CHAPTER 19

Samhandling During Crisis Work – A Three-Level Model

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Abstract: *Samhandling* is considered as a key solution when asymmetry occurs. An expectation of seamless *samhandling* can be a special challenge to High Reliability Organizations which have mechanistic traditions in common, i.e. an assumption of linearity and routine-based work. In this chapter, a model to operationalize *samhandling* is presented. This conceptual study is based on observational data from an inter-organizational exercise. A full-scale exercise of a train accident on the Öresund Bridge between Sweden and Denmark was observed. The overall goal of the exercise was to effectively solve the situation. However, different routines contributed to confusion and misunderstandings in the meeting on how to act. The exercise was dominated by a focus on linearity within the internal organizations, which hindered *samhandling*. In order to conceptualize *samhandling*, a three-level model is presented. It consists of "sequential *samhandling*", i.e. a simplified, assembly-line type work process, "parallel *samhandling*", i.e. carrying out tasks simultaneously, and "synchronous *samhandling*", i.e. tasks performed at the same time in a spontaneous and natural way. A three-level *samhandling* model such as the one presented can be a useful tool for managing disasters.

Keywords: *Samhandling*, interaction, inter-organizational exercise, High Reliability Organizations, preparedness, organizational learning, unforeseen.

Introduction

In Scandinavian countries, the concepts of "collaboration", "cooperation" and "coordination" are problematic, due to varying and overlapping meaning. The concept of "collaboration" in Swedish contexts, where the data of this study has been collected, is predominant in crisis and crisis exercises contexts. It is often defined as an overall concept of the interaction between coordination and cooperation (Jacobsson, 2008). This definition is, however, challenged. Axelsson & Bihari-Axelsson (2006) view "integration" as an overall concept to collaboration, cooperation and coordination. Collaboration is, according to Axelsson & Bihari-Axelsson (2006), a form of integration with a high degree of voluntary agreements and mutual adjustments between those involved. It is based on a willingness to work together. Cooperation is defined as a form of integration based on management control, but combined with voluntary agreements and mutual adjustments. Axelsson & Bihari-Axelsson (2006) define coordination as a form of integration achieved through the existence of a common management control. Decisions on integration are made at the top of the hierarchical structure and are implemented through bureaucratic mechanisms of supervision and control (see Pugh & Hickson, 1976). In Denmark, the concept of cooperation is predominant, widely used in a broad sense of meaning, and in Norway, a third concept, *samhandling*, is having an increasing impact.

In line with the theme of this anthology, the most common concept in crisis and crisis exercise contexts in Sweden, collaboration, is regarded as an equivalent to the Norwegian concept *samhandling*, used in the following work. In Torgersen & Steiro (2009), *samhandling* is an open and mutual communication and development process between participants. The participants exchange and compensate their skills, face-to-face or by means of communication technology, working towards common targets and based on trust, reciprocity, rationality and professional knowledge (p.130). The concept of *samhandling* will be used in the following text (compare to Axelsson & Bihari-Axelsson, 2006).

The goal of *samhandling* has proven to be difficult in crisis work. Crossing borders is hindered by organization-specific legislation, routines and agendas tailored to and repeated within each organization acting on an

accident scene (Carlström & Berlin, 2009). In contrast to this, *samhandling* is highly valued and expected from all participants during crisis work. The concept is frequently used as a prefix to professions, organizational models and techniques used during crisis work. One example illustrating this is from a Swedish program of rescue services, where the concepts *samhandling* commander, *samhandling* exercises, *samhandling* team, *samhandling* contract, *samhandling* education and limitless *samhandling* is used frequently. The repetitive use of the concept shows that *samhandling* is something good and positive (Sydöstra Skånes Räddningstjänstförbund, 2008:3–19).

It is also common that the concept of *samhandling* is used in stakeholder documents outlining reforms and rules. Difficulties in regulating responsibilities and rights are related to the need to practice *samhandling* preferably in a conflict-free and harmonious way. The necessity for negotiation, argument or even opposition during certain circumstances is seldom proposed. Instead, *samhandling* is suggested as a solution to the challenge of distributing management control in-between organizations with overlapping tasks (Rothstein, 2008).

In this paper, I describe the idea of *samhandling* as an idealized way to manage crisis work, how *samhandling* is practiced and how it could be developed in order to make the concept more appropriate. The context is *samhandling* exercises and an example from an exercise at Øresund Bridge, "Koriander", is used to problematize the goal of *samhandling* in a non-specific and general manner.

Samhandling in exercises

Samhandling is considered as a key solution when asymmetry of power or rivalry occurs. When *samhandling* is practiced, it appears to produce a win-win effect. This idea of *samhandling,* as a simple way to manage complex inter-organizational actions during a crisis, is common (Berlin & Carlström, 2008a). Danermark (2000) emphasizes that in a situation where *samhandling* really works, it can be "heavenly" and improve the quality of actions, but when it becomes an idealized mirage based on false expectations, it can, in contrast, be "hell". *Samhandling* can, according to

Danermark (2000), be used in order to compensate for vague leadership and a lack of structure and resources.

An expectation from partners of seamless *samhandling* can be a special challenge to operative crisis organizations, such as the police, fire department and rescue services. High-reliability organizations (HROs) have a mechanistic tradition in common, i.e. an assumption of linearity, predictability and routine-based work. Mechanistic exercises are often professional drills, i.e. exercises based on simple repetitive actions to imprint conform behaviors. In contrast to mechanistic behavior, an organic behavior is characterized by flexibility and seamlessness (Berlin & Carlström, 2011; Scholtens, 2008).

"Koriander"

In the following example from an international exercise, Swedish and Danish rescue services were expected to practice *samhandling* during an accident on the Øresund Bridge, which connects the two countries.

The exercise, as reported by Berlin & Carlstrom (2013), was named "Koriander" and was a full-scale exercise designed to simulate a real event. A total of 500 participants from 17 different organizations took part in the exercise.

Police, rescue and ambulance services contributed with most of the personnel for the exercise. The overall goal of the exercise was to ensure preparedness and effectively solve incidents that can occur on the bridge. The purpose was to practice *samhandling* at the command level, in order to organize and optimize the use of existing resources in a response area (Øresund Bridge, 2012).

The bridge has two decks, with a highway on the upper deck and a railway on the lower deck. The setting for the exercise was located in a narrow area beneath the upper part of the bridge. The scenario was a railway accident, involving a passenger train and a freight train on the Øresund Bridge. In connection with the accident, an overhead contact wire fell down on the train. After incoming calls to 911 (the emergency hotline) in Sweden and Denmark, the police, ambulance and rescue services were alerted in both countries. According to the scenario, four people were

dead, 15 were seriously injured, 25 had minor injuries and 30–50 people were in shock (Øresund Bridge, 2012:8–9).

The Swedish and Danish rescue services arrived from their respective directions. None of the services had received information about the exact position of the accident. Upon arrival, the Danish and Swedish services were asked to electrically ground the track, since there was an overhead contact wire hanging down. They also decided that work inside the train should not start until the grounding was complete.

The grounding was more time-consuming than expected. Forty minutes passed without the carriages being opened, because of difficulties distributing staff in the *samhandling* between the Danish and Swedish fire rescue services. The mock victims, waiting to be rescued from the blacked-out carriages, became quite bored, while hundreds of rescue workers on the upper part of the bridge were waiting to participate. They waited in the windy top deck, not knowing what was happening on the lower deck. Eventually, the area was electrically grounded and the train carriages were opened.

Responsibility for the passenger train was split up; the rear carriages were assigned to the Swedish rescue service and the front ones to the Danish. Since there were only three carriages in the train, confusion arose as to who should take responsibility for the middle carriage. The Swedish and Danish rescue services did not coordinate their respective actions.

The different working routines of the Danish and Swedish rescue services contributed to the confusion. The Swedes sent medical personnel to the train carriages to perform field triage, i.e. identify those who were in need of medical evacuation and make policy decisions. The Danes allowed the rescue services to empty the accident site, transporting the injured to the medical assembly point. These contradictory routines were not communicated. Misunderstandings and confusion arose at the meeting between the Swedes and Danes on how to act. No initiative for triage was done. Having the train carriages full of mock victims hindered the work. In the midst of this confusion, the exercise leaders informed the medical staff that a woman was about to give birth in one of the carriages. The nurse in charge of the triage "burst out laughing"; the situation was perceived as constructed and too complex. As time was elapsing,

the exercise leaders decided to stop the rescue work in the carriages. The mock victims were asked to get out of the train and walk to the upper deck of the bridge.

The command center was set up on the upper deck of Øresund Bridge, on the southern roadway. It was close to the assembly point for uninjured passengers. Despite closing the road off using vehicles, it was difficult to keep bystanders away. The command center was not closed off, or protected from the wind. The Danish Operational Headquarters (KST) positioned itself on the northern roadway. The distance made it difficult to establish *samhandling* between the command center and KST.

Organization on site was dominated by a focus on internal organization, which hindered *samhandling* between organizations and countries. It turned out to be difficult to understand and explain technical terms between the Swedes and Danes. The evaluation report described the *samhandling* as follows:

"Generally, there was a lack of knowledge about roles, tasks, leadership structure and principles of the opposite country's medical preparedness, as well as language problems, so that the *samhandling* at the leadership level became less effective." (Øresund Bridge, 2012:31).

The difficulty was reflected by the fact that vehicles were sent forth without information about the location of the accident. Danish rescue services arrived first at the accident site. In the beginning, radio traffic was intensive, but then the flow of information stopped up. Selective, organization-specific radio channels started to dominate communications. Personnel at the staging area, assembly point and command center received less and less information about the work and its progress at the accident site. There was also weak radio reception at times. After a while, the radio contact between KST and the staging area was completely inoperative (Berlin & Carlström, 2013).

Organically smooth and mechanistically predictable

A challenge for crisis organizations is to be organically smooth and at the same time mechanistically clear and predictable (Lalonde, 2004). To commute between mechanistic and organic behavior during crisis work is a challenge. The mechanistic behavior is deeply rooted in crisis

organizations, which can make them dysfunctional (Gormley & Balla, 2008). During non-emergency situations, which allow for planning and discussion, there is room for organic-action logics (Kuykendall & Roberg, 1982). In critical situations, when life and property are threatened, a need for structure induces a mechanistic imperative (Weick, 1998). Structure and simplified command and control models (C2) are used in order to reduce uncertainty when chaos lurks behind the corner. Standards create a feeling of security, reduction of confusion, and prevention of disorganized behavior when the situation is intense (Kendra & Wachtendorf, 2003).

One reason to practice *samhandling* is to strengthen the ability to handle a course of events that do not follow a stable plan, situations that are overpowering and situations when the resources are disproportionate. As in the studied exercise, mechanistic behavior tends to contribute to inactivity, delays and frustration. Much of the activity was based on repetitive monotonous tasks within organization-specific fields. Very rarely did the participants stop to seek out contact and converse with other participants, for the purpose of jointly utilizing the sum of resources.

Although flexibility is considered as important when handling disasters, crises or accidents, very few have suggested ways to operationalize *samhandling* and organic handling during crisis work (Deverell, 2012). The skill to act adaptively is, however, broadly accepted as a necessary characteristic during complex situations which are difficult to predict (Borodzics, 2004). If the way of acting is organic, the degree of flexibility and creativity is secured during unpredictable situations. This is true, especially in situations where senior management is absent and it is difficult to get an overview of the situation. Consequently, there is a need to alternate between organic and mechanistic behavior. Scholtens (2008) emphasizes that mechanistic techniques, such as C2, are impossible to use in the beginning of most chaotic events. Priority and action have to be managed on a basic operative level until a crisis organization has been built up. Every participant needs to be briefed about the situation, in order to make correct decisions and act in an effective way, preventing passivity and contra-productive behavior. Scholtens (2008) emphasizes that operative staff, in most cases, make the right decisions and act in an optimal way, if they are allowed to act autonomously.

> Units involved in crisis management should be spoon-fed their tasks, as well as the big-picture scenario, during the preparatory phase, so that they are able to make relevant operational decisions themselves. Information systems would then exist, not to keep central decision-makers informed, but to help decentralized decision makers carry out their task. (Scholtens, 2008:203)

Consequently, if *samhandling* is built on a balanced choice between organic and mechanistic strategies, the crisis work will be improved, especially in situations of emergencies and an overwhelming need to make decisions simultaneously.

A conceptualized model

In order to conceptualize *samhandling*, a three-level model which is possible to operate and based on research from crisis organizations will be presented. It is based on studies from exercises and real events, during catastrophes, crises and accidents (Berlin & Carlström 2008b; 2008c; 2010; 2013; 2014; 2015). The model will be positioned between organic versus mechanistic and *auftragstaktik* versus *befählstaktik* (these terms will be explained in the following).

Three levels of *samhandling*

The model, "three levels of *samhandling*," consists of sequential, parallel and synchronous types of *samhandling*.

1) Sequential *samhandling* is a simplified form of *samhandling*. It is characterized by a traditional sequential work process (assembly line) where everyone performs their specified task. At the accident scene, this means that the various organizations' personnel act at different times. Everyone waits their turn to make a contribution. This can be likened to a relay race, where someone starts a process that is then handed over to another co-worker. During sequential *samhandling*, established handling patterns are repeated, the number of meetings is minimized, and negotiations take place only on

an exceptional basis. It generates a relatively small degree of inter-action between organizations. Sequential *samhandling*, i.e. using Swedish or Danish fire brigade technicians, would have been effective when carrying out the electrical grounding work during the "Koriander" exercise. The choice to use both Swedish and Danish fire brigades delayed the process, due to meetings and communication. As a consequence, forty minutes passed without the carriages being opened.

2) Organizations which *samhandler* parallel to each other, carry out tasks simultaneously while acting "on their own". At an accident scene, this means that the organizations are in place at the same time and act side by side. Parallel *samhandling* is more complex than sequential *samhandling*. During parallel *samhandling*, tasks are strictly distributed among the organizations. The work is carried out in such a way that members of each organization do not support each other across professional boundaries. It is characterized by the standardization of developed roles and established procedures. The starting point is that every employee works according to his own organization's agenda and a clearly-defined mission. In the case of parallel *samhandling*, giving assistance to other organizations is avoided. This favors intra-organizational standardization and strengthens internal conformity. Parallel *samhandling* is difficult if the tasks of different organizations overlap. If so, a present and active management is needed. In "Koriander," during the grounding, a parallel *samhandling* was practiced but there were two joint managers, one Swedish and one Danish. The ambiguous leadership contributed to a slow and imprecise performance.

3) In synchronous *samhandling*, tasks are performed at the same time as in parallel *samhandling*. In addition, participants in the various organizations can mutual exchange tasks in spirit of equality. They cover for each other in a spontaneous and natural way. This is an extreme form of *samhandling*. The members of each organization do not focus only on their own tasks but are also looking for opportunities to assist others with their tasks. This is done by showing

flexibility and a capacity for rapid re-allocation of resources. The concept of "holism" describe how the organization's members place all the parts of the whole in relation to each other in a mutual exchange. This means that the players carry out their own tasks but are also willing to perform operations that are otherwise considered to be the responsibility of others. The focus is shifted from inter-organizational tasks to finding the best way to carry out the collective mission. In the synchronous form of *samhandling*, the collective task is more important than the individual tasks of the respective organization. Since the participants are not trained to perform tasks for others, exchange often takes place in the form of improvisation (Weick, 1998). To interact synchronously requires an ability to step out of one's own professional role and take on unfamiliar actions. This means stepping over the boundary into the unfamiliar and flexibly covering for others where needed, even if this does not lie within your own area of competence (Berlin & Carlström, 2008). Synchronous *samhandling* is the idealized, seamless form of *samhandling* referred to when governing bodies stress their ability to interact (Berlin & Carlström, 2011). Synchronous *samhandling* can be necessary during extreme situations when resources are lacking, such as mass casualties and waste disaster areas. Even though the model is strongly idealized, it is difficult to manage. It requires highly professional and flexible participants who are able to adjust to each other's and the specific circumstances.

These three forms of *samhandling* require dialogue and clarified roles. They are levels which make it possible to distribute *samhandling* on a scale from the mechanistic to the organic. The difference between the levels become obvious if management is included in the model. During sequential *samhandling,* the management needs to control the rotation between collaborating organizations; during parallel *samhandling*, the management needs to be present throughout to prevent crowding; and during synchronous *samhandling*, the management can remain passive because the teams work independently. The crisis work is distributed in an organic way within and between different teams.

Befählstaktik and auftragstaktik

The model can be illustrated by two well-established concepts, *befählstaktik* or 'normal tactics' based on command and control (C2), and *auftragstaktik*, i.e. 'mission command' used by the military. When mission command is practiced, the team is informed about the goal, the purpose and resources to accomplish a mission. The team is free to make decisions and act even though they are not controlled by senior management. In contrast to mission command, normal tactics provides a high degree of management control. On the other hand, C2 is often characterized by inertia (Leistenschneider, 2002).

The history of the concepts 'normal tactics' and 'mission command' can be traced to a reform in the Prussian army, after being defeated by the French army in the battles of Jena and Auerstedt in October 1806. Analysis of the battle showed that the Prussians recruited officers based on their social standing while the French recruited their officers based on competence. Furthermore, the French army was divided into army corps (Corps d'Ármée). The Prussian army was a unified, top-down organization, strongly dependent on C2. Another difference was that every soldier in the French army was aware of the vision or idea behind their military campaigns. The vision permeated down from Napoleon to every part of the army. The soldiers in the Prussian army were expected to blindly obey orders and not to incorporate these orders into a bigger picture of ambitions or visions. The Prussian model placed a heavy burden on the senior management and made the army vulnerable. When Karl Wilhelm Ferdinand Braunschweig, who was the commander of the Prussian main army (63,000 soldiers), was fatally wounded during the battle of Auerstedt, the Prussian army was defeated by 26,000 French soldiers.

As a result of the events of October 1806, a national quarrel arose about how to manage the Prussian army in war. On one side was a conservative movement promoting 'normal tactics' and on the other, a modern movement promoting 'mission command.' In the end, the two contrasting tactics appeared as applicable strategies under different circumstances. Traditional C2 could be used as long as the management could control the situation, but if it became complicated, developing in an unexpected way and C2 became ineffective, 'mission command' was to be activated (Stewart, 2009).

When the three levels of *samhandling* sequential, parallel and synchronous *samhandling,* are viewed in the light of 'normal tactics,' i.e. mechanistic imperative, and 'mission command,' i.e. organic imperative, a simple axis distributing different logics and ways to manage a crisis appears (figure 19.1)
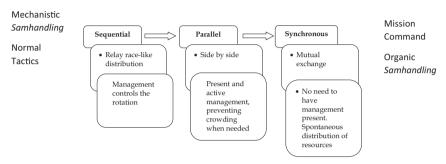

Mechanistic *Samhandling*

Normal Tactics

Sequential		Parallel		Synchronous
• Relay race-like distribution		• Side by side		• Mutual exchange
Management controls the rotation		Present and active management, preventing crowding when needed		• No need to have management present. Spontaneous distribution of resources

Mission Command

Organic *Samhandling*

Figure 19.1 *Samhandling* between the logics of the mechanistic and organic.

During sequential *samhandling*, the management acts according to a traditional C2 model. During command, the management distributes a sequence of actions, and the effects are followed up by control. At the opposite extreme of *samhandling*, synchronous is a status neutral distribution between and within participating teams. Management is spontaneously distributed to staff, who independently overview the situation and allocate resources. A synchronous distribution is suitable when the resources are limited, few or no specialists are yet present and the crisis work is imminent, e.g. during a mass-casualty scenario. In the example from Øresund Bridge, the management acted, as synchronous *samhandling* was needed even though there were enough resources to handle the situation. A fruitful way to manage the train accident would have been sequential and parallel *samhandling*, combined with a more distinct leadership than was the case in the example. As already mentioned, one of the rescue services (the Danish or the Swedish) should have been appointed to electrically ground the track (sequential *samhandling*), and the parallel *samhandling* practiced when emptying the middle carriages should have been controlled by an active management, preventing crowding and controlling actions in a common manner. Instead, the teams acted in a

non-coordinated, ad-hoc manner during the exercise. Sequential and parallel *samhandling* demand a present and active leadership.

The three levels of *samhandling* are useful during different situations. When resources are lacking, the need for action is imminent, the event is complex and it is difficult to make predictions, a traditional C2 can be counterproductive. On the other hand, an organic logic during a situation of sufficient resources on the accident scene can contribute to vague management and a fragmented, ad-hoc-like handling of the situation.

The proposed model brings *samhandling* to a pragmatic level, which is possible to operationalize during changing circumstances. The model has the potential to be less ambiguous and imprecise than idealized ideas of limitless *samhandling* when managing a crisis.

Conclusion

The model of *samhandling* presented in this chapter may contribute to the understanding that the nature of an event should be handled according to an applicable level of *samhandling* during crisis work. The management is supposed to analyze the situation, distribute resources and give instructions for *samhandling*. Competency in practicing *samhandling* is built up by training. It can be improved if exercises focus on different levels of *samhandling*. Such exercises can promote the competency to use *samhandling* as an adaptive tool adjusted to the scenario. A three-level *samhandling* model, such as the one presented, can be a useful tool in order to improve exercises and crisis management.

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