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2015

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Organised behaviour in the Swedish fire and rescue service - a case study

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ABSTRACT: Organised behaviour in disaster can be distinguished by looking at the organisation's post disaster structure and tasks. While past research seemingly has taken a multi-organisational perspective we have used organised behaviour as analytical tool in a case study of the Swedish fire and rescue service to focus on analysing one organisation and sub organisations within this. We argue that different co-existing organised behaviour can affect the conditions for achieving direction and coordination among the resources within one organisation, and have identified challenges deriving from empirical data. Further, while we see how organised behaviour may be useful as analytical tool we distinguish two central issues; the difficulty in making transparent analytical choices when selecting objects of analysis and the shortcoming of not being able to find organised behaviour beyond the four categories.

1 INTRODUCTION

In July 2014 the most extensive wildfire in modern Swedish history broke out and not until nearly two weeks later the fire was proclaimed to be under control. Initially the incident was handled by the local fire and rescue service but after a few days regional, national and international resources also became engaged. During this time, the fire and rescue service worked with different forms of organisational solutions and appeared to perform regular as well as new tasks. This paper aims to explore such organised behaviour and discuss how new behaviour can affect the conditions for achieving direction and coordination among the resources within one organisation.

We adopt the idea that direction is needed to make use of the capability of the resources engaged in a societal response. Simply put: Direction means that resources are oriented toward formulated goals. In order to help each other where they can and avoid being in each other's way the resources need to be coordinated. Coordination means that activities, and sub goals are adjusted in order to make most possible use of available resources. Direction and coordination are seen as effects rather than as activities and functions. This approach is developed and discussed by Ekman & Uhr (2015).

We have conducted a case study using the Disaster Research Center typology (see e.g. Dynes, 1970) as our analytical tool. While past research on organised behaviour seemingly has taken a multi-organisational perspective when analysing organised behaviour according to the four categories (established, expanding, extending and emergent), we have focused on analysing one organisation and sub organisations within this organisation.

The fire and rescue service organisation was geographically spread out, with several command levels and a high turnaround of staff with different levels of experience and ideas on how to achieve direction and coordination. This, as we will argue below, creates conditions for different organised behaviour to exist in parallel. An organisation consisting of several sub organisations showing various organised behaviours raise questions such as: Is a regular chain of command valid? Are feedback procedures reliable? How are risk assessments and restrictions communicated?

2 PURPOSE

The purpose of this study is to (1) evaluate the potential of the DRC typology as analytical tool to understand challenges with achieving direction and coordination within one organisation, (2) identify types of organised behaviours existing within the Swedish fire and rescue service organisation handling the wildfire in 2014 and (3) discuss how the organised behaviours may have affected the possibilities to achieve direction and coordination.

3 THEORETICAL BASIS

In this section theory that forms the basis for our case study and discussion is presented.

3.1 *What defines an organisation?*

In this section we want to explain what we mean with a key term in this study: *organisation*. The term has been discussed in many corridors within the scientific community, especially amongst sociologists and system scientists where we can find various schools arguing for different approaches. In this paper we benefit from an approach to organisation that does not equate organisation with bureaucracy. Bureaucracy is here seen a one of many representations of an organisation. We support what Talcott Parsons, an influential sociologist in the mid 1900s, describes as an organisation. He depicts an organisation as a system, which, as accomplishment of its goal, produces an identifiable result, which can be used in a way by another system. That is, the output of one system is another system's input (Parsons, 1956). Parsons means that organisations solve different needs in the society by producing an output that is connected with the specific need of another. This is in correspondence with our view on that direction and coordination should produce effects and forms a utilitarian approach to an organisation that suits our analytical purpose.

Parsons is influenced by other major sociologists such as Max Weber, but also by "system theorists" like Ross Ashby who were one of the persons behind the ideas about complex systems. We are aware of the critique towards Parsons' theoretical perspective, usually called "function structuralism", that many postmodern sociologists (e.g. Holmwood, 2005) bring forward, but our purpose is not to include such a discussion in this paper. We are merely interested in a utilitarian definition of organisations that suits our analytical purpose.

3.2 *What is organised behaviour?*

The tool used in our analysis of organised behaviour is called the DRC typology. The typology is described in the book *Organized Behavior in Disaster* (1970) by Russel Dynes and it has been used and developed by a number of researchers thereafter. Dynes, together with other prominent researchers such as Enrico Quarantelli and Thomas Drabek, is affiliated with DRC (the Disaster Research Center at the University of Delaware), one of the leading centers within disaster research. The explanation below is taken from Dynes (1970). We have noticed that details from the typology sometimes cannot be directly transferred to an analysis of sub organisations *within* an organisation, and thus we have focused on

the principles behind the typology rather than the details.

Dynes divides organisations active in disasters according to (1) whether the tasks performed are regular or nonregular and (2) whether the post impact structure developed to handle the tasks is new or old. During a disaster event, organisations involved can perform regular tasks, such as fire fighters extinguishing a fire, or nonregular, such as the same group of fire fighters transporting injured people to the hospital. An organisation can keep the old structure during a disaster or develop a new structure, either from the basis of the old structure or forming a completely new one.

By combining the two variables four types of organised behaviour can be distinguished: *established, expanding, extending* and *emergent*, which can be seen in the figure below.
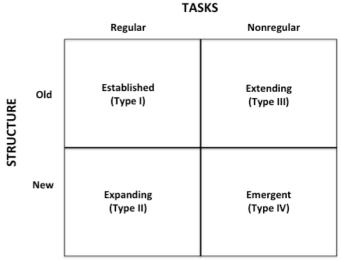

Figure 1. Types of organised behaviour in disasters (from Dynes, 1970, p. 138).

An *established* organisation (Type I) carries out regular tasks in an old structure and basically functions in the same way during disasters as under normal conditions.

An *expanding* organisation (Type II) carries out regular tasks in a new structure. The organisation usually consists of a core of permanent members that is then filled with new members, for instance volunteers.

An *extending* organisation (Type III) performs nonregular tasks in an old structure. The focus here is on units existing before the disaster but which takes on new tasks rather than single individuals performing new tasks.

An *emergent* organisation (Type IV) carries out, in a new structure, tasks that have not been foreseen in a disaster or which do not belong to any other organisation. These organisations are not formalised and often emerge from networks and personal relationships combined with formal positions in each organisation forming a part of the emergent organisation. The emergent organisation fills functions

missing in other organisations involved in disasters, such as handling or coordination of activities.

4 METHOD

In order to construct a case study of organised behaviour in the recent Swedish forest fire we engaged with the stakeholders involved in the rescue operation. We conducted 24 interviews with fire and rescue officers engaged at various organisational levels, resulting in the analysis of more than 200 pages of transcribed material. Interview questions were formed according to the DRC typology's division of tasks and structure and served to find types of organised behaviour. During the interviews we also prompted the interviewees to draw organisational pictures of how they perceived the organisation around them. We have also engaged with the stakeholders through attending conferences focusing on the rescue operation. Furthermore we have studied official reports from various organisations.

Our data focused on the first two weeks of the wildfire handling; August 3, 6 and 10. The reason for selecting the specific dates was to study the initial phase of the handling (August 3), the handling after the regional and national resources were involved (August 6) and when the incident entered a less intense phase (August 10), this to get a broad picture of the possible span of organised behaviour. Two of the authors were also present during the first week of the wildfire and performed spontaneous on site interviews, although not with the later constructed interview template, as well as observed the handling of the incident.

5 THE CASE STUDY

In this section we describe the case study of organised behaviour within the Swedish fire and rescue service organisation active during the wildfire by using the DRC typology.

5.1 *Identifying sub organisations*

In order to be able to analyse different organised behaviour within one organisation we need to adopt different perspectives, e.g. a "macro" perspective of the entire fire and rescue service organisation or a "micro" perspective on a single group of fire fighters. On this basis we argue that the notion of perspectives makes it possible to identify an abundance of sub organisations within our main subject of analysis. We do not strive to give a complete picture of all existing sub organisations within the fire and rescue service organisation active during the wildfire, instead we will give examples of co-existing types of organised behaviour to achieve an under-standing of the context where direction and coordination is strived for. According to our definition of organisation (see above), we will perceive the sub organisations as having own structures and tasks but these do not need to be formally manifested in for example an organisational sketch. It is enough that a number of persons create relationships and perform a task to achieve a specific purpose in order to fulfil the criteria of an organisation. An important hypothesis is that in order for direction and coordination to be achieved during a major incident is that having an understanding of how various parts of the organisation works is pertinent. In order to be able to state that a sub organisation shows a specific organised behaviour we must be clear in what we compare it with. Consequently, we need an idea of how the sub organisation usually works, i.e. a referent. In this study we have built our referents on our existing knowledge and from the interviews. Such referents will constitute our analytical guidance when selecting the subjects to be analysed. An example of a referent would be how a strategic command function normally is organised in structure and tasks.

When introducing the idea of identifying sub organisations within the fire and rescue service organisation we have to begin with stating what we actually mean by the fire and rescue service organisation. A strict bureaucratic approach would logically disharmonise with our ambition to be open to any organised behaviour in our interpretations. Therefore we need to be more principal than absolute when we identify our main subject for analysis. What is important here is that we do not want to be too exclusive in our selection since our upcoming analysis of sub organisations should be open to include resources practically operating as if they belonged to the formal organisation, but who aren't strictly included in a formal way. In this case we see the fire and rescue service organisation as the principal construct of resources working under the incident commander. As our analysis shows later the exact formal borders defining who is in the system and who is not, are not always clear.

In addition to our main subject of analysis, i.e. the fire and rescue service organisation as a whole, we have selected four other perspectives based on what we could distinguish during on site observations and through interviews. We wish to highlight once again that there are many more perspectives to take but we strive to only give examples of co-existing types of organised behaviour rather than a complete picture. Three sub organisations within the fire and rescue service organisation and that what many called the "joint coordination function" have been studied. The latter was not part of the formal fire and rescue service but included resources carrying out fire and rescue service tasks and is therefore determined to have affected the direction and coordination of the resources. The analysis of the three sub organisations

is based on the interviews whereas the two remaining perspectives build on interpretations of secondary data. Our aim is to show different organised behaviour at the same time, and even though the empirical data cannot completely cover all perspectives at all times we can assume that the sub organisations existed principally in the same way at least after the regional resources were involved, and thus show the same picture during August 6 and 10.

5.2 The entire fire and rescue service organisation - expanding (Type II)

Regardless of time, when we look at the entire fire and rescue service organisation we see that its tasks (extinguish fire, limit the fire spread, protect property, communicate with the public etc.) can be seen as regular, i.e. the same as its referent of a normal fire and rescue service organisation. What differs from normal times though is the structure of the organisation where not only resources from an established organisation, i.e. a local fire and rescue service station, are included but resources are also obtained from other parts of the country departing from regular reinforcement plans. Consequently, the organisation can be seen as expanding.

5.3 The "joint coordination function" - emergent (Type IV)

Secondary data such as reports as well as interviews clarify that the fire and rescue service organisation was part of a greater context. How this context was organised is not clear and several interpretations (sketches) of the entire organisation exist. What is however clear is that a "joint coordination function" existed to fill the need of coordination between the actors. The joint coordination function consisted not only of fire and rescue service staff but also of representatives from other actors working with the wildfire. The organisation did not exist before the disaster, i.e. has no referent, and matches well with Dynes' description of an emergent organisation filling a need that is not the responsibility of another single actor. As mentioned above, the joint coordination function does not fulfil our criteria of being completely *within* our main subject of analysis. We nevertheless argue that the perspective is relevant to our analysis of direction and coordination within the fire and rescue service organisation since the organisation included resources with fire and rescue service tasks.

5.4 The "incident command" - expanding (Type II)

We have defined the first sub organisation according to what was in the interviews usually called the "incident command", i.e. where the more strategic work was performed. Based on interviews from inform-

ants who worked in this sub organisation during the wildfire we can conclude that the tasks carried out (e.g. handling operational activities on site and achieving direction and coordination of own resources with a longer time frame) were basically the same as in a regular strategic command function, here our referent.

The majority of the interviewees experienced that their sub organisation included resources normally not part of it, such as military or police resources (authors' translation):

"We owned the task, we owned the resources, the military provided us with resources"

"[Interviewer]: Did you experience that you had them at your disposal?"
[XXX]: Yes, I did."

As a consequence, this sub organisation can be seen as an expanding organisation performing regular tasks but with a new structure.

5.5 The "geographical sector" - expanding (Type II)

Due to the large area covered by the wildfire the operation was divided into geographical sectors in order to divide the workload into smaller segments, something that is commonly done in fire and rescue service operations. Our second sub organisation represents a typical geographical sector of this kind and our referent is an organisation that performs work on site and with a narrower time frame than the incident command discussed above. The sub organisation consisted of fire and rescue service staff and other resources such as volunteers assisting in the tasks.

Based on answers from informants who worked in this type of sub organisation the tasks carried out in the geographical sector (e.g. extinguish fire, limit the fire spread) during the wildfire, are concluded to be the same as in normal times. The majority of the interviewees experienced that their sub organisation included resources normally not part of it, for example military resources or private forest owners, for example (authors' translation):

"I had a home guard group, and here were the military airforce resources."

We conclude that the sub organisation geographical sector can be seen as expanding.

5.6 The "local level" - established (Type I)

The third sub organisation we have studied represents a group of fire fighters with a crew commander. The sub organisation, which was also a part of the geographical sector, is called "local level" to re-

flect the group working closest to the disaster agent. Our referent is here "what fire fighters normally do" and how they are normally organised during an incident. We find, based on the interviews from this sub organisation, that the tasks performed (e.g. extinguish fire, limit the fire spread or water supply) were the same as in normal times. Neither did the interviewees experience that the structure was new and consequently the sub organisation can be seen as established.

5.7 Implications for direction and coordination

We have identified different organised behaviour existing at the same time within the Swedish fire and rescue service organisation handling the wildfire in 2014. We argue that the entire fire and rescue service organisation represents an expanding organisation, the joint coordination function an emergent, the incident command an expanding, the geographical sector an expanding and the local level an established organisation.

On the basis of our empirical analysis we have identified challenges of achieving direction and coordination deriving from these different co-existing organised behaviours. The challenges, which are presented below, are to a great extent connected to a perceived ambiguity in the organisational structure, a fact that was expressed in the interviews and enhanced by the various and sometimes conflicting organisational pictures drawn by the informants. We mean that the different types of organised behaviour can be a source to this ambiguity, and especially when a sub organisation has a new structure, i.e. is expanding or emergent. Examples of comments are (authors' translation):

"What was unclear at least, that was the structure of command"

"We have no idea where people are and what they are doing really"

5.8 Valid expectations?

As a consequence of the discussion above we mean that the ambiguity can in turn affect the expectations on e.g. information distribution and how work tasks are allocated and performed. Therefore we ask whether valid expectations existed within and between the sub organisations. As in our example, if an established sub organisation (the local level) co-exists and collaborates with an expanded sub organisation (the geographical sector) there is a risk that incorrect expectations may be at hand.

5.9 Difficulties with feedback

Another challenge connected to the ambiguity in the organisational structure is the perceived difficulties in receiving and emitting feedback regarding direction and coordination. Several informants mention the difficulty in receiving feedback on the wanted direction and coordination effects. This was especially prominent between the incident command and the sub organisations working closer to the disaster agent (authors' translation):

"We had meetings every 5-6 hours, but we noticed that information did not get out, what we decided wasn't realised"

"That shows the need of a double follow-up, either from the field or from the air."

We mean that the different organised behaviour and the ambiguity in the organisational structure can be a source to this lack of feedback. As in our example, if an expanding sub organisation (the incident command) co-exists and collaborates with another expanding sub organisation (the geographical sector) we see a risk in an unclear information distribution as a result of the new structures. If it was unclear whom to report to the feedback risked never being handled, alternatively the feedback risked reaching the wrong recipient and being lost. An effect of this issue can for instance result in frustrations over what is perceived as an unclear operational picture.

5.10 Unclear safety responsibility and mandates

Several informants mention unclarity and in some cases stress related to the safety responsibility or who was responsible if anything would happen. This was especially apparent in the geographical sector where the responsibility for resources coming from other organisations but which were now included in the expanding sub organisation was perceived as unclear (authors' translation):

"There were a lot of people out in the woods with dangerous equipment and I don't know what they are doing or who is leading the work"

We also suspect that who perceived to have the mandate over resources in an expanding or emergent sub organisation related to what is legally correct was unclear. This is based on the fact that descriptions from the interviews are not in harmony with prevailing legislation (authors' translation):

"We owned the task, we owned the resources, the military provided us with resources"

5.11 *Inefficient supply of resources?*

Given the ambiguity in the organisational structure and consequently an ambiguity in communication and decision paths we believe that problems with resource supply may occur, something that we can distinguish in the empirical evidence. In established organisations there are bound to be common routines but how this should work in expanding or emergent organisation ought to be challenging. For example, how to replace a unit from another organisation but which is now part of the sub organisation may be unclear. Who to turn to in order to replace a certain resource can also be unclear in sub organisations with new structures (authors' translation):

"There was no band playing and greeting us when we arrived of course, like for the other replacements"

"And then I asked a few people: where should we report our arrival? And no one really knew"

We mean that expectations on how replacement orders run in the organisation and how a replacement should be conducted may not be fulfilled in new structures or between sub organisations with different types of organised behaviour, resulting in inefficient supply of resources.

6 DISCUSSION

A purpose of this study is to evaluate the potential of the DRC typology as analytical tool to understand challenges with achieving direction and coordination within one organisation. Based on the identified challenges we have been able to formulate guiding questions for future efforts to improve the ability to achieve direction and coordination in a disaster situation. For example, how should an established organisation handle a context with expanding or emergent organisations? How should an organisation determine which organised behaviour is optimal in a specific situation? Therefore, we argue that organisations active in disasters need:

- The ability to identify different organised behaviour within the own organisation and other organisations
- Strategies to handle different organised behaviour within the own organisation and other organisations

While we can see how the DRC typology may be used to identify different co-existing organised behaviour we have also distinguished a few development issues:

- Validating examples for different types of sub organisations and a systematisation of their characteristics should complement the typology
- We need greater precision when identifying and studying sub organisations, by e.g. developing the interview questions
- Which perspectives that are suitable to adopt when analysing organised behaviour needs further investigation.

These points highlight two central issues that we have had using the model of organised behaviour; the difficulty in making transparent analytical choices and the apparent shortcoming of not being able to find organised behaviour beyond the four categories. Presenting our findings we suffer difficulties in showing the analytical connection between the organised behaviours and the identified challenges. At the moment we perceive the different organised behaviours as one possible explanation for the challenges, but this is a connection that needs to become more transparent. Also, the model itself seems to obscure some potentially complex explanations of challenges related to achieving direction and coordination in crisis management response. This might be because the two dimensions used for studying the crisis management organisation(s) are task regularity and whether the organisational structure is new or old, consequently making our analytical framework a structuralist one with little room for more post-structuralist interpretations of power relations, relations of trust, or conflicting views of different informants (in that case we as outsiders would need to make a judgement call).

Going beyond Dyne's typology on organised behaviour in disaster situations we see a need for the development of an analytical tool that can allow for multiple (and competing) perspectives on what constitutes the crisis management organisation, what model to use when describing it and a transparency of the underlying epistemological perspectives used. A framework that allowed for an "epistemological pluralism" (Healy, 2003) of organisational theories and analytical resolution could facilitate the construction of a more complex understanding of crisis management. In such a framework we would not be asked to "identify" organised behaviour as much as to "interpret" how potentially different and competing models of what it is to organise might co-exist and interact; interactions which might in turn affect efforts to achieve direction and coordination of a crisis management operation.

7 CONCLUDING REMARKS

Using Dynes' DRC typology we have distinguished different types of organised behaviour (established, expanding and emergent) existing in parallel within

the Swedish fire and rescue service handling the wildfire in 2014. We argue that such parallel behaviour affects the possibilities of achieving direction and coordination of the resources in the entire organisation and have identified several challenges based on empirical data. The challenges are tightly connected to a perceived ambiguity in the organisational structure, something we believe can be caused by different types of organised behaviour. This is however an analytical connection between identified challenges and types of organised behaviour that we need to make clearer and more transparent in future writings. This might require a developed analytical framework in which also the underlying assumptions of multiple interpretations of a crisis response system are clarified.

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