. The problems in the contractor CT and later in the construction CT create a distrusting atmosphere; hence MTS members do not trust their CT members more. Lastly, the MTS members in the third case have the highest MTS trust scores of the three military cases. There is no difference between the mean CT and MTS trust scores.

8.3.7 Development of closed-loop communication

Figure 33 provides a general overview of the development of MTS and CT closed-loop communication over time and per case. The data in Figure 33 indicates that the closed-loop communication means are not very high in all four cases. The bars indicate that the mean score for MTS closed-loop communication decreases in the second, third and fourth case, and increases in the first case. All these changes in closed-loop communication are statistically significant.

Figure 33: Overview of the development of CT and MTS closed-loop communication over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

The first case is the only case in which closed-loop communication increases over time. Miscommunication, the lack of communication, and the chain of command are major sources and catalysts of conflict in the first case. The mean score of MTS closed-loop communication is very low at t-1. The turning point comes when after several weeks a new MTS leader is introduced and to prevent more conflicts he formalizes the lines of communication. This intervention in combination with a new electrician in the contractor CT electrician and improved communication between the MTS leader and the construction CT leader improve MTS closed-loop communication during the deployment. CT closed-loop communication is rated significantly better than MTS closed-loop communication during the entire the deployment

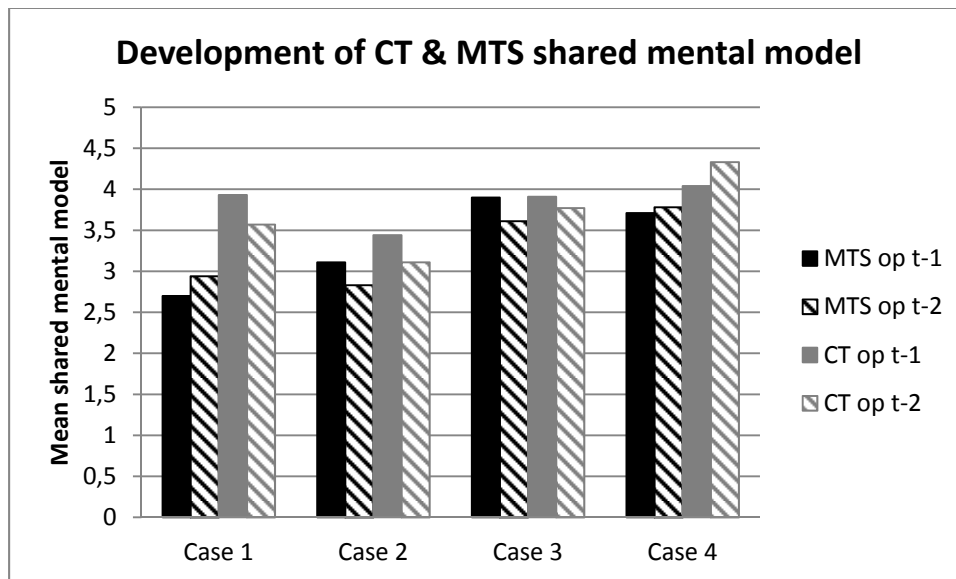
In the second, third and fourth case the mean scores of closed-loop communication all decrease significantly. In the second case there is no significant difference between CT and MTS closed-loop communication throughout the deployment; they are both far from a closed-loop character. At the start of the deployment the construction CT of the second case really tries to communicate openly with the contractor CT, yet after several disappointments they stop trying. Moreover the MTS leader does not set a very good communicative example as he does not share information and only shares information in formal settings (e.g. meeting). Although the interpersonal relationships between members of the different CTs intensify near the end of the deployment the mean MTS closed-loop communication still decreases. The MTS members in the third case communicate throughout the day, so they do not wait until there is meeting to exchange information. On the outset of the deployment all MTS members are satisfied with the way the communication in the MTS is going. At

that time there is no significant difference between the means of CT and MTS closed-loop communication. However over time the MTS members are less satisfied due to certain decision making process conducted by the MTS leadership. Near the end of the deployment CT closed-loop communication is rated significantly better than MTS closed-loop communication. In the fourth case the level of the communication is of a high standard and very diplomatic. After the implementation of the Big Room the amount of informal communication increases between CTs present in the Big Room. This increase of informal communication has one major drawback: not everyone receives the information. Subsequently the communication gets even more fragmented and MTS members feel worse about how the communication is going. CT closed-loop communication is rated significantly better than MTS closed-loop communication after the implementation of the Big Room.

8.3.8 Development of shared mental model

Figure 34 provides a general overview of the development of MTS and CT shared mental model over time and per case. The bars display low mean scores for a MTS shared mental model in the first and second case as the mean of both cases varies around 3, compared to an average between 3.5 to 4 in the third and fourth case. The bars of the first and fourth case both show an increase in the MTS shared mental model, yet these changes are not statistically significant. Likewise the decrease in the shared mental model in the second case is not statistically significant. The only change which is statistically significant is the decrease in the third case. Whether there is a significant difference between the CT and MTS shared mental model varies per case. In the second and third case the MTS members indicate there is no difference while in the first and fourth case the mean scores for a CT shared mental model are larger than MTS shared mental model.

Figure 34: Overview of the development of CT and MTS shared mental model over time and per case



Note: Missing bars indicate that the internal validity of a scale is too small for the scale to be taken into consideration.

The low mean scores of MTS shared mental model in the first and second case are in line with the qualitative data of both cases. In the first case the hostile atmosphere in the meetings, causes MTS members to not always be honest about what is going on. The lack of a shared mental model is also very evident regarding the discussion about roles and tasks. In both the first, and the second case several MTS members feel other MTS members are stepping on their turf. Take for example the many conflicts about the chain of command in the first case, the different views regarding MTS membership of the CI CT, and different opinions about the location and layout of the barriers in the second case. In the third and fourth case the mean MTS shared mental model scores are much higher compared to the mean scores in the first and the second case. There are only three instances in which the MTS members are not on the same page in the third case: 1) the value of the three-day physical training during the teambuilding week, 2) the new project the MTS takes on, and 3) whether or not it is wise to send one of the members home. Issues two and three might explain the decrease in the mean MTS shared mental model score. Although not all MTS members are on the same page regarding the three topics right from the start they are all (except two) positive about how the three issues turned out. Even though there is a decrease in the MTS shared mental model the difference between MTS and CT shared mental model remains nil. In the fourth case the high mean MTS shared mental model scores and the small increases are actually somewhat surprising compared to the qualitative data. For one there are no final construction drawings for the majority of the research period. Hence MTS members have different ideas about what the building is going to look like. Furthermore before the implementation of the Big Room MTS members were more aware and

focused on keeping each other on the same page while after the implementation of the Big Room this effort decreases. Even if someone attends the Big Room and steps out for just one second they already miss information. Not all MTS members attend the Big Room and since there is no information management system in place they do not receive information.

8.3.9 Relationship between the MTS teamwork variables over time

The Pearson-r correlation analyses regarding the relationship between the component variables, the coordinating mechanisms, and between these two categories provide different results per case. Nonetheless, several issues do stand out. For one the relationship between teamwork variables changes over time. In some cases almost all teamwork variables are related at t-1 while at t-2 these relationships disappear. Secondly, the coordinating mechanisms are related to each other in almost each case while this is not the case for the component variables. Moreover, all three coordinating mechanisms are also almost always related to component variables. Hence, the coordinating variables seem to be more influential than component variables. This result is underlined by the qualitative data. Throughout the deployment/project research participants were asked to identify the most important teamwork variables. Three variables received the most votes: trust, closed-loop communication, and respect (see Table 18). Respect is mentioned in all four cases as an important variable, yet it is not mentioned in the Big Five of Salas et al. (2005).

Table 18: Overview of the teamwork variables noted by the respondents as most important

	Case 1	Case 2	Case 3	Case 4
t-1	Respect	Trust & closed-loop communication	Closed-loop communication & respect	Trust & closed-loop communication
t-2	No data	No data	Closed-loop communication	Closed-loop communication

8.4 Relationship between MTS intergroup behavior and MTS teamwork over time

This paragraph presents the boxing ring analogy to illustrate the dynamic relationship between MTS intergroup behavior and MTS teamwork over time. After the initial introduction of the boxing ring analogy it is applied to each of the four cases. The last paragraph introduces several game changers regarding the relationship between MTS intergroup behavior and MTS teamwork.

8.4.1 The Boxing Ring analogy

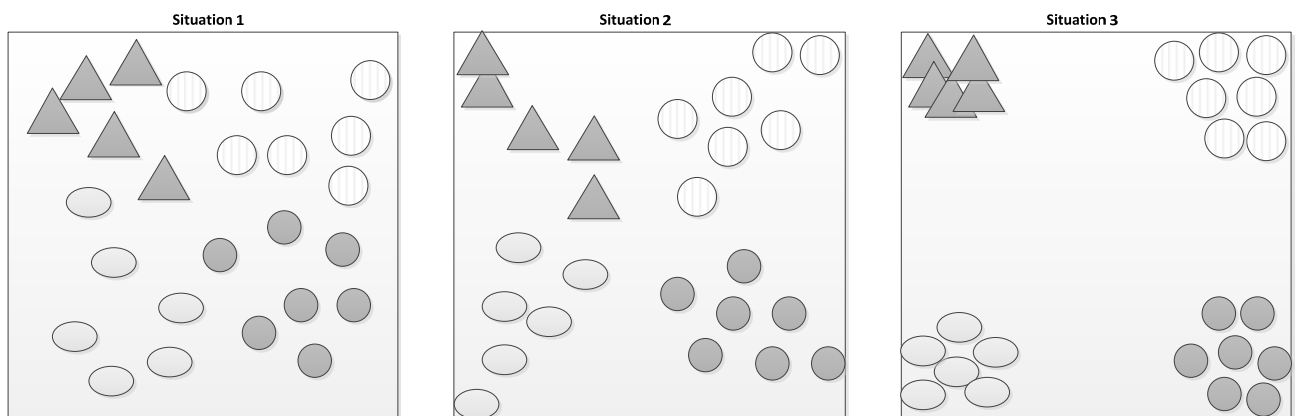
The quantitative data does not provide a decisive answer about the relationship between MTS intergroup behavior and MTS teamwork over time. The lack of consistent results is most likely caused by the small population size per case. The qualitative data on the other hand does provide consistent evidence for a relationship between MTS intergroup behavior and MTS teamwork. For example, in

the third case the MTS members do not show signs of intergroup behavior concurs MTS teamwork is going well. The data of the first case shows the opposite: numerous examples of MTS intergroup behavior and MTS teamwork problems. Additionally, research participants literally signpost the relationship between identity and MTS teamwork. For example, in the second case one MTS member describes how he feels a boundary to talk with members of the other CT. The metaphorical boundary which results from group membership apparently also creates a tangible boundary. There is a special role for the component variable leadership. For example after the MTS in the second case experienced several conflicts the leader was able to decrease intergroup tensions and positively influence MTS teamwork. The leader in the third case has the opposite influence. He is the one who accelerates both intergroup behavior and negative MTS teamwork. Moreover, the data indicates that both MTS intergroup behavior and MTS teamwork variables act as independent and dependent variables. For example, CT intergroup behavior decreases MTS trust. Less trust increases CT identity salience and the amount of intergroup behavior. The dynamic relationship between MTS intergroup behavior and MTS teamwork is best explained using the analogy of boxing ring. The boxing ring analogy is explained in the following paragraphs.

The general story line in each case develops as follows: at the start of the MTS life span MTS members are in good spirits. The MTS members have faith in their CT as well as in the other CTs. The MTS members are open to interpersonal contact with other MTS members and discard previous bad experiences with the organization from which the other MTS members originate. MTS members are convinced that these CT members are different. During their time together MTS members are confronted with both positive and negative events. The way MTS members react to these events depends on the amount of we-ness (=MTS identity strength). Take for instance the unexpected changes that all three military cases faced upon arrival in Afghanistan. It only triggered intergroup behavior in the first and second case. If CT boundaries are salient in an MTS and the MTS is confronted with (interpersonal) problems MTS members turn to members of their CT to blow off steam. Subsequently CT identity strength increases while both the amount of MTS identity strength and MTS teamwork decreases. A decrease in the amount of MTS teamwork heightens the chance of more negative teamwork experiences. Additional negative experiences leads to even more intergroup behavior which then leads to other negative MTS teamwork experiences. A downward spiral sets in. This downward spiral is difficult to stop because each CT has a clear task for which it is irresponsible. The clear task division provides CTs with the opportunity to blame other CTs if the overarching MTS goal is not reached or when the MTS encounters problems. The opposite of a negative spiral also takes place. If things go well in an MTS there are more positive experiences. The salience of the CT boundaries decreases which positively influences MTS teamwork.

In this paragraph the relationship between MTS intergroup behavior and MTS teamwork is described using the boxing ring analogy. The analogy of a boxing ring is used for a number of reasons. First of all, the ropes of the boxing ring symbolize the interdependence between the CTs to achieve a certain task. They are bound together. The ropes of the ring represent MTS boundaries. Secondly, boxing rings are known for their safe havens. During a fight a boxer retreats to his corner when he has a break, he is fixed-up by a doctor or when he talks with his coach. A boxing ring also reminds people of a confrontation. Often when groups meet other groups an interplay is triggered similar to that of boxers. The interplay is characterized by confrontations and action-reaction. The boxing ring analogy: at the start of the MTS' life span CTs have an open attitude towards each other (situation 1 Figure 35). However, if there is no strong MTS identity a negative event can trigger social categorization. Pre-existing ideas about the other CTs are reinforced; CT identity becomes salient and CT members retreat to their CT corner (see situation 2 in Figure 35). This retreating behavior increases the distance between the CTs. The extra distance negatively affects MTS teamwork. If the CTs do not work as a team, the likelihood of more negative MTS experiences increases. In turn additional negative MTS teamwork experiences trigger more intergroup behavior causing CT members to take another step towards their CT corner. Until at one point every CT member is in his or her respective corners of the boxing ring (see situation 3 in Figure 35). If the CTs all reside in their own corner it is impossible for the CTs to work together effectively.

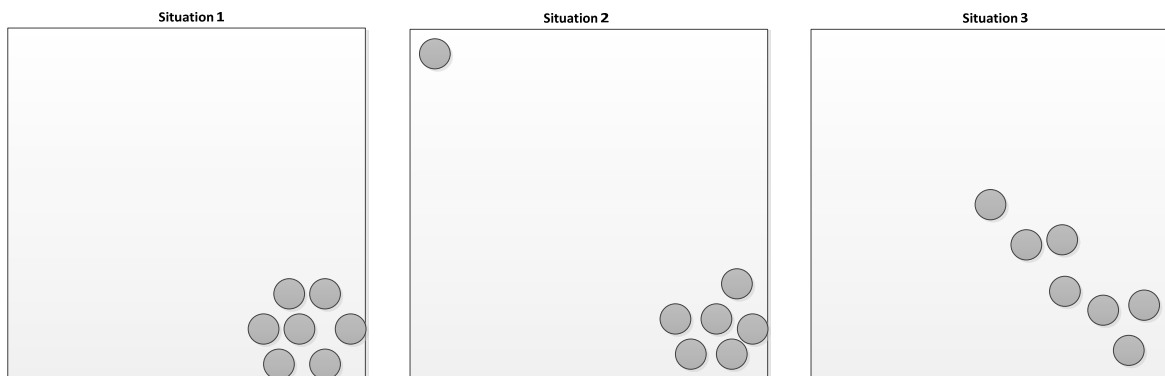
Figure 35: A graphic display of the dynamic relationship between MTS intergroup behavior and MTS teamwork



It is impossible to apply the boxing ring analogy in conventional teams because there are no safe havens. Everyone belongs to the same group (situation 1 in Figure 36). Take for example a team member that does not perform his/her task. Eventually this will lead to a confrontation within the team. The non-functioning team member might feel offended by the confrontation or ganged-up upon by the rest of the team. In an MTS that person would turn to his/her group after such a confrontation. However in a conventional team the individual does not have that option. Standing alone in one of the corners of the boxing ring is not something people like to do (situation 2 in Figure

36). Moreover the non-functioning individual also leaves a gap task-wise. The others need him/her. Hence team members will try to find a way to improve the situation because they have a common task to perform (situation 3 in Figure 36). A good example of such an intra-group process is the situation with Leo in the second case. In spite of the internal struggles the contractor CT members find a way to work together.

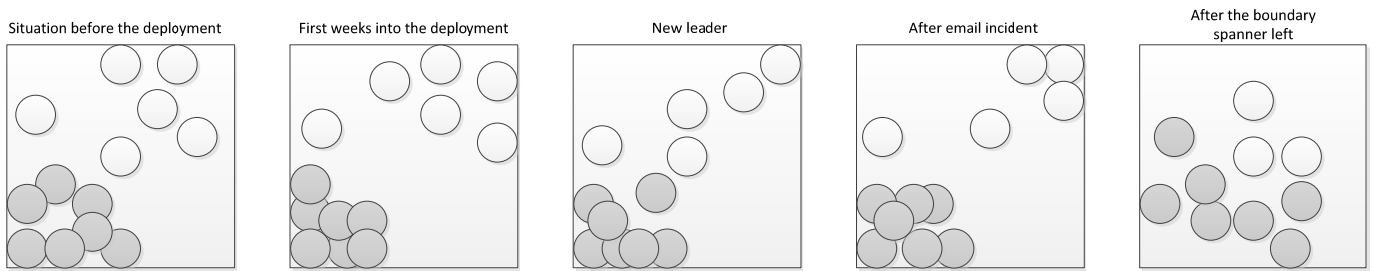
Figure 36: Intra-group behavior in a conventional team



In the next four paragraphs the boxing ring analogy is used to illustrate the dynamic relationship between MTS intergroup and MTS teamwork in each of the four cases.

8.4.1.1 The first case

In the first case from the start of the deployment everything goes wrong. The MTS quickly finds itself in a downward spiral due to role conflicts and ambiguities, interpersonal irritations, a weak leader, and competition about resources. These negative experiences create a strong us versus them atmosphere and eventually a standoff between the two CTs. The turning point comes when the leader is replaced. The new leader takes a neutral stance and tries to reconnect the MTS members with each other. Although the situation improves over time it remains volatile, and small negative events act as explosives. Think of the consequences of Jonas' email or the time that Roger commented on Jim's uniform in front of another officer. Throughout the deployment the new MTS leader is putting out fires and soothing the situation. A summary of the interplay between the CTs in the first case is presented in Figure 37.

Figure 37: The interplay between CTs in the first case

Note: the white circles represent the contractor CT and the grey circles the construction CT

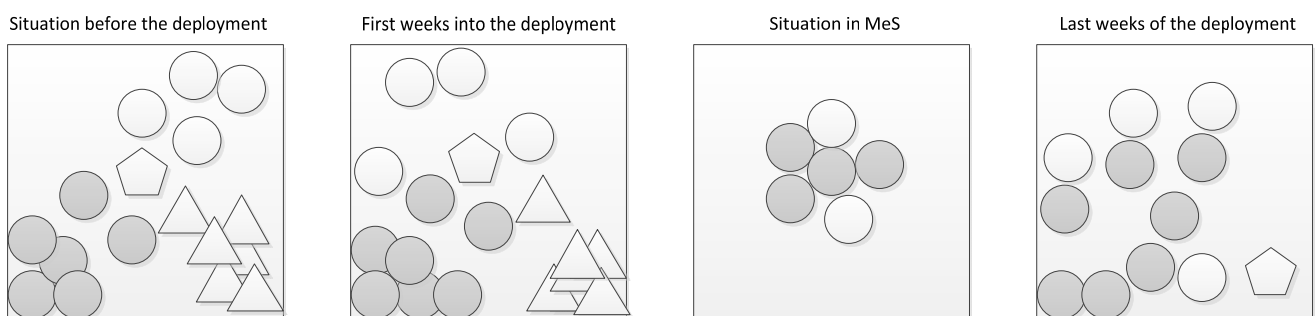
The first case supports the proposition of a relationship between MTS intergroup behavior and MTS teamwork. The negative events which the MTS encounters are as oil on fire regarding pre-existing stereotypes and create an us versus them atmosphere. CT identity salience influences MTS teamwork: MTS members do not trust nor help each other, information is not always shared, there is a lot of miscommunication, and people are not on the same page. The influence of distance between the CTs on the relationship between MTS intergroup behavior and MTS teamwork is nicely illustrated by the fact that the MeS part of the construction CT has more antipathy against the contractor CT than the Kunduz part of the construction CT. Separate housing strengthens the influence of MTS intergroup behavior on MTS teamwork even more. The MTS structure keeps the CT boundaries intact and places the contractor CT hierarchically 'above' the construction CT. This leads to resentment of the contractor CT by the construction CT; especially because the structure 'robbed' the construction CT commander of power. The influence of a boundary spoiler on the relationship between MTS intergroup behavior and MTS teamwork is also evident in this case. Roger 'ruins' it for the rest of the contractor CT. His behavior is interpreted as the general opinion of the contractor CT. Every time Roger does something the construction CT turns away from the contractor CT and the CT identity salience increases. Conflicts about roles and tasks create tension as does misinterpreted behavior. The MTS members just do not know each other. And before they have had the opportunity to get to know each other, so many negative events occurred that the CT boundaries are already sky-high. The moment Max becomes the MTS leader is the turning point for this MTS. Max tries to span CT boundaries and he restores the 'power' of the construction CT commander. Max is able to relieve some of the intergroup tension after which the number of negative events decreases.

8.4.1.2 The second case

Like the MTS in the first case the MTS in the second case is also confronted with a very different situation in Afghanistan. In the first week the MTS is challenged with an interpersonal confrontation within the contractor CT, conflicts and uncertainty about the way forward. The leader seems to accelerate the negative spin that unfolds in those early days of the deployment. At first the construction CT leadership tries to stay open and cooperate with the contractor CT. However the

contractor CT does not really respond to the approaches made by the contraction CT leadership. The contractor CT is more preoccupied with keeping up appearances towards the construction CT. Nonetheless the cracks in the contractor CT are evident. Near the end of the deployment internal issues also develop within the construction CT and the amount of interpersonal contact between MTS members increases. CT boundaries start to dissolve. The CI CT neither influences nor takes part in the intergroup behavior. Only two CI CT members and its leader have contact with members of the other CTs. The CT boundaries disappear and new boundaries start to become salient (electrical versus structural engineering) during the week that several MTS members are in MeS. A summary of the interplay between the CTs in the second case is presented in Figure 38.

Figure 38: The interplay between CTs in the second case



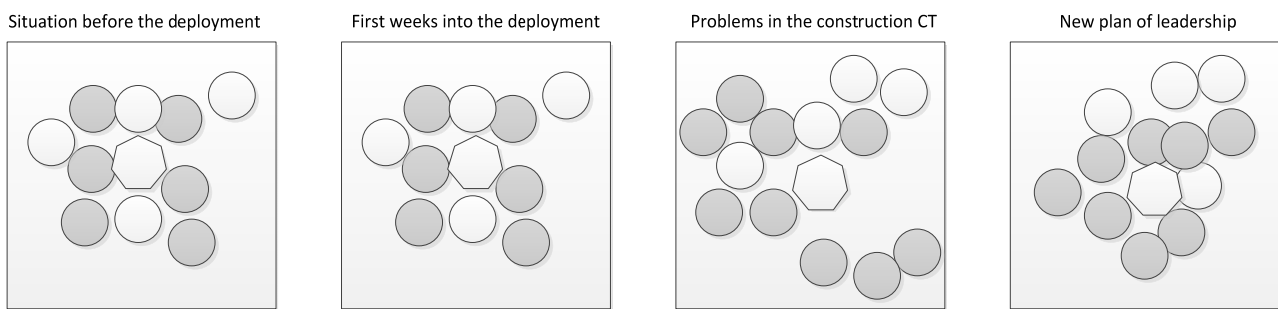
Note: the white circles represent the contractor CT, the grey circles the construction CT, the triangles the CI CT, and the pentagon is the leader

At the start of the deployment the contractor CT and the MTS leader need to adjust their plans to the current situation in Afghanistan. Although the contractor CT faces interpersonal struggles they want to keep up appearances towards the construction CT. The problems within the contractor CT also lead to problems with the construction CT. At first the construction CT is open and forgiving, however their attitude quickly changes and they turn away from the contractor CT. The CI CT does not really play a role nor is it very involved in this CT interplay because their interdependence with the rest of the MTS is limited. The lack of personal interaction between the CI CT and the other CTs strengthens the CI identity of several CI members. The MTS structure keeps each CT in his CT. There is hardly any non-work related inter-CT interface. The only one who mingles outside work and across group boundaries is Dillon. Dillon does not feel accepted in the contractor CT so he mostly interacts with his old buddies in the construction CT. The MTS structure has made the construction CT leader the MTS leader. The MTS leader tries to mix with the contractor CT team. His CT feels the leader is deserting them. The MTS leader also acts as a boundary spoiler. His suspiciousness and gossip increases intergroup behavior and hampers MTS teamwork causing more negative experiences. Many of the problems in this MTS are caused by a lack of teambuilding: the MTS members just did not know each other and there was no buffer to fall back on when things went wrong.

8.4.1.3 The third case

The interplay between the CTs in the third case is very different from that in the other three cases. In the third case the MTS leaves for Afghanistan with a strong group feeling. Like the other two military cases this MTS faces several disappointments at the start of the deployment, however in this case these disappointments do not activate a downward spiral. The MTS members adapt. The atmosphere in the MTS is relaxed and there is a fair amount of personal contact between MTS members. The MTS members work and relax together. Not everyone agrees when the leader actively pursues a new task for the MTS. Two members of the contractor CT even experience loyalty problems towards the contractor's office, as they feel that the MTS leader is '*stealing work from the contractor office*'. During the deployment there are problems within the construction CT. These problems do not spark inter-group behavior. Most MTS members are annoyed with the behavior of the troublemakers, because it reflects badly on them (the MTS) as a whole. Eventually the MTS leader sends one of the troublemakers home. The tensions in the MTS decrease. A summary of the inter-play between the CTs in the third case is presented in Figure 39.

Figure 39: The interplay between CTs in the third case



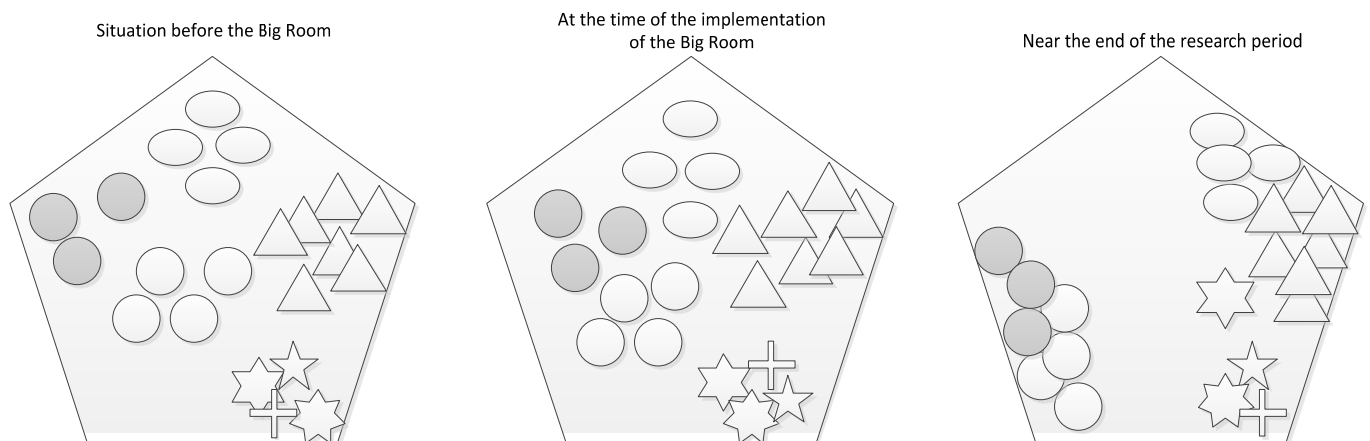
Note: the white circles represent the contractor CT, the grey circles the construction CT, and the pentagon is the leader

The interesting thing about this MTS is that there is no inter-group behavior present. Likewise, the interplay between the CTs is very different from what happens in the other cases. CT boundaries are not salient. CT members do not feel that their CT has an own corner in the boxing ring so there are no fictional corners to retreat to. The lack of salience of the CT boundaries partly originates from the MTS structure. In this MTS the CTs are not organized in their original form. This in combination with intense interpersonal contact and an extensive teambuilding program lowers the salience of CT boundaries. Due to the extensive teambuilding program, the MTS members had time to get to know each other and there are less instances of misinterpreted behavior. Every MTS member is involved in the preparation of the deployment so when the MTS is in Afghanistan the CTs are unable blame each other for mistakes. This MTS is a good example of an MTS where intergroup behavior is replaced with processes similar to what is described in the literature as intra-group behavior.

8.4.1.4 The fourth case

The MTS in the fourth case already has history when the research started. Two CTs have just been fired and two new CTs are hired. At the beginning of the case study several CTs are unable to start working because there are no drawings. At first the owner CT tries to lead the MTS yet after some time they get caught up in their role of client. The project manager CT introduces the Big Room to smoothen MTS teamwork. A partnering session was organized to officially open the Big Room. During the partnering session there is a sense of a 'we' between the core CTs of the MTS. These core CTs are the owner, contractor, architect and project manager CT. on the day of the partnering session the other CTs literally stand on the sidelines. Only a few CTs regularly attend the Big Room. The CTs that attend the Big Room on a regular basis talk more and cooperate more effectively. An example of this occurs between the architect CT and the contractor CT. Over time the cooperation between the architect CT and the contractor CT intensifies, as does the cooperation between the project manager CT and the owner CT. Near the end of the research period the MTS is split in two: the architects and the contractor versus the project managers and owners. This divide influences the level of teamwork between these CTs. The situation worsens when the MTS faces budgetary challenges and time pressure. A summary of the interplay between the CTs in the fourth case is presented in figure 40.

Figure 40: The interplay between CTs in the fourth case



Note: the white circles represent the owner CT, the ellipses the contractor CT, the grey circles the project managers CT, the triangles the architect CT, and the mixed stars represent the different consultant CTs

The only difference between the interplay between the CTs in the fourth case compared to the CTs in the first and second case is that the process of retreating to one's own corner goes slower. The MTS are more polite and diplomatic when they work together. The influence of distance and the amount of interpersonal contact on the relationship between MTS intergroup behavior and MTS teamwork is also evident in this case. The premise of the Big Room is that the MTS members have more contact which increases teamwork. This effect is indeed noticeable for the CTs that attend the Big Room.

Over time, 'camps' develop within the MTS. It is the project managers and owner CT 'against' the contractor and architect CT. The contractor and architect CT are of the opinion that the project manager CT hinders the process. This MTS lacks a leader who can bring the CTs together. The lack of leadership actually causes many of the teamwork related problems. Many CTs do not even feel part of the MTS. They perceive the project as just any other assignment. This lack of MTS identity influences the way the amount of inter-CT teamwork.

8.4.2 Game changers

The four cases provide evidence for a relationship between MTS intergroup behavior and MTS teamwork. Yet, *how* this relationship unfolds over time seems to depend on the presence of certain 'game changers'. The following game changers stand out: role model task of the MTS leader; amount and quality of inter-CT contact; presence of boundary spoilers; the MTS structure and permeability of CT boundaries; amount of role ambiguity and role conflicts; and occurrence of a teambuilding program. Shuffler, Rico and Salas (2014) also identify effective leadership, role ambiguity, training, and the MTS structure as possible challenges for MTSs.

8.4.2.1 Role model task of the MTS leader

In the 'Big Five' in teamwork proposed by Salas et al. (2005) leadership is mentioned as being one of the teamwork variables. They define leadership as '*the ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, motivate team members, plan and organize, and establish a positive atmosphere*' (Salas, et al., 2005, p.560). However in the four cases the influence of the leader goes beyond the task-related definition proposed by Salas et al. (2005). The leader seems to have an extraordinary large effect on both intergroup behavior and MTS teamwork, and the relationship between these two constructs. The extensive influence of the leader is illustrated in the first case. In this case the change in leadership clearly demonstrates the effect an MTS leader has on both intergroup behavior, MTS teamwork and the relationship between the two. One of the MTS members in the second case even points to the leader as the reason for the problems. The second leader in the first case and the leader in the third case both demonstrate how a leader can positively influence intergroup behavior, MTS teamwork and the relationship between the two. These two MTS leaders are the personification of the MTS identity and change the interplay between the CTs. They act as specie between the CTs.

8.4.2.2 Inter-CT contact

Inter-CT contact can be divided in two aspects: the amount of contact and also the quality of the contact. The amount of inter-CT contact influences MTS intergroup behavior, MTS teamwork and the relationship between the two. The third case is the only case without MTS intergroup behavior and high MTS teamwork scores. The third case is also the only case in which the MTS members actually

spend time with each other. In the first, second and fourth case there is hardly any to no inter-CT/interpersonal contact between the MTS members. The influence of the amount of contact on MTS intergroup behavior, MTS teamwork and the relationship between them is also illustrated in the second case. In this case a small portion of the construction CT resides in MeS. This group hears negative stories from their colleagues in Kunduz about the contractor CT in Kunduz. The stories and the lack of contact with the contractor CT reinforces and strengthens their pre-existing stereotypes and animosity regarding the contractor CT. So when the MeS construction CT joins the rest of the MTS in Kunduz they do not want to have anything to do with the contractor CT. The CT members ignore the entire contractor CT.

The quality of inter-CT contact influences MTS intergroup behavior, MTS teamwork and the relationship between the two as well. Gossip, gamesmanship, and third party conversations trigger intergroup behavior and they have a negative effect on teamwork. A good example occurs in the fourth case. The architect and the contractor CT are irritated by the gamesmanship and third-party conversations of the project manager CT. The first case also provides a good example of the negative effect of third party conversations. In this case Jonas' email instigates a flood wave of third party conversations. The email splits the MTS in two. None of the contractor CT members talks to Jonas and vice versa. It is not until the last day of the deployment that Jonas and Max realize they actually hold the same opinion on a variety of the conflict issues.

8.4.2.3 Presence of boundary spoilers

Boundary spoilers also influence MTS intergroup behavior, MTS teamwork and the relationship between the two. The behavior of boundary spoilers irritates members of other CT(s), subsequently members of the other CT(s) detest the CT of which the boundary spoiler is a member. The boundary spoilers spoil the image of the rest of the CT triggering MTS intergroup behavior. Boundary spoilers also seem to influence MTS teamwork directly. MTS members do not want to work with or trust the boundary spoiler. This leads to even more negative MTS teamwork experiences which in turn reinforces intergroup behavior. Take for example Roger in the first case. Everyone in the construction CT dislikes the contractor CT due to Rogers's behavior. This dislike of Roger has several consequences. Several construction CT members do not talk to any members of the contractor CT, and others do not trust the contractor CT members. Another example of a boundary spoiler is Chris in the second case. Chris' behavior and presence has negative influence on for instance inter-CT trust. Chris gossips about the contractor CT with the contractor CT and with the contractor CT about the construction CT. The contractor CT feels that Chris' decisions and behavior are influenced by the construction CT, while the construction CT has the feeling Chris is a puppet of the contractor CT.

8.4.2.4 MTS structure

The MTS structure influences MTS intergroup behavior, MTS teamwork and the relationship between the two. The third case provides an example of an MTS in which the original CT group boundaries are dismantled in the MTS. The contractor CT members are not organized as one contractor CT team. They are spread throughout the MTS structure. There are no CT boundaries. Several MTS members note that interpersonal irritations did not develop into an us versus them behavior, because there was no us-versus-them in the first place. If group boundaries are more permeable the boundaries become less salient. At the start of the deployment in the second case the contractor CT tries remain one 'front' for the rest of the MTS. Over time the contractor CT members find it harder to uphold this image and they start to mingle more with the other MTS members. The more they mingle, the less salient the CT boundaries become. The fourth case provides a good example of how the stratification in an MTS influences MTS teamwork. At one point the architects ask the structural engineers whether they can think of ways to decrease the construction costs without changing the design. For the structural engineers the question of the architects is a standard question asked by clients on a daily basis. Every client wants to save money. The question does not compel the structural engineers to be extra creative or work harder.

MTSs seem to be prone to conflict. In the first, second, and fourth case cars, phones, roles and tasks all serve as reasons for inter-CT conflict. Role ambiguity for instance creates irritation among MTS members. Role ambiguity is a work related stressor that develops if someone is unsure about his own task or the task of others. In the first case the construction CT leader's idea of his task differs from the idea that the MTS leader has. In that same case study Roger takes on a new role. However no other MTS members supports Roger in this role. In the first, second and fourth case there are also instances of role conflict. Good examples of these role conflicts are the disputes about the chain of command. Role conflicts also occurred when people 'have opinions' about someone's work or field of work. Every time inter-CT conflicts occur CT identity becomes more salient and MTS teamwork suffers.

8.4.2.5 Occurrence of a teambuilding program

The occurrence of a teambuilding program influences the development of MTS intergroup behavior, MTS teamwork and the relationship between the two. Several MTS members in the first and second case state that a teambuilding program could have prevented many of the problems they encountered. An MTS member in the third case states that interpersonal irritations did not grow into conflicts because the MTS members had common history and knew each other due to the teambuilding program. A good example of this is how everyone deals with Bart's behavior. Bart needs to spend time alone. The MTS members learn about Bart's solitary behavior in the pre-

deployment phase. So they are not surprised nor are they offended when Bart shows similar behavior in Afghanistan. Another MTS member in the third case comments that the teambuilding program created a common identity. A teambuilding program also influences MTS teamwork. This is illustrated by the difference in adaptability of the three military teams. All three MTSs are confronted with a different reality in Afghanistan. The situation was not what they were expecting. The MTS in the third case is the only MTS that was able to adapt quickly to the new situation. At the same time this MTS is the only one that went through an extensive teambuilding program. Additionally, teambuilding programs also lower the chance of role/task related conflicts. The first and second case provide an abundance of examples of how a lack of teambuilding leads to misinterpreted behavior, conflicts, intergroup behavior and a lack of teamwork.

8.5 Summary of the cross-case analyses

The qualitative and quantitative data indicate that MTS identity and CT identity are not stable traits. The direction and the amount of the changes over time differ per case. In the first, second, and fourth case a significant difference between CT and MTS identity strength coincides with the presence of MTS intergroup behavior. The data of the third case shows the opposite: no significant difference between MTS and CT identity strength and no MTS intergroup behavior.

MTS members experience differences in CT versus MTS teamwork. CT teamwork is better than MTS teamwork. The way MTS teamwork develops differs per case. Current MTS teamwork experiences influence future MTS teamwork. The teamwork variables seem to be positively correlated with each other. However, which teamwork variable influences which differs per case.

There is definitely a relationship between MTS intergroup behavior and MTS teamwork. The data provides evidence that MTS intergroup behavior and MTS teamwork act as both dependent and independent variables. The way these two variables influence each other over time differs per case. Nonetheless, it is possible to identify a pattern over the four case studies. The pattern resembles the interplay between boxers in a boxing ring.

The fact that an MTS consists of multiple CTs provides MTS members with 'safe havens' comparable to the corners of a boxing ring. These corners provide CT members with a place to retreat to and huddle together in safety. Negative MTS (teamwork) experiences influence CT and MTS identity strength triggering intergroup behavior. Intergroup behavior causes MTS members to retreat to their own corner. If the distance between the CTs increases, the number of negative MTS (teamwork) experiences also rises. Negative MTS (teamwork) experiences triggers even more intergroup behavior, hence the MTS members retreat even further to their own corners. Every time the distance

between the CTs increases MTS teamwork is negatively affected and the MTS becomes less successful. How the relationship between intergroup behavior and MTS teamwork develops over time varies per case due to 'game changers'. The game changers which stand out are: 1) the extent to which the leader acts as a role model; 2) the frequency and quality of inter-CT contact; 3) the presence of boundary spoilers; 4) the MTS structure; 5) the presence of role ambiguity and role conflict; and 6) the occurrence of a teambuilding program.

Chapter 9 Conclusion, reflection and recommendations

This final chapter consists of the research conclusion, a reflection on how the research was conducted, and recommendations for scholars as well as for practitioners.

9.1 Conclusion

Eisenhardt (1989) encourages researchers to extend their insights regarding the research phenomenon they are studying. For that reason the first paragraph outlines the general research conclusion and the second paragraph introduces several propositions regarding the relationship between MTS intergroup behavior and MTS teamwork. The propositions are based on evidence from the case studies in combination with the existing literature.

9.1.1 General research conclusion

The goal of research in social psychology is to explain social phenomena by observing relationships between constructs, collecting evidence, by proposing theories, and deriving predictions of understanding (Manstead & Semin, 2001). This research has done exactly these things in studying the relationship between MTS intergroup behavior and MTS teamwork over time. Although this research does not establish causal directionality it does provide empirical clues about the relationship between MTS intergroup behavior and MTS teamwork. For one, MTS and CT identity develop over time, yet the direction and how much identity changes over time differs per case. Moreover in the first, second, and fourth case a significant difference between the mean CT and MTS identity scores coincides with the presence of MTS intergroup behavior. The data of the third case shows the opposite: no significant difference between the mean MTS and CT identity scores and no MTS intergroup behavior.

MTS members experience differences in CT versus MTS teamwork. The quantitative data analyses show that the mean CT teamwork scores are higher than the mean MTS teamwork scores. MTS teamwork experiences influence future MTS teamwork in the deployment/project; however which variable influences what and how differs per case. The teamwork variables seem to be positively correlated with each other. However which teamwork variable influences which also differs per case.

There is definitely a relationship between MTS intergroup behavior and MTS teamwork. MTS intergroup behavior and MTS teamwork influence each other over time and both variables act as dependent and independent variables. How these two constructs influence each other over time differs per case. Nonetheless it is possible to identify a pattern over the four cases: a pattern that resembles the interplay between boxers in a boxing ring. In the boxing ring analogy the boxing ring ropes represent boundaries of the MTS. The fact that MTS members belong to a certain CT provides them with their own a corner or 'safe' haven to which they can safely retreat. If MTS members

encounter negative (teamwork) experiences these experiences can trigger social categorization that leads to retreating behavior that increase the distance between CTs. More distance between CTs negatively effects MTS teamwork which increases the chance of even more negative MTS experiences. More negative experiences will then trigger even more intergroup behavior. The MTS gets trapped in a downward spiral.

9.1.2 Propositions

9.1.2.1 Proposition on the relationship between MTS intergroup behavior and MTS teamwork over time

It is presumptuous to argue that these four case studies can explain the entire complex of MTS intergroup behavior and MTS teamwork. Nonetheless existing literature provides evidence for a boxing ring analogy. The catalyst effect of intergroup behavior on teamwork has been found in different research fields. One of these research fields is the research on distributed teams. Distributed teams consist of individuals who work together while they are not geographically co-located. Research on these teams shows that the geographical distance affects team processes, and that distributed teams often face unhealthy subgroup behavior and face crises of trust (Hinds & Mortensen, 2005). Such unhealthy subgroup behavior occur because team members in distributed teams do not give each other the benefit of a doubt and they are prone to faulty attributions (Cramton, 2001; Williams & O'Reilly, 1998). *'This intergroup hostility can surface as relationship conflict over works groups member's personal preferences or disagreements about interpersonal interactions, typically about non-work issues such as gossip, social events or religious preferences'* (Jehn, Northcraft & Neale, 1999, p.745). A common identity creates a psychological tie between the team members and bridges geographical distance (Mortensen & Hinds, 2001). A shared identity moderates the amount of interpersonal conflicts in distributed teams (Hinds & Mortensen, 2005). Even though the MTSs in the four cases are mostly co-located, the challenges these MTSs encounter are similar to the challenges of distributed teams. Arguably psychological distance and geographical distance have similar effects. The CTs feel different from the other CTs which increases the psychological distance between them.

The inter-CT interplay that the boxing ring analogy describes is also found in research on co-located teams and social categorization. The MTSs in each of the four cases start with a positive mind set about the other CTs. In the first three cases there is no significant difference between the mean MTS and CT identity scores prior to the deployment. This is in line with the social categorization theory: individuals *'strive to achieve or maintain a positive social identity'* (Tajfel & Turner, 1986, p.16). If someone is part of a new group s/he has a positive view of his/her own group. And there are *of course* genuinely good people in their group. Individuals disassociate the new team members from

their previous negative experiences with the organization of origin of these team members. These people are different. For example, on the short term there is a basic level of trust between professionals from different professional fields because individuals are inclined to give peers the benefit of a doubt (Williams, 2001). However if something negative happens this effect subsides as the negative experiences increase the salience of group boundaries. If the salience of group boundaries increases, people are likely to evaluate team members from other groups more negatively (Hogg & Abrams, 1988; Hogg & Terry, 2000). If for example something happens to an outgroup the role of personal/dispositional factors is overestimated and the role of the context is underestimated. This is called the fundamental attribution error (Tajfel, 1982, p.111). Also if an ingroup member displays similar behavior as an outgroup member the ingroup member's behavior is interpreted differently than that of the outgroup member (Brewer, 2009, p.11). This is called social attribution. The behavior of outgroup members is explained and interpreted through the ideas ingroup members have about the outgroup (Tajfel, 1982, p.100). Ingroup biases cause category based responding (Bettencourt, et al., 1992) which leads to: self-fulfilling prophecies about the outgroup (Brewer, 2009, p.10; Vlaar, van den Bosch & Volberda, 2007), negative stereotypes, justification of social distance, and might even ignite competition and hostility (Ashforth & Mael, 1989; Knippenberg & van Schie, 2000). Starting off well as a team has disproportional effect on inter-organizational collaboration (Vlaar, et al., 2007). This might explain the tremendous effect of the initial disappointments and interpersonal strife on MTS teamwork in the first and the second case. First impressions count.

Research on teams indicates that members of a salient ingroup are more likely to cooperate with ingroup members and might even compete with outgroup members (Chatman, et al., 1998; Goette, et al., 2006). Research of military teams also shows that in- and outgroup feelings decrease cooperation (Elron, Shamir & Ben-Ari, 1999). *'Communication and collaboration are social processes and therefore moderated by identification'* (Keyton, et al., 2012, p. 178). Intergroup behavior negatively influences teamwork that then sparks more intergroup behavior. Take trust for example. Throughout the 2014 book on MTSs trust is described as a necessity as well as a challenge (e.g. Allison & Shuffler, 2014, p.196). Research on teams shows that if there is no inter-organizational trust there is less information sharing (Chatman, et al., 1998); more affective conflicts (Simons & Peterson, 2000); more formalized interaction; behavior of others is negatively interpreted (Vlaar, van den Bosch & Volberda, 2007); and there are more faulty attributions (Simons & Peterson, 2000). Trust does not develop easily across group boundaries. People from others groups are perceived as adversaries (Hinsz & Betts, 2012; Williams 2001). A certain level of trust is needed in a team before mutual performance monitoring is considered as helpful instead of 'spying' or checking up on'

(Wilson, et al., 2007). Feeling spied upon or feeling left out of an information loop creates even more negative experiences that then increases the salience of group boundaries. Another good example is communication. Communication might be hindered by team boundaries through distrust and ingroup favoritism, subsequently information might not always be exchanged between teams due to animosity (Hinz & Betts, 2012, p.306). Research on teams shows that diverse groups communicate less, and encounter more conflicts (Williams & O'Reilly, 1998, p. 115). MTS researchers also underline the importance of communication (Mathieu, Gilson & Ruddy, 2006). '*Communication is the essence of what it means to collaborate. Collaboration cannot occur if team members do not interact with one another. Communication and collaboration are social processes and therefore moderated by identification*'. So research on teams and social categorization supports the proposition of a dynamic relationship between intergroup behavior and team performance (Brown & Wade, 1987; van Dick, 2001), where identity both mediates and moderates group behavior (Doosje, Spears & Ellemers, 2002). The case data in combination with existing literature leads to the following proposition:

Proposition 1: *There is a negative correlation between MTS intergroup behavior and MTS teamwork*

MTS intergroup behavior and MTS teamwork are unmistakably related over time, yet *how* this relationship unfolds seems to depend on certain case characteristics. Inductive case evidence indicates that the differences between the four cases might result from variances in role model behavior of the leader, the amount and quality of inter-CT contact, the presence of boundary spoilers, the MTS structure and the occurrence of a teambuilding program. Situational aspects are important determinants in team development (Gersick, 1988; Katz, et al., 2004; Passos & Caetano, 2005). Research on identity shows that the accentuation principle (definition: groups will always focus on differences between them) increases in a threatening situation (Ashforth & Mael, 1989; Brewer, 2009, p.11; van Vught & Hart, 2004). Stress (e.g. time pressure, uncertainties) causes individuals to fall back on categories and creates an ingroup perspective that decreases prosocial behavior (Driskell, Johnston & Salas, 1999; Elron, Shamir & Ben-Ari, 1999) and leads to more centralized communication (Katz, et al., 2004).

9.1.2.2 Proposition on the influence of role model behavior of the leader

Leadership influences team effectiveness (Gladstein, 1984) and the social identity of a group (Shamir, et al., 2000, p.614). MTS leadership received a considerable amount of research attention in comparison to the scarce amount of MTS literature available. Leadership is critical for MTS effectiveness (DiazGranados, et al. 2014, p. 99). MTS leaders influence the MTS coordinating mechanisms (Larson, et al., 2014, p. 132). They are group role models (Allison & Shuffler, 2014, p.190). Effective leadership in MTSS is crucial due to the complexity of the systems (DeChurch, et al.,

2011) and the increased chance of conflicts, disruptions and integration issues (Zaccaro & DeChurch, 2012, p.254). Effective leadership in MTSs is also crucial because MTS leaders have to rely on the recommendations of CTs to make well-balanced choices. Moreover the MTS leader must balance competing goals, priorities, requests, and streams of information and recommendations of the various teams (Vessey, 2014, p.148). Hence, leading an MTS is different from leading a conventional team (Davison & Hollenbeck, 2012, p.355; Mathieu, et al., 2006; Vessey, 2014, p.148; Zaccaro et al. 2012). Leaders in MTSs face more and unique challenges (Bienefeld & Grote, 2013). For example, s/he needs to be a leader on the CT level as well as on the MTS level. Moreover, the leader needs to enable integration across CT boundaries (DeChurch & Marks, 2006). Theoretical work by Hogg, van Knippenberg and Rast (2012) on intergroup leadership suggests that optimizing the performance of multiple groups requires leadership that effectively connects disparate groups, diverts self-interest, and intergroup competition, and transforms tendencies towards insularity into intergroup collaboration and coordination. Boundary spanning is a crucial task for MTS leaders (Carter & DeChurch, 2014, p.485; Davison & Hollenbeck, 2012, p.349). Ironically too many boundary-spanning activities can also have negative effects, because leaders might lose credibility within their own groups (Hogg, et al, 2012). This relationship between the amount of contact with other groups and loss of credibility within the own group was also found in this research. The data from the four cases studied, in combination with previous research, lead to the following proposition regarding the influence of role model behavior by the leader on the relationship between MTS intergroup behavior and MTS teamwork:

Proposition 2: The leader's role model behavior is negatively correlated with intergroup behavior and positively correlated with MTS teamwork

9.1.2.3 Proposition on the influence of inter-CT contact

In 1975 Schermerhorn already describes how the geographical proximity correlates with cooperation. Geographical distance and organization structure influence the amount of contact between people. People identify more with proximal groups than with distal groups (Ashforth & Mael, 1989; Johnson, et al., 2006, p. 499). Inter-member communication may depend on the extent to which informal face-to-face interaction is possible and facilitated (Sundstrom, de Muese & Futrell, 1990). Research on distributed teams shows how distance between MTS members creates difficulty for the team members to gain a shared context (Hinds & Bailey, 2003) or entrainment (Ancona & Chong, 1996). Entrainment is a group rhythm that functions as a powerful coordination mechanism. Physical distance influences quality and the quantity of communication and information exchange among MTS members (Zaccaro & DeChurch, 2012, p.279).

Allport's contact hypothesis (1954) is an influential theory regarding the influence of contact on intergroup behavior. Allport states that more contact leads to less prejudice. Intergroup contact under conditions that promote highly personalized interactions reduces intergroup bias as it undermines category based responding (Bettencourt, et al., 1992; Brewer & Miller, 1998; Wright, 2009, p.263). The amount of interaction between MTS members influences team processes (Marks, et al., 2005). A collective identity takes shape during the interaction with others (Simon, 2009, p.224). Hence social interaction is crucial for the strength of a group (Goette, et al., 2006). The negative relationship between contact and fading stereotypes is repeatedly found in groups and teams (Chatman & Flynn, 2001; Lau & Murnighan, 1998). Hinds and Bailey (2003) found a moderating effect of contact on conflicts in distributed teams. The data from the four case studies in combination with previous research lead to the following proposition regarding the influence of inter-CT contact on the relationship between MTS intergroup behavior and MTS teamwork.

***Proposition 3:** The amount of inter-CT contact is negatively correlated with MTS intergroup behavior and positively correlated with MTS teamwork*

9.1.2.4 Proposition on the influence of boundary spoilers

The term boundary spanning is extensively researched in the field of organizational science, management and teams. Boundary spanning activities increase team effectiveness (Ancona & Caldwell, 1987). *'Boundary spanning is a concept that encompasses a wide variety of activities, located at the interface between organizational units both within and across formal boundaries'* (Davison & Hollenbeck, 2012, p.323). In three of the four cases there are individuals whose behavior creates the opposite effect of boundary spanning activities. These MTS members actually seem to spoil boundaries. Research on teams shows that individuals have a large effect on group behavior and cohesion (Kelly & Barsade, 2001, p. 99; Lau & Murnighan, 1998; Levine & Moreland, 1998, p.424). Nonetheless hardly any research model take the influence of certain individuals into account (Chatman, 1989). The behavior of a boundary spoiler irritates members of other groups and influences the way his/her whole group is perceived. Interpersonal processes are very influential processes (Marks, et al., 2001). The boundary spoilers 'spoil' the image of the rest of the CT that then strengthens group boundaries and ingroup feelings. A boundary spoiler also influences MTS teamwork directly as other MTS members do not want to work with the boundary spoiler. Research in teams shows that people indeed avoid working with individuals they do not like (Passos & Caetano, 2005). So research on boundary spanners and the influence individuals have on team performance seems to support the possible existence of boundary spoilers. The data from the cases combined with established literature leads to the following proposition regarding the role of

boundary spoilers with relation to the relationship between MTS intergroup behavior and MTS teamwork:

Proposition 4: The presence of boundary spoilers is negatively correlated with MTS intergroup behavior and negatively correlated with MTS teamwork

9.1.2.5 Proposition on the influence of the MTS structure

The size and organization of the MTS has implications for patterns of affiliation, communication and leadership issues (Davison & Hollenbeck, 2012, p.347; Mathieu, et al., 2006). 'We expect that role structure [...] and other kinds of linkage arrangements will be a particularly important developmental attribute in effective MTSs' (Zaccaro, et al., 2012, p.22). According to the Social Identity Theory group boundaries create intergroup tension. So if there are fewer boundaries there is less intergroup tension (Brown & Wade, 1987). Moreover if group boundaries are permeable, group members identify more with the outgroup and less with the ingroup (Ellemers, et al., 1997; Lichtenstein, Alexander, Jinnett & Ullman, 1997).

The MTS structure might also influence the awareness of MTS members that they are part of a team. DeChurch and Mathieu (2008) theorize that not all CTs are as aware of being part of an MTS. The interdependencies within conventional teams are immediate. Team members have the same schedule and share the same goal. Hence, it is very likely that those individuals will perceive themselves as forming an entity and thus being team members. In an MTS, however, the interdependencies between component teams are often less immediate. Research on social categorization learns that awareness of a common category membership is necessary for individuals to feel part of and act as a group (Tajfel, 1982, p.27). The case data combined with evidence from the literature leads to the following propositions regarding the influence of the MTS structure on the relationship between MTS intergroup behavior and MTS teamwork.

Proposition 5: The permeability of CT boundaries is negatively correlated with MTS intergroup behavior and positively correlated with MTS teamwork

Proposition 6: Awareness of MTS membership is negatively correlated with MTS intergroup behavior and positively correlated with MTS teamwork

9.1.2.6 Proposition on the influence of a teambuilding program

The positive correlation between training and group performance is described in many studies (Campion, Medsker & Higgs, 1993; Guzzo & Dickson, 1996). Elron, Shamir and Ben-Ari's (1999) work on multi-national military teams illustrates how a lack of collective training made it impossible for

teams to go through a normal team development processes. MTS researchers hypothesize that training has a positive influence on MTS processes as it enhances cognitive similarity (Larson, Nystad & Taylor, 2014, p.131) and reduces conflict (Hinz & Betts, 2012, p.307). Marks et al. (2005) demonstrate how pre-planning, team training, and the amount of interaction between MTS members positively influences team processes. Training not only aids the team in preparing for the task at hand, it also provides the team with a common history and allows for interpersonal contact.

Teambuilding activities can also focus on the tasks and role of individuals. Research on distributed and diverse teams teaches us that these kinds of teams are more prone to conflict compared to co-located or homogenous teams (Hinds & Bailey, 2003; Williams & O'Reilly, 1998, p.115). Conflicts in distributed teams tend to fester longer (Armstrong & Cole, 2002). It is theorized that MTS are more prone to conflict. Especially conflicts related to functional diversity (Zaccaro, et al., 2012, p.16) and role violations (Hinz & Betts, 2012, p.293). *'Conflict appears to occur naturally when two or more teams having separate identities and unique goals interact with each other'* (Hinz & Betts, 2012, p.294). Research on teams shows that role ambiguity leads to less trust, people like each other less and subsequently there is less interpersonal contact (Rizzo, House & Lirtzman, 1970). Hinz and Betts (2012, p.301) hypothesize that if there are role violations and redundancy roles in MTSs this leads to conflicts and competition as the social identity is threatened. *'If a team violates another team's role resulting conflict may be more profound than if a team a member violates another team member's role'* (p.303). This is exactly what the case data illustrates. Role conflicts and ambiguities create tension between CTs. This initiates territorial behavior regarding the tasks and triggers social categorization. The case data in combination with evidence of previous literature leads to the following proposition on the influence of teambuilding on the relationship between MTS intergroup behavior and MTS teamwork.

Proposition 7: Teambuilding is negatively correlated with MTS intergroup behavior and positively correlated with MTS teamwork

9.2 Reflection

The reflection paragraph discusses the limitations caused by research choices linked to the conceptual framework, method and research process.

9.2.1 Reflection on the conceptual framework

We adapted the conceptual framework to study intergroup behavior in MTSs from the Social Identity Theory (SIT). Over time the SIT is validated in a variety settings. The SIT is the basis of knowledge on intergroup behavior. Since this research entails the first empirical steps into research of intergroup behavior within MTSs the SIT is a very suitable theory to use. This statement is underlined by

Ellemers et al. (1997) who claim that identification should be at the top of the agenda of determinants of group behavior. Research on teamwork in conventional teams is used to approach MTS teamwork because there is no MTS teamwork definition. Whether it is possible to use results from other research fields in an MTS setting is a valid question. However, at this moment in time this is the only option for research on MTSs, as this research field is in its infancy. The results of this study indicate that several existing constructs and theories are relevant and lead to the same or similar results in an MTS setting compared to a team setting. Yet the results also point to some differences. Take for instance the role of the variable respect. This variable is named by the respondents in each case as an important variable for cooperation, yet the variable is not part of the definition of teamwork formulated by Salas et al. (2005).

9.2.2 Reflection on the research strategy

The research strategy adheres to calls from MTS researchers for more empirical and longitudinal research. A longitudinal mixed-method approach reduces the common method bias and increases construct validity and reliability of the study. The internal validity is warranted by the number of case studies that makes pattern matching possible. Yet, deeply grasping a dynamic relationship like the one between MTS identity and MTS teamwork remains difficult. Especially since identity is not the only cause of certain effects (Ellemers, et al., 1997).

9.2.3 Reflection on the validity and reliability of the cases

Achieving external validity is seen as a major barrier for case studies (Yin, 2003, p.37). One of the remarkable characteristics of this research is that three of the four cases are almost identical in size, project, and events while at the same time they are real-life MTSs. The cases also tap into two different domains, namely the civilian and military construction setting. The construction setting of the cases adheres to the call for more empirical studies in different types of environments (Shuffler, et al., 2014, p.11).

9.2.4 Reflection on the validity and reliability of the data collection tools

Interviews

Every interview is different. The differences have to do with the people involved in the interview and the chemistry between the individuals. For example the interviewer effect is something that the researcher was not able to really limit, as it is impossible to change personal attributes. The researcher tried to create personal relationships before she asked people to participate in the research. If it was very obvious that someone did not appreciate the researcher or the research there was no use in asking him or her to participate. The effect of the voice recorder on the amount of social desirability of the answers seems limited. Some respondents said things like '*Just for you judge...*' Yet the respondents who said such things were very open throughout the interview. A

handful of respondents did not disclose much information. *'Have to be honest, this [the first interview] was like talking to the press, [...] we are open and I try to be honest with you, but at the same time you also want show a good picture right.'* So a lack of trust might have caused socially desirable answers in a handful of respondents. There has probably been an interviewer effect inasmuch almost all respondents were males and the researcher is female. Yet this effect turned out positively for the study because the respondents were all very willing to talk and participate. Unfortunately the researcher was unable to exclude the influence of time on the post-deployment interview data. Due to special deployment-leave many of the post-deployment interviews took place four weeks to two months after the deployment. In the post-deployment interviews the influence of time on memory and emotions was noticeable. However when the respondents started to talk about the deployment it did bring back memories however raw emotions were lost. Crossing checking stories safeguarded the reliability of the answers. The instances where there was more than one version of the story the researcher transcribed each version in the case description and focused on the effects of the incident instead of what actually happened.

Questionnaire

Privacy influences the way respondents fill out the questionnaire. Even though respondents were assured of their privacy several times, some did not want to participate because they had to write their name on the questionnaire. *'You have to put name on the questionnaire and then sometimes you cannot be honest.'* The influence of the loss of privacy on the amount of socially desirable answers cannot be checked directly. However when the data of the first three cases is compared with the data of the fourth case the answers in the fourth case are a lot less 'negative'. It is possible that respondents in the fourth case gave more socially desirable answers than the respondents in the first three cases. The internal validity of the scales was checked using Cronbach's alpha. If the alpha was low (<0.60) the results of that particular scale on that particular moment in time were not taken into account.

Participative observation

There is discussion between scholars whether or not researchers can act a neutral research tool since the socio-cultural bias and frame of reference determines both what and how events are observed (Boeije, 2010, p.59-60; DeWalt, et al., 1998, p.278; Schwartz & Green-Schwartz, 1955). The researcher spent much time with the respondents to reduce researcher reactivity and build trust (Foster, 1996, p.63). The researcher tried to blend in and become an *'accepted marginal member'* in order to decrease the amount of reactivity (Foster, 1996, p.70-72). A lot of non-research related talks occurred. Non-research related talk increases the quality of the data, as the researcher learned more about the research participants while respondents opened up, and became more honest. The

reactivity to the researcher decreases (Schwartz & Green-Schwartz, 1955). The positive effects are illustrated by a comment of one of the participants while the researcher was in Afghanistan. He said he would have never let the researcher join the MTS in Afghanistan if he had not known the researcher for so long and trusted her. However spending much time with respondents can lead to a paradox: *yes you 'want to understand the natives, but you do not want to go native'* (DeWalt, et al., 1998, p.263). The insider-outsider perspective balance is important because if the researcher gets too involved this will lead to over-rapport (a form of observer bias), selective perception, and selective recall. The researcher spent most of her time at the contractor office, subsequently she felt very comfortable there. To prevent over-rapport the researcher forced herself to spend time with the other CTs. Over-rapport also influences the relationship between the researcher and the other groups in the research (Foster, 1996, p.77-78). This indeed happened. The researcher was seen as contractor office member by some members of other CTs. Subsequently, the researcher often mentioned she is an independent researcher.

Of course the respondents all had to get used to 'this lady' making notes. In the first three cases the respondents were curious about what the researcher wrote down. To ease the respondents the researcher asked participants whether they would like to have a look in her notebook. After the respondents had a look at the notes reactivity to the researcher decreased. Generally the respondents acknowledged the researcher's presence with a witty comment, like *'o there she is again'*. The researcher would then make a witty remark like *'Sorry just doing my job'* or *'I do not know who you are talking to, because I am not here'*. Most of the time people would just continue their conversation after the remark. In the civilian case the situation was quite different. The respondents in this case were more suspicious. *'She is just looking at everyone and noting all bad things down, 'Oh, there is a fly on the wall!'*, and *'Are you spying on us today? No just kidding'*. Again the researcher asked the respondents whether they would like to see what she wrote down. No one wanted to. The size of the MTS, the different locations of the CTs, and lack of time all hindered the development of personal relationships with respondents in the fourth case. *'We do not know what you do, or who you are or who you work for. You were shortly introduced once, but I have to be honest that I was not paying attention [...] and we do not know what is going to happen with everything you record, or write down. People wrote me emails, asking whether the questionnaire you send around was legit, and who you are. Nobody really knows where to place you in the whole process.'* The researcher spend more time with the owner and contractor CT, hence the relationship with them was better in comparison with the relationship with the other CTs. In an attempt to build trust more quickly and create support for the research, the researcher tried to benefit both from Stanford's distinguished reputation and the respect Americans have for PhD researchers. The lack of

trust, lack of non-research related talks, and lack of personal relationships with the respondents in the fourth case might have caused socially desirable answers and researcher reactivity.

9.2.5 Reflection on the validity and reliability of the within-in and cross-case analyses

Case studies yield a lot of data. At the same time no generally accepted method of analyzing qualitative data exists. The researcher provided as much clarity as possible delineating the steps that were undertaken to analyze the data. The extensive case descriptions also help the reader to make up his/her own mind about the analyses and the related conclusions. The reliability and validity of qualitative data analyses increases when multiple researchers analyses the data. In this research only one researcher analyzed the data. To counter this threat to the reliability of the analyses the researcher made sure the analyses process and results were written down as transparently as possible. Hence the extensive case study chapters.

9.2.6 Reflection on the process

The privacy promise is of paramount importance in real-life case studies as a thoughtless remark by the researcher might influence the relationship between people or impact someone's career. There is a fine balance between telling a story and not giving away too much information about the individuals. I hope I was able to keep my word as a researcher and *did no harm*. Real-life cases ask for much flexibility of the researcher. The researcher tried to be with the MTSs as much as possible. However it was impossible to be in multiple places at once or have reflective talks with everybody at the same time. Although the researcher was not always present the important incidents were hard to miss. Respondents referred to them separately. Lastly, at the start of the research access to the respondents is what made the military cases very attractive. However there were limits to this accessibility. The researcher was not granted permission to follow each MTS to Afghanistan. The researcher gained information about what had happened during the deployment from eyewitnesses, phone-calls with respondents and from the post-deployment interviews. Even though, the situation was far from ideal it did provide the researcher with enough information to piece together the puzzle.

9.2.7 Reflection on the conclusion

The generalizability of a theory is crucial for its usefulness. Hence the researcher returned to the field with the boxing ring analogy. First the construction battalion commander and his company officers were briefed. The researcher used the boxing ring analogy to explain the incidents that occurred in the three military taskforces. The officers recognized the interplay between the CTs in the three military case studies as described by the boxing ring analogy. The officers also recognized the interplay in other MTSs they have been a part of. The researcher also explained why the taskforces got caught in a downward spiral. The researcher also designed a course for MTS leaders and

members to increase awareness of intergroup behavior and its relationship with MTS teamwork. In this specific course intergroup behavior and its relationship with MTS teamwork is made tangible through several exercises. The course also illustrates how difficult it is to lead MTSs with regard to procedural justice and leadership acceptance. The pilot of the course was taught to a unit that trains military engineers.

The participants in the commanders' briefing as well as the course participants all recognized the interplay described with the boxing ring analogy yet at the same time they felt they had learned nothing new. The course participants were aware of the us versus them manipulation nonetheless their own behavior surprised them. Nonetheless the men were convinced that military personnel is particularly rational, is accustomed to multiple identities, and that they are, by nature, very collegial. Hence, the officers concluded that the described effects do not occur in the field. *'If you have orders to cooperate, you cooperate'*. Interestingly, after the briefing the only female officer approached the researcher and said she fully recognized the interplay described with the boxing ring analogy. She also said that she does not agree with her male colleagues in that military personnel only act rationally.

To increase the external validity of the boxing ring analogy it has been applied in a military construction taskforce heading for Burundi and within informal caregiver MTSs. The military construction taskforce was deployed to Burundi for six weeks. The taskforce consisted of a contractor CT, construction CT and a medic CT. The taskforce commander integrated the lessons learned from the research into the pre-deployment program and paid attention to certain intergroup behavior during the deployment. In Burundi the daily routine of both the contractor and construction CT differed from the medic CT. The medic CT started later, they had lunch in the hotel and they had the day off on Sunday. Yet these differences did not lead to any intergroup tensions. A good example of an issue which could have created intergroup behavior is the issue of receiving soup during lunch. The contractor and the construction CT did not get soup during lunch while the medic CT did. In the first and second case of the research such differences created intergroup behavior (compare the soup issue with the fights about tents, cars and phones). It is impossible to say for certain that the awareness of the commander and the teambuilding effort prevented MTS intergroup behavior in this MTS, however the difference with the first and second military case studies is remarkable.

The second attempt to increase the external validity of the boxing ring analogy occurred within the field of informal caregiver MTSs. A large Dutch consultancy firm asked the researcher to give her vision on teamwork in volunteer aid MTSs during a workshop. In the workshop a participant sketched the problems she experienced with two other health organizations with whom she had to cooperate.

The stories she told resembled incidents and behavior that occurred in the first, second and fourth case study. For example, at one point things got so tense between the CTs in that specific informal caregiver MTS that there were fights about who owned the coffee pot. After hearing the story the researcher introduced the boxing ring analogy to explain why things escalated so fast. Several workshop participants recognized the interplay that the boxing ring analogy describes in their professional lives.

9.3 Recommendations

9.3.1 Recommendations for MTS leaders

Regular ways of structuring a team, team building program or leading a team might have very different effects in MTSs and can even elicit MTS intergroup behavior. As an MTS leader you should not underestimate the influence of MTS intergroup behavior on MTS success and the important role that you play in limiting these intergroup tensions. You are pivotal for generating MTS success, even more so than in teams! Several suggestions about how you can push the MTS in the right direction can be deduced from the research results.

As an MTS leader you need to be a role model for other MTS members when it comes to inter-CT interaction. You need to be the embodiment of the MTS identity and act as specie between the different CTs. There are a variety of ways to stimulate an increase of MTS identity strength. For example, celebrate MTS success with the complete and whole MTS, decide on an MTS name, dispense T-shirts, create a logo, come up with a common slogan, and so on. If something threatens the MTS identity act immediately. Do not let issues and emotions simmer under the surface. Take for instance the presence of a boundary spoiler. The moment there appears to be a boundary spoiler make sure the boundary spoiler changes his/her behavior and work on damage control. Immediately counter the negative effects the boundary spoiler had on the MTS. Be indefatigable!

As a MTS leader you have the power to decide on an MTS structure. Although you are bounded by the size of your MTS you are able to influence the work culture and internal structure of an MTS. In a large MTS, for example, there will always be stratification. It is possible to limit the negative effects of stratification by creating a tight and well-functioning MTS core that holds one member of each CT. Hence, the core is formed over CT boundaries. The MTS members who constitute the core are able to explain misinterpreted behavior of the other CTs if members of their CT take offense. Moreover, the members of the MTS core will develop interpersonal relations over CT boundaries, which can create exemplary behavior for members of their CT. Another possible intervention is to use the structure of the MTS decrease intergroup behavior and increase CT boundary permeability. Try to mix it up. In the fourth case, for example, the assigned seats in the floor plan of the Big Room created

invisible boundaries. The architects were grouped together as were the contractor and the project managers. Each of the CTs retained its own 'culture' in their own little part of the office. So even though the MTS members were all in the same space they still felt the invisible boundaries due to the floor plan.

The internal structure of the MTS also influences the amount of inter-CT contact. The situation in the Big Room in the fourth case is a great example again: even though the MTS members were all in the same room, hardly any of them got up and talked to each other. The amount and quality of inter-CT contact is influenced by the structure of the MTS and by issues such as geographical distance, (organizational) cultural differences and size. An MTS leader must try to overcome these obstacles by stimulating inter-CT and interpersonal contact. Possibilities to overcome these obstacles are teambuilding programs, organizing socials, making sure that MTS members have the chance to get to know each other and stimulating face-to-face contact. Do not merely rely on call-in meetings or emails for communication.

Teambuilding programs are also ideal tools to prevent intergroup behavior. A teambuilding program takes time and costs money however it is worth the investment! Teambuilding programs can form the basis of interpersonal relations that stimulates inter-CT contact and CT boundary permeability. Additionally team building can minimize the occurrence of role ambiguity and role conflict thereby decreasing the inter-CT irritations. Moreover, a teambuilding program creates a common history for MTS members. This common experience will strengthen their sense of we-ness and can act as a buffer for the MTS when the going gets rough.

The suggestions mentioned above present just a small array of ways to limit intergroup behavior in MTS. More research is needed to create specific leadership tools, MTS leadership models and MTS leadership specific courses. Practitioners can aid the advancement of MTS knowledge by opening their doors and allowing researchers to conduct more research in real life MTSS.

9.3.2 Recommendations for future research

This study provides MTS scholars a sneak preview into the dynamic relationship between MTS intergroup behavior and MTS teamwork. The research question was approached holistically which lead to several propositions which now need to be studied in more detail. Additionally, the identified situational factors in this research came about in an inductive manner. Hence it would be useful to systematically study a variety of situational factors that influence MTS intergroup behavior, MTS teamwork and the relationship between the two. Additionally research will help in deepening and specifying the proposition even more.

It is too early to turn laboratories settings to investigate the relationship between MTS intergroup behavior and MTS teamwork. We still do not know enough to already start isolating variables, especially because the complexity of MTSs and their context is what sets the propositions regarding the specific influence of leadership quality, boundary spoilers, inter-CT contact, MTS structure and teambuilding need be investigated more thoroughly. This kind of them apart from teams. Future MTS scholars need to study the relationships between MTS intergroup behavior and MTS teamwork in more real-life MTSs. The real-life MTSs should be studied in diverse settings as this can aid in broadening knowledge and understanding of MTSs. This research has made evident that the context of MTSs plays an important role in the way MTS processes develop.

These future studies of real-life MTSs in a variety of contexts should have a multi-disciplinary, longitudinal and multi-tool character. A multidisciplinary focus on MTSs prevents us from disregarding knowledge that might be very appropriate in a MTS setting, just because these theories are not used in the field of team research. MTSs are like ecosystems. There needs to be a perfect balance of everything for it to work optimally. It is impossible understand processes in ecosystems if it the system is only looked at through one lens. Time is a crucial factor in coming to a comprehension of MTSs. Likewise openness for different research tools is also very crucial, since there are no MTS specific research tools yet. It is very possible that research tools from unexpected fields will prove to be useful in the MTS research. A good example of such a tool might be the Social Network Analysis. A multidisciplinary approach is essential to develop MTS research.

Additionally, it is useful to study larger MTSs. A large MTS creates more possibilities for quantitative data analyses techniques. Extensive quantitative data analyses techniques aid in specifying relationships and explaining variance. The techniques help specify hypotheses and avenues for further research.

Furthermore there is a need for MTS specific teamwork scales. The scales that were used in this research were not specifically designed for MTSs. For example the research participants indicated respect to be a very important variable yet respect is not a standard teamwork variable in team literature. It is possible that respect is an important teamwork variable in MTS because it creates a condition for more general teamwork to take place.

Future MTS research should keep an eye on the usefulness of the research results for the field. The boxing ring analogy is easy to understand and makes MTS processes more tangible and understandable for MTS leaders. If MTS leaders understand the difference between MTSs and teams they will be able to use their leadership skills efficiently and take control of the MTS processes. There is a need for tools that can be readily applied by practitioners.

References

Abbott, A. (2004). *Methods of Discovery. Heuristics for the social sciences*. New York: W.W. Norton & company.

Allison, B.B., and Shuffler, M.L. (2014). Getting the 'I' out of multiteam systems: A case study from the financial services industry. In: M.L. Shuffler, R.Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.185-203), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Allport, G. W. (1962). Prejudice: Is it societal or personal?, *Journal of Social Issues*, 18, 120-134.

Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley.

Ancona, D.G., and Caldwell, D.F. (1987). Beyond task and maintenance: Defining external functions in groups, *Working paper 1918-87*, August 1987.

Ancona, D.G, and Chong, C.L. (1996). Entrainment: Pace, cycle, and rhythm in organizational behavior. In: B.M. Staw and L.L. Cummings (Eds.) *Research in organizational behavior: An annual series of analytical essays and critical reviews* (p. 251-284), Vol. 18, US: Elsevier Science/JAI Press.

Angle, H.L., and Perry, J.L. (1981). 'An empirical assessment of organizational commitment and organizational effectiveness', *Administrative Science Quarterly*, 1(26), 1-14.

Armstrong, D.J., and Cole, P. (2002). Managing distances and differences in geographically distributed workgroups. In: P.J. Hinds, and S. Kiesler (Eds.) *Distributed work* (p. 167-186). Cambridge, MA: MIT Press.

Ashforth, B.E., and Mael, F. (1989). Social identity theory and the organization, *The Academy of Management Review*, 1(14), 20-39.

Aubé, C., and Rousseau, V. (2005). Team goal commitment and team effectiveness: The role of task interdependence and supportive behaviors, *Group Dynamics: Theory, Research and Practice*, 3(9), 189-204.

Bartel, C.A. (2001). Social comparisons in boundary-spanning work: Effects of community outreach on members' organizational identity and identification, *Administrative Science Quarterly*, 46, 379-413.

Bartone, P.T. (2006). Resilience under military operational stress: Can leaders influence hardiness?, *Military Psychology*, 18(suppl.), 131-148.

Bettencourt, B. A., Brewer, M. B., Croak, M. R., and Miller, N. (1992). Cooperation and the reduction of intergroup bias: The roles of reward structure and social orientation, *Journal of Experimental Social Psychology*, 28, 301–319.

Bienefeld, N., and Grote, G. (2012). Silence that May kill: When aircrew members don't speak up and why, *Aviation Psychology and Applied Human Factors*, 2, 1-10.

Boeije, H.R. (2010). *Analyseren in kwalitatief onderzoek: denken en doen*, 1st edition, Den Haag: Boom/Lemma.

Boxer, D., and Cortés-Conde, F. (1997). From bonding to biting: Conversational joking and identity display, *Journal of Pragmatics*, 27, 275-294.

Boyer O'Leary, M., Williams Wooley, A., and Mortensen, M. (2012). Multiteam membership in relation to multiteam systems. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p. 141-190). New York: Routledge Taylor and Francis Group.

Brewer, M, and Miller, N. (1998). Contact and cooperation: When do they work? In: P. Katz, and D. Taylor (Eds.) *Eliminating racism: Profiles in controversy* (p. 315-326). New York: Plenum.

Brewer, M.B. (2009). 'Motivations underlying ingroup identification' in: S. Otten, K. Sassenberg and T. Kessler (Eds.), *Intergroup Relations. The role of motivation and emotion* (p. 3-22). Hove: Psychology Press.

Brickson, S. (2000). 'The impact of identity orientation on individual and organizational outcomes in demographically diverse settings', *The Academy of Management Review*, 1(25), 82-101.

Brown, R, and Wade, G. (1987). Superordinate goals and intergroup behavior: the effect of role ambiguity and status on intergroup attitudes and task performance, *European Journal of Social Psychology*, 17, 131-142.

Burke, C.S. (2014). A look into the challenging world of MTS data collection. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.17-32), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Campbell, W.K., and Sedikides, C. (1999). Self-threat magnifies the self-serving bias: A meta-analytic integration, *Review of General Psychology*, 1(3), 23-43.

Campion, M.A., Medsker, G.J., and Higgs, A.C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups, *Personnel Psychology*, 46(4), 823-850.

- Carter, D.R., and DeChurch, L.A. (2014). Leadership in MTSs: A network perspective In: D.V. Day (Ed.) *The Oxford handbook of leadership and organizations* (p.482-502). New York, NY: Oxford University Press.
- Chan, D. (1998). Functional relations among constructs in the same content domain at different level of analysis: A typology of composition models, *Journal of Applied Psychology*, 83(2), 234-246.
- Chatman, J.A., and Flynn, F.J. (2001). The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams, *Academy of Management Journal*, 5(44), 956-974.
- Chatman, J.A., Polzer, J.T., Barsade, S.G., and Neale, M.A. (1998). Being different yet feeling similar: The influence of demographic composition and organizational culture on work processes and outcomes, *Administrative Science Quarterly*, 4(43), 749-780.
- Chatman, J.A. (1989). Improving interactional organizational research: A model of person-organization fit, *Academy of Management Review*, 3(14), 333-349.
- Connaughton, S.L., Williams, E.A., and Shuffler, M.L. (2012). Social identity issues in multiteam systems. Considerations for future research. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p.109-139). New York: Routledge Taylor and Francis Group.
- Cooke, N.J., Salas, E., Cannon-Bowers, J.A., and Stout, R. (2000). Measuring team knowledge, *Human Factors*, 42, 151-173.
- Costa, A.C., Roe, R.A., and Taillieu, T. (2001). Trust within teams: The relation with performance effectiveness, *European Journal of Work and Organizational Psychology*, 10(3), 225-244.
- Cox, T.H., Lobel, S.A., and McLeod, P.L. (1991). Effects of ethnic group cultural differences on cooperative and competitive behavior on a group task, *Academy of Management Journal*, 4(34), 827-847.
- Cramton, C.D. (2001). The mutual knowledge problem and its consequences for dispersed collaboration, *Organization Science*, 12(3), 346-371.
- Crowe, J., Allen, J.A., and Bowes, B. (2014). Multi-crew responses to a structure fire: Challenges of multiteam systems in a tragic fire response context. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p. 205-219), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Cunningham, D.J. (1998). Cognition as a semiosis: The role of inference, *Theory and Psychology*, 66(8), 827-840.

Davison, R.B., and Hollenbeck, J.R. (2012). Boundary spanning in the domain of Multiteam systems. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p. 323-362). New York: Routledge Taylor and Francis Group.

DeChurch, L.A., Burke, C.S., Shuffler, M.L., Lyons, R., Doty, D., and Salas E. (2011). A historiometric analysis of leadership in mission critical multiteam environments, *The Leadership Quarterly*, 22(1), 152-169.

DeChurch, L.A., and Zaccaro, S.J. (2010). Perspectives: Teams won't solve this problem, *Human Factors*, 52(1), 329-334.

DeChurch, L.A., and Mathieu, J.E. (2008). Thinking in terms of multiteam systems. In: E. Salas, G.F. Goodwin and C.S. Burke (Eds.), *Team effectiveness in complex organizations* (p.267-292). New York: Psychology Press.

DeChurch, L.A., and Marks, M.A. (2006). Leadership in multiteam systems, *Journal of Applied Psychology*, 2(91), 311-329.

DeConstanza, A.H., DiRosa, G.A., Jiménez-Rodríguez, M., and Cianciolo, A.T. (2014). No mission too difficult: Army units within exponentially complex multiteam systems. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.61-76), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Delamont, S. (2001). Ethnography and participant observation. In: C. Seale, G. Gobo, J.F. Gubrium, and D.S. Silverman (Eds.), *Qualitative Research Practice* (p.205-217). LA: Sage.

Denscombe, M. (2011). *The good research guide. For small-scale social research projects*, 4th edition, McGraw Hill: Open University Press.

DeWalt, K.M., DeWalt, B.R., and Wayland, C.B. (1998). Participant Observation. In: H.R. Bernard (Ed.), *Handbook of methods in cultural anthropology* (p. 259-299). Walnut Creek California: AltaMira Press.

DiazGranados, D., Dow, A.W., Perry, S.J., and Palesis, J.A. (2014). Understanding patient care as a multiteam system. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p. 95-113), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

- Dick, Van, R. (2001). Identification in organizational contexts: linking theory and research from social and organizational psychology, *International Journal of Management Reviews*, 4(3), 265-283.
- Dirks, K.T. (1999). The effects of interpersonal trust on work performance, *Journal of Applied Psychology*, 84, 445-455.
- Doosje, B., Spears, R., and Ellemers, N. (2002). Social identity as both cause and effect: The development of group identification in response to anticipated and actual changes in the intergroup status hierarchy, *British Journal of Social Psychology*, 41, 57-76.
- Driskell, J.E., Johnston, J., and Salas, E. (1999). Does stress lead to a loss of team perspective?, *Group Dynamics: Theory, Research and Practice*, 4(3), 291-302.
- Duel, J. (2010). *Teamwork in action. Military teams preparing for, and conducting Peace Support Operations*. Unpublished dissertation. University of Tilburg.
- Earley, P.C., and Mosakowski, E. (2000). Creating hybrid team cultures: An empirical test of transnational team functioning, *Academy of Management Journal*, 1(43), 26-49.
- Earley, P.C., and Gibson, C.B. (2002). *Multinational work teams: A new perspective*. Mahwah, NY: Lawrence Erlbaum Associates Inc.
- Eby, L.T., and Dobbins, G.H. (1997). Collectivistic orientation in teams: an individual and group-level analysis, *Journal of Organizational Behavior*, 18(3), 275-295.
- Ellemers, E., Gilder, de, D., and Haslam, S.A. (2004). Motivating individuals and groups at work: a social identity perspective on leadership and group performance, *Academy of Management Review*, 29(3), 459-478.
- Ellemers, N., Spears, R. and Doosje, B. (1997). Sticking together or falling apart: Ingroup identification as a psychological determinant of group commitment versus individual mobility, *Journal of Personality and Social Psychology*, 3(72), 617-626.
- Elliott, R., Fischer, C.T., and Rennie, D.L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields, *British Journal of Clinical Psychology*, 38, 215-229.
- Eisenhardt, K.M. (1989). Building theory from case study research, *Academy of Management. The Academy of Management Review*, 14(4), 532-550.

Elron, E., Shamir, B., and Ben-Ari, E. (1999). Why don't they fight each other? Cultural diversity and operational unity in multinational forces, *Armed Forces and Society*, 1(26), 73-98.

Ferguson, M.A., and Ford, T.E. (2008). Disparagement Humor: A theoretical and empirical review of psychoanalytic, superiority, and social identity theories, *Humor- International Journal of Humor Research*, 21(3), 283-312.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research, *Qualitative Inquiry*, 12(2), 219-245.

Flyvbjerg, B. (2004). Phronetic planning research: theoretical and methodological reflections, *Planning Theory & Practice*, 5(3), 283-306.

Foster, D. (1996). Observational Research. In: R. Sapsford, and V. Jupp (Eds.), *Data collection and analysis* (p. 57-93). London: Sage.

Gautam, T., Van Dick, R., and Wagner, U. (2004). Organizational identification and organizational commitment: Distinct aspects of two related concepts, *Asian Journal of Social Psychology*, 7, 301-315.

Gersick, C.J.G. (1988). Time and transition in work teams: toward a new model of group development, *Academy of Management Journal*, 1(31), 9-41.

Gibson, C.B., and Zellmer-Bruhn, M.E. (2001). Metaphors and meaning: An intercultural analysis of the concept of teamwork, *Administrative Science Quarterly*, 46(2), 274-308.

Gladstein, D.L. (1984). Groups in context: A model of task group effectiveness, *Administrative Science Quarterly*, 4(29), 499-517.

Goette, L., Huffman, D., and Meier, S. (2006). *The impact of group membership on cooperation and norm enforcement: Evidence using random assignment to real social groups*, IZA Discussion paper No. 2020.

Goodwin, G.F., Essens, P.J.M.D., and Smith, D. (2012). Multiteam systems in the public sector. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.), *Multiteam systems. An organization form for dynamic and complex environments* (p. 53-78), New York: Routledge Taylor and Francis Group.

Guzzo, R.A., and Dickson, M.W. (1996). Teams in organizations: Recent research on performance and effectiveness, *Annual Review of Psychology*, 47, 307-338.

Haslam, S. A., Postmes, T., and Ellemers, N. (2003). More than a metaphor: Organizational identity as a sine qua non of organizational life, *British Journal of Management*, 14, 357–369.

Haverland, M., and Yanow, D. (2012). A hitchhiker's guide to the public administration research universe: Surviving conversations on methodologies and methods, *Public Administration Review*, 7(3), 401-408.

Hegner, R.E., and Larson, M. (2014). Multiteam systems in large-scale disaster recovery. In: M.L. Shuffler, R.Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.77-91), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Hinds, P.J., and Bailey, D.E. (2003). Out of sight, out of sync: Understanding conflict in distributed teams, *Organization Science*, 14(6), 615-632.

Hinds, P. J., and Mortensen, M. (2005). Understanding conflict in geographically distributed teams: The moderating effects of shared identity, shared context, and spontaneous communication, *Organization Science*, 16(3), 290-307.

Hinsz, V. B., & Betts, K. R. (2012). Conflict in multi-team situations. In: S. J. Zaccaro, M. A. Marks, & L. A. DeChurch (Eds.), *Multiteam systems: An organization form of dynamic and complex environments* (p. 289-322). New York: Routledge.

Hogg, M.A. (2001). A social identity theory of leadership, *Personality and Social Psychology Review*, 5(3), 184-200.

Hogg, M.A., and Abrams, D. (1988). *Social identification*. London: Routledge.

Hogg, M.A., Knippenberg, van, D., and Rast, D.E. (2012). Intergroup leadership in organizations: leading across group and organizational boundaries, *Academy of Management Review*, 37, 323-255.

Hogg, M.A., and Terry, D.J. (2001). Social identity theory and organizational processes. In: M.A. Hogg and D.J. Terry (Eds.), *Social identity processes in organizational contexts* (p.1-12). Philadelphia: Psychology Press.

Hogg, M.A., and Terry, D.J. (2000). Social identity and self-categorization processed in organizational contexts, *Academy of Management Review*, 1(25), 121-140.

Hogg, M.A., Terry, D.J., and White, K.M. (1995). A tale of two theories: A critical comparison of identity theory with social identity theory, *Social Psychology Quarterly*, 4(58), 255-269.

Information Salas (January 2015). Retrieved from <http://psychology.cos.ucf.edu/people/salas-eduardo/>.

Ilgen, D.R., Hollenbeck, J.R., Johnson, M., and Jundt, D. (2005). Teams in organizations: From input-process-output models to IMOI models, *Annual Review of Psychology*, 56, 517-543.

James, L.R. (1982). Aggregation bias in estimates of perceptual agreement, *Journal of Applied Psychology*, 67(2), 219-229.

Jehn, K.A., Northcraft, G.B., and Neale, M.A. (1999). Why differences make a difference: A field study of diversity, conflict and performance in workgroups, *Administrative Science Quarterly*, 44, 741-763.

Jetten, J., Postmes, T., and Mcauliffe, B.J. (2002). 'We're all individuals': Group norms of individualism and collectivism, levels of identification and identity threat, *European Journal of Social Psychology*, 32, 189-207.

Johnson, M.D., Morgeson, F.P., Ilgen, D.R., Meyer, C.J., and Lloyd, J.W. (2006). Multiple professional identities: Examining differences in identification across work-related targets, *Journal of Applied Psychology*, 2(91), 498-506.

Katz, N., Lazer, D., Arrow, H., and Contractor, N. (2004). Network theory and small groups, *Small Group Research*, 3(35), 307-332.

Kelly, J.R., and Barsade, S.G. (2001). Mood and emotions in small groups and work teams, *Organizational behavior and human decision processes*, 1(86), 99-130.

Keyton, J., Ford, D.J., and Smith, F.L. (2012). Communication, collaboration, and identification as facilitators and constraints of multiteam systems. In S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p.173-190). New York: Routledge.

Kirk, J., and Miller, M.L. (1986). *Reliability and validity in qualitative research* (Sage Publications, Beverly Hills California, first print).

Knippenberg, van, D., and van Schie, E.C.M. (2000). Foci and correlates of organizational identification, *Journal of Occupational and Organizational Psychology*, 73, 137-147.

Larson, S., Nystad, E., and Taylor, C. (2014). Coordinating mechanisms for multiteam systems: A case study from the petroleum industry. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.115-133), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Lau, D.C., and Murningham, J.K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups, *Academy of Management Review*, 2(23), 325-340.

Levine, J.M., and Moreland, R.L. (1998). Small groups. In D.T. Gilbert, S.T. Fiske, and G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol.2, p. 415-469). New York: McGraw-Hill.

Saunders, M., Lewis, P. and Thornhill, A. (2008). *Methoden en technieken van onderzoek*, 4th edition, Amsterdam: Pearson Prentice Hall. Dutch translation by Jan Pieter Verckens.

Leyens, J., and Demoulin, S. (2009). Hierarchy-based groups. Real inequalities and essential differences. In: S. Otten, K. Sassenberg and T. Kessler (Eds.), *Intergroup Relations. The role of motivation and emotion* (p. 199-219). Hove: Psychology Press.

Lichtenstein, R., Alexander, J.A., Jinnett, K., and Ullman, E. (1997). Embedded intergroup relations in interdisciplinary teams, *Journal of Applied Behavioral Science*, 4(33), 413-434.

Mael, F., and Ashforth, B.E. (1995). Loyal from day one: Biodata, organizational identification and turnover among newcomers, *Personnel Psychology*, 48, 309-333.

Mael, F., and Ashforth, B.E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification, *Journal of Organizational Behavior*, 2(13), 103-123.

Van Maanen, J., Sorensen, J. B., and Mitchell, T. R. (2007). The interplay between theory and method, *Academy of management review*, 32(4), 1145-1154.

Manstead, A.S.R., and Semin, G.R. (2001). Methodology in social psychology: tools to test theories. In: M. Hewstone, W. Stroebe (Eds.), *Introduction to Social Psychology* (3rd edition, p.81-122). Oxford: Blackwell.

Marks, M.A., and Luvison, D. (2012). Product launch and strategic alliance MTSs. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p. 33-52). New York: Routledge Taylor and Francis Group.

Marks, M.A., Mathieu, J.E., and Zaccaro, S.J. (2001). A temporally based framework and taxonomy of team processes, *Academy of Management Review*, 3(26), 356-376.

Marks, M.A., Mathieu, J.E., Alonso, A., DeChurch, L.A., Panzer, F.J., and Alonso, A.A. (2005). Teamwork in multiteam systems, *Journal of Applied Psychology*, 5(90), 964-971.

Marks, M.A., Sabella, M.J., Burke, C.S., and Zaccaro, S.J. (2002). The impact of cross-training on team effectiveness, *Journal of Applied Psychology*, 1(87), 3-13.

Mathieu, J.E. (2012). Reflection on the evolution of the multiteam systems concept and a look to the future. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p.511-544). New York: Routledge.

Mathieu, J.E., Gilson, L.L., and Ruddy, T.M. (2006). Empowerment and team effectiveness: An empirical test of an integrated model, *Journal of Applied Psychology*, 1(91), 97-108.

Mathieu, J.E., Marks, M.A., and Zaccaro, S.J. (2001). Multi-team systems. In: N. Anderson, D. Ones, H.K. Sinangil and C. Viswesvaran (Eds.), *International handbook of work and organizational psychology* (p. 289-313). London: Sage.

McIntyre, R.M., and Salas, E. (1995). Measuring and managing for team performance: Emerging principles from complex environments. In: R.A. Guzzo and E. Salas (Eds.), *Team effectiveness and decision making in organizations* (p.9-45). San Francisco: Jossey-Bass Publishers.

Misasi, P., Lazzara, E.H., and Keebler, J.R. (2014). Understanding multiteam systems in emergency care: One case at a time. In: M.L. Shuffler, R.Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.157-183), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Moelker, R. (2014). Being one of the guys or the fly on the wall? Participant observation of veteran bikers. In: J.M.M.L. Soeters, P.M. Shields, and S.J.H. Rietjens (Eds.) *Routledge Handbook of Research Methods in Military Studies* (p. 104-115). Abingdon: Routledge.

Morse, J.M., and Field, P.A. (1996). *Nursing research*. Cheltenham, UK: Stanley Thornes Publishers.

Mortensen, M. and Hinds, P.J. (2001). Conflict and shared identity in geographically distributed teams, *International Journal Conflict Management*, 12(3), 212-238.

Mullen, B., Brown, R., and Smith, C. (1992). Ingroup bias as a function of salience, relevance, and status: An integration, *European Journal of Social Psychology*, 2, 103-122.

Nkomo, S.M., and Cox, Jr., T. (1996). Diverse identities in organizations. In: S.R. Clegg, C. Hardy and W.R. Nord (Eds.), *The Handbook of organizational studies* (p.338-356). London: Sage Publications.

- Passos, A.M., and Caetano, A. (2005). Exploring the effects of intragroup conflict and past performance feedback on team effectiveness, *Journal of Managerial Psychology*, 3(20), 231-244.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., and Podsakoff, N.P. (2003). Common method biases in behavioral science: A critical review of the literature and the recommended remedies, *Journal of Applied Psychology*, 88(5), 879-903.
- Porter, C.O.L.H., Hollenbeck, J.R., Ilgen, D.R., Ellis, A.P.J., West, B.J., and Moon, H. (2003). Backing up behaviors in teams: The role of personality and Legitimacy, *Journal of Applied Psychology*, 88, 391-403.
- Pratt, M. (2001). Social identity dynamics in modern organizations: An organizational psychology/organizational behavior perspective. In: M. Hogg and D.J. Terry (Eds.), *Social identity processes in organizational contexts* (p.13-30). Philadelphia: Psychology Press.
- Pratt, M.G. (1998). To be or not to be: Central questions in organizational identification. In: D.A. Whetten and P.C. Godfrey (Eds.), *Identity in organizations: Building theory through conversation* (p. 171-207). Thousand Oaks, CA Sage.
- Pratt, M.G., and Rafaeli, A. (1997). Organizational dress as a symbol of multilayered social identities, *The Academy of Management Journal*, 4(40), 862-898.
- Rentsch, J.R, and Staniewicz, M.L. (2012). Cognitive similarity configurations in Multiteam systems. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p. 225-252) New York: Routledge Taylor and Francis Group.
- Richardson, R., and Kramer, E.H. (2006). 'Abduction as the type of inference that characterizes the development of a grounded theory', *Qualitative Research*, 6 (4), 497-513.
- Rizzo, J.R., House, R.J., and Lirtzman, S.I. (1970). Role conflict and ambiguity in complex organizations, *Administrative Science Quarterly*, 15(2), 150-163.
- Rousseau, V., Aubé, C., and Savoie, A. (2006). Teamwork behaviors, *Small Group Research*, 5(37), 540-570.
- Salas, E., and Wildman, J.L. (2008). Ten critical research questions: The need for new and deeper explorations. In: E. Salas, G.F. Goodwin and C.S Burke (Eds.), *Team effectiveness in complex organizations. Cross-disciplinary perspectives and approaches* (p. 525-546). New York: Psychology Press.

Salas, E., Sims, D.E., and Burke, C.S. (2005). Is there a 'Big Five' in Teamwork?, *Small Group Research*, 36, 555-599.

Schermerhorn Jr., J.R. (1975). Determinants of interorganizational cooperation, *Academy of Management Journal*, 4(18), 846-856.

Schwartz, M.S., and Green Schwartz, C. (1955). Problems in participant observation, *American Journal of Sociology*, 60(4), 343-353.

Shamir, B., Zakay, E., Brainin, E., and Popper, M. (2000). Leadership and social identification in military units: Direct and indirect relationships, *Journal of Applied Social Psychology*, 3(30), 612-640.

Shenkar, O., and Zeira, Y. (1992). Role conflict and role ambiguity of chief executive officers in international joint ventures, *Journal of International Business Studies*, 23(1), 55-75.

Shuffler, M.L., Rico, R., and Salas, E. (2014). Pushing the boundaries of multiteam systems in research and practice: an introduction. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p. 3-16), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.

Simon, B. (2009). To be is to do is to be. Collective identity and action. In: S. Otten, K. Sassenberg and T. Kessler (Eds.), *Intergroup Relations. The role of motivation and emotion* (p. 223-242). Hove: Psychology Press.

Simons, T. L., and Peterson, R.S. (2000). Task conflict and relationship conflict in top management teams: The pivotal role of intragroup trust, *Journal of Applied Psychology*, 1(85), 102-111.

Sundstrom, E., De Muese, K.P., and Futrell, D. (1990). Work teams. Applications and effectiveness, *American Psychologist*, 2(45), 120-133.

Swann Jr., W.B., Polzer, J.T., and Milton, L.P. (2000). Should we create a niche or fall in line? Identity negotiation and small group effectiveness, *Journal of Personality and social psychology*, 2(74), 238-250.

Tajfel, H. (1982). *Social identity and intergroup relations*. Cambridge: Cambridge University Press.

Tajfel, H. (1978). The achievement of group differentiation. In: H. Tajfel (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations*. London: Academic Press.

- Tajfel, H., Billig, M.G., and Bundy, R.P. (1971). Social categorization and intergroup behavior, *European Journal of Social Psychology*, 1(2), 149-178.
- Tajfel, H., and Turner, J.C. (1986). The social identity theory of intergroup behavior. In: S. Worchel and W.G. Austin (Eds.), *Psychology of intergroup relations* (p.7-24). Chicago: Nelson-Hall.
- Turner, J.C. (1991). *Social Influence*. Milton Keynes, England: Open University Press.
- Turner, J.C. (1982). Towards a cognitive redefinition of the social group. In: H. Tajfel (Ed.) *Social identity and intergroup relations* (p.15-40). Cambridge: Cambridge University Press.
- Turner, J.C., Hogg, M.A., Oakes, P.J., Reicher, S.D., and Wetherell, M.S. (1987). *Rediscovering the social group: A self-categorization theory*. Cambridge, MA: Basil Blackwell.
- Vessey, W.B. (2014). Multiteam systems in the spaceflight context: Current and future challenges. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p. 135-153), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.
- Vught, van, M., and Hart, C.M. (2004). Social identity as social glue: The origins of Group loyalty, *Journal of Personality and Social Psychology*, 4(86), 585-598.
- Weaver, S.J., Che, X.X., Pronovost, P.J., Goeschel, C.A., Kosel, K.C., and Rosen, M.A. (2014). Improving patient safety and care quality: A multiteam system perspective. In: M.L. Shuffler, R. Rico, and E. Salas (Eds.), *Pushing the boundaries: Multiteam systems in research and practice* (p.35-60), Research on managing groups and teams, vol. 16. Bingley, UK: Emerald Group Publishing Limited.
- Whittemore, R., Chase, S.K., and Mandle, C.L. (2001). Validity in qualitative research, *Qualitative Health Research*, 11(4), 522-537.
- Williams, M. (2001). In whom we trust: Group membership as an affective context for trust development, *Academy of Management Review*, 3(26), 377-396.
- Williams, K.Y., and O'Reilly, C.A. (1998). Demography and diversity in organizations: A review of 40 years of research. In: B.M. Staw, and L.L. Cummings (Eds.), *Research in organizational behavior* (p.77-140), vol.20. Greenwich, CT: JAI Press.
- Wilson, K. A., Salas, E., Priest, H. A., & Andrews, D. (2007). Errors in the heat of battle: Taking a closer look at shared cognition breakdowns through teamwork, *Human Factors*, 49, 243-256

Wright, S.C. (2009). Cross-group contact effects. In: S. Otten, K. Sassenberg and T. Kessler (Eds.), *Intergroup Relations. The role of motivation and emotion* (p. 262-283). Hove: Psychology Press.

Yin, R.K. (2003). *Case study research. Design and Methods*, 3rd edition. Thousand Oakes, CA Sage Publications.

Zaccaro, S.J. (2001). *The nature of executive leadership: A conceptual and empirical analysis of success*. Washington, DC: APA Books.

Zaccaro, S.J., and DeChurch, L.A. (2012). Leadership forms and functions in an multi-team system. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p.253-288). New York: Routledge Taylor and Francis Group.

Zaccaro, S.J., Marks, M.A., and DeChurch, L.A. (2012). Multiteam systems: An introduction. In: S.J. Zaccaro, M.A. Marks and L.A. DeChurch (Eds.) *Multiteam systems. An organization form for dynamic and complex environments* (p. 3-32). New York: Routledge Taylor and Francis Group.

Zaccaro, S. J., Rittman, A. L., and Marks, M. A. (2001). Team leadership, *Leadership Quarterly*, 12, 451–483.

Annex 1 The questionnaire

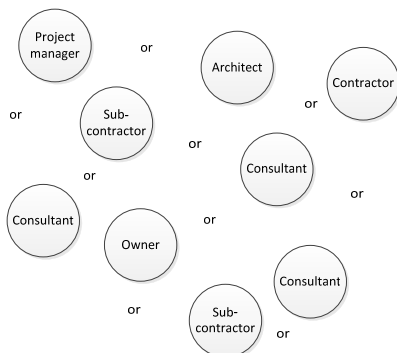
Companies are using more and more integrated and highly cooperative project teams to conduct large scale construction projects. However, these project teams face different cooperation challenges than less integrated projects. Subsequently there is a need to look more closely at the process in such project teams. At the moment you and the organizational team you are in, are part of such an highly cooperative project team, namely the XX project team. We therefore would like to ask you some questions regarding cooperation processes through the questionnaire in front of you.

The first thing we will ask for is your name. We do this because we want to follow you over a period of time, and we therefore need to be able to link your earlier questionnaire to the ones that are going to follow. However, your name will be converted to a number in a database, so your privacy is guaranteed!

We use two terms in the questionnaire: organizational team and the XX project team. This is what we mean by those terms:

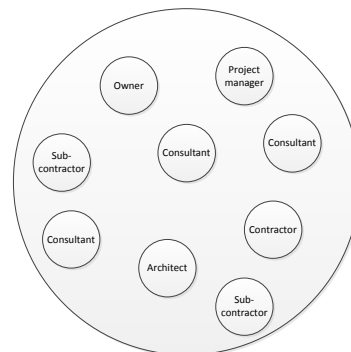
Organizational team

(=Singular team)



XX project team

(=Total of all the organizational teams)



Filling out the questionnaire will take around 10 to 20 minutes; do not think too long about the answers, just follow your first instinct!

Please do not skip any of the questions, because then we are unable to use the whole questionnaire.

Thank you in advance for your time and effort!

Julia Wijnmaalen MA MSc

General information

1. Name:.....

2. Age:.....

3. What is your educational background?

- Highschool
- Lower vocational education
- Higher vocational education
- University
- Other,

4. What is the name of the company that you work for?

5. How many years have you been working in your company?.....

6. Have you ever worked with any of the other companies involved in the X project?

- No
- Yes, I have worked before with

.....

.....

.....

.....

.....

.....

Part I

In this first part of the questionnaire we will ask you questions regarding the extent that you identify with **your organizational team** (in your case XX) as well as the extent to which you identify with the **XX project team** (which is the total of XX, XX, XX, XX, XX, XX, XX, XX, and XX).

Please indicate to what extent you agree with the following statements...

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
When someone criticizes the XX project team it feels like a personal insult					
I am very interested in what others think about the XX project team					
When I talk about the XX project team, I usually say 'we' rather than 'they'					
The XX project team's successes are my successes					
When someone praises the XX project team, it feels like a personal compliment					
If a story in the media criticized the XX project team, I would feel embarrassed					

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
When someone criticizes XX it feels like a personal insult					
I am very interested in what others think about XX					
When I talk about XX, I usually say 'we' rather than 'they'					
XX's successes are my successes					
When someone praises XX, it feels like a personal compliment					
If a story in the media criticized XX, I would feel embarrassed					

Part II

The questions in part II are about the cooperation process **between the various organizational teams within the XX project team**. Please indicate to what extent you agree with the following statements...

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In the XX project team the various organizational teams trust each other a lot					
Within the XX project team the organizational teams know that they can count on each other					
The various organizational teams within the XX project team can count on each other					
My organizational team trusts all the other organizational teams in the XX project team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
Within the XX project team the various organizational teams check each other to make sure that everyone continues to work on team projects					
In the XX project team the various organizational teams monitor each other's progress on XX related projects					
Within the XX project team the various organizational teams check whether every organizational team is meeting their obligations to the XX project					
In the XX project team the various organizational teams watch each other to make sure every organizational team meets their deadlines					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The XX project team is being led well					
The manager of the XX project team enhances the quality of the team's output					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
I am aware of the fact that I am part of the XX project team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The XX project team attains the assigned performance goals					
The XX project team produces quality work					
The XX project team is productive					

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly disagree</i>
In the XX project team the organizational teams help each other if one of them falls behind in its work					
Within the XX project team the various organizational teams cooperate to get the work done					
Within the XX project team the various organizational teams encourage each other to do a good job					
Within the XX project team the various organizational teams recognize and value each other's contributions for the accomplishment of the tasks					
The various organizational teams within the XX project team care about each other's feelings and well-being					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The XX project team does a good job of anticipating problems					
The XX project team does a good job in keeping up with changes in new equipment and new ways of doing things					
When changes are made in routines and equipment the XX project team adjusts to these changes quickly					
The XX project team does a good job coping with emergency situations brought on by accidents, equipment and labor problems, or other factors that might cause temporary work overloads					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The organizational teams in the XX project are on the same page regarding the tasks that need to be executed					
In the XX project team the various organizational teams all have an overview of the tasks that need to be executed by other organizational teams					
Within the XX project team it is clear which organizational team has what tasks.					
Within the XX project team the organizational teams know what they can expect from each other					
The goals of the XX project team are clear for every organizational team					
The organizational teams within the XX project team know exactly who has to do what tasks when and how					

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
Within the XX project team there is a strong will to work together					
In the XX project team the overarching goal is more important to all the organizational teams, than their own organizational level goals					
The organizational level teams within the XX project team are open for feedback					
In the XX project team the organizational teams take each other's activities into account during the execution of tasks					
In the XX project team the organizational teams solve work problems together					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The XX project team knows what its responsibilities are					
The XX project team feels certain about how much authority it has					
In the XX project team explanations are clear regarding what has to be done					
Clear planned goals exist in the XX project team					
The XX project team has divided its time properly					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
Within the XX project team available information is always shared					
Within the XX project team information is not always shared					
The organizational teams within the XX project team keep each other updated with new developments					
The organizational teams in the XX project team are very approachable for questions					
There is a lot of miscommunication within the XX project team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The XX project team works with parties that operate quite differently					
The XX project team does things that are apt to be approved by one party, and disapproved by another					
The XX project team received an assignment without the proper resources and materials to execute it					
The XX project team received an assignment without the proper staffing to complete it					
The XX project team has to do things that should be done differently					
The XX project team has to work on unnecessary things					
The XX project team received incompatible requests from two or more people					

Part III

The questions in part III are about the cooperation process **within the own organizational team**. So, every time it says 'my team', the question is about the **XX team that is part of the XX project team**. *Please indicate to what extent you agree with the following statements...*

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In my team we trust each other a lot					
In my team we can count on each other					
The other members of my team know they can count on me					
I trust the members of my team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In my team we check to make sure that everyone continues to work on team projects					
In my team we monitor each other's progress on team projects					
In my team we check whether everybody is meeting their obligations to the team					
In my team we watch to make sure everyone in the team meets their deadlines					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In my team we help each other if someone falls behind in his/her work					
In my team we cooperate to get the work done					
In my team we encourage each other to do a good job					
In my team we recognize and value each other's contributions to the accomplishment of the task					
In my team we care about each other's feelings and well-being					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My team attains its assigned performance goals					
My team produces quality work					
My team is productive					

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My team anticipates problems well					
My team does a good job in keeping up with changes in new equipment and new ways of doing things					
My team quickly adjusts when changes are made in routines and equipment					
My team does a good job coping with emergency situations brought on by accidents, equipment and labor problems, or other factors that might cause temporary work overloads					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My team is on the same page regarding the tasks that need to be executed					
All my team members have an overview of the tasks that need to be executed by our team					
Within my team everyone knows who has what tasks					
All my team members know what they can expect from each other					
The goals of my team are clear to all the team members					
Everyone in my team knows exactly who has to do what task when and how					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My team is being led well					
The manager of my team enhances the quality of the team's output					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
The members of my team cannot accomplish its tasks without information or materials from each other					
Other members of my team depend on me for information or materials needed to perform their tasks					
Within my team, jobs performed by team members are related to one another					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In my team we all have the intention to work together					
In my team, team goals are more important than individual level goals					
In my team the team members are open for feedback					
In my team we take each other's activities into account during the execution of the team tasks					
In my team we solve work problems together during the execution of the team tasks					

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
In my team available information is always shared					
Information is not always shared in my team					
In my team we keep each other posted on new developments					
In my team everyone is very approachable for questions					
There is a lot of miscommunication within my team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My teams knows what its responsibilities are					
My team feels certain about how much authority it has					
The explanation about what my team has to do is clear					
Clear planned goals exist for my team					
My team knows that it has divided its time properly					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
I am aware of the fact that I am part of the XX team					
	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Undecided</i>	<i>Agree</i>	<i>Strongly agree</i>
My team has to work with organizational teams that operate quite differently					
My team does things that are apt to be approved by some of the other organizational teams, and disapproved others					
My team received an assignment without the proper resources and materials to execute it					
My team received an assignment without the proper staffing to complete it					
My team has to do things that should be done differently					
My team has to work on unnecessary things					
My team receives incompatible requests from the others organizational teams					

Part IV

What are according to you the most important conditions for a successful cooperation process between different organizational teams? Mark a maximum of 5 conditions...

- Trust
- Good coordination
- Clear allocation of tasks
- Sociability
- Monitoring each others work
- Fair divison of the workload
- Face-to-face contact
- Good communication
- Taking each other's opinions into account
- Knowing each other's capabilities
- Knowing each other's goals
- Appreciate each other's work
- Respect
- Group centric behavior instead of individual centric behavior
- Good project leader
- Common goal
- Match between personalities
- Everyone needs to adjust a bit
- Capable colleagues
- You need to help each other when needed
- You need to be able to count on each other
- Other,
- Other,

- END -

Annex 2 Case 1

- **Means and internal validity**

Table 1: Overview means, standard deviation and internal validity scores for the MTS and CT identity scales

Variabele	α	n	Mean	SD
ID MTS				
Pre-deployment	0.97	18	3.57	0.92
t-1	0.82	20	2.99	0.70
t-2	0.93	18	2.81	0.79
Post-deployment	0.92	20	2.89	0.79
ID CT				
Pre-deployment	0.95	20	3.74	0.87
t-1	0.94	20	3.87	0.60
t-2	0.95	18	3.56	0.73
Post-deployment	0.94	20	3.45	0.79

Table 2: Overview means, standard deviations and internal validity scores for the MTS and CT teamwork scales

	MTS				CT			
	α	n	Mean	SD	α	n	Mean	SD
Mutual performance monitoring								
t-1	0.91	20	3.15	0.98	0.82	20	3.88	0.54
t-2	0.87	18	3.28	0.58	0.86	18	3.46	0.51
Supportive behavior								
t-1	0.94	20	2.44	1.15	0.67	20	3.99	0.45
t-2	0.91	18	3.06	0.74	0.83	18	3.44	0.54
Adaptability								
t-1	0.83	20	2.90	0.80	0.70	20	3.93	0.44
t-2	0.82	18	3.25	0.47	0.68	18	3.51	0.42
Team orientation								
t-1	0.87	20	2.34	0.74	0.72	20	3.84	0.40
t-2	0.73	18	2.79	0.50	0.72	18	3.46	0.39
Leadership								
t-1	0.65	20	2.78	0.87	0.78	20	3.58	0.77
t-2	0.87	18	2.89	0.81	0.93	18	3.14	0.78
Trust								
t-1	0.91	20	2.15	0.82	0.87	20	3.91	0.56
t-2	0.83	18	2.67	0.56	0.95	18	3.57	0.71
Shared mental model								
t-1	0.85	20	2.70	0.75	0.89	20	3.93	0.54
t-2	0.90	18	2.94	0.59	0.85	18	3.57	0.46
Closed-loop communication								
t-1	0.85	20	2.41	0.72	0.85	20	3.53	0.62
t-2	0.78	18	2.75	0.54	0.83	18	3.27	0.57

- **Results of the Paired-samples t-tests**

Table 3: Results paired-samples t-test between the two different identity categories over time

	Pre-deployment	t-1	t-2	Post-deployment
ID MTS – ID CT	t= -1.30 df= 17	t= -4.41 **** df= 19	t= -5.39**** df= 17	t= -4.74**** df=19

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 4: Results paired-samples t-test per identity category over time

	Pre - t-1	t-1 – t-2	t-2 - post	Pre-post
ID MTS	t = 3.16** df =16	t = 1.03 df =15	t = -0.34 df =17	t = 2.97** df =16
ID CT	t = -0.69 df =17	t = 2.01 df =15	t = 0.64 df =17	t = 1.44 df =18

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 5: Results paired-samples t-test between MTS and CT teamwork variables

	t-1	t-2
MTS – CT Mutual performance monitoring	t = -3.52** df = 19	t = -1.07 df = 17
MTS – CT Supportive behavior	t = -5.84*** df = 19	t = -1.92 df = 17
MTS – CT Adaptability	t = -6.13*** df = 19	t = -1.77 df = 17
MTS – CT Leadership	t = -3.76*** df = 19	t = -1.58 df = 17
MTS – CT Team orientation	t = -8.19*** df = 19	t = -5.28*** df = 17
MTS – CT Trust	t = -7.70*** df = 19	t = -6.65*** df = 17
MTS – CT Shared mental model	t = -6.17*** df = 19	t = -4.37*** df = 17
MTS – CT Closed-loop communication	t = -6.87*** df = 19	t = -3.60** df = 17

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.000$

Table 6: Results paired-samples t-test between MTS/CT teamwork means at t-1 and means at t-2

	<i>MTS teamwork</i>	<i>CT teamwork</i>
t-1 – t-2 Mutual performance monitoring	t = -1.25 df = 15	t = 2.44* df = 15
t-1 – t-2 Supportive behavior	t = -3.27** df = 15	t = 4.29*** df = 15
t-1 – t-2 Adaptability	t = -2.96** df = 15	t = 2.74* df = 15
t-1 – t-2 Leadership	t = -1.26 df = 15	t = 4.34*** df = 15
t-1 – t-2 Team Orientation	t = -3.34** df = 15	t = 2.99** df = 15
t-1 – t-2 Trust	t = -5.98*** df = 15	t = 2.90* df = 15
t-1 – t-2 Shared mental model	t = -1.53 df = 15	t = 3.18** df = 15
t-1 – t-2 Closed-loop communication	t = -4.20*** df = 15	t = 1.38 df = 15

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

- **Results of the Pearson-r correlation analyses**

Table 7: Results Pearson-r correlation analyses between the MTS and CT identity over time

	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
ID MTS pre	r = 0.83*** n = 18	r = 0.32 n = 17	r = 0.79*** n = 15	r = 0.66** n = 17
ID MTS t-1	r = 0.51* n = 18	r = 0.08 n = 20	r = 0.62** n = 16	r = 0.59** n = 18
ID MTS t-2	r = 0.51* n = 17	r = -0.06 n = 16	r = 0.71*** n = 18	r = 0.69** n = 18
ID MTS post	r = 0.57** n = 19	r = 0.18 n = 18	r = 0.52* n = 18	r = 0.78*** n = 20

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 8: Results Pearson-r correlation analyses between identity and MTS teamwork on t-1

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = 0.49* n = 17	r = 0.63** n = 20	r = 0.38 n = 16	r = 0.30 n = 18	r = 0.37 n = 18	r = -0.05 n = 20	r = 0.49 n = 16	r = 0.33 n = 18
Supportive Behavior	r = 0.37 n = 17	r = 0.54* n = 20	r = 0.12 n = 16	r = 0.31 n = 18	r = 0.26 n = 18	r = -0.19 n = 20	r = 0.16 n = 16	r = 0.08 n = 18
Adaptability	r = 0.06 n = 17	r = 0.42 n = 20	r = -0.19 n = 16	r = -0.12 n = 18	r = -0.04 n = 18	r = -0.12 n = 20	r = -0.13 n = 16	r = -0.27 n = 18
Leadership	r = 0.38 n = 17	r = 0.63** n = 20	r = 0.21 n = 16	r = 0.17 n = 18	r = 0.22 n = 18	r = -0.20 n = 20	r = 0.34 n = 16	r = 0.17 n = 18
Team orientation	r = 0.43 n = 17	r = 0.53* n = 20	r = 0.48 n = 16	r = 0.41 n = 18	r = 0.22 n = 18	r = -0.22 n = 20	r = 0.26 n = 16	r = 0.36 n = 18
Trust	r = 0.44 n = 17	r = 0.47* n = 20	r = 0.21 n = 16	r = 0.22 n = 18	r = 0.49* n = 18	r = -0.25 n = 20	r = 0.38 n = 16	r = 0.15 n = 18
Shared mental model	r = 0.25 n = 17	r = 0.59** n = 20	r = 0.23 n = 16	r = 0.40 n = 18	r = 0.38 n = 18	r = -0.30 n = 20	r = 0.41 n = 16	r = 0.26 n = 18
Closed-loop communication	r = 0.25 n = 17	r = 0.52* n = 20	r = 0.21 n = 16	r = 0.24 n = 18	r = 0.16 n = 18	r = -0.22 n = 20	r = 0.24 n = 16	r = 0.18 n = 18

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 9: Results Pearson-r correlation analyses between identity and MTS teamwork on t-2

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = 0.09 n = 15	r = -0.07 n = 16	r = 0.39 n = 18	r = -0.23 n = 18	r = 0.03 n = 17	r = -0.45 n = 16	r = 0.26 n = 18	r = 0.00 n = 18
Supportive Behavior	r = 0.13 n = 15	r = 0.29 n = 16	r = 0.30 n = 18	r = -0.08 n = 18	r = 0.10 n = 17	r = -0.25 n = 16	r = 0.23 n = 16	r = -0.06 n = 18
Adaptability	r = -0.08 n = 15	r = 0.50 n = 16	r = 0.10 n = 18	r = 0.25 n = 18	r = -0.22 n = 17	r = -0.18 n = 16	r = 0.00 n = 16	r = 0.18 n = 18
Leadership	r = 0.56* n = 15	r = 0.64** n = 16	r = 0.44 n = 18	r = 0.32 n = 18	r = 0.47 n = 17	r = 0.37 n = 16	r = 0.58* n = 18	r = 0.41 n = 18
Team orientation	r = 0.09 n = 15	r = 0.60* n = 16	r = 0.28 n = 18	r = 0.25 n = 18	r = 0.16 n = 17	r = -0.22 n = 16	r = 0.29 n = 16	r = 0.20 n = 18
Trust	r = 0.17 n = 15	r = 0.49 n = 16	r = 0.28 n = 18	r = 0.36 n = 18	r = 0.41 n = 17	r = -0.03 n = 16	r = 0.42 n = 18	r = 0.28 n = 18
Shared mental model	r = -0.03 n = 15	r = 0.14 n = 16	r = 0.16 n = 18	r = 0.10 n = 18	r = -0.02 n = 17	r = -0.19 n = 16	r = 0.03 n = 16	r = -0.17 n = 18
Closed-loop communication	r = 0.10 n = 15	r = 0.49 n = 16	r = 0.27 n = 18	r = 0.37 n = 18	r = 0.22 n = 17	r = -0.15 n = 16	r = 0.34 n = 16	r = 0.19 n = 18

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 10: Results Pearson-r correlation analyses between MTS teamwork variables at t-1

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.72**** n = 20	r = 0.58** n = 20	r = 0.48* n = 20	r = 0.67**** n = 20	r = 0.42 n = 20	r = 0.64** n = 20	r = 0.56* n = 20
2. Supportive behavior		1	r = 0.75**** n = 20	r = 0.61** n = 20	r = 0.76**** n = 20	r = 0.59** n = 20	r = 0.75**** n = 20	r = 0.77**** n = 20
3. Adaptability			1	r = 0.54* n = 20	r = 0.56* n = 20	r = 0.57** n = 20	r = 0.62** n = 20	r = 0.68**** n = 20
4. Leadership				1	r = 0.49* n = 20	r = 0.49* n = 20	r = 0.70**** n = 20	r = 0.74**** n = 20
5. Team orientation					1	r = 0.53* n = 20	r = 0.58** n = 20	r = 0.81**** n = 20
6. Trust						1	r = 0.55* n = 20	r = 0.57**** n = 20
7. Shared mental model							1	r = 0.79**** n = 20
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 11: Results Pearson-r correlation analyses between MTS teamwork variables at t-2

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.22 n = 18	r = 0.23 n = 18	r = -0.15 n = 18	r = 0.14 n = 18	r = -0.07 n = 18	r = 0.26 n = 18	r = 0.13 n = 18
2. Supportive behavior		1	r = 0.23 n = 18	r = 0.45 n = 18	r = 0.61** n = 18	r = 0.29 n = 18	r = 0.59** n = 18	r = 0.41 n = 18
3. Adaptability			1	r = 0.06 n = 18	r = 0.47* n = 18	r = 0.23 n = 18	r = 0.11 n = 18	r = 0.27 n = 18
4. Leadership				1	r = 0.27 n = 18	r = 0.60** n = 18	r = 0.28 n = 18	r = 0.52* n = 18
5. Team orientation					1	r = 0.49* n = 18	r = 0.47* n = 18	r = 0.47* n = 18
6. Trust						1	r = 0.17 n = 18	r = 0.67** n = 18
7. Shared mental model							1	r = 0.65** n = 18
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 12: Results Pearson-r correlation analyses between MTS teamwork on t-1 and MTS teamwork on t-2

t-2 \ t-1	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	r = 0.37 n = 16	r = 0.11 n = 16	r = 0.15 n = 16	r = 0.11 n = 16	r = 0.26 n = 16	r = 0.24 n = 16	r = 0.06 n = 16	r = 0.11 n = 16
2. Supportive behavior	r = 0.19 n = 16	r = 0.48 n = 16	r = 0.47 n = 16	r = 0.43 n = 16	r = 0.15 n = 16	r = 0.41 n = 16	r = 0.45 n = 16	r = 0.42 n = 16
3. Adaptability	r = 0.38 n = 16	r = 0.40 n = 16	r = 0.47 n = 16	r = 0.54* n = 16	r = 0.59* n = 16	r = 0.32 n = 16	r = 0.29 n = 16	r = 0.54* n = 16
4. Leadership	r = 0.29 n = 16	r = 0.26 n = 16	r = 0.12 n = 16	r = 0.58* n = 16	r = 0.26 n = 16	r = 0.24 n = 16	r = 0.47 n = 16	r = 0.50* n = 16
5. Team orientation	r = 0.47 n = 16	r = 0.52* n = 16	r = 0.64** n = 16	r = 0.44 n = 16	r = 0.48 n = 16	r = 0.65** n = 16	r = 0.56* n = 16	r = 0.65** n = 16
6. Trust	r = 0.22 n = 16	r = 0.32 n = 16	r = 0.29 n = 16	r = 0.62** n = 16	r = 0.39 n = 16	r = 0.68** n = 16	r = 0.69** n = 16	r = 0.67** n = 16
7. Shared mental model	r = 0.27 n = 16	r = 0.64** n = 16	r = 0.52* n = 16	r = 0.44 n = 16	r = 0.28 n = 16	r = 0.25 n = 16	r = 0.48 n = 16	r = 0.54* n = 16
8. Closed-loop communication	r = 0.59* n = 16	r = 0.79*** n = 16	r = 0.55* n = 16	r = 0.76*** n = 16	r = 0.60* n = 16	r = 0.43 n = 16	r = 0.90*** n = 16	r = 0.87*** n = 16

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

- **Variables important for cooperation**

Table 13: Overview of the number of votes per variable

	Number of votes
Trust	8
Good coordination	7
Clear allocation of tasks	6
Sociability	7
Monitoring each other's work	0
Fair division of the workload	1
Face-to-face contact	1
Good communication	12
Taking each other's opinions into account	0
Knowing each other's capabilities	1
Knowing each other's goals	1
Appreciate each other's work	1
Respect	13
Group centric behavior instead of individual centric behavior	8
Good project leader	3
Common goal	1
Match between personalities	5
Everyone needs to adjust a bit	5

Top 3:

1. Respect
2. Good communication
3. Trust & team orientation

Annex 3 Case 2

- Means and internal reliability

Table 1: Overview means, standard deviation and internal validity scores for the MTS and CT identity scales

Variabele	α	n	Mean	SD
ID MTS				
t-1	0.81	18	3.47	0.52
t-2	0.61	21	3.33	0.45
t-3	0.86	12	3.26	0.67
t-4	0.76	17	2.89	0.49
ID CT				
t-1	0.84	20	3.50	0.55
t-2	0.84	20	3.65	0.56
t-3	0.97	13	3.17	0.75
t-4	0.92	16	3.31	0.66

Table 2: Overview means, standard deviations and internal validity scores for the MTS and CT teamwork scales

	MTS				CT			
	α	n	Mean	SD	α	n	Mean	SD
Mutual performance monitoring								
t-1	0.84	20	3.19	0.54	0.55	20	3.54	0.41
t-2	0.76	13	3.29	0.50	0.53	13	3.35	0.35
Supportive behavior								
t-1	0.77	20	3.26	0.54	0.69	21	3.62	0.52
t-2	0.73	12	3.05	0.44	0.77	13	3.11	0.56
Adaptability								
t-1	0.87	21	3.43	0.55	0.85	20	3.58	0.57
t-2	0.95	13	2.96	0.88	0.70	12	3.13	0.49
Team orientation								
t-1	0.66	21	3.41	0.49	0.76	21	3.46	0.48
t-2	0.82	13	2.69	0.76	0.16	12	3.08	0.38
Leadership								
t-1	0.78	21	3.05	0.72	0.74	21	3.55	0.69
t-2	1.00	13	2.54	0.66	0.88	12	2.38	0.74
Trust								
t-1	0.82	20	3.08	0.47	0.94	21	3.25	0.76
t-2	0.95	13	2.75	0.76	0.95	13	2.92	0.81
Shared mental model								
t-1	0.88	20	3.11	0.70	0.68	21	3.44	0.44
t-2	0.88	13	2.83	0.71	0.90	12	3.11	0.72
Closed-loop communication								
t-1	0.67	21	3.23	0.47	0.79	20	3.46	0.50
t-2	0.68	13	2.83	0.48	0.86	11	3.01	0.62

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

- **Results of the Paired-samples t-tests**

Table 3: Results paired-samples t-test between the two different identity categories over time

	Pre-deployment	t-1	t-2	Post-deployment
ID MTS – ID CT	t = 0.25 df = 17	t = -2.45* df = 20	t = 0.54 df = 12	t = -1.99 df = 15

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 4: Results paired-samples t-test per identity category over time

	Pre - t-1	t-1 – t-2	t-2 - post	Pre-post
ID MTS	t = 1.76 df = 17	t = 0.91 df = 12	t = 2.55* df = 10	t = 3.79** df = 14
ID CT	t = -1.40 df = 19	t = 2.18* df = 12	t = 0.40 df = 9	t = 1.12 df = 14

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 5: Results paired-samples t-test between MTS and CT teamwork variables

	t-1	t-2
MTS – CT Mutual performance monitoring	t = -2.24* df = 19	t = -0.36 df = 12
MTS – CT Supportive behavior	t = -1.81 df = 12	t = -0.30 df = 12
MTS – CT Adaptability	t = -1.08 df = 19	t = -0.62 df = 11
MTS – CT Leadership	t = -2.19* df = 20	t = -1.21 df = 11
MTS – CT Team orientation	t = -0.38 df = 20	t = -1.31 df = 11
MTS – CT Trust	t = -1.12 df = 19	t = -0.54 df = 12
MTS – CT Shared mental model	t = -1.70 df = 19	t = -1.07 df = 11
MTS – CT Closed-loop communication	t = -2.00 df = 20	t = -0.84 df = 11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

Table 6: Results paired-samples t-test between MTS/CT teamwork means at t-1 and means at t-2

	<i>MTS</i>	<i>CT</i>
t-1 – t-2 Mutual performance monitoring	t = 0.59 df = 11	t = -1.19 df = 12
t-1 – t-2 Supportive behavior	t = 2.11 df = 11	t = 2.06 df = 12
t-1 – t-2 Adaptability	t = 1.18 df = 12	t = 1.03 df = 11
t-1 – t-2 Leadership	t = 2.97* df = 12	t = -2.82* df = 11
t-1 – t-2 Team Orientation	t = 2.94* df = 12	t = 3.78** df = 11
t-1 – t-2 Trust	t = 1.04 df = 11	t = 1.76 df = 12
t-1 – t-2 Shared mental model	t = 1.75 df = 12	t = 1.09 df = 11
t-1 – t-2 Closed-loop communication	t = 2.80* df = 12	t = 2.22* df = 11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

- **Results of the Pearson-r correlation analyses**

Table 7: Results Pearson-r correlation analyses between the MTS and CT identity over time

	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
ID MTS pre	r = 0.30 n = 18	r = 0.33 n = 18	r = 0.43 n = 11	r = -0.21 n = 14
ID MTS t-1	r = 0.09 n = 20	r = 0.28 n = 21	r = 0.00 n = 13	r = -0.30 n = 16
ID MTS t-2	r = 0.32 n = 12	r = 0.16 n = 13	r = 0.32 n = 13	r = -0.16 n = 10
ID MTS post	r = 0.03 n = 16	r = 0.20 n = 17	r = -0.17 n = 11	r = -0.13 n = 16

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 8: Results Pearson-r correlation analyses between identity and MTS teamwork on t-1

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = 0.38 n = 17	r = 0.20 n = 12	r = 0.18 n = 12	r = -0.09 n = 17	r = -0.02 n = 19	r = -0.20 n = 20	r = -0.20 n = 12	r = -0.36 n = 16
Supportive Behavior	r = -0.07 n = 17	r = 0.06 n = 12	r = 0.27 n = 12	r = 0.19 n = 17	r = -0.15 n = 19	r = -0.04 n = 20	r = 0.06 n = 12	r = 0.19 n = 16
Adaptability	r = -0.10 n = 18	r = 0.27 n = 13	r = 0.43 n = 13	r = 0.29 n = 17	r = -0.33 n = 20	r = -0.17 n = 21	r = 0.27 n = 13	r = 0.53* n = 16
Leadership	r = -0.13 n = 18	r = 0.25 n = 13	r = 0.42 n = 13	r = 0.50* n = 17	r = -0.30 n = 20	r = -0.22 n = 21	r = -0.25 n = 13	r = -0.10 n = 16
Team orientation	r = -0.18 n = 21	r = 0.25 n = 13	r = 0.40 n = 13	r = 0.38 n = 17	r = -0.39 n = 20	r = -0.47* n = 21	r = 0.25 n = 13	r = -0.09 n = 16
Trust	r = -0.17 n = 17	r = -0.02 n = 12	r = 0.22 n = 12	r = 0.22 n = 17	r = -0.34 n = 19	r = 0.19 n = 20	r = -0.02 n = 12	r = 0.31 n = 16
Shared mental model	r = 0.02 n = 17	r = 0.03 n = 13	r = 0.63* n = 13	r = 0.15 n = 16	r = -0.24 n = 19	r = -0.41 n = 20	r = 0.03 n = 13	r = -0.45 n = 15
Closed-loop communication	r = 0.06 n = 18	r = 0.07 n = 13	r = 0.12 n = 13	r = -0.05 n = 17	r = -0.33 n = 20	r = -0.03 n = 21	r = 0.07 n = 13	r = 0.23 n = 16

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

Table 9: Results Pearson-r correlation analyses between identity and MTS teamwork on t-2

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = 0.34 n = 11	r = -0.12 n = 13	r = -0.08 n = 13	r = -0.31 n = 11	r = -0.39 n = 12	r = -0.31 n = 13	r = -0.68* n = 13	r = -0.69* n = 10
Supportive Behavior	r = 0.28 n = 11	r = 0.17 n = 13	r = 0.30 n = 13	r = 0.34 n = 11	r = -0.01 n = 12	r = 0.06 n = 13	r = 0.41 n = 13	r = 0.57 n = 10
Adaptability	r = 0.55 n = 11	r = -0.02 n = 13	r = 0.58* n = 13	r = 0.13 n = 11	r = 0.42 n = 12	r = 0.04 n = 13	r = 0.55* n = 13	r = 0.29 n = 10
Leadership	r = 0.61* n = 11	r = 0.45 n = 13	r = 0.19 n = 13	r = 0.14 n = 11	r = -0.26 n = 12	r = -0.59* n = 13	r = -0.39 n = 13	r = -0.09 n = 10
Team orientation	r = -0.35 n = 11	r = -0.37 n = 13	r = -0.64* n = 13	r = -0.45 n = 11	r = -0.31 n = 12	r = -0.12 n = 13	r = 0.28 n = 13	r = 0.63 n = 10
Trust	r = 0.67* n = 11	r = 0.21 n = 13	r = 0.44 n = 13	r = 0.26 n = 11	r = 0.18 n = 12	r = 0.35 n = 13	r = 0.43 n = 13	r = 0.08 n = 10
Shared mental model	r = 0.52 n = 11	r = 0.04 n = 13	r = 0.28 n = 13	r = 0.14 n = 11	r = 0.16 n = 12	r = 0.11 n = 13	r = 0.54 n = 13	r = 0.41 n = 10
Closed-loop communication	r = 0.41 n = 11	r = 0.33 n = 13	r = 0.59* n = 13	r = 0.29 n = 11	r = 0.28 n = 12	r = 0.18 n = 13	r = 0.39 n = 13	r = 0.25 n = 10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

Table 10: Results Pearson-r correlation analyses between MTS teamwork variables at t-1

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = -0.03 n = 20	r = 0.33 n = 20	r = 0.63** n = 20	r = 0.22 n = 19	r = 0.40 n = 20	r = -0.01 n = 20	r = 0.55** n = 20
2. Supportive behavior		1	r = 0.30 n = 20	r = -0.05 n = 20	r = 0.42 n = 19	r = 0.23 n = 02	r = -0.06 n = 20	r = 0.23 n = 20
3. Adaptability			1	r = 0.51* n = 20	r = 0.37 n = 19	r = 0.45* n = 20	r = 0.28 n = 20	r = 0.31 n = 20
4. Leadership				1	r = 0.38 n = 20	r = 0.68*** n = 21	r = 0.42 n = 21	r = 0.57** n = 21
5. Team orientation					1	r = 0.49* n = 20	r = 0.33 n = 20	r = 0.36 n = 20
6. Trust						1	r = 0.31 n = 21	r = 0.15 n = 21
7. Shared mental model							1	r = 0.12 n = 21
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

Table 11: Results Pearson-r correlation analyses between MTS teamwork variables at t-2

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.10 n = 13	r = 0.39 n = 13	r = 0.68** n = 13	r = 0.78** n = 13	r = 0.84**** n = 13	r = -0.17 n = 13	r = 0.72** n = 13
2. Supportive behavior		1	r = 0.33 n = 13	r = 0.27 n = 13	r = 0.34 n = 13	r = 0.03 n = 13	r = 0.57* n = 13	r = -0.10 n = 13
3. Adaptability			1	r = 0.50 n = 13	r = 0.73** n = 13	r = 0.20 n = 13	r = 0.09 n = 13	r = 0.64* n = 13
4. Leadership				1	r = 0.77** n = 13	r = 0.40 n = 13	r = -0.29 n = 13	r = 0.77** n = 13
5. Team orientation					1	r = 0.62* n = 13	r = 0.09 n = 13	r = 0.75** n = 13
6. Trust						1	r = -0.04 n = 13	r = 0.60* n = 13
7. Shared mental model							1	r = -0.43 n = 13
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

Table 12: Results Pearson-r correlation analyses between MTS teamwork on t-1 and MTS teamwork on t-2

t-1 \ t-2	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	r = 0.35 n = 12	r = 0.14 n = 12	r = 0.02 n = 12	r = 0.23 n = 13	r = 0.02 n = 13	r = 0.19 n = 13	r = 0.22 n = 13	r = 0.19 n = 13
2. Supportive behavior	r = -0.28 n = 12	r = 0.20 n = 12	r = -0.04 n = 12	r = 0.27 n = 13	r = -0.16 n = 13	r = 0.10 n = 13	r = 0.05 n = 13	r = 0.10 n = 13
3. Adaptability	r = 0.45 n = 12	r = 0.04 n = 12	r = 0.53 n = 12	r = 0.68* n = 13	r = 0.13 n = 13	r = 0.12 n = 13	r = 0.45 n = 13	r = 0.80*** n = 13
4. Leadership	r = 0.17 n = 12	r = 0.19 n = 12	r = -0.08 n = 12	r = 0.28 n = 13	r = 0.54 n = 13	r = 0.18 n = 13	r = -0.01 n = 13	r = 0.28 n = 13
5. Team orientation	r = 0.25 n = 12	r = 0.13 n = 12	r = 0.13 n = 12	r = 0.31 n = 13	r = -0.01 n = 13	r = 0.15 n = 13	r = 0.16 n = 13	r = 0.38 n = 13
6. Trust	r = 0.13 n = 12	r = 0.41 n = 12	r = 0.01 n = 12	r = -0.09 n = 13	r = -0.27 n = 13	r = 0.21 n = 13	r = -0.00 n = 13	r = 0.03 n = 13
7. Shared mental model	r = -0.07 n = 12	r = -0.24 n = 12	r = -0.34 n = 12	r = 0.00 n = 13	r = -0.53 n = 13	r = 0.13 n = 13	r = 0.15 n = 13	r = -0.07 n = 13
8. Closed-loop communication	r = 0.45 n = 12	r = 0.28 n = 12	r = 0.43 n = 12	r = 0.38 n = 13	r = 0.34 n = 13	r = 0.21 n = 13	r = 0.23 n = 13	r = 0.45 n = 13

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

- **Variables important for cooperation**

Table 13: Overview of the number of votes per variable

	Number of votes
Trust	14
Good coordination	13
Clear allocation of tasks	6
Sociability	6
Monitoring each other's work	0
Fair division of the workload	2
Able to anticipate each other's behavior	1
Face-to-face contact	0
Good communication	14
Taking each other's opinions into account	3
Knowing each other's capabilities	4
Knowing each other's goals	2
Appreciate each other's work	2
Respect	3
A feeling of 'we-ness'	2
Good project leader	5
Good interpersonal skills	1
Will to work together	4
Everyone needs to adjust a bit	4
Colleagues need to be capable	2
Need to help each other if needed	2
Need to be able to count on each other	5

Top 3:

1. Good communication & trust (14)
2. Good coordination (13)
3. Clear allocation of tasks & sociability (6)

Annex 4 Case 3

- Means and internal reliability

Table 1: Overview means, standard deviation and internal validity scores for the MTS and CT identity scales

	α	n	Mean	SD
ID MTS				
Pre-deployment	0.65	13	3.49	0.57
t-1	0.85	11	3.72	0.48
t-2	0.96	11	3.53	0.69
Post-deployment	0.99	13	3.28	1.11
ID CT				
Pre-deployment	0.81	12	3.47	0.46
t-1	0.93	12	3.49	0.72
t-2	0.89	11	3.29	0.51
Post-deployment	0.84	13	3.27	0.56

Table 2: Overview means, standard deviations and internal validity scores for the MTS and CT teamwork scales

	<i>MTS</i>				<i>CT</i>			
	α	n	Mean	SD	α	n	Mean	SD
Mutual performance monitoring								
t-1	0.84	13	3.39	0.57	0.94	13	3.50	0.60
t-2	0.95	11	3.39	0.80	0.84	10	3.70	0.44
Supportive behavior								
t-1	0.77	13	3.99	0.44	0.62	13	3.99	0.28
t-2	0.53	11	3.66	0.40	0.08	10	4.00	0.22
Adaptability								
t-1	0.76	13	3.85	0.52	0.89	12	3.77	0.48
t-2	0.91	11	3.41	0.22	0.96	10	3.90	0.53
Team orientation								
t-1	0.92	13	3.69	0.72	0.87	13	3.92	0.46
t-2	0.83	11	3.51	0.47	0.36	10	3.73	0.31
Leadership								
t-1	0.75	13	4.00	0.58	0.80	12	3.83	0.65
t-2	0.85	11	3.50	0.89	1.00	9	3.67	0.71
Trust								
t-1	0.88	13	3.60	0.47	0.54	13	3.72	0.43
t-2	0.96	11	3.32	0.72	0.84	10	3.75	0.35
Shared mental model								
t-1	0.89	13	3.90	0.47	0.95	13	3.91	0.52
t-2	0.90	11	3.61	0.43	0.88	10	3.77	0.34
Closed-loop communication								
t-1	0.72	13	3.49	0.45	0.80	13	3.62	0.47
t-2	0.86	11	3.27	0.54	0.60	10	3.65	0.31

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses

- **Results of the Paired-samples t-tests**

Table 3: Results paired-samples t-test between the two different identity categories over time

	Pre-deployment	t-1	t-2	Post-deployment
ID MTS – ID CT	t= 0.42 df= 11	t= 1.23 df= 10	t= 2.67 df= 10	t= 0.04 df= 12

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 4: Results paired-samples t-test per identity category over time

	Pre - t-1	t-1 – t-2	t-2 - post	Pre-post
ID MTS	t= -1.66 df= 10	t= 0.81 df= 9	t= -0.91 df= 10	t= 1.02 df= 12
ID CT	t= -0.65 df= 11	t= -0.37 df= 9	t= 0.00 df= 10	t= 1.57 df= 11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 5: Results paired-samples t-test between MTS and CT teamwork variables

	t-1	t-2
MTS – CT Mutual performance monitoring	t = -0.60 df = 12	t = -1.61 df = 9
MTS – CT Supportive behavior	t = 0.00 df = 12	t = -2.58 df = 9
MTS – CT Adaptability	t = 0.83 df = 12	t = -3.04* df = 9
MTS – CT Leadership	t = 0.71 df = 11	t = -0.56 df = 8
MTS – CT Team orientation	t = -1.19 df = 12	t = -2.25 df = 9
MTS – CT Trust	t = -1.41 df = 12	t = -1.63 df = 9
MTS – CT Shared mental model	t = -0.07 df = 12	t = -1.11 df = 9
MTS – CT Closed-loop communication	t = -1.48 df = 12	t = -2.55* df = 9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 6: Results paired-samples t-test between MTS/CT teamwork means at t-1 and means at t-2

	MTS teamwork	CT teamwork
t-1 – t-2 Mutual performance monitoring	t = 0.04 df = 10	t = 0.25 df = 9
t-1 – t-2 Supportive behavior	t = 4.85*** df = 10	t = 1.50 df = 9
t-1 – t-2 Adaptability	t = 3.29** df = 10	t = -0.90 df = 9
t-1 – t-2 Leadership	t = 3.14* df = 10	t = 0.45 df = 9
t-1 – t-2 Team Orientation	t = 3.03* df = 10	t = 1.34 df = 9
t-1 – t-2 Trust	t = 2.59* df = 10	t = 0.49 df = 9
t-1 – t-2 Shared mental model	t = 3.30** df = 10	t = 1.72 df = 9
t-1 – t-2 Closed-loop communication	t = 2.76* df = 10	t = 0.66 df = 9

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

- **Results of the Pearson-r correlation analyses**

Table 7: Results Pearson-r correlation analyses between the MTS and CT identity over time

	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
ID MTS pre	r = 0.29 n = 12	r = 0.20 n = 12	r = 0.77** n = 11	r = 0.43 n = 13
ID MTS t-1	r = 0.39 n = 11	r = 0.59 n = 11	r = 0.62 n = 10	r = 0.57 n = 11
ID MTS t-2	r = 0.74** n = 10	r = 0.79** n = 10	r = 0.91**** n = 11	r = 0.80** n = 11
ID MTS post	r = -0.00 n = 12	r = -0.17 n = 12	r = 0.67* n = 11	r = 0.31 n = 13

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 8: Results Pearson-r correlation analyses between identity and MTS teamwork on t-1

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = -0.05 n = 13	r = 0.22 n = 11	r = -0.37 n = 11	r = 0.04 n = 13	r = -0.28 n = 12	r = -0.20 n = 12	r = -0.25 n = 11	r = -0.29 n = 13
Supportive Behavior	r = 0.53 n = 13	r = 0.70* n = 11	r = 0.49 n = 11	r = 0.36 n = 13	r = -0.13 n = 12	r = -0.01 n = 12	r = 0.43 n = 11	r = -0.03 n = 13
Adaptability	r = 0.54 n = 13	r = 0.70* n = 11	r = 0.42 n = 11	r = 0.43 n = 13	r = 0.32 n = 12	r = 0.40 n = 12	r = 0.50 n = 11	r = 0.51 n = 13
Leadership	r = 0.47 n = 13	r = 0.21 n = 11	r = 0.38 n = 11	r = 0.66* n = 13	r = 0.09 n = 12	r = 0.06 n = 12	r = 0.43 n = 11	r = 0.38 n = 13
Team orientation	r = 0.66* n = 13	r = 0.62* n = 11	r = 0.55 n = 11	r = 0.69** n = 13	r = -0.15 n = 12	r = -0.34 n = 12	r = 0.41 n = 11	r = -0.02 n = 13
Trust	r = 0.48 n = 13	r = 0.37 n = 11	r = 0.29 n = 11	r = 0.53 n = 13	r = -0.29 n = 12	r = -0.36 n = 12	r = 0.26 n = 11	r = -0.05 n = 13
Shared mental model	r = 0.43 n = 13	r = 0.05 n = 11	r = 0.43 n = 11	r = 0.61* n = 13	r = -0.13 n = 12	r = -0.38 n = 12	r = 0.44 n = 11	r = 0.04 n = 13
Closed-loop communication	r = 0.68* n = 13	r = 0.32 n = 11	r = 0.70* n = 11	r = 0.72** n = 13	r = -0.08 n = 12	r = -0.21 n = 12	r = 0.57 n = 11	r = 0.09 n = 13

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 9: Results Pearson-r correlation analyses between identity and MTS teamwork on t-2

	ID MTS pre	ID MTS t-1	ID MTS t-2	ID MTS post	ID CT pre	ID CT t-1	ID CT t-2	ID CT post
Mutual performance monitoring	r = 0.22 n = 11	r = 0.54 n = 10	r = 0.05 n = 11	r = 0.15 n = 11	r = 0.12 n = 10	r = 0.29 n = 10	r = 0.03 n = 11	r = 0.01 n = 11
Supportive Behavior	r = 0.77** n = 11	r = 0.91**** n = 10	r = 0.66* n = 11	r = 0.77** n = 11	r = 0.51 n = 10	r = 0.76** n = 10	r = 0.70* n = 11	r = 0.71* n = 11
Adaptability	r = 0.47 n = 11	r = 0.52 n = 10	r = 0.47 n = 11	r = 0.58 n = 11	r = 0.47 n = 10	r = 0.56 n = 10	r = 0.54 n = 11	r = 0.69* n = 11
Leadership	r = 0.40 n = 11	r = 0.49 n = 10	r = 0.26 n = 11	r = 0.51 n = 11	r = 0.18 n = 10	r = 0.46 n = 10	r = 0.53 n = 11	r = 0.61* n = 11
Team orientation	r = 0.75** n = 11	r = 0.71* n = 10	r = 0.49 n = 11	r = 0.79** n = 11	r = 0.28 n = 10	r = 0.42 n = 10	r = 0.43 n = 11	r = 0.59 n = 11
Trust	r = 0.47 n = 11	r = 0.59 n = 10	r = 0.49 n = 11	r = 0.56 n = 11	r = 0.48 n = 10	r = 0.45 n = 10	r = 0.50 n = 11	r = 0.47 n = 11
Shared mental model	r = 0.77** n = 11	r = 0.44 n = 10	r = 0.72* n = 11	r = 0.76** n = 11	r = 0.33 n = 10	r = 0.36 n = 10	r = 0.71* n = 11	r = 0.55 n = 11
Closed-loop communication	r = 0.73** n = 11	r = 0.66* n = 10	r = 0.60 n = 11	r = 0.82** n = 11	r = 0.36 n = 10	r = 0.54 n = 10	r = 0.64* n = 11	r = 0.68* n = 11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 10: Results Pearson-r correlation analyses between MTS teamwork variables at t-1

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.33 n = 13	r = 0.74** n = 13	r = 0.45 n = 13	r = 0.67* n = 13	r = 0.61** n = 13	r = 0.69** n = 13	r = 0.57* n = 13
2. Supportive behavior		1	r = 0.29 n = 13	r = -0.07 n = 13	r = -0.10 n = 13	r = -0.13 n = 13	r = -0.19 n = 13	r = -0.23 n = 13
3. Adaptability			1	r = 0.59* n = 13	r = 0.57** n = 13	r = 0.68** n = 13	r = 0.63* n = 13	r = 0.59* n = 13
4. Leadership				1	r = 0.48 n = 13	r = 0.70** n = 13	r = 0.54 n = 13	r = 0.56* n = 13
5. Team orientation					1	r = 0.72** n = 13	r = 0.92**** n = 13	r = 0.89**** n = 13
6. Trust						1	r = 0.66* n = 13	r = 0.74** n = 13
7. Shared mental model							1	r = 0.86**** n = 13
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 11: Results Pearson-r correlation analyses between MTS teamwork variables at t-2

	1	2	3	4	5	6	7	
1. Mutual performance monitoring	1	r = -0.51 n = 11	r = 0.66* n = 11	r = 0.82** n = 11	r = 0.72* n = 11	r = 0.47 n = 11	r = 0.75** n = 11	r = 0.74** n = 11
2. Supportive behavior		1	r = -0.06 n = 11	r = -0.39 n = 11	r = -0.30 n = 11	r = 0.05 n = 11	r = -0.29 n = 11	r = -0.26 n = 11
3. Adaptability			1	r = 0.71* n = 11	r = 0.58 n = 11	r = 0.78** n = 11	r = 0.73** n = 11	r = 0.86**** n = 11
4. Leadership				1	r = 0.57 n = 11	r = 0.74** n = 11	r = 0.90**** n = 11	r = 0.81** n = 11
5. Team orientation					1	r = 0.61* n = 11	r = 0.52 n = 11	r = 0.80** n = 11
6. Trust						1	r = 0.77** n = 11	r = 0.87**** n = 11
7. Shared mental model							1	r = 0.83** n = 11
8. Closed-loop communication								1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 12: Results Pearson-r correlation analyses between MTS teamwork on t-1 and MTS teamwork on t-2

t-2 \ t-1	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	r = 0.82** n = 11	r = -0.27 n = 11	r = 0.64* n = 11	r = 0.65* n = 11	r = 0.78** n = 11	r = 0.70* n = 11	r = 0.66* n = 11	r = 0.65* n = 11
2. Supportive behavior	r = -0.17 n = 11	r = 0.61* n = 11	r = 0.01 n = 11	r = -0.24 n = 11	r = -0.77** n = 11	r = -0.31 n = 11	r = -0.47 n = 11	r = -0.50 n = 11
3. Adaptability	r = 0.55 n = 11	r = -0.00 n = 11	r = 0.85*** n = 11	r = 0.90**** n = 11	r = 0.56 n = 11	r = 0.79** n = 11	r = 0.73** n = 11	r = 0.70* n = 11
4. Leadership	r = 0.73* n = 11	r = -0.18 n = 11	r = 0.72* n = 11	r = 0.77** n = 11	r = 0.78** n = 11	r = 0.80** n = 11	r = 0.74** n = 11	r = 0.62* n = 11
5. Team orientation	r = 0.41 n = 11	r = -0.57 n = 11	r = 0.36 n = 11	r = 0.48 n = 11	r = 0.52 n = 11	r = 0.52 n = 11	r = 0.30 n = 11	r = 0.70* n = 11
6. Trust	r = 0.45 n = 11	r = -0.07 n = 11	r = 0.69* n = 11	r = 0.77** n = 11	r = 0.38 n = 11	r = 0.72* n = 11	r = 0.47 n = 11	r = 0.55 n = 11
7. Shared mental model	r = 0.67* n = 11	r = -0.01 n = 11	r = 0.62* n = 11	r = 0.86*** n = 11	r = 0.57 n = 11	r = 0.62* n = 11	r = 0.64* n = 11	r = 0.44 n = 11
8. Closed-loop communication	r = 0.48 n = 11	r = -0.35 n = 11	r = 0.68* n = 11	r = 0.85*** n = 11	r = 0.62* n = 11	r = 0.78** n = 11	r = 0.60 n = 11	r = 0.75** n = 11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

- **Variables important for cooperation**

Table 13: Overview of the number of votes per variable

	Number of votes t-1	Number of votes t-2
Trust	5	6
Good coordination	3	1
Clear allocation of tasks	4	1
Sociability	5	4
Monitoring each other's work	0	1
Fair division of the workload	1	0
Have a feel for each other	2	2
Face-to-face contact	1	0
Good communication	8	9
Taking each other's opinions into account	3	2
Knowing each other's capabilities	1	1
Knowing each other's goals	0	1
Appreciate each other's work	1	1
Respect	8	5
Feeling of 'we-ness'	7	2
Group centric behavior instead of individual centric behavior	2	4
Good project leader	1	2
Common goal	2	0
Match between personalities	0	0
Everyone needs to adjust a bit	2	2
Colleagues need to be capable	2	2
Need to help each other if needed	5	1
Need to be able to count on each other	2	2
<i>Other: INTERPERSONAL SKILLS</i>	0	1

Top 3 at t-1:

1. Good communication & respect (8)
2. Common team feeling (7)
3. Trust, sociability & help each other if needed (5)

Top 3 at t-2:

1. Good communication (9)
2. Trust (6)
3. Respect (5)

Annex 5 Case 4

- **Means and internal validity**

Table 1: Overview means, standard deviation and internal validity scores for the MTS and CT identity scales

Variabele	α	n	Mean	SD
ID MTS				
Pre-BR	0.73	27	3.76	0.68
Post-BR	0.75	22	3.67	0.68
ID CT				
Pre-BR	0.82	27	4.10	0.69
Post-BR	0.86	23	4.01	0.77

Note: BR= Big Room

Table 2: Overview means, standard deviations and internal validity scores for the MTS and CT teamwork scales

	MTS				CT			
	α	n	Mean	SD	α	n	Mean	SD
Mutual performance monitoring								
Pre-BR	0.92	27	3.56	0.77	0.86	26	4.13	0.50
Post-BR	0.80	23	3.72	0.62	0.84	23	4.29	0.45
Supportive behavior								
Pre-BR	0.78	27	3.96	0.50	0.73	27	4.48	0.40
Post-BR	0.78	23	3.84	0.47	0.85	23	4.47	0.46
Adaptability								
Pre-BR	0.34	27	3.66	0.43	0.68	27	4.04	0.54
Post-BR	0.79	22	3.74	0.56	0.86	23	4.15	0.52
Leadership								
Pre-BR	0.85	26	3.69	0.80	0.77	27	4.33	0.60
Post-BR	0.92	23	3.67	0.82	0.71	23	4.17	0.39
Team orientation								
Pre-BR	0.66	24	3.92	0.50	0.77	27	4.44	0.41
Post-BR	0.78	23	3.81	0.51	0.84	23	4.45	0.42
Trust								
Pre-BR	0.76	26	3.82	0.57	0.81	27	4.62	0.41
Post-BR	0.91	23	3.52	0.71	0.83	23	4.40	0.27
Shared mental model								
Pre-BR	0.83	27	3.71	0.62	0.83	27	4.04	0.46
Post-BR	0.76	23	3.78	0.54	0.82	23	4.33	0.48
Closed-loop communication								
Pre-BR	0.68	27	3.88	0.54	0.56	26	4.03	0.52
Post-BR	0.81	22	3.56	0.73	0.75	22	3.97	0.51

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 3: Overview MTS means, MTS standard deviations and MTS internal validity scores per CT

	Owner			Project manager			Architect			Contractor			Consultants		
	M	SD	n	M	SD	n	M	SD	n	M	SD	N	M	SD	n
Monitoring pre-BR	3.50	0.43	3	3.67	0.58	3	3.85	0.78	10	3.82	0.24	4	2.96	0.93	7
Monitoring post-BR	3.42	0.52	3	4.08	0.14	3	4.13	0.35	8	3.92	0.14	3	3.04	0.66	6
SB pre-BR	3.80	0.40	3	3.73	0.23	3	4.14	0.65	10	4.05	0.30	4	3.80	0.43	7
SB post-BR	3.73	0.12	3	3.93	0.12	3	3.95	0.76	8	3.73	0.12	3	3.77	0.32	6
Adaptability pre-BR	3.83	0.80	3	3.58	0.38	3	3.68	0.46	10	3.63	0.25	4	3.61	0.41	7
Adaptability post-BR	3.33	0.52	3	3.75	0.25	3	3.81	0.79	8	3.75	0.25	3	3.85	0.49	5
Leadership pre-BR	4.00	0.50	3	3.67	0.58	3	3.65	1.00	10	3.38	0.48	4	3.83	0.93	6
Leadership post-BR	3.33	0.58	3	3.17	0.29	3	3.81	1.00	8	3.50	0.87	3	4.00	0.84	6
TO pre-BR	4.00	0.40	3	3.20	0.00	2	4.09	0.61	9	3.90	0.26	4	3.87	0.41	6
TO post-BR	3.53	0.50	3	3.40	0.53	3	4.10	0.51	8	3.67	0.42	3	3.83	0.46	6
Trust pre-BR	3.67	0.95	3	3.50	0.43	3	4.00	0.69	10	3.94	0.13	4	3.67	0.38	6
Trust post-BR	3.25	0.66	3	2.67	0.88	3	3.66	0.81	8	3.83	0.29	3	3.75	0.39	6
SMM pre-BR	3.61	0.54	3	3.61	0.54	3	3.77	0.89	10	3.63	0.28	4	3.76	0.48	7
SMM post-BR	3.56	0.42	3	3.50	0.44	3	3.94	0.74	8	3.72	0.35	3	3.86	0.41	6
CLC pre-BR	3.53	0.58	3	3.37	0.83	3	3.98	0.55	10	3.90	0.26	4	3.94	0.57	7
CLC post-BR	3.20	0.69	3	3.00	0.28	2	3.65	0.79	8	3.33	0.83	3	3.90	0.71	6

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

Table 4: Overview CT means, CT standard deviations and CT internal validity scores per CT

	Owner			Project manager			Architect			Contractor			Consultants		
	M	SD	n	M	SD	n	M	SD	n	M	SD	N	M	SD	n
Monitoring pre-BR	3.92	0.52	3	4.00	0.00	2	4.28	0.51	10	4.06	0.13	4	4.07	0.69	7
Monitoring post-BR	3.75	0.43	3	4.58	0.38	3	4.41	0.44	8	4.00	0.00	3	4.42	0.41	6
SB pre-BR	4.53	0.31	3	4.53	0.46	3	4.58	0.47	10	4.05	0.19	4	4.54	0.30	7
SB post-BR	4.20	0.53	3	4.87	0.23	3	4.58	0.41	8	3.87	0.12	3	4.57	0.43	6
Adaptability pre-BR	4.08	0.76	3	4.08	0.88	3	4.08	0.55	10	3.88	0.14	4	4.04	0.57	7
Adaptability post-BR	4.08	0.38	3	4.17	0.29	3	4.16	0.50	8	3.92	0.14	3	4.29	0.81	6
Leadership pre-BR	4.00	1.00	3	4.50	0.50	3	4.55	0.55	10	4.25	0.50	4	4.14	0.63	7
Leadership post-BR	4.17	0.29	3	4.00	0.00	3	4.13	0.35	8	4.00	0.00	3	4.42	0.58	6
TO pre-BR	4.27	0.50	3	4.60	0.40	3	4.64	0.42	10	4.20	0.23	4	4.29	0.38	7
TO post-BR	4.27	0.46	3	4.80	0.20	3	4.55	0.40	8	4.00	0.00	3	4.47	0.47	6
Trust pre-BR	4.92	0.14	3	4.83	0.29	3	4.70	0.40	10	4.19	0.38	4	4.54	0.39	7
Trust post-BR	4.42	0.52	3	4.58	0.38	3	4.41	0.61	8	4.00	0.00	3	4.50	0.42	6
CMM pre-BR	4.00	0.67	3	4.06	0.25	3	4.05	0.58	10	3.92	0.10	4	4.10	0.47	7
CMM post-BR	4.17	0.29	3	4.28	0.35	3	4.06	0.41	8	3.89	0.19	3	4.17	0.73	6
CLC pre-BR	3.60	0.60	3	3.80	1.06	3	4.18	0.38	10	3.90	0.20	4	4.20	0.49	6
CLC post-BR	3.73	0.23	3	4.30	0.14	2	3.95	0.59	8	3.67	0.31	3	4.17	0.61	6

The results based on scales with a low internal validity are crossed-out and are not taken into account in the quantitative analyses.

- **Results of the Paired-samples t-tests**

Table 5: Results paired-samples t-test between the two different identity categories over time

	Pre - BR	Post - BR
ID MTS – ID CT	t = -3.51** df = 26	t = -2.45* df = 21

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 6: Results paired-samples t-test per identity category over time

	ID MTS	ID CT
Pre BR - Post BR	t = 0.79 df = 21	t = 0.74 df = 22

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 7: Results paired-samples t-test between MTS and CT teamwork variables

	Pre-BR	Post-BR
MTS – CT Mutual performance monitoring	t = -4.08**** df = 25	t = -4.46**** df = 22
MTS – CT Supportive behavior	t = -5.02**** df = 26	t = -6.12**** df = 22
MTS – CT Adaptability	t = -2.93** df = 26	t = -2.91** df = 21
MTS – CT Leadership	t = -1.63 df = 25	t = -3.37** df = 21
MTS – CT Team orientation	t = -4.25**** df = 25	t = -3.47** df = 22
MTS – CT Trust	t = -6.07**** df = 25	t = -4.18**** df = 22
MTS – CT Shared mental model	t = -4.23**** df = 26	t = -2.84** df = 22
MTS – CT Closed-loop communication	t = -4.79**** df = 23	t = -5.25**** df = 22

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses

Table 8: Results paired-samples t-test between MTS/CT teamwork means pre-BR and means post-BR

	MTS	CT
t-1 – t-2 Mutual performance monitoring	t = 2.92** df = 22	t = -1.46 df = 22
t-1 – t-2 Supportive behavior	t = 1.99 df = 22	t = 0.11 df = 22
t-1 – t-2 Adaptability	t = -0.54 df = 21	t = -0.98 df = 22
t-1 – t-2 Leadership	t = 1.16 df = 21	t = 2.08* df = 22
t-1 – t-2 Team Orientation	t = 1.82 df = 19	t = -0.22 df = 22
t-1 – t-2 Trust	t = 2.75* df = 21	t = 2.39* df = 22
t-1 – t-2 Shared mental model	t = 0.47 df = 22	t = -0.09 df = 22
t-1 – t-2 Closed-loop communication	t = 2.46* df = 21	t = 0.08 df = 20

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.000$

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses

- **Results of the Pearson-r correlation analyses**

Table 9: Results Pearson-r correlation analyses between the MTS and CT identity over time

	ID CT Pre-BR	ID CT Post-BR
ID MTS Pre-BR	r = 0.73**** n = 27	r = 0.57** n = 23
ID MTS Post-BR	r = 0.64*** n = 22	r = 0.53* n = 22

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.000$

Table 10: Results Pearson-r correlation analyses between identity and MTS teamwork pre-BR

	ID MTS pre-BR	ID MTS post-BR	ID CT pre-BR	ID CT post-BR
Mutual performance monitoring	r = 0.36 n = 27	r = 0.32 n = 22	r = 0.15 n = 27	r = 0.08 n = 23
Supportive Behavior	r = 0.56** n = 27	r = 0.58** n = 22	r = 0.37 n = 27	r = 0.10 n = 23
Adaptability	r = 0.02 n = 27	r = 0.02 n = 22	r = -0.06 n = 27	r = -0.21 n = 23
Leadership	r = -0.20 n = 24	r = 0.43 n = 19	r = 0.01 n = 24	r = -0.09 n = 20
Team orientation	r = -0.13 n = 26	r = 0.20 n = 21	r = -0.03 n = 26	r = -0.06 n = 22
Trust	r = 0.32 n = 26	r = 0.37 n = 21	r = 0.05 n = 26	r = -0.23 n = 22
Shared mental model	r = 0.19 n = 27	r = 0.33 n = 22	r = 0.17 n = 23	r = -0.03 n = 23
Closed-loop communication	r = 0.05 n = 27	r = 0.15 n = 22	r = 0.01 n = 27	r = -0.11 n = 23

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.000$

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses

Table 11: Results Pearson-r correlation analyses between identity and MTS teamwork post-BR

	ID MTS pre-BR	ID MTS post-BR	ID CT pre-BR	ID CT post-BR
Mutual performance monitoring	r = 0.35 n = 23	r = 0.14 n = 22	r = -0.00 n = 23	r = -0.14 n = 23
Supportive Behavior	r = 0.38 n = 23	r = 0.28 n = 22	r = 0.41* n = 23	r = 0.04 n = 23
Adaptability	r = 0.20 n = 22	r = 0.02 n = 22	r = 0.22 n = 22	r = -0.04 n = 22
Leadership	r = 0.09 n = 23	r = 0.12 n = 22	r = 0.10 n = 23	r = -0.22 n = 23
Team orientation	r = -0.09 n = 23	r = -0.08 n = 23	r = -0.01 n = 23	r = -0.08 n = 23
Trust	r = 0.14 n = 23	r = 0.16 n = 22	r = 0.11 n = 23	r = -0.11 n = 23
Shared mental model	r = 0.07 n = 23	r = -0.06 n = 22	r = 0.01 n = 23	r = -0.20 n = 23
Closed-loop communication	r = -0.33 n = 22	r = -0.18 n = 21	r = -0.19 n = 22	r = -0.19 n = 22

* p <0.05, ** p <0.01, ***p <0.001, **** p <0.000

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses.

Table 12: Results Pearson-r correlation analyses between MTS teamwork variables pre-BR

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.44* n = 26	r = 0.77**** n = 26	r = -0.46* n = 26	r = 0.74**** n = 26	r = 0.40* n = 25	r = 0.77**** n = 23	r = 0.60**** n = 26
2. Supportive behavior		1	r = 0.53** n = 27	r = -0.23 n = 27	r = 0.39* n = 27	r = 0.37 n = 26	r = 0.56** n = 24	r = 0.40* n = 27
3. Adaptability			1	r = -0.45* n = 27	r = 0.67**** n = 27	r = 0.32 n = 26	r = 0.84**** n = 24	r = 0.47* n = 27
4. Leadership				1	r = -0.32 n = 27	r = -0.28 n = 26	r = -0.50* n = 24	r = -0.39* n = 27
5. Team orientation					1	r = 0.63**** n = 26	r = 0.66**** n = 24	r = 0.51** n = 27
6. Trust						1	r = 0.54** n = 23	r = 0.37 n = 26
7. Shared mental model							1	r = 0.61** n = 24
8. Closed-loop communication								1

* p <0.05, ** p <0.01, ***p <0.001, **** p <0.000

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses.

Table 13: Results Pearson-r correlation analyses between MTS teamwork variables post-BR

	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	1	r = 0.13 n = 23	r = 0.41 n = 23	r = 0.35 n = 22	r = 0.70**** n = 23	r = 0.62** n = 23	r = 0.61** n = 23	r = 0.59** n = 22
2. Supportive behavior		1	r = 0.42* n = 23	r = 0.32 n = 22	r = 0.32 n = 23	r = 0.17 n = 23	r = 0.34 n = 23	r = 0.12 n = 22
3. Adaptability			1	r = 0.73**** n = 22	r = 0.65*** n = 23	r = 0.47* n = 23	r = 0.68**** n = 23	r = 0.30 n = 22
4. Leadership				1	r = 0.60** n = 22	r = 0.49* n = 22	r = 0.51* n = 22	r = 0.27 n = 21
5. Team orientation					1	r = 0.70**** n = 23	r = 0.80**** n = 23	r = 0.55** n = 22
6. Trust						1	r = 0.67*** n = 23	r = 0.72**** n = 22
7. Shared mental model							1	r = 0.59** n = 22
8. Closed-loop communication								1

* p < 0.05, ** p < 0.01, *** p < 0.000

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses.

Table 14: Results Pearson-r correlation analyses between MTS teamwork pre-BR and MTS teamwork post-BR

Pre-BR \ Post-BR	1	2	3	4	5	6	7	8
1. Mutual performance monitoring	r = 0.53* n = 22	r = 0.52* n = 22	r = 0.48* n = 22	r = 0.30 n = 21	r = 0.52* n = 22	r = 0.30 n = 22	r = 0.69**** n = 23	r = 0.29 n = 21
2. Supportive behavior	r = 0.15 n = 23	r = 0.71*** n = 23	r = 0.29 n = 23	r = 0.24 n = 22	r = 0.18 n = 23	r = 0.28 n = 23	r = 0.22 n = 23	r = 0.14 n = 22
3. Adaptability	r = 0.54**** n = 23	r = 0.55** n = 23	r = 0.71**** n = 23	r = 0.50* n = 22	r = 0.50* n = 23	r = 0.36 n = 23	r = 0.58** n = 23	r = 0.14 n = 22
4. Leadership	r = 0.38 n = 23	r = 0.39 n = 23	r = 0.57** n = 23	r = 0.55** n = 22	r = 0.55** n = 23	r = 0.27 n = 23	r = 0.45* n = 23	r = 0.39 n = 22
5. Team orientation	r = 0.60** n = 23	r = 0.45* n = 23	r = 0.49* n = 23	r = 0.42 n = 22	r = 0.66*** n = 23	r = 0.52* n = 23	r = 0.62*** n = 23	r = 0.45* n = 22
6. Trust	r = 0.46* n = 22	r = 0.12 n = 22	r = 0.22 n = 22	r = 0.16 n = 21	r = 0.44* n = 22	r = 0.51* n = 22	r = 0.34 n = 22	r = 0.52* n = 21
7. Shared mental model	r = 0.54* n = 20	r = 0.38 n = 20	r = 0.42 n = 20	r = 0.17 n = 19	r = 0.43 n = 20	r = 0.30 n = 20	r = 0.50* n = 20	r = 0.36 n = 19
8. Closed-loop communication	r = 0.61** n = 23	r = 0.30 n = 23	r = 0.28 n = 23	r = 0.26 n = 22	r = 0.31 n = 23	r = 0.28 n = 23	r = 0.43* n = 23	r = 0.59** n = 22

* p < 0.05, ** p < 0.01, *** p < 0.000

The results based on scales with a low internal validity are crossed-out, and not taken into account in the quantitative analyses.

- **Variables important for cooperation**

Table 15: Overview of the number of votes per variable

	Number of votes pre-BR	Number of votes post-BR
Trust	21	14
Good coordination	13	13
Clear allocation of tasks	6	7
Sociability	0	1
Monitoring each other's work	2	1
Fair division of the workload	0	1
Face-to-face contact	3	4
Good communication	21	22
Taking each other's opinions into account	2	1
Knowing each other's capabilities	5	4
Knowing each other's goals	1	3
Appreciate each other's work	2	3
Respect	11	14
Group centric behavior instead of individual centric behavior	6	3
Good project leader	11	13
Common goal	13	8
Match between personalities	1	0
Everyone needs to adjust a bit	2	2
Colleagues need to be capable	1	1
Need to help each other if needed	1	
Need to be able to count on each other	3	2
<i>Other</i> : parity; eg teams should be of similar capabilities, skill levels, experience and willingness to think	1	0

Top 3 pre-BR:

1. Trust & Good communication (21)
2. Good coordination & Common Goal (13)
3. Good project leader & respect (11)

Top 3 Post-BR:

1. Good communication (22)
2. Trust & respect (14)
3. Good coordination & good project leader (13)

Overview of work

Professional publications:

Wijnmaalen, J.R. (2012). 'Reconstruction through construction?', *Genie. Vereniging van officieren der Genie*, (ISSN 1384-7686), 1(61), 22-23.

Wijnmaalen, J.R. (2011). 'Interculturele effectiviteit als het geheime wapen van de Genie in nieuwe missies', *Genie. Vereniging van officieren der Genie*, (ISSN 1384-7686), 1(61), 22-23.

Book chapter:

Wijnmaalen, J.R., Kremers, J., and Dado, E. (2011). 'Reconstruction through construction?' in: R. Beeres, J. van der Meulen, J. Soeters, and A. Vogelaar (Eds.) *Mission Uruzgan* (p.179-194). Amsterdam: Pallas Publications-Amsterdam University Press.

Conference papers:

Wijnmaalen, J.R., and Op den Buijs, T. (2013). The influence of identity on multi-team system effectiveness: a study of a military multi-team system in Kunduz Afghanistan. In S.J. Beck, J. Keyton & S.M. Fiore (Eds.), *Proceedings of the INGroup 8th Annual conference*, Atlanta, USA, July 11-13 2013.

Wijnmaalen, J.R., Dewulf, G.P.M.R, and Voordijk, J.T. (2012). The role of identity in cross-functional engineering projects: the case of Dutch military engineers in Mazar-e Sjarif Afghanistan. In A. Javernick-Will & P. Chinowsky (Eds.), *Working paper series, proceedings of the engineering project organization conference*. Rheden, The Netherlands, July 1-12 2012.

Wijnmaalen, J.R., and Dewulf, G.P.M.R. (2012). Organizational identity and the effectiveness of multi-team systems: a case study of Dutch military engineers in Kunduz Afghanistan. In: *Working paper proceedings, Inter-University Seminar on Armed Forces and Society*. Kingston, Canada, November 3-4 2012.

Wijnmaalen, J.R. (2011). Can the comprehensive approach be successful?: the case of Mazar-e Sjarif. A preliminary study of the relation between component team identity and context in an multi-team system. In: *Working paper proceedings, Inter-University Seminar on Armed Forces and Society*. Chicago, USA, October 21-23 2011.

Wijnmaalen, J.R. (2010). Reconstruction through Construction? An exploratory study of the challenges encountered while building in instable environments. In: *Working paper proceedings, International Society of Military Sciences*. Stockholm, Sweden, November 11-13 2010.

Presentations/workshops:

'Identity in engineering projects'. Engineering Project Organization Conference. Winter Park, USA, July 9-10 2013.

The world of humanitarian organizations (guest lecture at University of Twente for the bachelors course *Civilian-military interaction* in November 2010 & 2011 & 2012; for military engineers of 1 civilian and military interaction command in 2012, and for military officers of 101 Genie Battalion in 2013).

'Construction projects in a military context' . Guest lecture at the University of Twente for the course *Project management*, June 2012.

'Leadership in military multiteam systems'. Workshop for the Centre of Excellence of Leadership Defense. Breda, The Netherlands, 7 juli 2014.

'Role of identity in construction projects'. Workshop 101 Genie Battalion. Wezep, The Netherlands, 16 december 2014.

'Boxing ring dynamic in informal caregiver MTSs'. Workshop for Movisie/Vilans. Utrecht, The Netherlands, December 9 2014.

Other output:

Wijnmaalen, J.R. (2014). *Doing a PhD. A case study*. ISBN: 978-90-9029217-5

Developed a course on 'Leadership in military multi-team systems' (2014) which is now used by the Military Engineer training centre in Vught (OTC Genie).

Evaluation and assessment of military exercise Borculo 2011 of the CIMIC battalion in cooperation with TNO.

A variety of advisory work: 101 Genie Bataljon (2014/2011), military commanders before deployment (2014), Movisie/Vilans (2014), and large construction project San Francisco (2014).

Acknowledgements

A PhD is a process. A process that is impossible to go through alone. I therefore want to take this opportunity to acknowledge and thank everyone who helped me get through it. First, I want to thank the research participants, because without their cooperation there would not be a research. Thank you very much for your time, your honesty and your trust! A special thank you goes out to Lieutenant-colonel Paul van de Heul for opening the doors to the world of military engineering and for his persistence in our own Afghanistan-battle. Likewise, I would like to thank General Vleugels for the last push in that battle! Thank you both for your support. Lastly, my appreciation goes out to all 101 Genie and 101 CIS battalion personnel; thank you for making me feel at home!

Doing a PhD is a personal expedition. Luckily I had the best guidance I could wish for! Thank you Geert, Bas and Hans for having faith in my capabilities, enthusiasm for my work, and helping me get the best out of myself. Thank you for all the freedom! It was a pivotal ingredient for me! And sorry for my pigheadedness sometimes... Tessa, thank you for insights during a vital part of the process in which my thoughts were rearranged. And Edwin, thank you for the freedom to find my own way.

Even though a PhD can be a very lonely process I never felt alone due to lovely colleagues! Dennis and Ton, thank you for our one-to-ones and your construction advise. PhDs in the Horsttoren and at de la Rey weg, thank you for the chats, lunches and coffees! Marlijn thank you for your company and advice during our many hours in the library! Andrew thank you for making feel welcome at Stanford! Julieta, Carissa and Jan-Bert thank you for taking the time to review the manuscript and provide me with feedback! Yolanda, Jaqueline, and Cécil thank you for all your help these last years!

Then there are the people who are probably not aware of their importance in this process: the personnel of the university library of Utrecht. Thank you for the small talk, the good coffee and giving me a special treatment in many small ways! Then there was the USA-adventure. Marty thank you for welcoming me into your home and your life! It really made my time in the USA shine! Hanny, Geert and Wouter I would like to thank you for sharing your USA adventure with me. I felt very welcome and enjoyed every bit!

To my friends: thank you for your time when I needed to ventilate! Papa and Sylvaine thank you for your abiding support and interest! Papa, thank you for offering so many possibilities in my life! Those possibilities are the reason I stand here today. Sylvaine, thank you for all the hours you watched over Gijs during the last weeks. Ineke and Jan: thank you for your scientific insights and personal interest! To Olof: thank you, thank you, thank you for everything! You are my rock, my best friend and the love of my life. I love our life together! And Gijs, I dedicate this book to you!