‘Fostering knowledge sharing; what stimulates Eagerness and Willingness to develop a team’s Shared Mental Model’

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Master Thesis

Fostering knowledge sharing: what stimulates Eagerness and Willingness to develop a team's Shared Mental Model.

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Abstract

Society is becoming increasingly complex and research points out that global economy is gradually moving into a knowledge economy. Within knowledge economy there is an important role for being effective as a team. Team effectiveness depends on a shared mental model, which stimulates task performance and fosters team processes to improve products and services. Stimulating attitudes for knowledge sharing and development of team shared mental models can help governmental organizations to rapidly deal with these complex problems and tasks at the current knowledge economy. Which leads to the goal of this research; measure what stimulates willingness and eagerness for knowledge sharing in order to develop a shared mental model at a governmental organization. An explanatory sequential mixed-method design is used; quantitative data is gathered through an online Survey (May 2016) based on surveys from De Vries et al. (2006) and the Team Assessment and Diagnostic Instrument (TADI). The quantitative analyzes revealed differences across teams about general task and team knowledge, attitudes toward teammates and task, team dynamics and interactions, and team resources and working environment (Johnson et al., 2007). For instance the large, younger aged team and the large mix-aged team differed at attitude towards teammates and task, team dynamics and interactions, and team resources and work environment. Subsequently, interviews were held and qualitative analyzes explored that subject-matter expertise might stimulate eagerness, and collaboration might stimulate willingness for knowledge sharing. Finally two additional factors might directly stimulate the development of a shared mental model, namely job satisfaction and team goals.

Keywords: teams, willingness, eagerness, knowledge sharing, shared mental model.

Foreword

Before you lies the dissertation 'Fostering knowledge sharing: what stimulates Eagerness and Willingness to develop a team's Shared Mental Model'. Based on an online survey and interviews with the executive team members at a governmental organisation. It has been written to fulfil the graduation requirements of the Educational Science and Technology Program at the University of Twente (UT).

The process of research was difficult, but conducting extensive investigation has allowed me to answer the main research question that was identified. Fortunately, my graduation supervisors supported me during this process and were always willing to answer my queries. I would like to thank Tim Hirschler and Rike Bron for their guidance and support during this process.

I also benefitted from debating about the thesis with my study friends Maud and Ina. But overall my parents and family deserves a particular note of thanks.

I hope you enjoy reading,

Fleur Lansink

Table of content

1. Increasing organizational knowledge sharing

Society is becoming increasingly complex and is shifting toward an economy in which knowledge is crucial. This new knowledge economy is quite different from twentieth-century society (Drucker, 2001), where the main means of production, such as capital, raw materials and labour, have been replaced by the application of knowledge. By generating and distribution of new knowledge, to improve processes, products and services (Kessels, 2001). It is therefore important for governmental organizations to rapidly deal with this knowledge economy and its more complex problems and tasks in order to improve performance level, team effectiveness, and the creation of innovative policies and services (Johnson et al., 2007). An illustrative example is the new Dutch social legislation from early 2015 a decentralization of social services, with the aim to generate and distribute new knowledge and application of this knowledge for improving processes, products and services to rapidly deal with knowledge economy (Van Rijn, 2014).

DeChurch and Mesmer-Magnus (2010) noted that teamwork is becoming increasingly important in order to comply with the main aspects of this knowledge economy. The reality for many organizations is that tasks have become complex enough to require the use of teams at all hierarchical levels (DeChurch & Mesmer-Magnus, 2010). The decentralization of the Dutch social services also leads to new team compositions in practice-oriented teams, which can create uncertainty for instance that teammembers must forfeit old duties to other teammembers or could lose the job fulfilment. The ability of these social teams to collaborate and work effectively toward complex problem solving is important and indicates the organizational success level (DeChurch and Mesmer-Magnus, 2010).

Team effectiveness depends on creating a ‘shared mental model’, which stimulates task performance and fosters team processes important to improve products and services in the social domain (Johnson et al., 2007). In order to build a shared mental model, knowledge sharing between team members of social teams at governmental organizations is required (Johnson, et al., 2007). This is a major challenge, many social teams at governmental organizations struggle with how to shape this in a good pace in a limited amount of time (Trommel & Boutellier, 2018). This asks for individual capability: to understand the nature of the knowledge and to focus on the usability of knowledge, necessary for his or her ability to share knowledge with other team members (Van den Hooff & De Ridder, 2004). Exchanging individual knowledge and creating new knowledge on a team level indicate the team’s level of functioning. If individuals are more capable of sharing knowledge related to the task and the team, then organizations are more likely to achieve their goals (Ipe, 2003; Nonaka, 1994; Spender & Grant, 1996).

Subsequently, there is a need to explore whether attitudes of individual team members are a preliminary condition for a shared mental model. Earlier research has pointed out that willingness and eagerness are attitudes known for gearing individuals towards knowledge sharing (De Vries, Van den Hooff, & De Ridder, 2006). Willingness gears individuals towards knowledge sharing through a process that is focused on the interests of the team, such as communication styles, positive effects, and trust. Eagerness relies on a process more focused on the individual, such as the instruments and

beliefs of a team member (De Vries et al., 2006). Both of these knowledge-sharing attitudes influence the ways in which the team acts under particular circumstances, as well as the creation of new knowledge (Johnson et al., 2007). However, we do not know much about what stimulates attitudes of individual team members to share knowledge constructing a shared mental model. A further deepening and exploration is needed in order to explore what stimulates willingness and eagerness for knowledge sharing to develop a shared mental model.

1.1 Thesis overview

The thesis begins with an overview of the theoretical framework used to define the concepts of willingness and eagerness for knowledge sharing and describes both knowledge sharing and a shared mental model (Chapter 2). It also presents the research model and main research question. The next chapter describes the methods used to collect and analyse the data in this study (Chapter 3), followed by a presentation of the exploratory research results (Chapter 4). Finally, the thesis ends with a conclusion, discussion, limitations, and recommendations for future research (Chapter 5).

2. Theoretical Framework

This chapter presents the theoretical framework guiding this research study, explains the research model and the research questions.

2.1 Shared mental model

A shared mental model is defined as a shared vision of a group, and it is comprised of the knowledge related to the task and the team (Johnson et al., 2007). It also consists of individual mental models that together form a shared mental model (Van den Hooff & De Ridder, 2004). For example, an individual's mental model about the concept 'team' is shared with other members in order to create a shared mental model of this concept. A shared mental model implies that team members have compatible mental models that lead to shared expectations for the tasks performance carried out by processes at the team level (Johnson et al., 2007). This allows team members to predict behaviour of other team members. A shared mental model contains general and specific task knowledge, individual skills and behaviours for effective task decisions witch affects team's response (Johnson et al., 2007). Overall knowledge sharing and the development of a shared mental model are positive influencers of task performance (Johnson et al., 2007; Mathieu, Hefner, Goodwin, Salas & Cannon-Bowers, 2000).

2.2 The shared mental model and knowledge sharing

Knowledge sharing between individuals is a requirement for the creation of a team's shared mental (Johnson et al., 2007). The individual team member's sense of urgency and a positive attitude are necessary prerequisites for this process of knowledge sharing (Van den Hooff & De Ridder, 2004). Subsequently, knowledge sharing in order to create a shared mental model is based on knowledge donation and collection (Van den Hooff & De Ridder, 2004). The donation of knowledge consists of communicating knowledge to other individuals in order to encourage collaboration with others (Van den Hooff & De Ridder, 2004). Otherwise mentioned donating knowledge focuses on learning through the exchange of knowledge (Van den Hooff & De Ridder, 2004). While donating knowledge stimulates collaboration, collecting knowledge relies on it. Collecting knowledge consists of consulting other individual team members in order to learn what they know (Dillenbourg, 1999; Van den Hooff & De Ridder, 2004). Earlier research of Bock & Kim (2002) pointed out that individual expectations of the usefulness of own knowledge and improvement of knowledge sharing relationships between team members, were related to positive knowledge sharing attitudes, which in turn were related to knowledge sharing intentions and behaviors (Wang & Noe, 2010).

2.3 Willingness and eagerness for knowledge sharing

It has been shown that knowledge exchanging attitudes not only have a direct effect on knowledge exchange, but also on personal behavior through positively influencing intentions to share knowledge (Bock et al., 2005; Lin, 2007; Wang & Noe, 2010). Knowledge-sharing attitudes can have a different focus of interest and could be influenced by several factors.

Team members who are willing to share knowledge are more oriented towards the group, by encouraging and facilitating the process of knowledge collection at the team level (De Vries et al., 2006). Also all team members must possess the motivation to share knowledge because knowledge sharing with others cannot be forced (Gibbert & Krause, 2002). Willingness implies a positive attitude towards other group members. For example, willing team members expect other team members to donate and also collect knowledge at the team level, but there can be hesitation to share knowledge with others if team members are uncertain whether the others are also willing to contribute to the team's interest (De Vries et al., 2006). Earlier research by de Vries et al. (2006) suggested factors that influenced the willingness for knowledge sharing at team level, namely individual agreeableness, extraversion, job satisfaction, and performance beliefs. Where mutuality may explain the relationship between agreeableness and willingness for knowledge sharing with others. Team extraversion may stimulate talkativeness and enthusiasm of other individuals to share experiences and knowledge with more extraverted individuals (De Vries et al., 2006). Also job satisfaction and self-rated performance were found to be related to willingness and eagerness to share knowledge, probably based on a positive sense of self-worth with regard to the organization based on good performance level of personal satisfying tasks (De Vries et al., 2006). Finally pride and empathy were also suggested as two stimulating factors for eagerness and willingness for knowledge sharing (Van Den Hooff, Schouten, & Simonovski, 2012).

In contrast, an eager team member is motivated to share and donate his or her individual knowledge easily and uninvited with other team members (i.e., eagerness), regardless of whether a mutual exchange based on donating and collecting knowledge will take place (i.e., willingness) (De Vries et al., 2006). For example, an individual who has an eager attitude to share knowledge with other team members, whether requested or not, will not feel any boundaries or hesitation to share his or her knowledge with others based on the interest that these individuals have in the subject matter of their work (Wenger, McDermott & Snyder, 2002; Van Den Hooff et al., 2012). An eager team member, who easily shares knowledge with other team members possesses an extravert communication style, job satisfaction and performance beliefs, and can also inspire the willingness of other members to share knowledge (De Vries et al., 2006; Gagne, 2009). This study tries to provide further insight into the individual's level of willingness and eagerness for sharing knowledge and the motivations for using knowledge sharing to create a shared mental model.

Two demographic characteristics such as team size and age were used in order for carrying out a small explorative research on the influence of demographic characteristics on individuals' willingness and eagerness to develop a shard mental model. Curral, Forrester, Dawson, and West (2001) pointed out that teams who experience a very high-pressure to innovate have more difficulties with processes depending on team size. For instance Curral et al. (2001) argued that very small teams, existing of two or three team members would lack a variety of perspectives necessary for innovation (Jackson, 1996). Whereas large teams with more than twelve or thirteen team members become too impractical to enable effective team processes, such as interaction, clear objectives, exchange of knowledge, participation and support for innovation (Poulton & West, 1999). De Vries et al. (2006) stated that the more team members there are in a team, the higher the chance that they will

have difficulties contributing to the team's interest and development. On the other hand the knowledge level of individual team members may increase with the aging of individual team members (Van den Berg, 2015). Earlier research stated that older aged team members might share more knowledge, which contribute to the team's interest and is also helpful for the development of younger team members (Van den Berg, 2015).

The associated research model is depicted in Figure 1, which provides a schematic representation of the concepts measured by this research.

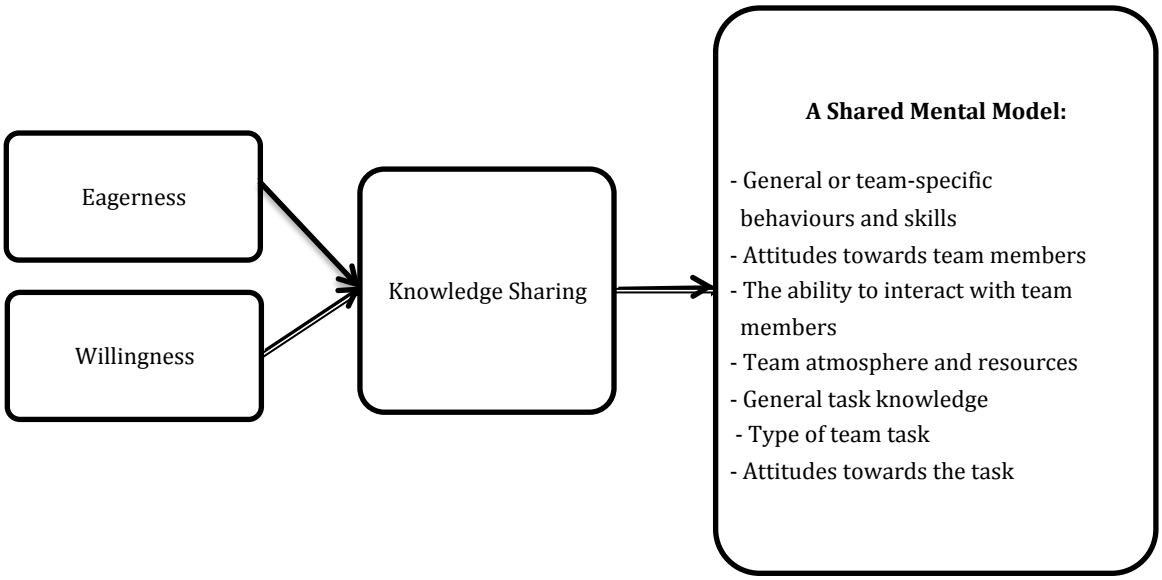

Figure 1. Research model.

2.5 Present research and research questions

The goal of this research was to investigate what stimulates the willingness and eagerness for knowledge sharing to create a shared mental model at governmental teams. Individuals of social teams at governmental organizations mention they stand for a major challenge developing products and services at this current knowledge economy. Stimulating attitudes for knowledge sharing and the development of team's shared mental models can help governmental organizations to rapidly deal with the complex problems and tasks of the current knowledge economy. To improve the overall performance level, team effectiveness, and the creation of innovative policies and services.

Overall the main research question and sub-questions were formulated as follows:

"What stimulates the eagerness and willingness of team members to develop a shared mental model and is there a difference between governmental teams?"

Sub-questions:

1. To what extent are there differences between teams in eagerness and willingness for knowledge sharing?

2. To what extent are there differences between teams in shared mental model content?

3. What factors stimulate the eagerness and willingness of team members to share knowledge with others?

4. What factors stimulate the development of a shared mental model?

3. Methods section

This chapter explains the methods used to conduct the research. First, this chapter provides a description of the research design, then explains the context, a discussion of the participants and sample, the instruments and measures, and finally the procedure and methods used for the data analysis.

3.1 Design

This is an explanatory study of what stimulates the willingness and eagerness for knowledge sharing to develop a shared mental model. Quantitative data was gathered using an explanatory sequential mixed-method design, because the researcher first collects and analyzes quantitative data and then the findings inform qualitative data collection and analysis (Fetters, et al., 2013; Ivankova, Creswell, and Stick 2006). For the qualitative research, the quantitative findings were explored through interviews to explain possible motivations for and differences between attitudes for knowledge sharing toward the development of a shared mental model.

3.2 Context

This study focused on a governmental organization, particularly within the social domain of a municipality. It investigated a department with 88 professionals divided at seven teams. The head of the department is accountable for main tasks and personal matters at the department. Four coordinators are responsible for the functioning of the teams, and they are directly accountable to the head of the department. Subsequently, five of the seven teams have the aim to provide support and care to residents, but with different levels of subject matter expertise and skills: the large, mix-aged team focuses on the Social Support Act (SSA, in Dutch Wet Maatschappelijke Ondersteuning 2007) and expanded with external professionals with mixed ages of 30-59 years; the large older aged performs brief question clarifications at the frontoffice and consists of team members who mostly have an age between 40-59 years; the large younger aged team focuses on The new Act on Care for Children and Young People (ACCYP, in Dutch De Nieuwe Jeugdwet 2015) and was partly formed with younger aged external professionals between 20-39 years old; the small mix-aged team provides administrative support is a small team with middle aged team members between 30-59 years ; and the small older-aged team focuses on compulsory education, is a small team and consists of team members with an older age of 50-67 years (Table 1).

3.3 Study 1: quantitative research

3.3.1 Procedure

First the researcher made an appointment with the head of the department to inform him about the goal and procedure of the study. The head of the department provided a list of employees from which the researcher determined the study sample. Approval for the study by the Ethics Commission was then obtained. The department employees were invited to participate through an email that contained

information about the researcher and the goal of the study. Afterwards, a hyperlink to Qualtrics was sent to the employees so that they could fill out an anonymous survey. They also had to give consent to participate in the research study. It was explained that their participation was voluntary, and that they could withdraw their consent without explanation. One invitation and two reminders were sent between June 6, 2016 and July 7, 2016.

3.3.2 Participants and sample

A total of 42 respondents out of 88 professionals from five of the seven different teams: large, younger aged team; large, older aged team; large, mix-aged team; small mix-aged team; and small older aged, participated in the first study. The study excluded the head of the department, the assistant manager, members of two specific teams, and four employees who were on leave due to illness or pregnancy. The two excluded teams were not included in this analysis because one was transferred to another organization, and the other specific team consisted of only one respondent. The measured characteristics of the respondents in the first study were gender and age (Table 1). The study consisted of five men (11.90%) and 37 women (88.10%); five (11.90%) were between twenty and twenty-nine years old, 14 (33.33%) were between thirty and thirty-nine years old, 12 (28.58%) were between forty and forty-nine years old, eight (19.05%) were between fifty and fifty-nine years old, and three (7.14%) were between sixty and sixty-nine years old. A hypothesis explored during this research is that older aged team members show more eagerness and have a stronger agreement about having a shared mental model than younger aged team members.

Table 1.

Age and gender of the participants

		Age (in years)					Gender	
	n	20-29	30-39	40-49	50-59	60-67	Male	Female
Large, mix-aged team	13	2	4	3	3	1	3	10
Large, older aged team	8	0	1	3	3	1	1	7
Large, younger aged team	13	2	8	3	0	0	1	12
Small, mix-aged team	5	0	1	3	1	0	0	5
Small, older aged team	3	1	0	0	1	1	0	3
Total	42	5	14	12	8	3	5	37

3.3.3 Instruments: online survey

The quantitative online survey began with three demographic items (gender, age, and team), followed by 18 items about knowledge-sharing attitudes and 42 items about the shared mental model. The knowledge-sharing attitudes items were available in both English and Dutch, and the Dutch items

were used for the online survey conducted by this study (De Vries et al., 2006). All 18 items were based on an already existing and validated survey, and the items were ranged according to a five-point Likert-type scale, where '1' equals 'strongly disagree' and '5' equals 'strongly agree' (De Vries et al., 2006).

Willingness for knowledge sharing

Nine items measured willingness for knowledge sharing (De Vries et al., 2006), for example; 'I try to improve the group's performance by sharing knowledge'. Cronbach's alpha was α = .740 for willingness, indicating an acceptable reliability and internal consistency of the scale willingness for knowledge sharing (Field, 2013).

Eagerness for knowledge sharing

Nine items measured eagerness (De Vries et al., 2006), for example; 'I want to convince others of the importance of "my subject"'. The reliability and internal consistency of the scales was assessed by Chronbach's alpha, which was α = .771 for eagerness. According to Field (2013) an acceptable value for the reliability of eagerness for knowledge sharing.

Shared mental model

The individual perceptions about the shared mental model of each team consisted of five main factors: general task and team knowledge, general task and communication skills, attitude toward teammates and task, team dynamics and interactions, and team resources and work environment (Johnson, et al., 2007). Johnson et al. (2007) has developed a questionnaire for measuring a shared mental model, namely the 'Team Assessment and Diagnostic Instrument' (TADI). This instrument delivers an overall shared mental model without particular distinction between team processes and task knowledge (Johnson et al., 2007). The survey of Johnson et al. (2007) was translated by using the forward-translation and back-translation method in order for usage at this research context (Appendix B) (Brislin, 1970). The final part of the survey consisted of these five validated scales developed by Johnson et al. (2007), based on 42 items ranged according to a five-point Likert-type scale ranging, where '1' equals 'strongly disagree' and '5' equals 'strongly agree'.

The first scale included items that measured general task and team knowledge (GTTK) (nine items), for example, 'my team has a shared goal for various project tasks'. The reliability of this measurement was α = .758, indicating an acceptable reliability according to Field (2013). The second scale included items that measured general task and communication skills (GTCS) (seven items), for example, 'my team communicates with other teammates while performing team tasks'. The reliability for this measurement was α = .844. The third measured attitudes towards teammates and task (ATTT) (eight items), for instance, 'my team likes to do various team tasks'. The reliability of this measurement was α = .809. The fourth measured team dynamics and interactions (TDI) (nine items), for instance, 'my team understands their roles and responsibilities for doing various team tasks' (Johnson et al., 2007). TDI reliability was α = .877. The final scale measured team resources and working environment

(TRWE) (nine items), for example “my team has a positive team climate”. TRWE reliability was α = .881. All items used in the online survey can be found in Appendix A.

The data was checked in order to prove normal univariate distribution and values for skewedness and kurtosis between -2 and +2 were considered as acceptable. There were a few skewed items, which created a more leptokurtic distribution but both the instrument of De Vries et al. (2006) and the TADI instrument of Johnson, et al. (2007) were used in earlier research that revealed normal distributions. Therefore, it is chosen to continue the studies with the existing scales from both the instruments.

3.3.4 Quantitative analysis eagerness, willingness, and the shared mental model

Descriptive statistics (e.g., means, standard deviations (*SD*) and frequencies) were used to analyse both the scores of the individuals as well as the compound scores of the teams. The data distribution was verified by preliminary analyses; correlations between variables were measured through a two-tailed Pearson’s correlation coefficient analysis. Preliminary analyses, such as Levene’s test, mean scores, and *SD* scores, were used to quantitatively answer sub question 1 and sub question 2. Two aspects were used to determine the strongness of a shared mental model. First, the average score of each factor from the Team Assessment and Diagnostic Instrument (TADI) determined the level of the specific factors contributing to the development of an overall shared mental model. Second, the *SD* scores indicated the degree of spread around the average score for a specific factor, which determined the level of agreement about having a shared mental model about a specific factor (Johnson et al., 2007). Then the Kruskal-Wallis, a non-parametric test, was used to identify possible differences of a shared mental model between more than three teams (Field, 2013).

3.4 Study 2: qualitative research

3.4.1 Procedure

Semi-structured interviews were conducted on the findings of the quantitative data from the online survey. Interviewees volunteered to participate through email; the researcher selected five professionals and the other professionals were thanked for their willingness and cooperation in the study. Individual appointments were made with one professional from each team, and the interviews were held between July 28 and August 9, 2016. The interviews were recorded with consent of the inteviewee’s and the duration of the various interviews was between 30 minutes and 45 minutes.

3.4.2 Participants and sample

One representative each team was selected to participate in the interviews. The measured characteristics of the participants in the second study were age and gender. The study group consisted of one female from each team and the ages were divided in categories, namely: 20-29 years, 30-39 years, 40-49 years, 50-59 years, and 60-67 years old.

3.5.3 Instruments: interviews

Interviews were conducted with one individual from each team. Each interviewee had also filled out the online survey (N = 43) and was well informed about the concepts and well socialised within their own teams. The semi-structured interview guide consisted of the main topics: willingness and eagerness for knowledge sharing, and the five factors of a shared mental model. The researcher established a logical sequence for these topics. The topics were explored by means of an initial open question and probed further by clarification questions (De Vries et al., 2006; Johnson et al., 2007). The clarification questions were spontaneously composed in order to fit the dialogue, and to promote maximum, unbiased disclosure by the interviewee (Dooley, 2001). For example, if a team had an average score of disagree for the survey item 'I regularly ask for my subject during meetings', the researched asked the interviewee, 'do you have an explanation for this disagreement?'

Thereafter the reliability of the codebook was checked by the calculation of the inter-rater reliability (IRR). Two raters coded the first 21 segmentations (12.2%) in order to measure the IRR. The first round of coding revealed an IRR of .84, excellent for a merged codebook based on existing scales (Field, 2013).

3.5.4 Qualitative analysis eagerness, willingness and the shared mental model

The interviews were recorded and fully transcribed in Excel in order to preserve the original conditions when processing and analysing them. The coding scheme was used as a base for content analysis and in order to determine relationships between labels, also known as a deductive approach (Mayring, 2000). The fragments were assigned with labels, based on the constructs determined in advance and merged to a codebook; consisting of willingness and eagerness for knowledge sharing, as well as the five factors of a shared mental model namely; general task and team knowledge, general task and communication skills, attitude toward teammates and task, team dynamics and interactions, and team resources and working environment (Johnson et al., 2007) (Appendix B).

The qualitative analysis depends on the explanatory purpose of the research, which suggests exploring possible links between labels. Fragments with the same labels were grouped and a coded summary was made for each interview. Frequency of labels was quantified: which labels were most common and which labels were less common. Finally similarities, differences, combinations of labels and notable findings about what stimulates these labels among teams were given.

4. Results

This chapter describes the results of the quantitative and qualitative data analyzes in order to answer the main research question. It details the results of study 1, including descriptive statistics, preliminary analysis, and non-parametric test results, followed by the qualitative results of study 2. The sub-questions are answered using the results from both study 1 and study 2. The main research question was formulated as follows:

"What stimulates the eagerness and willingness of team members to develop a shared mental model and is there a difference between governmental teams?"

Sub-questions:

1. To what extent are there differences between teams in eagerness and willingness for knowledge sharing?

2. To what extent are there differences between teams in shared mental model content?

3. What factors stimulate the eagerness and willingness of team members to share knowledge with others?

4. What factors stimulate the development of a shared mental model?

4.1 Study 1: results online survey

Preliminary analysis results are given. Then an overview of the descriptive statistics is provided in order to answer sub-question 1 and sub-question 2.

4.1.1 Preliminary analysis

Results from Pearson's correlation (r) (Table 3) show that that there was no significant relationship between willingness for knowledge sharing and eagerness for knowledge sharing. Subsequently, the factors of the shared mental model influenced each other, because a correlation coefficient is a commonly used measure of the size of an effect: values of .1 represent a small effect, .3 is a medium effect and .5 is a large effect (Table 3) (Field, 2013). General task and team knowledge was moderately correlated with general task and communication skills ($r(34) = .44$, $p < .05$) and strongly correlated with attitude towards teammates and task ($r(34) = .50$, $p = .05$), team dynamics and interactions ($r = .74$), and team resources and working environment ($r(34) = .65$, $p > .05$). General task and communication skills had a moderate statistical correlation with team dynamics and interactions ($r(34) = .49$, $p < .05$), and team resources and working environment ($r(34) = .38$, $p < .05$), and a strong statistical correlation with attitude towards teammates and task ($r(34) = .51$, $p > .05$). Attitude towards teammates and task had a moderate statistical correlation with team dynamics and interactions ($r(34) = .42$, $p < .05$), and a strong statistical correlation with team resources and working environment ($r(34) = .52$, $p > .05$). Finally, team dynamics and interactions showed a strong statistical correlation with team resources and working environment ($r(34) = .60$, $p > .05$) (Field, 2013).

Table 3.

Pearson correlations between all factors

Effect	Age	Willingness	Eagerness	GTTK	GTCS	ATTT	TDI	TRWE
Age	-							
Willingness	.04	-						
Eagerness	.12	.16	-					
GTTK	.31	-.05	-.26	-				
GTCS	.11	-.12	.20	.44**	-			
ATTT	.11	.06	.11	.50**	.51**	-		
TDI	.17	.10	-.08	.74**	.49**	.42*	-	
TRWE	.24	.12	-.03	.65**	.38*	.52**	.60**	-

Note. GTTK= general team and task knowledge, GTCS = general task and communication skills, ATTT= attitude toward teammates and task, TDI = tem dynamics and interactions, TRWE = team resources and working environment. Age (N=43), Willingness (N=36), Eagerness (N=36), GTTK (N=36), GTCS (N=36), ATTT (N=36), TDI (N=36), TRWE (N=36) (df = 2).
**. Correlation is significant at the 0.01 level (2-tailed)

4.1.2 Differences in eagerness and willingness for knowledge sharing

Means and standard deviations are provided in Table 4 in order to answer sub-question 1 on what extent there were differences between teams in eagerness and willingness for knowledge sharing.

Table 4.

Descriptive statistics of willingness and eagerness for knowledge sharing

		Willingness		Eagerness	
Teams	*n*	*M*	*SD*	*M*	*SD*
Large, mix-aged team	13	4.42	.39	3.43	.30
Large, older aged team	8	4.39	.29	2.94	.14
Large, younger aged team	13	4.67	.21	3.20	.57
Small, mix-aged team	5	4.67	.52	3.36	.57
Small, older aged team	3	4.83	.23	3.67	.31
Total	43	4.55	.34	3.31	.45

Note: (N = 37). A five-point Likert-scale: 1 = 'strongly disagree' to 5 = 'strongly agree' (De Vries et al., 2006).

The mean scores of all teams showed a high average of eagerness for knowledge sharing (2.94 to 3.67). This suggests that in general, individuals reported that they were eager to share knowledge. And the mean scores of all teams showed a high average of willingness for knowledge sharing (4.39 to 4.83), suggesting that there was also a high perception level of individual willingness at the teams (Table 4).

The *SD* scores for willingness and eagerness for knowledge sharing were small relative to the mean scores. Willingness for knowledge sharing had overall lower *SD* scores than eagerness for knowledge sharing with mostly higher *SD* scores. Indicating a larger spread of individual team member's perception about the team's eagerness for knowledge sharing than the willingness for

knowledge sharing at the teams (Table 4). Overall, the mean and the *SD* scores showed that there seemed to be more consensuses about willingness for knowledge sharing then eagerness for knowledge sharing at the teams.

The variance in willingness and eagerness for knowledge sharing was unequal across the teams. Levene's test showed that the equality of variance was violated by willingness, $F(5.30) = 2.785$, $p = .35$, and eagerness, $F(5.30) = 2.756$, $p = .37$ (Field, 2013). There was no assumption that the sampling distribution of the mean was normal distributed. The Kruskal-Wallis, a non-parametric test, was then performed to determine if there were differences among the attitudes for knowledge sharing (eagerness and willingness) between the different teams (Field, 2013).

The Kruskal-Wallis test evaluates whether the averages on eagerness and willingness are the same at all levels of all teams. Instead of using rough scores, the Kruskal-Wallis orders the scores of the teams from low to high and gives them a rank number (Field, 2013). The mean rank scores for eagerness and willingness are provided at Table 5.

Table 5.

Mean Rank Scores for Eagerness and Willingness for knowledge sharing

		Eagerness	Willingness
Teams	*n*	Mean rank	Mean rank
Large mix-aged team	13	21.04	14.75
Large, older aged team	8	9.13	11.75
Large, younger aged team	13	16.54	21.27
Small, mix-aged team	5	20.00	25.50
Small, older aged team	3	27.50	26.75

The test test statistics showed that eagerness, which was corrected for tied ranks, was non-significant ($H(5) = 6.555$, $p = .256$). Indicating no significant difference ($p = .256$, $p > .05$) between distributions of eagerness across the teams. The test for willingness, which was corrected for tied ranks, was also non-significant ($H(5) = 7.890$, $p = .162$). Indicating no significant difference ($p = .162$, $p > .05$) between distributions of willingness across the teams. Overall, the Kruskal-Wallis test showed no significant difference between teams for eagerness ($p = .256$, $p > .05$) and for willingness ($p = .162$, $p > .05$) for knowledge sharing.

4.1.3 Differences between shared mental models

Figure 2 and Table 6 show that the average scores of all teams for the five factors of a shared mental model ranged from a high-shared mental model (3) till a very high shared mental model (4) about having a team's shared mental model. The small mixed-aged team and the small older aged team had lower average scores than the large mix-aged team, the large older aged team and the large younger aged team. This means that the two small teams mention they perceived less of a shared mental model about the five factors then the three larger teams. The factor team resources and working environment showed almost the highest average scores per team, which indicates strong individual mental models about a shared mental model for team resources and work environment. General team and task knowledge showed the lowest averages scores per team, meaning weaker individual mental models about having a team's shared mental model for general team and task knowledge (Table 6).

Table 6.

Mean scores: shared mental model factors

		GTTK		GTCS		ATTT		TDI		TRWE		Overall	
Teams	*n*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Large mix-aged team	13	3.46	.46	3.49	.57	3.42	.40	3.61	.35	3.56	.31	3.51	.42
Large, older aged team	8	3.47	.36	3.61	.07	3.69	.38	3.78	.27	3.86	.14	3.68	.24
Large, younger aged team	13	3.88	.26	3.76	.61	4.00	.34	4.09	.37	4.31	.41	4.01	.40
Small, mix-aged team	5	3.19	.34	3.25	.59	3.31	.85	3.06	.82	3.31	.65	3.22	.65
Small, older aged team	3	3.28	.39	3.21	.10	3.38	.53	3.17	.53	3.39	.23	3.29	.36

Note. GTTK= general team and task knowledge, GTCS = general task and communication skills, ATTT= attitude toward teammates and task, TDI = team dynamics and interactions, TRWE = team resources and working environment.

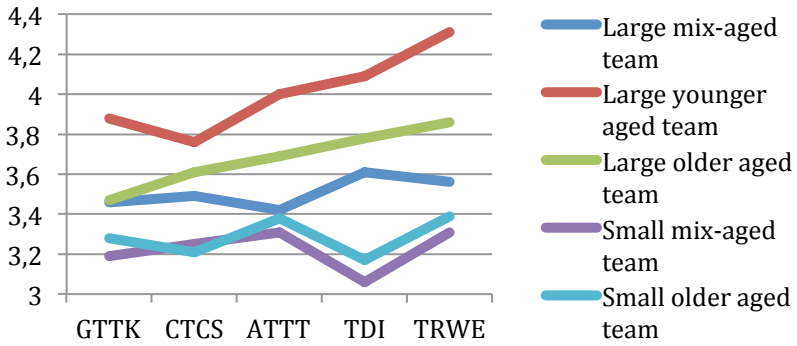

Figure 2. Mean scores: shared mental model (scale 1–5).

Note. GTTK= general team and task knowledge, GTCS = general task and communication skills, ATTT= attitude toward teammates and task, TDI = team dynamics and interactions, TRWE = team resources and working environment.

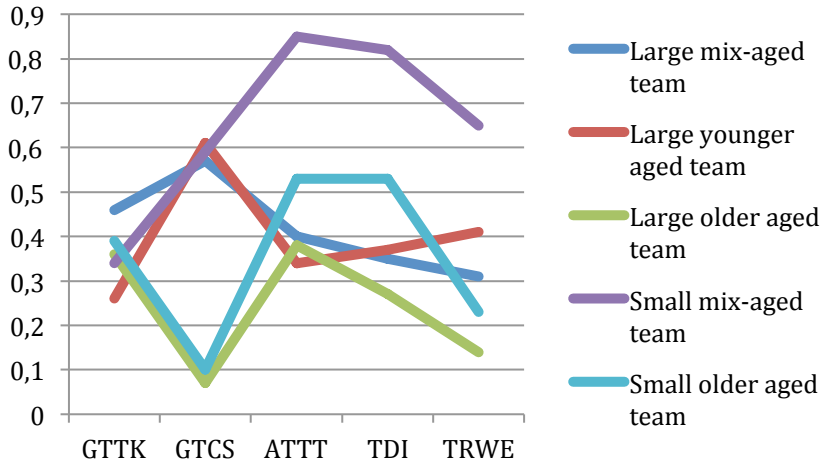

Figure 3. SD scores: shared mental model (scale 0.1–0.9).

Note. GTTK= general team and task knowledge, GTCS = general task and communication skills, ATTT= attitude toward teammates and task, TDI = team dynamics and interactions, TRWE = team resources and working environment.

Sub-question 2 is answered using the *SD*-score of the five factors that contribute to a shared mental model (Table 6 and Figure 3). The *SD* measures the degree of spread of the mean scores for each of the five factors and indicates the level of agreement about having a shared mental model as a team. Figure 3 show that the large, older aged team and the small, older aged team had almost the same *SD* scores for all factors of the shared mental model. The large, older aged team showed the strongest shared mental model, followed by the small older-aged team, the large younger aged team, the large mix-aged team and finally the small mix-aged team, who shows the weakest shared mental model of all teams. Table 6 and figure 3 suggest that the teams in general seem to show the strongest shared mental model for general task and communication skills, followed by general task and team knowledge, team resources and work environment, attitude towards teammates and task and finally team dynamics and interactions.

The Levene's test showed that the equality of variances was violated by all five factors of the shared mental model: general task and team knowledge, $F(5,30) = .503$, $p = .772$; general task and communication skills, $F(5,30) = 1.693$, $p = .167$; attitude towards teammates and task, $F(5,30) = 2.406$, $p = .06$; team dynamics and interactions, $F(5,30) = 2.213$, $p = .079$; and team resources and working environment, $F(5,30) = 2.479$, $p = .054$ (Field, 2013). These results indicate that the variance in the five factors was unequal across the teams. There was no assumption that the sampling distribution of the mean was normal. The Kruskal-Wallis, a non-parametric test, was then used to determine whether there were significant differences between the five factors of the shared mental model within the teams (Field, 2013).

4.1.4 Team differences based on the five factors of a shared mental model

A Kruskal-Wallis test was conducted to evaluate whether the population averages on the five factors of a shared mental model (general team and task knowledge, general team and communication skills, attitudes towards teammates and task, team dynamics and interactions and team resources and working environment) are the same at all levels of all teams. Instead of using rough scores, the Kruskal-Wallis test orders the scores of the teams from low to high and gives them a rank number (Field, 2013). The mean rank scores for all five factors of the shared mental model are provided at Table 7.

Table 7.

Mean Rank Scores for the Different Components of the Shared Mental Model

		GTTK	GTCS	ATTT	TDI	TRWE
Teams	*n*	Mean rank	Mean rank	Mean rank	Mean rank	Mean rank
Large mix-aged team	13	16.29	18.00	12.96	14.54	12.63
Large, older aged team	8	15.50	19.00	19.13	18.63	20.00
Large, younger aged team	13	26.50	21.77	26.00	26.42	27.88
Small, mix-aged team	5	8.75	13.00	14.88	12.50	10.63
Small, older aged team	3	10.75	7.75	11.75	9.75	7.75

Note. GTTK= general team and task knowledge, GTCS = general task and communication skills, ATTT= attitude toward teammates and task, TDI = tem dynamics and interactions, TRWE = team resources and working environment.

Subsequently the test statistics showed that general task and team knowledge, which was corrected for tied ranks, was significant ($H(5) = 14.092$, $p = .015$). Meaning that there was a significant difference ($p = .015$, $p < .05$) between general task and team knowledge across the five teams. The test for general task and communication skills, which was corrected for tied ranks, was non-significant ($H(5) = 4.743$, $p = .448$). Indicating no significant difference ($p = .448$, $p > .05$) between distributions of general task and communication skills across the teams. The test for attitudes towards teammates and task, which was corrected for tied ranks, was significant ($H(5) = 11.616$, $p = .040$). Indicating a significant difference ($p = .040$, $p < .05$) for attitudes toward teammates and task between the five teams. The test for team dynamics and interactions, which was corrected for tied ranks, was also significant ($H(5) = 13.849$, $p = .017$). Meaning that there was a significant difference ($p = .017$, $p < .05$) between team dynamics and interactions across the five teams. Finally the test for team resources and work environment, which was corrected for tied ranks, was significant ($H(5) = 18.801$, $p = .002$). Indicating that there was a significant difference ($p = .002$, $p < .05$) for team resources and work environment between the five teams.

The Kruskal-Wallis test showed that there were significant differences between teams for the distribution of general task and team knowledge (p = .015, p < .05), attitudes toward teammates and task (p = .040, p < .05), team dynamics and interactions (p = .017, p < .05), and team resources and work environment (p = .002, p < .05). This research suggests that there is more similarity between teams for general task and communication skills (p = .448, p > .05).

Mann-Whitney U tests were conducted between all teams to evaluate pairwise differences for all five factors: general task and team knowledge, attitudes toward teammates and task, team dynamics and interactions, and team resources and work environment, controlling the rate of Type I error over tests by using the Bonferroni approach (α = .005). From all follow-up analyzes the test statistics showed that only the large, younger aged team and the large mix-aged team differed significantly from each other for: attitude towards teammates and task (U = 20,5, Z = -3.15, p = .002, p < .005); team dynamics and interactions (U = 24,5, Z = -2.93, p = .003, p < .005); and team resources and work environment (U = 13, Z = -3.55, p = .00, p < .005) (Field, 2013).

Overall, the quantitative analyzes revealed significant differences between: general task and team knowledge; attitudes toward teammates; team dynamics and interactions; and team resources and working environment. However there might be a more similar level of willingness, eagerness, and the factor general team and task communication skills between the five teams.

Teams also differed in team size and age. The quantitative research revealed (small) differences based on team size, for instance for small teams the quantitative data of eagerness and willingness for knowledge sharing showed a high average score and small *SD* scores. And there were small differences betweens teams for the factors of a shared mental model based and team size. Future research is needed to investigate if team size influences the level of eagerness and willingness for knowledge sharing, because the sample size of this research is too small to make assumptions in combination with the explanatory nature of this research. Subsequently the two older aged teams showed a perception of a strong shared mental model, which might suggest further research if the increase of age influences the development of a stronger shared mental model.

4.2 Study 2: results interviews

This section provides an overview of the qualitative results given to answer sub-question 3 and sub-question 4. The interviews were used to explore the factors that stimulate attitudes for knowledge sharing and the shared mental model. Finally, the main research question is answered.

4.2.1 Interviews

The donation and collection of knowledge is necessary for team members to exchange knowledge and to create new knowledge jointly as a team (Van den Hooff & De Ridder, 2004). Individual knowledge sharing attitudes, such as willingness and eagerness, are essential for gearing oneself to exchange knowledge (De Vries et al., 2006). It remains unclear, however, what stimulates these an eager and willing attitude to share knowledge with others. Interviews with one member of each team

were conducted to explore possible factors that stimulate attitudes for knowledge sharing to develop a shared mental model.

4.2.2 Eagerness and willingness for knowledge sharing

The answers of the small, older aged team, the large mix-aged team, and the large younger aged team could be coded more often as a sign of willingness and eagerness for knowledge sharing, than the small mix-aged team and the large, older aged team. For example the interviewee of the large younger aged team mentioned: '*teammembers show willingness, but it's not so much a proactive team that asks, or give unsolicited advice. But if asked then they do and I think that's positive'*

The answers of the large mix-aged team could be coded more often as eagerness for knowledge sharing then the large, older aged team, the large younger aged team, the small mix-aged team, and the small older aged team. All teams spoke during the interviews more about willingness for knowledge sharing than eagerness for knowledge sharing (Table 8). The large mix-aged team mentioned: '*in a meeting you notice that often the same teammembers share a case or else, and others don't'*. Subsequently, the large younger aged team mentioned for instance: *'team members have to take more responsibility to prepare their subject matter expertise more often in advance, acknowledging the importance. Just like I mentioned earlier about the securing of certain knowledge and projects, and that they can really contribute.'*

Table 8. Number of fragments for each factor

	Willingness	Eagerness	GTTK	GTCS	ATTT	TDI	TRWE
Total	24	7	25	38	13	37	24

Note. GTTK= general team and task knowledge, GTCS = general team and communication skills, ATTT= attitude toward teammates, TDI = tem dynamics and interactions, TRWE = team resources and working environment.

4.2.3 Stimulating eagerness and willingness for knowledge sharing

The interviews were used in order to answer sub-question 3 consisting of what factors stimulate the eagerness and willingness of team members to share knowledge with others. When asked, which factors were stimulating for willingness and eagerness for knowledge sharing, respondents answered that an already existing level of collaboration in a team was suggested as a possible stimulating factor for the willingness for knowledge sharing with others (29 times) (Table 9). An interviewee said the following about collaboration: *'No, I find collecting and donating. If I go out of myself, I think so. Because it is, for example, certain knowledge, I have a great deal of knowledge of Wijkracht and social work and another colleague of budget alert. And if I have something and how should I deal with that, then I will go to the other colleague to collaborate and that will explain to me how or what. I think that we do exchange and we collect from each other.*

Subsequently, recognizing the importance of specific knowledge was answered as a possible stimulating factor that may stimulate an individual to be eager to share his or her subject-matter expertise with others (9 times). An interviewee said the following about subject-matter expertise: *'Yes, that's how I see it. One is a little more than the first in it, would like to share things and think this is*

important. And others keep a little more on the flat because it is not so important, while it is very important. You always have individuals who share subject matter expertise and the people who think of yah .. While it is precisely this contribution that can be of importance.'

Table 9.

Factors that may stimulate willingness and eagerness for knowledge sharing

Stimulating factor for willingness	Mentioned at the interviews	Stimulating factor for eagerness	Mentioned at the interviews
Collaboration	27	Subject matter expertise	9

Table 10.

Factors that may stimulate a shared mental model

Stimulating factors	Mentioned at the interviews
Job satisfaction	19
Team goals	52
Total	71

4.2.4 Stimulating factors for a shared mental model

The conducted interviews were used to answer sub-question 4 that focuses on what factors stimulate the development the development of a shared mental model. The interviewees were asked during the interviews which factors they saw as stimulating for the development of a shared mental model; two additional factors may stimulate a shared mental model, namely job satisfaction (19 times) and team goals (52 times) (Table 10). Job satisfaction, which entails the individual degree of satisfaction at work, was mentioned during the interviews as stimulating for the creation of a shared mental model. An interviewee of the large mix-aged team said the following about job satisfaction: *'I think that the situation is improved from last year, because as a team we have created a team meeting to share and evaluate knowledge'*. Subsequently, the second mentioned stimulating factor the creation of a shared mental model was team goal(s). The team determines team goal(s), existing of purposes that need to be achieved by the team, which is suggested as a positively influencing factor for the creation of a shared mental model. The large mix-aged team spoke most about team goals, namely: *'that you know what the team should focus on and that the goals are clear'*.

4.2.5 Stimulating eagerness and willingness to share a mental model

Finally the main research question needs to be answered, namely: *'What stimulates the eagerness and willingness of team members to develop a shared mental model and is there a difference between governmental teams?'* The interviewee's suggested factors for stimulating eagerness and willingness

for the creation of a shared mental model as a team. Namely subject-matter expertise was suggested as a possible factor that may stimulate eagerness for knowledge sharing (9 times). Interviewee's mentioned collaboration as a factor, which may stimulate willingness for knowledge sharing (27 times). They also suggested that there were two additional factors that may stimulate the development of a shared mental model, namely job satisfaction (19 times) and team goals (52 times). Overall, the explored factors suggested by the interviewee's are seen as stimulating for eagerness and willingness to develop a shared mental model (Figure 7).

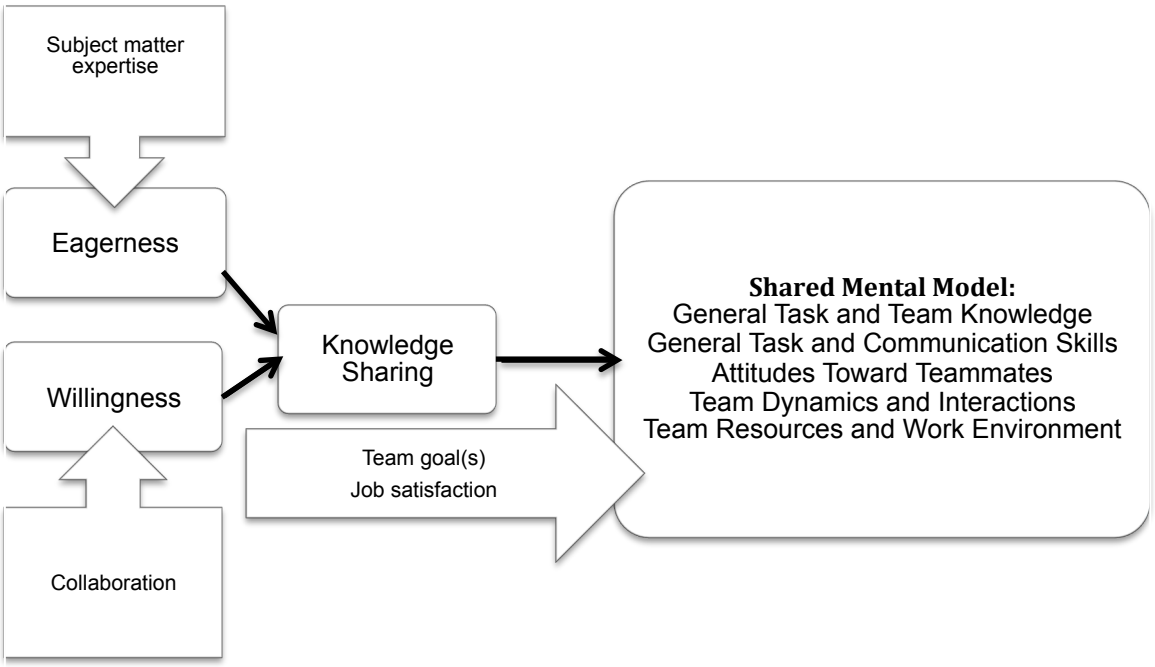

Figure 4. Influencing factors for eagerness and willingness to share a mental model.

5. What factors stimulate eagerness and willingness to share a shared mental model?

This chapter elaborates on the most important explanatory findings and limitations of this research, future research suggestions were provided. Finally, theoretical and practical implications are discussed.

5.1 Conclusion and discussion

The aim of this research was to explore and explain what stimulated the eagerness and willingness for knowledge sharing to develop a team's shared mental model and if there is a significant difference between governmental teams. The quantitative analyses at study 1 revealed significant differences between teams for the distribution of: general task and team knowledge; attitudes toward teammates and task; team dynamics and interactions; and team resources and working environment. Follow-up analyzes showed that the large, younger aged team and the large mix-aged team differed significantly from each other for: attitude towards teammates and task; team dynamics and interactions; and team resources and work environment (Field, 2013).

Subsequently, the qualitative analyzes at study 2 explored stimulating factors for eagerness and willingness for knowledge sharing and the development of a shared mental model. The interviewee's explained that subject-matter expertise might be stimulating for eagerness for knowledge sharing and collaboration may be a stimulating factor for willingness for knowledge sharing. The interviewee's also explained that there were two additional factors that may have a direct stimulation on the development of a shared mental model, namely job satisfaction and team goals.

Differences between teams and stimulating factors for agerness and willingness

Study 1 made clear that individual team members at all teams mention there was a strong overall agreement about willingness for knowledge sharing and eagerness for knowledge sharing. Team members at all teams showed consensuses about a very strong level of willingness for knowledge sharing and a strong level of eagerness for knowledge sharing. Overall, the quantitative analyzes showed no significant difference between teams of eagerness for knowledge sharing and also of willingness for knowledge sharing, indicating a more similar distribution between eagerness and willingness for knowledge sharing across the teams.

Subsequently, study 2 explored stimulating factors for eagerness and willingness for knowledge sharing at a governmental organization. The explanatory answers of the interviewee's suggest that collaboration might stimulate an individual's willingness for knowledge sharing with others. In line with De Vries et al. (2006) who claims that collaboration consisting of mutuality is essential to stimulate team members who are willing to donate and collect knowledge at the team level, because there can be hesitation to share knowledge if there is ambuigity whether others are also willing to collaborate to the team's interest. The interviewee's explained that for stimulating an eager attitude; individuals need to be aware of and recognize the importance of knowledge. They suggest that when individuals are more aware of their subject matter expertise, this may

enhance the performance belief motivation to easily share knowledge with other team members. In line with earlier research, which stated that the level of subject matter-expertise of the individual team member can also inspire the willingness of other members to share knowledge positively influence an eager attitude for knowledge sharing (De Vries et al., 2006).

Differences between teams and stimulating factors for a shared mental model

Study 1 made clear that the two older aged teams showed the highest level of consensus about having a team's shared mental model, against a large younger aged team, a large mix-aged team, and finally a small mix-aged team. In line with Gellart and Kuipers (2008) who stated that teamwork and team performance may benefit from the subject matter expertise of older aged team members (Gellart and Kuipers, 2008). Earlier research suggested that the average age of a team could be increased, by adding older team members to teams with younger team members (Gellart and Kuipers, 2008). However this research explored that adding older aged team members with younger aged team members, for example at: the small mix-aged team and the large mix-aged team, was not beneficial for stimulating the creation of a shared mental model at this research. Subsequently, the quantitative analyzes focused at the distribution of the five factors of the shared mental model. Which revealed a significant difference in distribution of general task and team knowledge, attitude toward teammates and task, team dynamics and interactions and team resources and work environment across teams. These differences might be explained by the major changes in the social domain, which imposes governmental organizations to explore, together with their citizens, how to enable their independent functioning and social participation. It is important to create these tailor-made solutions and differences are aloud, but there is also a need for an overall standard with a weighing-up framework to maintain unambiguousness with regard to the execution of the tasks (Bosselaar and Van der Veer, 2018).

The explanatory findings at study 2 suggest that there are two factors that might influence the development of a shared mental model, namely: team goals and job satisfaction. Individuals mentioned during the interviews that setting team goals improved the development of a team's shared mental model. Also Kaats and Opheij (2013) stated that establishing team agreements and goals ensures that team members take the same direction within their cooperation. These team agreements and goals could be realized by creating a learning environment for knowledge sharing, which enhances the creation of a shared mental model (Gellart & Kuipers, 2008). Individuals also mentioned job satisfaction as a stimulating factor in order to create an overall shared mental model. These explorative findings correspond with the findings of Bock and Kim (2001), who stated that more attention should be paid to enhancing the appreciation of work and to create a positive mood for social interaction to improve knowledge sharing. They mentioned this could be realized by providing useful feedback, instead of creating elaborate team or organizational evaluation systems, in order to improve the individual team member's self-efficacy (Bock and Kim, 2001). This could explain the importance of the factor general task and communication skills, the only factor with a more similar distribution across teams at this research. Also Bosselaar & Van der Veer (2018)

mentioned that professionals are asked to show a possitive attitude and connecting skills, in order to act as a moderator more than as problem solver (Bosselaar & Van der Veer, 2018).

Age and team size seem to matter during this research, but it is possible that there are many other factors that may have played a role in these differences found during this study. Earlier research has already shown that the demographic diversity of a team, such as sex, age, or tenure, does not increase the value of intragroup knowledge sharing or external knowledge sharing, unless the demographic diversity exposes team members to the donation of subject-matter expertise of other team members (Chatman and Flynn, 2001; Cummings, 2004).

This research cannot conclude which role age and team size exactly play based on the small sample size of only five teams. However this research showed that out of five factors there were three factors of a shared mental model significant different between two teams with a large team size. And another factor showed a significant difference between a small sized team and a large sized team. These significant differences may be in line with earlier research, which pointed out that the more team members there are, the higher the chance this might result in having difficulties contributing to the team's interest (De Vries et al., 2006). Also pre-study claimed that team members of smaller teams collaborated more actively and without formal coordination mechanisms compared to members of larger teams (Bradner, Mark, & Hertel, 2005).

To conclude, most of the findings are in accordance with previous research. By using an integrated model, in which the shared mental model and knowledge sharing attitudes coexist and by integrating quantitative research and qualitative research, this study expanded the existing models used in previous research and even explored possible stimulating factors for creating a shared mental model.

First, this research revealed that: willingness and eagerness for knowledge sharing; and task and communication and skills, were more similar between social teams of a governmental organization, then knowledge, processes, roles, responsibilities and attitudes toward team and task. Which might be explained by the governmental organizational structure: the social domain is familiar with policy makers that generate and create new knowledge for policy development. Then the social teams included in this research are more practice-oriented, which asks for sufisticated knowledge sharing attitudes, and necessary skills for the distribution and application of knowledge in order to cope with the higher complexity of problems and tasks. But also to cope with the current struggle how to solve these problems and tasks at the pace of the emerging knowledge economy (Trommel & Boutellier, 2018). The role of the government is to find and create a proper balance between encouraging residents to take care of themselves, creating conditions for a vital civil society and helping residents in need. This asks from social teams a transformation of roles, responsibilities, processes and attitudes towards the task and the teams often only discovered how and adjusted during the process of guidance to the resident (Bosselaar and Van der Veer, 2018).

Secondly, this research may suggest, based on the explorative and explanatory nature, that there are explanatory stimulating factors for individuals' willingness and eagerness to share knowledge with team members at a governmental organization. Moreover, these stimulating factors differ, namely subject matter expertise might influence an eager attitude and collaboration might influence the willingness for knowledge sharing. Subsequently, job satisfaction and setting team goals might help to create a shared mental in order to improve task performance and team processes, also here further research is needed.

Finally, having older aged team members at a governmental organization might be beneficial for donating subject matter expertise with their often-younger team members. The results of this research might suggest that older aged team members have more agreement about having a shared mental model. Subsequently, this research also explored that large teams might possess a higher level of agreement about having a shared mental model about team dynamics, attitudes towards teammates and skills. But this research cannot conclude which role age and team sizes exactly play based on research of only five teams, therefore further research is needed.

5.2 Limitations of this research

Despite a careful design of the study, some limitations were encountered. First, the data was collected from the team members during the summer vacation, which negatively impacted the number of participants and for the online survey since many civil servants were on leave. Further research is needed to validate the findings of this study by using a larger sample size, with more large teams at several organizations. A larger sample size allows researchers to conduct a better quantitative research based on the instruments used from De Vries et al. (2006) and Johnson et al. (2007).

Second, the usage of multiple measurement instruments within the same study based on different methods can reveal different patterns of findings (Mohammed et al. 2010). In this research the shared mental model was measured through the TADI (Johnson et al., 2007). A limitation of this research, to extensively capture this varied cognitive knowledge, is that the TADI measures the individual perception about having a shared mental model as a team. It would therefore be recommended to design and develop an instrument for measuring the team's perception about having an agreement of a team's shared mental model aimed at countering for socially desirable answers of individuals.

The final limitation is the generalizability of the research. This research was conducted at a social domain of a governmental organization, where earlier research focused at defence and naval domains (Smith-Jentsch, et al., 2001). This research differed with earlier research specifically by exploring less influencing elements, such as team size, age and knowledge sharing attitudes. Whereas Smith-Jentsch, et al. (2001) conducted a broader research on high-ranked functions, low-ranked functions, work experience and other variables.

5.3 Theoretical implications for new research

Future research should explicitly compare the way that eagerness and willingness for knowledge sharing influences a shared mental model based on a large sample size, age of team members and

individual work experience at narrowly focused and highly differentiated teams. But future research should also investigate what factors stimulate demographic diverse teams to share and create a shared mental model.

Finally future research should expand this performed research by the use of several field settings. In order to compare several shared mental models and the influence of the individual, the team and organization characteristics on the creation of a shared mental model. Only the context-dependent nature of of a shared mental model study asks for controlling for the specific task performance and team processes during future research.

5.4 Practical implications

There were also several practical implications of this study. First, executives should focus on how to involve team members in the knowledge process, in order to improve the skills of team members required for donating and collecting knowledge. One suitable method for stimulating knowledge sharing is peer collaboration between team members: consisting of donating and receiving feedback about task performance and team processes. Peer collaboration reserves time for the creation of these processes and emphasizes the importance of the willingness to share knowledge on the team level. Team members could also evaluate their level of subject-matter expertise in order to know what knowledge needs to be collected from other team members and in order to increase the eagerness for knowledge sharing with others. In addition, it is important to create short spontaneous knowledge sharing moments during a day to donate and collect knowledge, which could stimulate team dynamics and interaction especially at small teams. These moments can also help improve job satisfaction and underscore the importance of knowledge sharing.

Second, this research suggests that it is important for all teams to pay attention to enhancing the individual appreciation of work and to creating a positive mood for social interaction at the team level. Team members have to appreciate personal contact in order to improve general task and communication skills by means of having informal conversations, which could improve the personal well being of a team member. Being part of a team or organization could help to improve the individual team member's self-efficacy. Especially in this knowledge economy, where technology emerges rapidly and the personal contact between members seems to be more important than ever.

Third, a digital place, where knowledge can be donated, collected, and discussed on any time and place enhances individual knowledge sharing. Because the individual team member can filter what he or she finds important information to collect or to donate with team members. It can also be used as a storage place, in order to deal with the overload of information at the current knowledge economy. Embracing twenty-first century technology is therefore necessary, but this asks for a good selection about what is necessary in order to increase task performance and team effectiveness. As society becomes increasingly more complex and knowledge sharing an the appliance of this knowledge is crucial for individuals, teams, and organizations for a good performance level, just as it is to eat and sleep as a human being.

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Appendix A: measured constructs

Items online survey

Thema	Construct	Item	Antwoord mogelijkheid
Persoonlijk	Demografische vragen	● In welk team ben je werkzaam?	Nominaal 1. Jeugd en Gezin. 2. WMO. 3. Leerplicht. 4. Zorgloket. 5. Administratieve ondersteuning. 6. Coordinatoren.
		● Wat is je geslacht?	Nominaal 1. Man. 2. Vrouw.
		● Wat is je leeftijd in jaren?	Schaal.
Kennis delen (De Vries et al., 2006; Van den Hooff & Hendrix, 2004).	Bereidheid	● Gelijkwaardige kennisoverdracht belemmert de groepsprestatie. ● Het delen van kennis is niet in ons gezamenlijk belang. ● Een groep functioneert beter als iedereen zijn kennis voor zichzelf houdt. ● Ik probeer door middel van het delen van kennis de groepsprestatie te verbeteren. ● Ik voel me niet betrokken bij mensen met wie ik op gelijkwaardige basis kennis deel. ● Ik heb weinig belangstelling voor diegenen die hun kennis delen. ● Ik hecht geen belang aan wederkerigheid in relaties. ● Ik vind het onbelangrijk dat er uitwisseling van kennis plaatsvindt. ● Het uitwisselen van kennis kan de samenwerking tussen collega's verstoren.	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.
	Gretigheid	● Ik voel mij gewaardeerd wanneer ik veel van mijn werkterrein/expertisegebied af weet. ● Als het even kan, praat ik met iemand over 'mijn onderwerp'. ● Erkenning van mijn deskundigheid motiveert mij. ● Als een onderwerp mijn expertise betreft, kan ik daar over blijven vertellen. ● Zaken die ik waardevol acht, vertel ik ongevraagd aan mijn collega's. ● Ik heb weinig behoefte om over 'mijn onderwerp' te praten. ● Ik vraag regelmatig aandacht voor mijn vakgebied tijdens vergaderingen. ● Ik wil graag anderen overtuigen van het belang van 'mijn onderwerp'. ● Ik begin bijna nooit een gesprek met iemand over mijn vakgebied.	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.
Shared mental model van team gerelateerde kennis (aangepast op basis van Johnson et al., 2007).	1. Algemene taak en team kennis.	● Mijn team heeft algemene ideeën van specifieke team taken. ● Mijn team doet wat hun toegewezen is. ● Mijn team kent de relatie tussen verschillende taak onderdelen. ● Mijn team gaat op zoek naar verschillende interpretaties van een probleem bij het zoeken naar een oplossing voor verschillende taak problemen. ● Mijn team evalueert hun beperkingen in het uitvoeren van hun taken. ● Mijn team heeft een standaard doel voor verschillende project taken. ● Mijn team bespreekt de bereikbaarheid van het doel en het verkrijgen akkoord van teamgenoten. ● Mijn team kent specifieke strategieën voor	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.

	het voltooien van verschillende taken. ● Mijn team kent het algemene proces bij het uitvoeren van een verkregen taak.	
2. Algemene taak en communicatie vaardigheden.	● Mijn team begrijpt dat ze over de vaardigheden bezit voor het doen van verschillende team taken. ● Mijn team communiceert met andere team leden gedurende het uitvoeren van taken. ● Mijn team ondersteunt continue verbetering op het vlak van persoonlijke vaardigheden als in termen van algemene team vaardigheden. ● Mijn team bepaalt haar communicatiekanalen aan het begin van diverse team taken. ● Mijn team gebruikt een gezamenlijke vocabulaire in taak discussies. ● Mijn team communiceert op informele wijze met elkaar over verschillende team taken. ● Mijn team laat herhaaldelijk effectieve luister vaardigheden zien.	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.
3. Houding tegenover teamleden en taken.	● Mijn team voert graag verschillende team taken uit. ● Mijn team moedigt elkaars werk aan om de resultaten van verschillende team taken te verbeteren. ● Mijn team is trots op hun werk. ● Mijn team geniet van nadenken. ● Er zijn geen ethische problemen binnen mijn team waarbij teamleden niet in staat zijn deze op te kunnen lossen. ● Mijn team deelt informatie en de individuele teamleden houden geen informatie achter voor zichzelf. ● Mijn team is toegewijd aan het team doel. ● Iedereen in mijn team streeft ernaar om zijn of haar mening te uiten.	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.
4. Team dynamiek en interacties.	● Mijn team begrijpt hun rol en verantwoordelijkheden voor het uitvoeren van verschillende team taken. ● Mijn team begrijpt waar ze informatie kunnen krijgen voor het uitvoeren van verschillende team taken. ● Mijn team begrijpt hun eigen interactiepatronen. ● Mijn team informeert elkaar over de verschillende werk kwesties. ● Mijn team is geschikt om samen een beslissing te nemen. ● Mijn team kan zich flexibel aanpassen naar elke rol in het team voor het uitvoeren van verschillende team taken. ● Mijn team verbindt onderling afhankelijke taken. ● Mijn team begrijpt hoe zij informatie kunnen uitwisselen voor het uitvoeren van verschillende team taken. ● Mijn team lost problemen op die optreden tijdens het doen van verschillende team taken.	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.
5. Team bronnen en werkomgeving.	● Er is een sfeer van vertrouwen in mijn team . ● Mijn team zorgt voor een werkomgeving die productieve resultaten bevordert. ● Mijn team zorgt voor een veilige omgeving, om eventuele problemen in verband met het succes van het team openlijk te bespreken. ● Mijn team erkent en beloont gedrag dat bijdraagt tot een open team klimaat. ● Mijn team gebruikt vaak verschillende meningen omwille van het verkrijgen van optimale resultaten. ● Discussies voor de besluitvorming vinden binnen mijn team plaats tijdens	5-puntsschaal: 1. Helemaal mee oneens. 2. Mee oneens. 3. Neutraal. 4. Mee eens. 5. Helemaal mee eens.

	vergaderingen, zodat teamvergaderingen worden gezien als nuttige activiteiten. ● Mijn team heeft een positief team klimaat. ● Mijn team heeft de juiste ervaring, zodat een kritische massa van ervaren mensen beschikbaar is in het team. ● Mijn team kent de belemmerende omgevingsfactoren als ze verschillende team taken uit voeren.

Appendix B: Codebook

Theme	Label	Definition	Elements	Example
Knowledge Sharing De Vries et al., 2006, p.117).	Willingness	The extent to which an individual has a strong internal drive to communicate intellectual ability to other group members.	Positieve houding ten opzichte van andere groepsleden, persoonlijke kennis en het belang van de groep. Gebaseerd op doneren en kennis verzamelen.	"Nee, ik vind halen en terugbrengen. Als ik van mezelf uitga, vind ik dat wel. Want het is bijvoorbeeld bepaalde kennis, ik heb veel kennis van Wijkracht en maatschappelijk werk en een andere collega van budget alert. En als ik dan wat heb en van hoe moet ik daar mee omgaan, dan ga ik wel naar de andere collega toe en die legt mij dan uit hoe of wat. Ik vind dat wij wel uitwisselen en wij wel bij elkaar weghalen."
	Eagerness	The extent to which an individual is prepared to grant other group members access to individual intellectual ability"	Een positieve houding richting kennis over een bepaald onderwerp. Een gevraagde en/of ongevraagde uiting van kennis. Met een oriëntatie op het onderwerp waarover kennis wordt gedeeld. Wordt gezien als waardevol en het individue verwacht hierdoor gewaardeerd te worden door anderen.	"Ja, zo zie ik het. De ene is wat meer haantje de voorste daarin, wil graag de dingen delen en vind dit belangrijk. En anderen houden zich iets meer op de vlakte omdat het niet zo belangrijk is, terwijl het heel belangrijk is. Je hebt toch altijd de kartrekkers en de mensen die denken van jah.. Terwijl juist die inbreng van belang kan zijn. "
Shared mental model of team-related knowledge (Johnson et al., 2007).	General Task and Team Knowledge.	General types of knowledge, including team knowledge and task-related knowledge. General team knowledge is related to how the team interacts, also represent general team knowledge. Task-related knowledge is based on common knowledge about task-related processes. (Processes)	Begrip van personele kennis: hoe het team samenwerkt. Taak-gerelateerde kennis: gemeenschappelijke kennis op werk-gerelateerde processen. Niet: taakspecifieke kennis (specifieke procedures, reeksen, werk handelingen en strategieën) Ta how the team works together. Task-related knowledge: common knowledge on job-related processes.	"We zijn net een beetje bezig om de processen in ons team te veranderen, misschien dat dat er mee te maken heeft. Met het slimmer werken pakken we dingen anders op. En voorheen was het ook euh, en nou moet ie daarheen en nu moet je het afronden en dan moet het weer daarheen. En hoe loopt dit nou, het proces is me helemaal onduidelijk. En dan moest je het weer opsplitsen, want de dingen.. ik kom er helemaal niet uit. Door het slimmer werken komt er nu wel meer duidelijkheid over het proces. Marlou is hier ook goed mee bezig geweest en nu is het wel helder hoe het proces eruit ziet en er zijn ook stappen tussenuit gehaald. Waardoor het overzichtelijk wordt. Het kan zijn dat er dan nog verschillen zijn om dat er nu een overgang is."
	General Task and Communication Skills.	Skills measured by the cognitive or physical ability needed to engage in, practice and interact with teammates. (skills)	Communicatie, team oriëntatie, team leiderschap, controle vaardigheden, feedback, back-up gedrag en coördinatie Team-specifieke vaardigheden: manieren van conflicthantering, team cohesie, stilzwijgende coördinatie om succesvol te zijn, een gedeeld begrip van de situatie en een goed begrip van elkaars rollen en verantwoordelijkheden.	"Zeker het laatste, iedereen heeft een focus op het eigen team. En iedereen ziet het belang wel, maar de waan van de dag regeert. Nou jah.. Dat is denk ik ook het lastige, je bent er als coördinator ook voor je eigen team maar het is juist de kunst om ook het overstijgende met elkaar, het gezamenlijk verantwoordelijk voelen voor de hele afdeling dat vinden we allemaal lastig. We kijken eerst naar ons eigen team en dan wat betekend dat voor andere teams."

Attitude Toward Teammates and Task.	A condition, which influences choices or decisions of a team to act in a certain way under particular circumstances. (attitude)	Op basis van gedeelde overtuigingen tussen teamleden en de waarde van het delen van adviezen.	“Dat je weet waar wil je op aan met het team en dat het nog wel helderder naar voren mag komen. En dat je weet waar je op aan wilt met het team, dat je allemaal voor een doel staat om te bereiken.”
Team Dynamics and Interactions.	Dynamics such as team dynamics and interactions, which consist of teamwork processes and procedures. (Roles and responsibilities)	Rollen en verantwoordelijkheden, waar informatie te zoeken, hoe informatie te delen, interactie patroon, teamgenoten die problemen oplossen, besluitvorming, aanpassen aan nieuwe rollen, en het uitvoeren van onderling afhankelijke taken.	“Ik denk dat het wel goed is dat meer regisseurs gekomen zijn, waardoor zij ook dingen van elkaar kunnen overnemen. En ik denk dat ook sommige consultenten die rol ook wel op zouden kunnen pakken. Ik heb niet zoiets van die zouden dat niet op kunnen pakken.”
Team Resources and Working Environment.	Measures the team environment. (context)	Vertrouwen, openheid, verschillende perspectieven, het bewustzijn van milieueisen, teamsamenstelling en de nodige middelen om teamtaken uit te voeren.	“Ja, ik heb eerlijk gezegd dat daar nu al wel verandering in komt. Door alles wat nu in gang gezet wordt, door slimmer werken. Ik heb het gevoel dat er al wel meer openheid en samenwerking daardoor is ontstaan en de achterstanden zijn nu natuurlijk weg. Er is nu wel meer ruimte, dus ik heb het idee dat het nu al wel aan het ontstaan is.”