Civil-Military Interaction: a Case Study to validate a Conceptual Framework

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ABSTRACT

International peace operations in response to complex emergencies require effective interaction between international civil and military participants and local actors. Although these operations frequently occur worldwide, civil-military interaction (CMI) remains problematic. CMI problems are described in the literature at length. However, the knowledge management aspects of these problems have received less attention. The feasibility of technical support solutions for CMI should be investigated using a design science approach. This requires validated models of the structural and behavioral characteristics of the CMI domain. A CMI conceptual framework providing such models has been proposed earlier and should be validated. A case study has been conducted into a Netherlands military CMI organization. This study provides for initial user validation of the models. In follow-on research, the validated conceptual framework is used to structure the investigation of CMI problems, knowledge process deficiencies, and their causal relations. It may subsequently support knowledge engineering-based solution design.

Keywords

Civil-military interaction, case-study, models, validation

INTRODUCTION

Civil-military interaction (CMI) refers to the intentional interaction between military and civil organizations and individuals, or "actors". This research is about CMI in international peace operations in response to "complex emergencies." These are characterized by a combination of international conflict, humanitarian disaster, large-scale displacement of people, and fragile or failing economic, political, and social institutions (Weiss and Collins, 2000). Military actors in this research are military forces using the terminology and procedures of the North Atlantic Treaty Organization (i.e. forces of NATO member states and allies). Civil actors involved in CMI include the local population and local organizations in the crisis area, and a wide array of both intergovernmental organizations (IO) and international non-governmental organizations (INGO) which may be involved in international peace operations.

Both on the civilian and military side, the importance of effective CMI is widely understood and acknowledged (Lucius and Rietjens, 2016). However, effective CMI is often hampered by a host of factors. Descriptions of CMI problems by many researchers range from organizational and technical to cultural and political causes. Eriksson (2004), Frerks (2016), and Ruffa and Vennesson (2014) point to a mutual lack of trust, competition, and sometimes even outright hostility between civil and military actors. Many authors describe fundamental differences in attitude, culture, values, and interests as factors hampering CMI (Daniel and Wittichová, 2020; Gourlay, 1999; Rietjens, 2014; Winslow, 2002). Others mention differences in organization structure, procedures, and terminology (Eriksson, 2004; Shetler-Jones, 2016; Thompson *et al*., 2019).

The "Comprehensive Approach", NATO's doctrine for cooperating with civil partners in peace operations, requires military planners to have a better understanding of non-military planning factors (Shetler-Jones, 2016). Planning factors are organized in NATO as "PMESII factors": Politics, Military, Economy, Social, Infrastructure, and Information (CCOE, 2020). Consequently, CMI is aimed at knowledge about these factors being created,

shared, and applied during interaction. This knowledge relates to the context, i.e. the complex emergency, the local environment, the local actors in the crisis area, the participants of a peace operation and their location, capabilities, and intentions, their attitude towards each other, including their inclination to cooperation, etc. However, CMI research from a knowledge management perspective appears to be remarkably absent in the literature (Daniel and Wittichová, 2020; Furnari, 2015; Noll and Rietjens, 2015). The research project of which this paper is a part aims to fill this gap, by studying CMI problems and their causes from a knowledge management perspective, and exploring knowledge engineering-based CMI support for civil and military participants in international peace operations. Previous research proposed a conceptual framework of the CMI domain, consisting of models of its structural and behavioral characteristics ("CMI conceptual framework" for short) (Ooms *et al.*, 2018). This CMI conceptual framework has not yet been validated. Once validated, it is used to structure the investigation of CMI problems, deficiencies in the underlying knowledge processes, and their causal relations. The framework may subsequently support knowledge engineering-based solution design.

This paper describes a case study conducted to validate the CMI conceptual framework. If using "case study" as research strategy, Yin (2014:56-64) advises to choose a "two-case" design if feasible. This would allow "literal replication" as replication logic, i.e. designing the second case to predict similar results. This should yield more powerful analytic conclusions. Hence, for this research project it has been inferred to conduct two case studies with literal replication for full validation of the CMI conceptual framework. The scope of this paper is the first case study, including how its findings are used for initial user validation and improvements of the framework. This paper consists of seven sections. The next sections describe related theory and the research methodology. This is followed by descriptions of the data collection and the findings. Subsequently, based on these findings, the CMI conceptual framework is evaluated and improvements are proposed.

THEORY AND BACKGROUND

CMI research

Literature review shows little research into CMI and knowledge. Furnari (2015) conducted research into the creation of knowledge by peacekeepers in complex emergencies. She notes: "little research on effective peacekeeping includes the knowledges [sic] of frontline peacekeepers" (Furnari (2015:102) deliberately uses the word "knowledge" in the plural sense). Daniel and Wittichová (2020) conducted research into the development of knowledge on CMI. Their focus was "soldiers' understanding of their role vis-à-vis the local civilian population and the knowledge they draw upon." They noted that "[this is] a perspective which has so far received only limited attention." (Daniel and Wittichová, 2020:597) However, knowledge processes other than knowledge creation were outside the scope of the work of Furnari, and Daniel and Wittichová. Noll and Rietjens (2015) were apparently the first to apply organizational learning theory to CMI research in their analysis of "CIMIC" (for Civil-Military Cooperation), which is the military concept for the organization and conduct of CMI. Noll and Rietjens analysed NATO's problems to learn and institutionalize CIMIC as a new concept after the Cold War. However, they focussed on how NATO has been learning and institutionalizing the concept of CIMIC, rather than how NATO is learning from specific problems with CMI. The latter learning process is the focus of this research. CMI may be conducted at different "levels of interaction", which relate to the CMI typology proposed by De Coning and Friis (2011). Their "degrees of coherence" are considered synonymous with "levels of interaction" (Rietjens, 2017) used for this research, as described in Table 1. The purpose of CMI may be defined as the realization of the agreed level of interaction.

Knowledge

Oliver (2013) notes that "the continuing lack of a clear definition of knowledge makes for difficulties in gaining acceptance for knowledge management." In their discussion on "the elusive definition of knowledge", Bolisani and Bratianu (2018) note: "experts in knowledge management [...] tried to define knowledge but the results are still very fuzzy." It is concluded that it is left to the researcher to adopt a definition of knowledge that suits his research best. The definition of knowledge traditionally accepted in epistemology is: "a justified belief that increases an entity's capacity for effective action." (Alavi and Leidner, 2001; Nonaka and Takeuchi, 1995) It can be traced back to Plato's definition of knowledge as "a justified and correct belief." Knowledge is defined in knowledge management differently from its definition in epistemology. According to Davenport and Prusak (1998:5) and Zins (2007), knowledge should be defined for knowledge management both in the subjective and the universal domain. Peter Drucker (1988:4) relates knowledge to data and information: "converting data into information [...] requires knowledge." Van der Spek and Spijkervet (1998:13) adopt Druckers definition, adding: "knowledge can be applied in multiple situations and over a longer period." Based on the definitions of knowledge

in the literature, for this research the following definition is adopted: "Knowledge is a justified belief that enables people to attach meaning to data and in that way generate information. Knowledge can be applied in multiple situations and over a longer period. Knowledge exists both internally, in the human mind, and externally, as published in books and available in digital media. Internal knowledge is referred to as tacit knowledge, external knowledge as explicit knowledge."

Level of interaction	Characteristics
United	Unified structure, joint leadership, agreed strategic vision, unique circumstances
Integrated	Integrated approach and activities, own resources, not giving up own identities
Cooperate	Joint action, complementary or overlapping mandates and objectives
Coordinate	Sharing information, avoiding conflict, independent but coordinated action
Coexist	Forced to interact because sharing same operating theatre, some deconfliction
Compete	Competing values, visions, and strategies, *eg* using force *vs* non-violence

Table 1. Levels of Interaction, adapted from (De Coning and Friis, 2011; Rietjens, 2017)

CMI conceptual framework

The CMI conceptual framework as proposed by Ooms *et al.* (2018) is a reference model of the structural and behavioral characteristics of the CMI domain, including the underlying knowledge processes. The CMI conceptual framework is described as follows. Structural characteristics of the CMI domain are modeled as class diagrams of the Unified Modeling Language version 2.0 (UML 2.0) (Fowler, 2004; OMG, 2017). A UML class diagram may be used for software engineering and for conceptual modeling. When used for conceptual modeling, it represents the concepts of a domain of study, i.e. the CMI domain, and their relationships, with the purpose of "building a vocabulary to talk about a particular domain" (Fowler, 2004:5). Figure 1 provides the CMI Domain concepts model as a UML class diagram. Subclasses of CMI actors are modeled in a separate UML class diagram (not shown). The model is described as follows, using the figure's legend.

A UML class represents a set of members that share the features of that class. In UML, features are described as properties and operations. According to UML convention, concepts defined as classes in UML are written with initial capital, *eg* Resource. This practice is applied in the remainder of this paper. Figure 1 shows that the operations of a CMI Process are linked to the intended level of interaction (see Table 1). Other properties and operations of the classes have not yet been inserted in the class boxes of the diagram. Properties can also be represented by an association. CMI Actors are a property of the CMI Process of which they are participants. The multiplicity symbols along the arrow show that there may be any number of CMI Processes ongoing (or none), and that every CMI Process has at least two CMI Actors as participants. This relation is bi-directional: a CMI Actor may participate in zero or more CMI Processes. The arrow sign near the verb indicates how the relation should be read. Without an arrow, the relationship may be read both ways. When the relation is clear, the verb is omitted, *eg* Recipients have Needs. The generalization arrow indicates that a Recipient is a special kind of Local actor, i.e. shares the features of Local actors. As shown in this model, CMI Actors provide Services which fulfil the Needs of Recipients. Providing a Service, *eg* distribution of food, may require Resources, *eg* transport facilities. These Resources may be owned by the CMI Actor providing the Service, or may be provided by a Local actor. Local actors may provide Services as well. CMI Actors interact with Local actors. Strictly speaking this may be CMI as well. The design decision not to model this relation as CMI is taken because of the purpose and scope of the related research project: "[…] exploring knowledge engineering-based CMI support for civil and military participants in international peace operations."

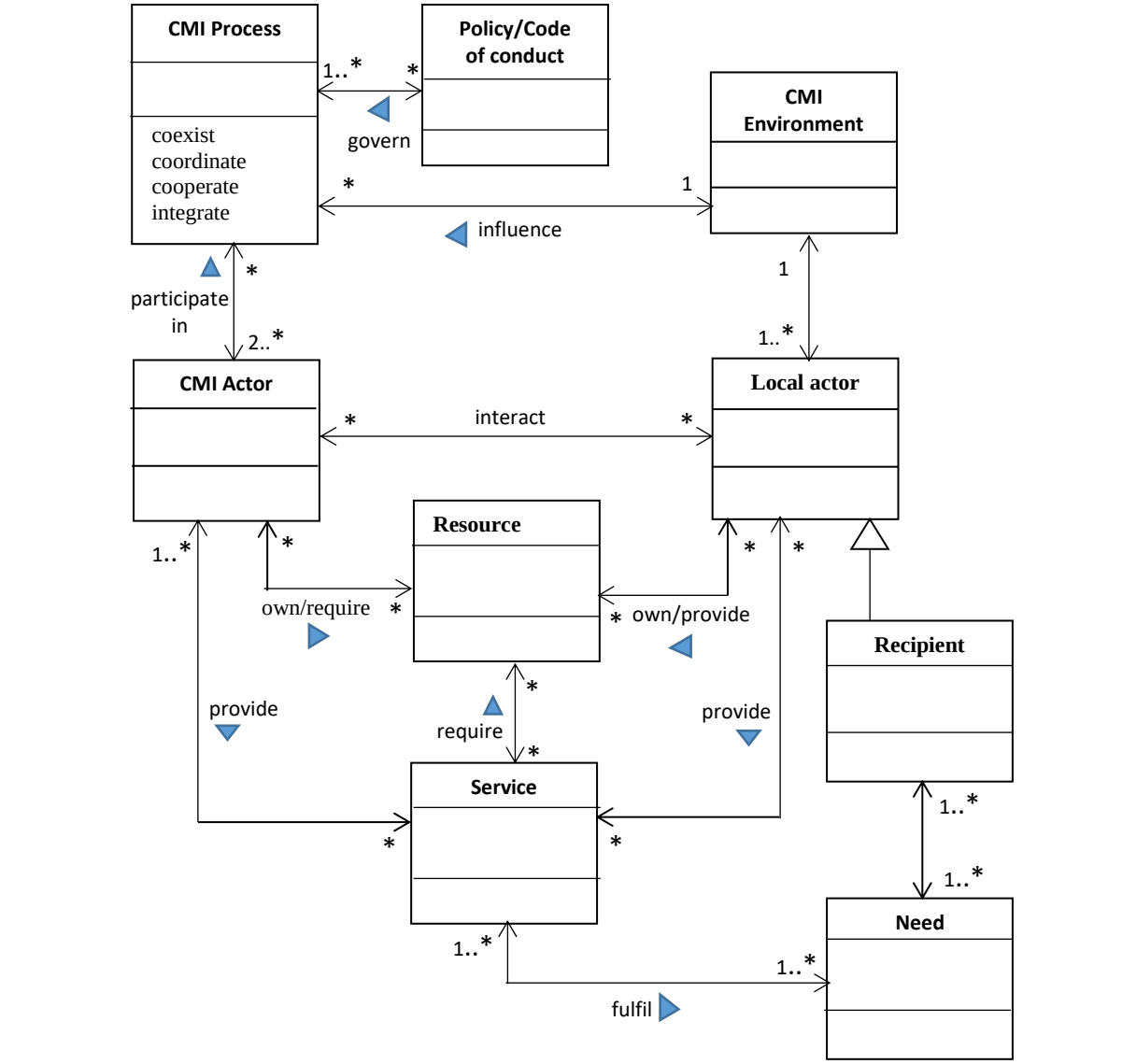


Figure 1. UML Class Diagram of CMI Domain Concepts Model (Ooms *et al.*, 2018)

Behavioral characteristics of the CMI domain are modeled as collaboration diagrams of the Business Process Model and Notation (BPMN) modeling language version 2.0 (BPMN 2.0) (Allweyer, 2016; OMG, 2014). The CMI conceptual framework is organized around two main processes: peace operation preparation and execution. Models of different types of peace operations are included as sub-processes, as shown in Table 2.

parent process	sub-process	main activities / called processes
Peace operation preparation	Generic preparations Deployment preparations	- Contingency planning - Liaise with CMI partners - Conduct exercises
Peace operation execution	Peace enforcement & limited humanitarian relief Peace support & humanitarian relief Peace support & development support	- Military securing operations - CMI patterns (called processes): - Operational deconfliction - Military protection - Military assistance

Table 2. Process Models of CMI Conceptual Framework (Ooms *et al*., 2018)

Each process and sub-process has been modeled as a BPMN collaboration diagram. Specific CMI Processes ("CMI patterns") are modeled as "called processes", which is a BPMN construct. They are invoked by the active sub-process when required. The design choice not to model knowledge processes separately in the CMI conceptual framework is based on the assumption that the underlying knowledge processes are interlaced with the CMI Process they support. Many process steps can be described both as a CMI activity and as a knowledge process activity. For this reason, both processes should be modeled together.

As a standard BPMN notation for these knowledge processes does not yet exist, Ooms *et al*. (2018) propose a notation using database symbols and message flow arrows as defined in BPMN 2.0 (Allweyer, 2016:48-49, 122-123). Database symbols are used as a metaphor for the aggregate of all tacit and explicit knowledge which is held within a CMI Actor organization. Three types of knowledge are proposed and indicated in the models: A, B, and C. Knowledge type A comprises knowledge about international CMI Actors, knowledge type B is contained in best practices and lessons learned, and knowledge type C comprises knowledge about the CMI Environment, *inter alia* characteristics of the crisis area, the complex emergency, and Local actors. The BPMN collaboration diagrams model the knowledge processes using the proposed notation as shown in Figure 2.

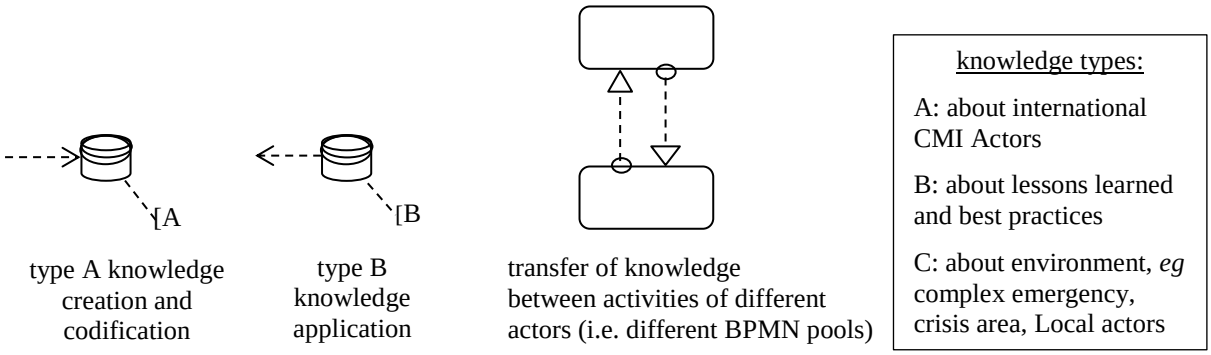
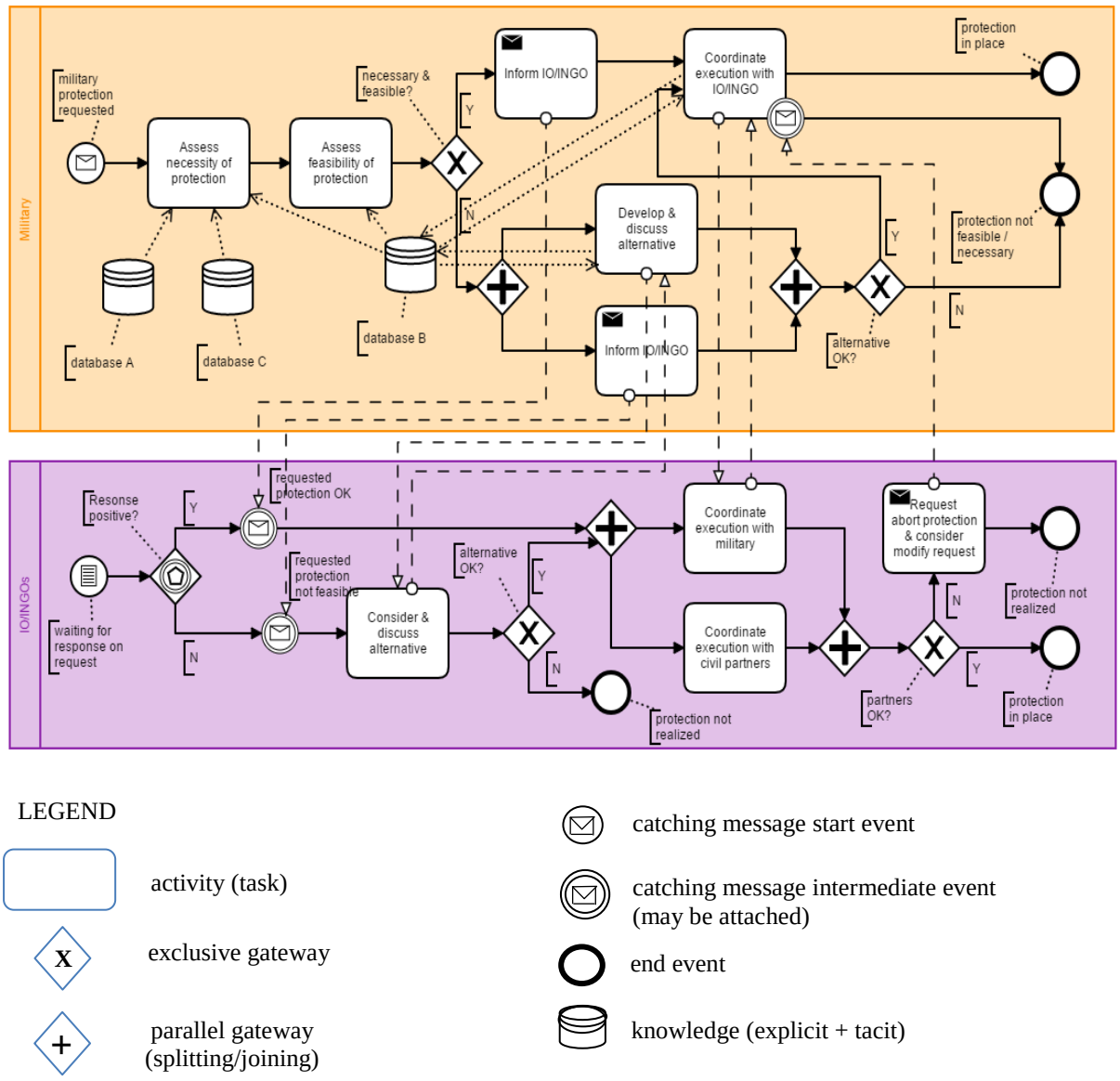


Figure 2. Proposed BPMN Notation for Knowledge Processes, adapted from (Ooms *et al.*, 2018)

Figure 3 provides the BPMN collaboration diagram for the CMI pattern "Military protection." The model is described as follows, referring to the legend below the figure. The two BPMN pools model the CMI Process activities within and between an international military actor and an international civil actor (IO/INGO) as indicated at the left border of the pool. Knowledge processes are only modeled for the military actor, using the notation of Figure 2. The process starts when the military actor receives a request for military protection from an IO or INGO, modeled as a catching message start event. The IO/INGO is waiting for a response at the start of the process. The military actor will assess whether the requested protection is necessary, using relevant knowledge A, B, and C, i.e. about the requesting actor (A), the physical environment and the threat (C), and experience with similar situations (B). Next, the feasibility of providing the requested protection is assessed, *inter alia* whether the required military assets can be made available. Again, knowledge B is used, i.e. were assets used in the past for this task sufficient? An exclusive gateway models the decision, based on the outcome of both assessments. Only if both outcomes are "yes", the requesting actor is informed accordingly. This is modeled as a send activity for the military actor and a catching message intermediate event for the requesting actor. The military actor starts to plan and coordinate the execution of protection with the requesting actor. Again, experience with previous

protection actions (i.e. knowledge B) is used. This activity may also yield new experiences (new actor, new situation), i.e. create knowledge B. On the civil side, upon receiving a positive response, two parallel activities start, modeled as a splitting parallel gateway. One activity is the planning and coordination with the military of the execution of protection. The other is coordination with civil partners which need protection. This may complicate the coordination process with the military, since different civil actors may have a different attitude vs visibly being protected by military forces. Some may feel visible protection violates their humanitarian space and their neutral stance, as perceived by the local population and opposing forces. In that case a less visible type of protection may be chosen, *eg* area protection. When both coordination activities have been completed (a joining parallel gateway), two outcomes are possible, modeled as an exclusive gateway. Either all actors involved are satisfied with the plan, and protection is executed, which consists the end event of the process. Or one or more partners are not satisfied, in which case the military is informed and requested to abort the protection, or start planning a different type of protection. This is modeled as a send activity for the civil actor, and an attached message intermediate event for the military actor. The process model includes modeling of the process when the military assesses protection as necessary but not feasible, in which case alternative solutions are developed and discussed with civil actors.



LEGEND

activity (task)

exclusive gateway

parallel gateway (splitting/joining)

catching message start event

catching message intermediate event (may be attached)

end event

knowledge (explicit + tacit)

Figure 3. BPMN Collaboration Diagram for CMI Pattern "Military Protection" (Ooms *et al.*, 2018)

RESEARCH METHODOLOGY

Research strategy

This case study is part of a research project that aims to study CMI problems from a knowledge management perspective, to reveal causal relations between CMI problems and deficiencies in the underlying knowledge processes. Subsequently, possible knowledge engineering-based solutions will be investigated, as part of the research project. This means that the research project bears characteristics of both explanatory science and design science (Simon, 1969, 1996). As such, the project is similar to Information Systems (IS) research as described by Hevner *et al*. (2004). According to their framework for IS research, a complementary research cycle between behavioral (i.e. explanatory) and design science should be engaged (see Figure 4). In this research cycle, the problem space (in the framework: "environment") and the solution space (in the framework: "knowledge base") are explored alternately. The problem space is explored to identify organizational needs, which should ensure relevance. The solution space is explored to ensure rigor.

In Figure 4, the generic IS research framework proposed by Hevner *et al.* is instantiated for CMI research. The environment is the CMI domain, the knowledge base is *inter alia* theory about knowledge management (KM), CMI, complex emergencies (CE), knowledge engineering (KE), software architecture (SA), and ontology. In terms of the IS research framework, the problem space, i.e. the CMI domain, is explored to identify organizational needs, i.e. CMI problems that could be solved or alleviated by knowledge engineering-based solutions. For explanatory science research to analyse and diagnose CMI problems, "case study" is selected as the research strategy of choice. According to Yin (2014:9-17), case study research is qualitative research with a deductive approach. A case study serves to answer how- and why-questions about a contemporary phenomenon (the "case") in-depth and within a real-world context. These characteristics apply to this research. Development of theoretical propositions prior to data collection distinguishes case study research from other qualitative methods such as ethnography and grounded theory (Yin, 2014:37-44). The CMI conceptual framework, consisting of models of its structural and behavioral aspects (Ooms *et al*., 2018), serves as the theoretical proposition for the case study.

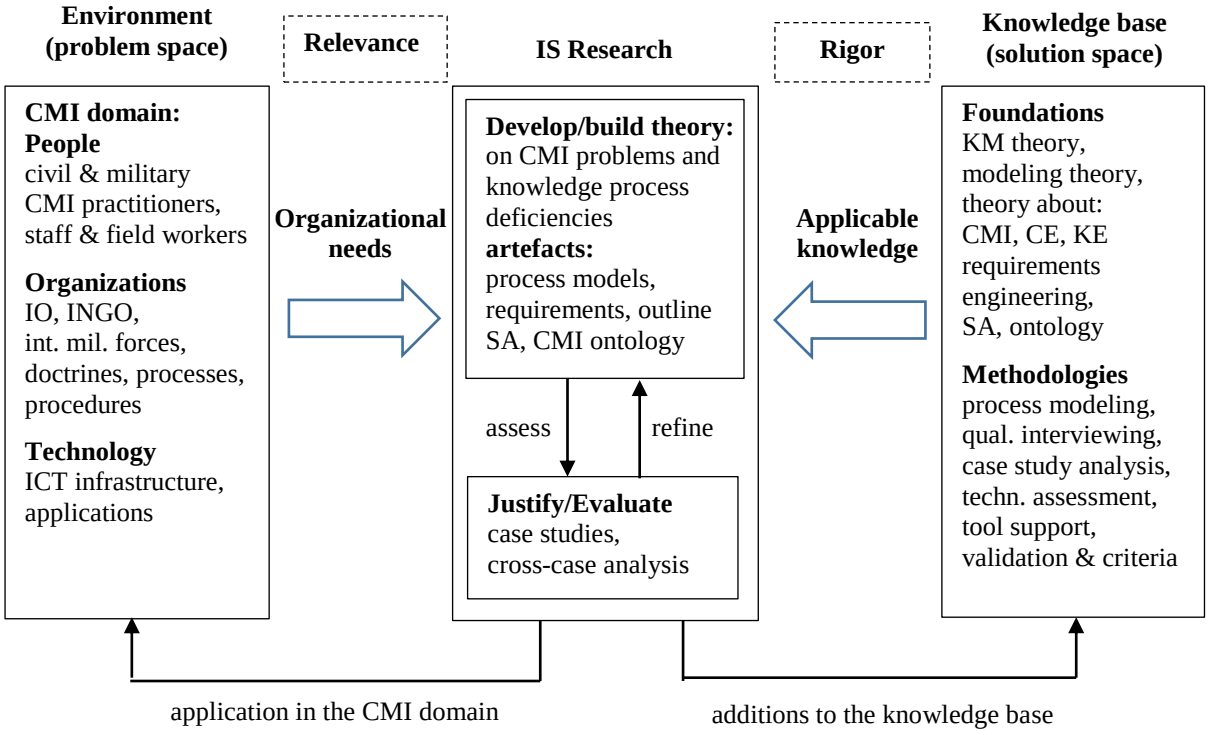


Figure 4. IS Research Framework Applied to CMI Research, adapted from (Hevner *et al*., 2004)

Case study design

This case study has a dual purpose: to validate the CMI conceptual framework, and to investigate knowledge process-related CMI problems. A military organization was selected as the subject of this case study: the First CMI Command of the Netherlands defence (1CMI-Co), based in Apeldoorn in The Netherlands. This organization

has been involved in CMI in a complex emergency setting for many years, and was also selected for practical reasons (location, access). 1CMI-Co is the successor of the army's CIMIC battalion. The military organization and personnel to conduct CMI are referred to as CIMIC, for Civil-Military Cooperation. Although the concepts are not identical, CMI and CIMIC are used interchangeably in a military context.

Yin (2014:29) specifies five components of case study research design, which apply as follows:

(1) Case study questions: how are CMI Processes conducted, which CMI problems are experienced in the course of these processes, and what causes these problems. By formulating such generic questions, initial bias towards knowledge process-related CMI problems and causes is avoided. In addition, in this way problems and causes may be discovered which may be relevant later for solution design, such as limiting conditions regarding ICT infrastructure and information security.

(2) Case study propositions: the models of the CMI conceptual framework.

(3) Units of analysis: CMI Processes and the supporting knowledge processes.

(4) Linking the data to the proposition: achieved by using the CMI conceptual framework as guideline for qualitative interviewing. The findings may be linked to the various elements of the models. In this way, deviations from the models may be detected. These are used for model refinement and to assess validity.

(5) Criteria for interpreting the findings: as argued by Yin (2014:36), statistical analysis criteria do not apply to case study data analysis. Instead, rival explanations should be identified and addressed. This is achieved by formulating generic questions. These will generate other causes of CMI problems, not related to knowledge process deficiencies. These causes are the rival explanations to be examined.

The sources of evidence are: direct observation (mainly during a pilot study), document study, and qualitative interviews, which are the main source of evidence. These are conducted as described by Rubin and Rubin (2012) and Weiss (1995). Their aim is being exhaustive by eliciting as much information as possible from a limited number of subject matter experts.

DATA COLLECTION

Pilot study

In preparation for this case study, a pilot case study was conducted. This allowed the researcher to familiarize with the domain of research by participating in two large-scale military field exercises in which peace operations were simulated. A wide range of real world international civil organizations were participating, thus creating a realistic CMI Environment. An elaborate lead-in scenario and professional role players acting as local population added to the realism. The prolonged exercise duration and professional real-world simulation resulted in a immersive experience and a high degree of realism. By experiencing the exercise preparation and conduct including the CMI aspects, the researcher recognized the elements of the "generic preparations sub-process" model of the CMI conceptual framework. A set of interviews with civil exercise participants confirmed the degree of realism experienced and revealed recurring CMI problems.

Document study

In preparation for the case study, various civil and military CMI guidelines and handbooks were studied: the NATO CIMIC doctrine publication (NATO, 2018), the "Civil-military guidelines and references for complex emergencies" published by the UN Office for the Coordination of Humanitarian Affairs and the UN Inter-Agency Standing Committee (UNOCHA & IASC) (2008), the "Guide for the military 2.0" (UNOCHA, 2017), the CIMIC Handbook issued by NATO's CIMIC Center Of Excellence (CCOE, 2020), the "Guidelines on the use of armed escorts for humanitarian convoys" (IASC, 2013), and the "UN guidelines on the use of military and civil defence assets to support UN humanitarian activities in complex emergencies." (UN, 2003, 2006) During the case study, an additional publication was obtained from the 1CMI-Co staff: NATO's Lessons Learned Handbook (NATO, 2011, 2015). This Handbook has recently been superseded by its fourth edition (NATO, 2022). With exception of the lessons learned handbook, these publications had all been used as references for the CMI Conceptual Framework. For this reason, reading them provided useful background but no diverging views.

Qualitative interviews

At first impression, 1CMI-Co has a hands-on attitude, with a bias for action. The 1CMI-Co staff seems either just

to have completed an operational deployment, or is preparing for the next one. When talking with those practitioners, field stories abound. Although their operations are often on another continent, it feels like just around the corner. In accordance with the adopted data collection protocol, initially the 1CMI-Co commanding officer was contacted about the case study. He referred to the CIMIC platoon commander to act as key informant. She provided information about the 1CMI-Co organization and tasks, and advised on 1CMI-Co personnel to be interviewed initially. In the course of the case study, progress was regularly discussed with the key informant, including any discrepancies found between interviews.

The key informant explained the 1CMI-Co tasks and organization as follows. 1CMI-Co is the designated knowledge authority for the Netherlands defence with respect to CMI. It develops and maintains the national CIMIC publications and actively contributes to NATO CIMIC publications. It organizes and conducts CIMIC courses and training for defence personnel including reservists. Apart from these tasks as CMI knowledge authority, 1CMI-Co supports operational units of the Netherlands armed forces assigned to participate in a peace operation. 1CMI-Co assists these units when preparing for deployment, by collecting information about the civil environment of the operation, as input for their so-called "civil assessment." 1CMI-Co provides these units with CIMIC personnel as required for exercises and deployments. The Director of Operations of the defence staff (DOPS) and the staffs of the army brigades are provided with CIMIC staff personnel on a permanent basis. The Land Warfare Center (LWC) supports knowledge development and as such is related to 1CMI-Co activities. Figure 5 provides an overview of 1CMI-Co's external relations as described.

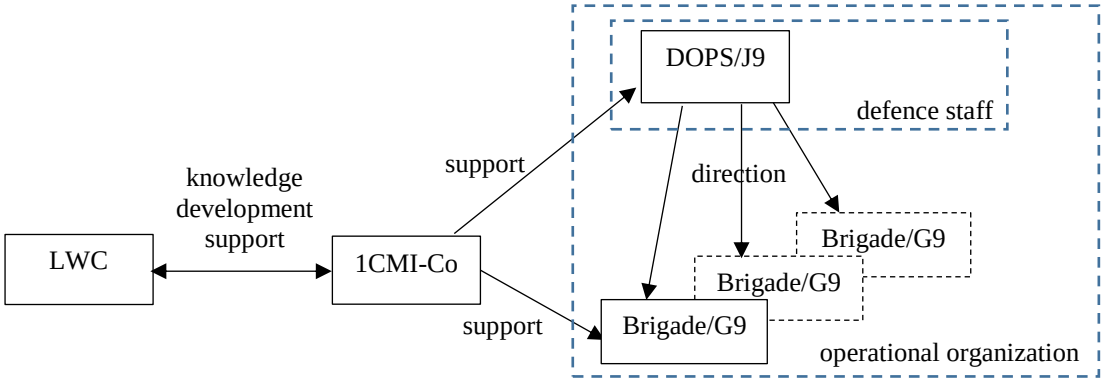


Figure 5. 1CMI-Co's Relations with Netherlands Defence Organizations

Figure 6 shows the organizational structure of 1CMI-Co in 2018 as provided by the key informant at the start of the case study, i.e. prior to reorganization. Shaded organization elements were involved in the case study. KC stands for Knowledge Center, OTR for Education and Training (in Dutch: *Opleiding en Training).* The organization consists of three components. Its two standing working units are the CIMIC platoon, consisting of CMI practitioners, and the Psyops platoon which is outside the scope of research. The third component consists of six networks of CIMIC-related reservists, organized as shown in Figure 6 along PMESII factors. These networks are organized and fostered by the 1CMI-Co staff. They are tasked by the "Info cell".

Within 1CMI-Co, interviews were held with the key informant, section chiefs of the Info Cell, KC, and OTR, and various CIMIC practitioners in the CIMIC platoon, as advised by the key informant. This included a focus group session with three practitioners. Finally, some reserve officers from the reservist networks were approached and agreed to be interviewed. Including the pilot study, 25 interviews were conducted including a focus group session, as specified in Table 3. Without exception, interviewees were very cooperative. The interviews were held in their working spaces, except the interviews with reservists. These were held at different locations, including one during a national disaster exercise in which 1CMI-Co participated. The interviews lasted for two hours or more, and were conducted in an open, engaging atmosphere. Obviously these professionals enjoyed to participate in the research project and being questioned about their profession and experience. Participants were encouraged to include depth and detail in their accounts. Incidentally this involved 'story telling', described by Rubin and Rubin (2012: 97-99) as "a way to answer a question indirectly." All agreed to review the interview report and to answer remaining questions, either by telephone or email. In some cases it was agreed to hold a second interview session to clarify some issues and cover remaining topics. The three section chiefs were interviewed twice, the CIMIC platoon commander three times. On completion of the interviews with 1CMI-Co personnel, interviews were conducted with CIMIC personnel of organizations related to 1CMI-Co (see Figure 5): the CIMIC staff sections at DOPS and

one of the brigades (staff code J9, resp. G9), and a section chief at the LWC. This complemented the research within 1CMI-Co with "customers views" from outside.

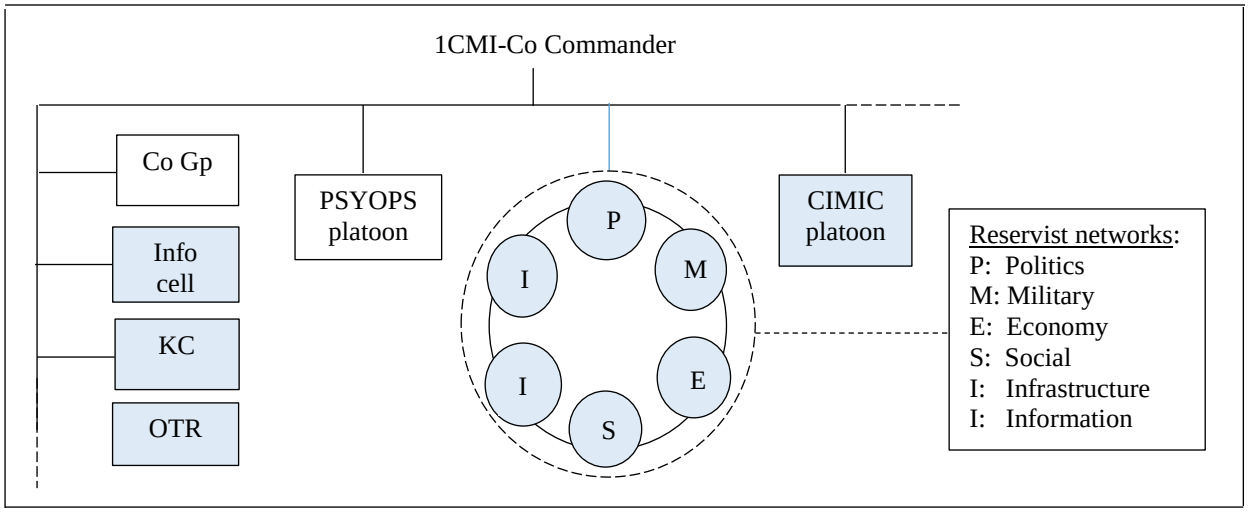


Figure 6. 1CMI-Co Organizational Structure as of 2018

location	group	Number of participants	Number of interviews
1CMI Co	Senior staff	4	9
	CMI practitioners	7	5 (incl. focus group)
Related organizations	DOPS/J9	1	1
	Brigade/G9	2	1
	LWC	1	1
Pilot study	Civil practitioners	8	8

Table 3. Interviews and Participants

FINDINGS

When interviewing senior staff at 1CMI-Co, it became apparent that the case study was conducted in a period of change for 1CMI-Co. This involved both a major reorganization and, related to this, the development of new operational concepts. The senior 1CMI-Co staff was heavily involved in both issues. This was left out of the case study scope, since it did not seem to affect the conduct of CMI. However, it caused additional strain on the staff, which seemed already stretched to fulfill its operational tasks. This was a recurring theme in the interviews with senior staff. As worded by one of the section chiefs: "we used to have working bees, but now we ourselves have become the working bees".

The organization, preparation and conduct of "liaison sessions" were covered extensively and proved to be an activity at the core of CIMIC work. "Liaison" refers to building civil-military relations and interacting in person-to-person sessions. The design and use of a liaison matrix was explained as the mechanism to plan and conduct liaison work, to build relations with civil actors, and assemble information and knowledge. Liaison preparation starts already before deployment, and planning and conducting liaison is a cyclic activity. Key leader engagement was described as a specific form of liaison, aimed at identifying local leaders important to establish relations with.

These leaders are deemed vital for mission success, *eg* since they have a major influence on the local attitude with respect to the peace operation. It was explained that a key leader engagement plan is being developed and maintained in parallel with the liaison matrix.

Another process described in detail was the support provided by 1CMI-Co to operational units assigned to participate in a peace operation. These units were supported in their preparations for deployment by providing them with detailed knowledge about the crisis area, local Actors, and other PMESII factors related to the complex emergency. Preparing a "country book" is coordinated by the Info Cell, who tasks appropriate specialists from the reservist networks to assemble and analyze information from open sources. The lessons learned process was discussed in detail in a number of interviews. Capturing lessons learned from exercises and operations is essential for 1CMI-Co in view of its role as CMI knowledge authority. After evaluation, the knowledge obtained through lessons learned is used for education and training, and for proposing amendments to NATO publications.

When discussing the military's role of providing security by escorting humanitarian convoys, it was observed that copies of the procedures and flow diagrams as issued by the UN (IASC, 2013) were on the table and used. The same observation was made when discussing how and when the military may provide assistance to humanitarian activities in complex emergencies (UN, 2003, 2006). Since the relevant process models of the CMI conceptual framework are based on the same documents, it was concluded that the models are a correct representation of how these CMI activities are performed in practice.

The findings from interviews at related organizations confirmed the findings at 1CMI-Co. The interviews with reservists showed some scepsis with respect to the need for reorganization and new concepts. In their view, these activities distracted from the operational task and process of the organization, which should have first priority.

The description of tasks and responsibilities show that 1CMI-Co is involved in all CMI Processes modeled in the CMI conceptual framework (see Table 2). "Liaise with civil partners" is an exception: 1CMI-Co is not involved in this activity of the "generic preparations" process. This includes building and maintaining relations with civil organizations which are considered potential future partners in peace operations. 1CMI-Co is not allowed to maintain such relations in The Netherlands.

The sub-processes of "peace operation execution" as modeled in the CMI conceptual framework (see Table 2) were not mentioned in the interviews. Apparently these are not considered determinants for the conduct of CMI. Few details were obtained about the called process "operational deconfliction." This might be due to its operational security aspects. However, this process seems important and is described in the CMI literature. For this reason it warrants further research.

It is concluded that the tasks and responsibilities of 1CMI-Co are "all about knowledge." It is the Netherlands CMI knowledge authority, and the labels of its staff sections can be read as knowledge management activities. From the interviewees' descriptions of working processes it became clear that knowledge management is an important aspect of the organization's activities. However, "knowledge management" as a task or process was hardly mentioned in the interviews. Not labeling knowledge management activities as such in task and process descriptions could contribute to the lack of resources for these activities. This is a concern frequently mentioned in the interviews.

The observed close relation between 1CMI-Co's tasks and knowledge management supports the design choice to include knowledge process modeling in the CMI conceptual framework. This choice is further supported by the pilot study's findings about deficiencies in organizational learning. The design assumption that knowledge processes are interlaced in CMI Processes, and for this reason should not be modeled separately, seems correct. From the interviewees' process descriptions, the underlying knowledge processes became clear, but were not mentioned as such. A notable exemption is the lessons learned process. This was described by various interviewees as a separate knowledge process. In terms of the CMI conceptual framework, this process involves the creation, codification, transfer and application of knowledge type B. Including knowledge processes in the CMI domain models contributes to the purpose of conceptual modeling to build a vocabulary to talk about a particular domain.

EVALUATION OF CMI CONCEPTUAL FRAMEWORK

To validate the CMI conceptual framework, its external validity is to be assessed, i.e. "whether its findings are generalizable beyond the immediate study" (Yin, 2014:48; Miles *et al.*, 2014:314). This is about whether the CMI conceptual framework is a correct representation of the CMI domain. This is considered to be the case if the framework is *comprehensive*, i.e. covers all domain processes, and *accurate,* i.e. the models are correct representations of the real world CMI Processes. *Comprehensiveness* can be approached from two sides. Are all processes described in the interviews modeled in the framework? And: are all process models of the framework described in the interviews?

With respect to the first question, one process elaborated in the interviews does not feature in the framework: the lessons learned process. Consequently, a generic CMI lessons learned process model has been designed, based on the research literature, and has been added to the framework. The NATO Lessons Learned Handbook (NATO, 2011, 2015) obtained during the case study has not been used as source document, since it is regarded an instantiation of the generic model for an international military CMI Actor, i.e. NATO. Another missing process which was described in detail is "liaison." Since this is at the core of the activities of CIMIC personnel, it is to be modeled and added to the framework. Although described in less detail, the related process "key leader engagement" is missing. It will be modeled and added as well.

With respect to the second question, process models not described in the interviews were the sub-processes of "peace operation execution" and the process "military securing operations" (see Table 2), which provides the military context of CMI. As these processes are apparently not determinants of the conduct of CMI, they are deleted from the framework. This simplification implies doing away with the BPMN construct of "called processes", since the parent processes have been deleted. The remaining CMI Processes, with "lessons learned", "liaison", and "key leader engagement" added, are depicted in Figure 7, which replaces Table 2. The figure includes relations between the processes, as described in the interviews.

With respect to *accuracy*, the interviews identified the following aspects and details to be added to the models.

The process of planning and conducting CMI exercises is part of the generic preparations model. This part of the model was validated in the pilot study. The provision of independent evaluators to assess the execution of the exercise is to be added as a process activity. In the Netherlands this is a responsibility of 1CMI-Co, which is providing "observer-trainers" (OTR) for this purpose.

The deployment preparations model does not show individual preparations by CMI practitioners. This involves *inter alia* attending courses and obtaining knowledge from co-workers. Locating co-workers holding relevant tacit knowledge is reported to be a challenge. Another activity to be added is the initial preparation of the liaison matrix. Upon deployment, the matrix should answer questions about which Local actors are to be approached first, by whom, and about what topics and issues.

With respect to the liaison process, the effect of the (anticipated/experienced) level of interaction is to be reflected in the model. The continuous development and refinement of the liaison matrix, in parallel with other process activities, is to be included in the process model. The possibility of back-office support after deployment, *eg* for civil assessment and liaison, is to be included.

The civil-military deconfliction process should reflect the difference between deliberate and urgent deconfliction and the responsibilities of the operations and planning staff sections in this respect. The inverse relation between risk of compromise and the level of interaction is to be shown.

With respect to the civil-military protection process, the role of the host nation is to be reflected. The procedure for requesting protection in accordance with the UNOCHA guidelines should be included in the process model. The relation between the processes of providing assistance and providing protection is to be shown in the process models.

With respect to civil-military assistance, the model should reflect that this may work both ways: local civil actors may assist international military actors and *vice-versa*. The model should differentiate between direct and indirect assistance.

The models of the structural characteristics of the domain appeared to be accurate with one exemption. The CMI Domain concepts model (Figure 1) did not include the concept of knowledge as a separate class. This has been rectified.

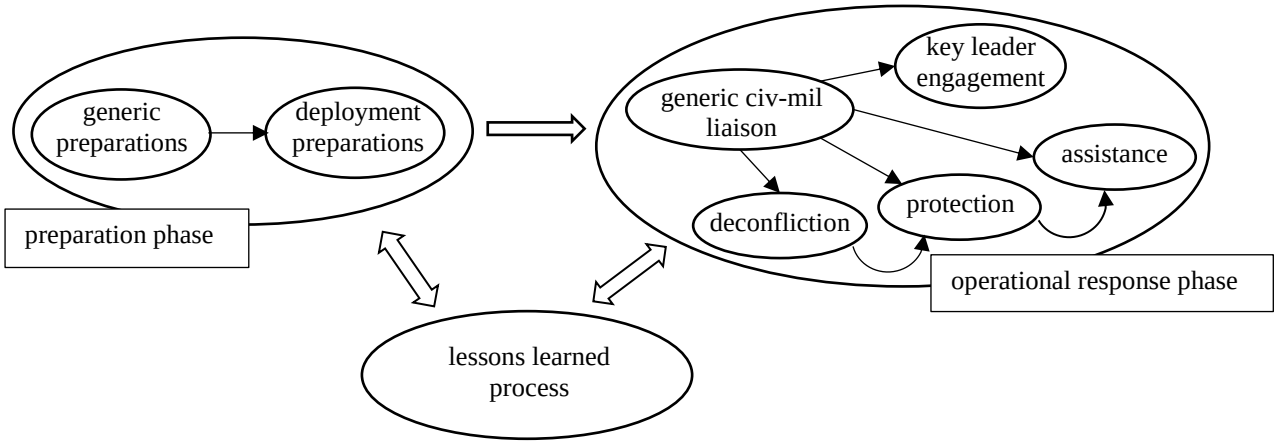


Figure 7. CMI Process Models of Revised CMI Conceptual Framework

CONCLUSIONS AND FUTURE RESEARCH

The importance of effective CMI is widely understood and acknowledged. However, CMI remains problematic in peace operations in response to complex emergencies. Since it has been shown that CMI is aimed at knowledge processes, some CMI problems might be caused by knowledge process deficiencies. A pilot case study confirms this assumption. However, CMI problems are not being addressed from a knowledge management perspective in the research literature. This paper is part of a research project that aims to fill this gap. It builds on the CMI conceptual framework as proposed by Ooms *et al*. (2018). This provides models of the structural and behavioral characteristics of the CMI domain and includes modeling of the underlying knowledge processes. This framework has been validated by conducting a case study at a Netherlands defence CMI organization. The models were tested by using them to investigate problems in CMI Processes and their causes. From the case study's findings, the UML class diagrams of the structural domain characteristics appear to be almost correct, with one correction made. The validity of the BPMN process models of the behavioral domain characteristics was assessed by investigating whether these models are comprehensive and accurate. With respect to comprehensiveness, some models were missing and have been added, others appeared to be irrelevant and have been deleted. With respect to accuracy, the case study identified various aspects and details to be added to the models. These amendments have been made. It is concluded that this case study provides initial user validation of the CMI conceptual framework, as amended. An additional case study and cross case analysis should confirm the findings.

The CMI conceptual framework allows a structured investigation of CMI problems and their causes. When the framework's validity has been confirmed by conducting a second case study, the cross-case analysis should identify which CMI problems are caused by deficiencies in the underlying knowledge processes. This should allow the construction of a "CMI problem ontology." This ontology will provide additional validation of the models, and will support a design science approach to investigate the feasibility of technical support solutions for CMI problems. The CMI domain models and the ontology may support knowledge engineering-based development of CMI tools. These tools should solve or alleviate CMI problems caused by knowledge process deficiencies, as identified by the case studies.

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