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Emergency Preparedness Planning in Developed Countries

The Swedish case

The study has been accepted by Journal of Humanitarian Logistics and Supply Chain Management (JHLSCM) and is forthcoming in 2016!

Abstract

An analysis of the Swedish emergency preparedness system and the actors of civil society that take part in the planning to cope with potential threats and ongoing crises.

Elvira Kaneberg, 2016

Study 1 of 5

Emergency preparedness planning in developed countries: the Swedish case

Elvira Kaneberg¹, Susanne Hertz, Leif-Magnus Jensen
*Jönköping International Business School, Centre of Logistics and Supply Chain
Management. Jönköping, Sweden*

Abstract

Purpose – To understand the needs of the supply-chain network when coping with permanent and temporary demands, this paper analyzes the Swedish emergency preparedness supply-chain network. This network comprises planning procedures and resources, as well as numerous organizations and other participants in civil society that take part in the system to cope with threats and ongoing crises. Planning constitutes a critical infrastructure because the system must develop the ability to shift supply chain functions from permanent to temporary networks in ongoing crises and war.

Design/methodology/approach – A research study is performed based on data gathered by three qualitative methods concerning the supply-chain network of emergency preparedness planning.

Findings – This study demonstrates the relevance of a wide empirical field challenging several theoretical perspectives of the supply-chain network in preparedness planning and the shift to ongoing crises. Further research targeting key capabilities is needed to further improve understanding of the challenges for developed countries in managing potential threats and crises.

Conclusions – Actors taking part in the preparedness system have found it challenging to coordinate. Due, in part, to the lack of a common threat profile, key capabilities remain outside preparedness planning, e.g., military, commercial and voluntary actors as well as unclear and inconsistent regulations. Thus, building the supply-chain network demonstrates the need to target the military, the voluntary and commercial sectors and their ability to develop the networks in preparedness planning. In a reformed system, all actors must strengthen civil defense in an all-hazard approach, which in planning encompasses the entire threat scale, demonstrating key functions and the ability to shift to temporary networks responding to ongoing crises, including war.

Keywords – supply-chain network, emergency preparedness planning, civil society actors

Paper type – Research paper

1 Introduction

Developed nations' vulnerability to extreme events is undeniable; effective supply-chain networks, however, have yet to be reviewed as an area with a high degree of interest. In contrast to supply chains in business, which focus on efficiency and sustainability tasks, the supply

¹ Elvira Kaneberg is a PhD candidate at the Department of Logistics and Supply Chain Management at the International Business School at Jönköping, Sweden and currently works in the Department of Strategy and Logistics (SPL Log) at the Swedish Defense Material Administration (FMV)

chain's mission in emergency preparedness is not clear, seldom successful in transitioning to temporary uses, and under manned (Beamon and Balcik, 2008; Moore and Taylor, 2011; L'Hermite, Bowles, Tatham, and Brooks, 2015). With growing concern – in Australia, Europe and the United States – regarding how developed countries can prepare for breakdowns, civil society actors (Kaldor, 2003) face challenges because of their limited awareness of new potential threats (Beamon, 2004) and their lack of understanding of the causes of critical infrastructure (CI) breakdowns (Brooks, 2003). Following Jahre, Jensen and Listou (2009), effective interaction between the permanent structures in preparedness planning and temporary networks for a high level of preparedness and the transition back to a permanent supply chain solution should not only be a priority in the creation of functional supply-chain networks but should also bring healthier resilience to the system (Boin and McConnell, 2006) and guarantee the safety and security of society (Boin, 2005a; Clarke, 2006).

Supply chain preparedness involves anticipating situations described as clearly unpredictable, turbulent and requiring flexibility (Oloruntoba and Gray, 2009; Hong, Jeong, and Feng, 2015). In sudden failures, supply chains can resolve multiple infrastructural breakdowns across geographical and functional borders (Rosenthal, Boin and Comfort, 2001; Quarantelli, Lagadec, and Boin, 2006). Following Listou, (2015, p. 84) supply chain preparedness is defined “as efforts to design organizational structures, to organize supply chain resources and as efforts to plan and train to ensure efficient response if preparedness is called for” From this point of view, with a growing number of catastrophic breakdowns, e.g., Hurricane Katrina (August, 2005) wiped out all critical infrastructures for a considerable period in New Orleans, developed countries must consider how to address CI systems to provide effective networks. CI is generally defined as one or more critical structures in the supply chain (SC) with the potential to cause severe problems to society, e.g., lack of energy sources, food shortages, and disruption of public order (Boin and McConnell, 2006). A key question is whether existing models can or should be applied for temporary and non-profit preparedness supply-chain networks, e.g., governmental and NGOs (Jahre, *et al.*, 2009). As challenges arise, requirements for supply chain preparedness are evolving toward needs for structure and resources in response to complex CI breakdowns. Thus, it can be established that more research on supply-chain networks should focus on the coordination of preparedness planning (in peacetime) and on the effective transition to temporary networks under circumstances of high alertness and war (Oloruntoba, 2005). In this study, the emergency preparedness of Sweden is used to illustrate the challenges developed countries face in managing potential threats and crises.

In the Swedish preparedness supply chain, planning is a struggle between a strong state and an independent civil society with high expectations for safety and security (Boin, 2005a; Clarke, 2006; Kapucu and Van Wart, 2006) and in which essential elements are necessary for planning to be operational (Lindell and Perry, 2004). In this study the term elements is used for the resources and procedures used in planning such as human resources, knowledge management, logistics, financial resources, and the community. Civil society actors often undermine the democratic governance of the public sector (Trägårdh, 2007), thus creating vulnerability (Brooks, 2003) and missing goals to reduce risks (Sarewitz, Pielke and Keykhah, 2003). . Actors refers to the engaged organizations in the system such as military, voluntary, commercial, media, NGOs and governmental organizations. Some of these actors are also involved in the transition from permanent to temporary situations. Beyond the traditional tasks

of Swedish authorities – i.e., developing foundations for social functionality, democracy, legal certainty and human rights (Benson and Clay, 2006, p. 126) – actors in the system must also work toward prevention, with a focus on the adaptive capacity to cope with a wide range of hazards, including war, because such a focus is an inherent property of planning (Brooks, 2003). An all-hazard approach allows for the creation of an overall generic plan for all threats that can be adapted (if necessary) to more specific needs, e.g., civil defense and military planning (Ericsson, 2010). Sweden has not yet taken on the responsibility of creating an all-hazard plan and has downsized its military organizations, as Kovács and Tatham have argued (2009, p. 216). Moreover, little has been invested in the planning to make such a plan operational (Baker, Hunt and Rittenburg, 2007). More precisely, coordination and cooperation remain lacking and are vital to reducing uncertainty (Boin, Hart, Stern, and Sundelius, 2005; Newkirk, 2001). One key issue is coordination with the military (Mathaisel, 2007, p. 18). The embedded lack of transparency and trust toward military actors hinders awareness of the military role in mitigating risk (Perry and Lindell, 2003) and building capabilities, e.g., quickly adapting to new challenges, and thus helping civilians to function (Jahre *et al.*, 2009; Mathaisel, 2007). Knowledge about the essential elements of preparedness planning and actors adapting in supply-chain networks is necessary. Therefore, the purpose and questions in this study intends to contribute to the development of the theoretical and empirical field of emergency preparedness.

Purpose: The study aims to analyze the Swedish emergency preparedness supply-chain network – that is, the supply chain’s planning elements and actors of civil society that take part in the system to cope with potential threats and ongoing crises.

RQ1. *What are the essential elements of the preparedness planning system that ensure the safety and security of civil society?*

RQ2. *How do civil society actors adapt from permanent to temporary networks?*

The study begins with a literature review in section 2; the review covers the shifts toward temporary supply-chain networks and the essential elements of planning and civil society actors in the preparedness system. Section 3 presents a methodological analysis. In section 4, empirical findings are presented. Section 5 analyzes those findings. In Section 6, important conclusions are presented, and section 7 offers suggestions for future research. Additionally, appendix 1 provides a list of represented actors in interviews, seminars and workshops and the acronyms used in this study.

1.1 Definitions of key topics

This paper is based on both a literature review and empirical data related to essential planning elements and civil society actors in the supply-chain network of emergency preparedness. First, however, it is necessary to briefly define key concepts that are relevant to the frame setting of the study. According to Kaldor, (2003 p. 45), *civil society* is defined as the medium through which one or many social contracts between individuals and the political centers of power are recognized and reproduced. The concept has always been associated with the formation of political authority. However, when a society encounters a major crisis, the politics or policy makers do not face those crisis; in contrast, political rivalries about the interpretation of fast-moving emergencies and their effects are part of the drama that crisis management entails in modern civil society. Public leaders must manage crises in the context of a political, legal, and

moral order that forces civil society actors to trade-off considerations of effectiveness and efficiency against other embedded values (Boin *et al.*, 2005).

Civil society actors are determined by a variety of stakeholders, including organizations, staff, directors, funders, members, volunteers and the military after the Cold War because it contributed to the breakdown of the sharp distinction between civil and military (Kaldor, 2003).

Actors are generally engaged organizations and for this study the use of the term actors is interchangeable with civil society actors. Those take up the cause of social safety and security, e.g., military, voluntary, commercial, media, NGOs and governmental organizations.

Elements are addressing processes and resources vital to the planning and need to be in place in order for the planning to be operational.

2 Literature review

To analyze the emergency preparedness supply-chain network, this study adopts several theoretical views. Addressing the emergency preparedness supply chain view of Listou (2015), one initial concern is the permanent vs. temporary supply-chain network (Jahre, *et al.*, 2009). The latter builds on the fact that essential elements in planning are required not only for planning to be operational (Van Wassenhove, 2006) but also to ensure the resilience of the system (Boin and McConnell, 2006). Civil society actors are not only significant, with vital roles in the continuous planning process (Kaldor, 2003), but also exist in crises (Jahre, *et al.*, 2009). Divided into several groups and levels, actors deliver essential capabilities to the system (Pfaff, 2002) and are responsible for preventing all types of hazards (Beck, 2002).

2.1 Emergency preparedness supply-chain networks

Based on a systematic literature review, the definition of “supply chain” in preparedness refers to “efforts to design organizational structures, to organized supply chain resources and as effort to plan and train to ensure efficient response if preparedness is called for” (Listou, 2015 p. 84). This view advocates that supply-chain networks have major limitations in the face of CI breakdowns. Rich and well-functioning societies, e.g., Europe, Australia, and North America, often have difficulty imagining what occurs – or fails to occur – when nothing works. An initial concern about the supply-chain network is the transition from permanent to temporary networks, building on the fact that organizations involved in emergency planning also exist in crises (Jahre, *et al.*, 2009). Because each emergency is to an extent unique, i.e., uncertainties exist about where and when a crisis will occur, what needs will arise, and what infrastructure will be available, supply chains must be tailored via joint planning (Christopher, 2011) to each incident (Oloruntoba and Gray, 2006). Thus, it is important to understand how organizations employ their own and others’ resources in a permanent network when establishing a temporary network once a crisis occurs. The supply-chain network is developed as part of the preparedness strategy, which is argued to be one of the most important elements for successful response (Van Wassenhove, 2006).

Building on the work of Jahre *et al.* (2009), one perspective on temporary networks holds that these networks are temporary organizations that must relate to one or more permanent organizations. In such a temporary organization, there are temporary contacts between permanent systems in the form of inter-organizational setups. The focus of such setups is more on organizing processes than on structure and planning. Temporary sets exist as a means of

organizing resources in competition with other sets, all competing for the same resources within a permanent organization. We view networks as overlapping supply chains because any firm is a member of more than one supply chain. The degree of integration and trade-offs between adaptation and adaptability can help explain linkages between temporary and permanent networks. From this perspective, a temporary network can be understood as an adapted version and/or a part of a permanent network, which is of great importance for individual supply chains. It is essential to be flexible to the degree that the permanent network can be adapted to different contexts, e.g., supply chains for particular relief operations must fit the needs that arise in a specific operation. The permanent network must also be able to operate numerous supply chains simultaneously, just as an organization must be able to cope with numerous projects. Thus, the network should be viewed as resource combinations in which resources are combined and recombined continuously and more or less consciously. From this perspective, the temporary network can be a new combination of the resources in a permanent network. A distinction is made between organizational resources, i.e., business units and business relationships, and physical resources, i.e., products and facilities. Fundamental to this view are the interfaces between resources in a network and how they promote and hamper new combinations. Designing, learning, influencing and economizing are suggested as sub-processes of resource-combining processes that are relevant in emergency preparedness.

A further concern is CI breakdowns that are not necessarily accompanied by deadly chaos. Some breakdowns remain isolated events and are quickly remedied, whereas others have leaking effects and causes excessive harm, e.g., forest fires in Sweden (Nyström, 2014). These breakdowns can range from mere emergencies to full-blown catastrophes (Boin and McConnell, 2006). CI, as it pertains to the permanent network from which resources are mobilized, must also be in focus to understand the interplay with the permanent network, the temporary network of each operation, and the transition to more-permanent supply chain-solutions in the planning process (Jahre, *et al.*, 2009).

2.2 *Elements of the preparedness planning system*

Emergency preparedness planning must be considered a complex process (Perry and Lindell, 2003). A chart of the essential elements of planning must be in place for a system to be operational and is the basis of risk management (Lindell and Perry, 2004). Such elements are considered in cooperative performance achieved by training, skills and evaluations (Kartez and Lindell, 1987; Lindell and Perry, 1992; Peterson and Perry, 1999; Tewdwr-Jones, 2002). Emergency planning is an approach for addressing all hazards and is driven by two objectives: hazard assessment and risk reduction. Hazard assessment involves not only identifying risk and potential threats that may affect the community but also employing technology that, as an integral factor, leads to the prompt identification of new or potential threats (Adger, 1999; Adger and Kelly, 1999). Risk reduction is an imprecise science and is always subject to political filters. Thus, society cannot predict to any degree of precision the consequences of infrastructure failures (Boin and McConnell, 2006).

Van Wassenhove (2006) considers the following elements of planning essential. (1) *Human resources* involves selecting and training people who are capable of planning, coordinating, acting and intervening where and when necessary. Upgrading local skills is a primary task both between and during emergency interventions. With training, local teams become much more efficient resources in a response situation. (2) *Knowledge management* refers to the knowledge

gained from previous emergencies. This element includes capturing, codifying and transferring knowledge about operations necessary for planning. (3) *Operations and process management* is the strategy by which agreements and means can, through regulations, provide quick exchange of resources. In supply networks, this element implies having alternative suppliers. (4) *Financial resources* ensure that sufficient money and resources are in place to arrange and initiate operations and run them as smoothly as possible. (5) *Community* refers to civil society as being responsible for emergency preparedness, recognizing effective approaches to coordination and cooperation (Tomasini and Van Wassenhove, 2009)

In terms of coordination, additional facts should be acquired before planning for all-hazard crises. Combining essential elements for use in various types of crises (Eriksson, 2010), including war, is necessary. One element is the organizational sharing of resources and knowledge (Tsai, 2002). Because organizations are not self-sufficient, they must rely upon external groups to provide what they need, e.g., from private firms and suppliers. Another element is to be current with respect to the actions of legislators and other authorities because organizations become dependent upon their environment to the extent regulations permit (Pfeffer, *et al.*, 1978, p. 43). Because an emergency often involves interaction between several actors (McEntire and Fuller, 2002), it is crucial that the same planning should reflect preparation for several types of potential threats (Perry and Lindell, 2007; Kreps, 1991). A topic of concern in the all-hazard approach is mutual respect in civil-military coordination (Heaslip and Barber, 2013). Such coordination requires mixing different concepts, e.g., humanitarian principles (Tomasini and Van Wassenhove, 2009; Kovács and Spens, 2009), civil defense based on military doctrines involving the entire society (Byman *et al.*, 2000), and commercial processes rapidly adapting to emergency planning (Kovács and Spens, 2007; FEMA, 2011; Van Wassenhove and Martinez, 2012). There is also a degree of coordination to which the same organizations that provide essential capabilities take the lead; for example, the military (Rietjens *et al.*, 2013), the private sector and their suppliers develop abilities to cope with emergency action (Byman *et al.*, 2000).

2.3 Civil society actors and their roles in the emergency preparedness system

Civil society actors (CSAs) not only have the ability to participate in the preparedness process but also play a broader role in socioeconomic development (Clayton *et al.*, 2000). However, CSAs have a measure of influence in their respective areas by creating pressure on governmental decision makers (Kaldor, 2003) for (or against) planning. In Kaldor's view, CSAs can be allocated into three main groups covering all actors in society because they play an important role at different levels. One group comprises the *classic actors* of civil society, who often claim to speak on behalf of victims, e.g., NGOs, social movements and humanitarian networks. The second group comprises those *using the power of words* close to the commanding elite, e.g., think tanks and commissions. The third group consists of specific *media organizations* such as radio stations, television channels, print media, and websites.

Military actors have been recognized most appropriate as participants when civil order is threatened and a war model is better suited (Pfaff, 2005). However, in contemporary research of civil-military relations, also known as the postmodern view, the post-cold-war period provides an account of the role of the military in extended approach and in use. Thus, military actors remain dominant with respect to contributions to civil society when considering variables such as perceived threat, force structure, major missions, military professionalism, public

attitudes, media relations, civilian staff, women's role, and conscientious objectors (Moskos Williams and Segal, 2000). Civil-military coordination provides advantages to actors in a system (OCHA, 2007; Gourlay, 2000). Networks tasked with managing the obscure traditional jurisdictions of the military and the police are associated with new threats and terrorism objectives (Hunter, *et al.*, 2004). Thus, "defence planning follows broad and far-reaching strategic assessments that define national interests and the potential threats to those interests" (ed. by Nelson, 2001, p. 102).

Commercial actors and industry form a key pillar of modern democratic societies (D'Alisa *et al.*, 2013, p. 212). Market freedom and democratic rule are viewed in the context of the ultimate objective, which is to increase society's development continuously, measured in terms of (economic) growth. Ideally, if actors become accountable, cooperation between the for-profit and non-profit sectors can be advanced (Baur and Schmitz, 2011, pp. 9-10). *Voluntary actors* have increased in number worldwide with interest in the contribution of social and economic wealth. An activity is classified as "volunteering" if it is freely chosen, does not involve remuneration, and helps or benefits strangers. Volunteering can occur both within and outside organizational settings. The former can be termed formal volunteering (e.g., volunteering through a nonprofit organization), whereas the latter can be termed informal volunteering (e.g., volunteering for neighbors/friends). Promoting volunteering has become part of the policy platforms of governments at national and state levels (Zappalà, 2000).

2.4 Summary

The reviewed literature streams merge along several flows related to the supply-chain network (Figure 2.1). The process relates to adapting from permanent to temporary networks in the supply-chain, which supply the preparedness system and deals with switchable transitions adapted to a high level of alertness and ongoing crises. The second process addresses essential elements that need to be in place allowing for planning to be operational. The third process considers all CSAs that are vital to participate in the planning system.

Figure 2.1. Essential flows of the supply-chain network of preparedness

3 Methodology

A single case study was found most appropriate to analyze the Swedish emergency preparedness planning system and matches the aims of this research (Yin, 2009; Flick, 2009). Because a dynamic phenomenon is best studied in a real-life context (Ellram, 1996; Eisenhardt, 1989), some case studies are equivalent to the unit of analysis (Yin, 2003). However, in an embedded approach, Yin claims that one case can cover multiple units of analysis at lower conceptual levels. The unit of analysis is thus defined as individuals and/or actions of individuals providing explicit evidence about the subject of concern.

Swedish emergency preparedness is an infrastructure with different actors at different levels along the supply chain. Within preparedness, some CSAs may be expected to participate in planning to recognize risk and threats to society, whereas others have an explicit focus on war. Such a mixture of goals allows for the development of capacities that would most likely result in different planning designs and/or combinations of essential elements. Therefore, we chose to restrict the analysis to the all-hazard approach. Further building on Yin's notion of the unit of analysis, we considered the elements essential for planning and actors involved in preparedness planning our unit of analysis. Those elements are embedded in the case study, providing data from different sources and levels. This approach requires first-hand information on the subject (Burrell and Morgan, 1985, p. 5); therefore, a multi-method approach following the work of Silverman (1993) was most appropriate. Thus, the triangulation view of Mathison (1988) was selected as an appropriate strategy for improving the validity and reliability of the study and for evaluating its findings. For bases of triangulation, we built on three separate but complementing areas of information. The first area is from secondary data provided by articles, archival documents and policy documents that involve several situations intended to visualize the Swedish system, for example, official documents elaborated by authorities and policy makers. The second area includes interviews in which actors' provided their views about the Swedish planning system. Via e-mail, 20 people were asked to participate in direct interviews. These people represented different levels in the Swedish system (*appendix 1*). Each participant has a university-level education or equivalent (e.g., police, military and fire brigades), and all of them hold key positions in their organizations. The time required for each interview ranged from one hour to two hours for the majority of interviews. The interview guide included three sets of questions. The first set related to organizations' roles and level in the preparedness system. The second set covered the essential elements the organizations deliver to the system. The third set focused on the participants' capacity to address new combinations of threats and on coordination with the armed forces. The third and final source of information was a number of seminars, workshops and open discussions with key actors (e.g., the Swedish Armed Forces, the Defense Secretary of State, Legal Secretary of State, the National Police, the Swedish Contingency Agency and the Defense Council). A number of key informants representing organizations in the Swedish system had open discussions on the issue of emerging complex threats to Swedish civil society. These discussions were made possible through "Chatham house rules,"² which concern anonymity. This particular set of anonymity conditions was very

² "When a meeting, or part thereof, is held under the Chatham House Rule, participants are not free to identify the affiliation of the speaker; nor may that of any other participant be revealed" (<https://www.chathamhouse.org/about/chatham-house-rule>).

familiar to the participants in the system and provided a useful means through which the participants could discuss problems and challenges more freely without being identified.

Confirming the reliability of the study (Eisenhardt, 1989), the empirical material was extensively documented (e.g., policies, articles, recordings, notes and transcriptions). Ensuring validity in accord with Johnson (1997, p. 283), collected insights were analyzed and structured, thus reducing the amount of information. Maintaining confidentiality remained critical in this case because confidentiality is a core value in research (Hopkins, 1943), and the ethical principle is embedded in codes of research ethics (Koocher and Keith-Spiegel, 2008). Promising anonymity to respondents has long been an indispensable condition in public research, as it was in our case. Following Bower and de Gasparis (1978), people will tell a truer story and act with less inhibition if they believe that what they say or do will be held in the strictest confidence. This logic, combined with the principle that one respects the privacy of research subjects, has created uniform agreement among scientists. Thus, confidentiality in this study should be conserved by every possible means to protect the interests of both science and the topics of the study.

4 Empirical Contribution

The first part of this chapter addresses the current rules and regulations for building the conditions for emergency preparedness in Sweden. The second part presents the views of various civil society actors based on interview responses to questions about the essentials of planning and challenges in their roles. The third part presents the output gathered from seminars and workshops, with representatives noting the need for a system to cope with current demands.

4.1 Empirical part one: Secondary data

To meet the main objectives of the study, the information gathered is based on documents and archived articles retrieved to illustrate the formal background required to build a preparedness system and the state and authorities' formal policy and regulations for leading emergency preparedness.

4.1.1 Swedish preparedness planning system

The Swedish case is particularly interesting for several reasons; in Sweden, initiatives to change and develop are instigated by civil society through a democratic process. Sweden's large public sector, high taxes and legacy of social engineering have come to inspire other welfare states. In this vision of a state-dominated society stands another potent and deep-rooted conception of Sweden as an exemplary popular democracy (Trägårdh, 2007, p. 2). Sweden is highly trusted and acts, in this case, as an engine among developed countries (Trägårdh 2007). However, the world is changing radically, not least beyond Europe and Sweden. At the same time, the changes are critical for Europe's and Sweden's safety and security. The changes have been seen in e.g., macro-economic shifts, technological developments, research, education, economic interdependence, energy, climate, water, food, urbanization and migration (UD, 2014)

4.1.2 Planning civil defense

The Swedish legislature and authorities work together toward their purpose, i.e., development, defense, safety and security (Trägård, 2007). Over the past ten years, Swedish authorities have developed a system for peacetime crises. This effort has improved civil defense with respect to two of three objectives: to ensure the key functions of society and to protect the civilian population. Regarding the third goal, i.e., to contribute to the armed forces' ability to mobilize in the event of an armed attack or war, there is currently no planning because of a recognized lack in the common threat profile and scenarios involving heightened alert (FOI, 2014).

4.1.3 Charting the planning system – Swedish ordinance: (2006:942)

To build an emergency preparedness system, the Swedish government has set up areas of cooperation and coordination under Ordinance (2006:942). The Swedish contingencies agency (MSB) has been assigned to collaborate with involved actors and to assist them in developing forms of work. Essential elements of planning have been developed following the formulated common needs in dialogue with all stakeholders. Cooperation and coordination are considered vital in Swedish emergency preparedness efforts because cooperation areas constitute the structure that allows for both interaction to help each participant to fulfill its responsibilities and the development of the common ability to manage planning. Areas covered by the emergency preparedness system include (1) *financial security* for reducing vulnerabilities in the financial system; (2) *dangerous substances* for preventing risks and threats, in the event of chemical, biological, radiological, or nuclear (CBRN) warfare; (3) *geographical area responsibility* for supporting county administrative boards; (4) *protection, rescue and service* set up when shortfalls appear in the ability of authorities; (5) *technical infrastructure* for assisting work with technical infrastructure – electricity, electronic communication, gas distribution, information services, media distribution and technical municipal support; and (6) *transportation* for ensuring basic transport to meet society's needs (MSB, 2014).

4.1.4 Planning – Civil Emergency Preparedness (CEP)

Emergency preparedness planning involves the whole of civil society. In Sweden, planning under normal circumstances is processed based on features and activities by the responsible authorities. The public sector is mainly responsible for national planning. Individuals and businesses have a role to play in preparedness because a large part of the critical infrastructure has been privatized and now forms part of the business sector. The Swedish emergency management system is organized in levels, i.e., national, regional and local. Because it is a member of the European Union (EU), Sweden can receive support from the EU and through bilateral and multilateral arrangements. A crisis that affects large parts of society may require widespread cooperation between authorities and between different organizational levels. This responsibility places severe demands on the coordination of planning because the system corresponds to a national critical infrastructure in which critical dependencies between different essential elements of planning also require very careful coordination both within the sectors involved and across sector boundaries (FOI, 2015). At the international level, the extended international task of Sweden is to increase capacities according to international measures to coordinate crisis management with other countries (MSB, 2009).

4.1.5 *How do actors perform and when do they enter the system?*

There are three levels of governance in CEP: national, regional, and local.

The national level: The MSB, authorities with responsibilities for emergency management, parliament (the government) and the European Commission have the power to legislate, create rules and represent Swedish society at the national level. The Ministry of Defense (today) has the overall responsibility for CEP. To guarantee that the Government Offices of Sweden have a coordinated ability to handle cross-sector emergencies when they occur, the Crisis Management Coordination Secretariat at the Government Offices is responsible for daily management. Crisis management at the Government Offices is based on a joint cross-sector approach. Every government office is responsible for planning and handling crises within its own area of responsibility. Authorities and agencies at the national level are assigned complementary tasks (by the government) during major emergencies. Every governmental agency is responsible for CEP in its own area of expertise; each agency is responsible for taking measures before, during, and after a crisis.

The regional level includes 21 counties and region boards and 21 county administrative boards. The county administrative boards are responsible for coordinating CEP activities in, for example, exercises, risk and vulnerability analysis. The boards also act as a clearinghouse between public and private partners. During a crisis, the administrative boards coordinate relevant measures with relevant actors. The county administrative boards have the overall responsibility of reporting whether there is a need for host nation support (HNS) in the event of a major emergency. Similarly, the county administrative boards also coordinate contact with the mass media during major emergencies.

The local level in Sweden includes 290 municipalities that are governed by elected politicians. Swedish municipalities have a large degree of autonomy and play an important role in civil emergency planning and in overall preparedness. In a major emergency, the municipal executive board is the highest civilian authority within the municipality, responsible for managing all civilian command crises at the local level. In this role, municipalities are supported and assisted by the county administrative board.

Civil-military cooperation has the overall aim of achieving a mutual exchange of assets and information to handle different types of emergencies efficiently. Civil-military CEP cooperation is performed at all administrative levels and includes planning, international activities, training and exercises. At the national level, the MSB and the Swedish armed forces headquarters coordinate on common activities.

Volunteers taking part in the system are currently represented by 18 volunteer defense organizations involved in both civil and military aspects of CEP, and approximately 200 other volunteer organizations include fire brigades that facilitate training and operate equipment. There are approximately 120 volunteer groups in non-profit associations in the system that strengthen preparedness at the community level in cooperation with local authorities, e.g., information, recruitment, training and arranging for wartime situations (Ekenberg, 2014; MSB, 2009).

4.1.6 *Essential principles in the Swedish system*

The essential principles governing the Swedish system are as follows. *The principle of responsibility* assumes that the party responsible for a certain activity under normal conditions should also have the responsibility in a crisis. This responsibility includes cooperation and

coordination with other actors to ensure that the collective resources of society are protected and utilized effectively. *The principle of proximity* indicates that crises should be handled where they occur and by those who are closest to them. *The principle of parity* implies the localization and organization of activities that, to the greatest extent possible, should be the same during a crisis as they are under normal conditions.

Ensuring responsibility and coordination for structures is the concern subsumed by *geographical responsibility*, under which the municipalities, the county administrative boards and the government are responsible for their respective geographical areas and for the necessary planning. This responsibility includes disseminating general information to the public and the media. The principle does not entail any right or decision over the actions of other parties within the area. The responsibility for crisis management and operational measures of a national character rests only with the central authorities. *Sector responsibility* allows authorities and organizations within a particular sector of activity to have responsibility within their own areas. A number of public-sector authorities, including the county administrative boards, are specifically responsible for emergency preparedness and for coordination across the various sectors of society (FOI, 2014).

In addition, the Swedish preparedness system is regulated by rules according to MSB (2014); together rules and regulations shape the conditions under which the Swedish emergency preparedness system can develop capacity and crisis management dynamics. In turn, those regulations are complemented by a number of other rules relevant to the management of social disruption, called sectorial legislation that involve areas such as rescue services, social services and police operations.ⁱ

4.2 Empirical part two: Interviews

One purpose of the study is to identify the essential elements in the preparedness planning system and how actors in the system adapt from permanent to temporary networks. Actors were interviewed to provide opinions on the system, ensuring that, because essential elements can be missing, transitions from permanent to temporary could still be examined.

4.2.1 Essential elements and actors' challenges

Civil society is confirmed as responsible for the planning of emergency preparedness. However, trust in democratic institutions and consequently in their process was considered to be failing (according to respondents at all levels).

The community:

Involving resources capable to manage, plan and operate emergencies and prevent new threats, the development of the modern information society is usually considered to strengthen the preparedness process in Sweden. With these developments, the importance of actors as a mediating force between citizens and the state is most likely weakening. One explanation for this phenomenon is reported by Boin *et al.*, (2005), who suggest that unnecessary friendliness and conformity affecting actors in the system because of groupthink leads to contagious optimism about the actors' ability to see through a crisis successfully. The interviews suggest that building essential elements is challenging because there is uncertainty about where a process starts or where it ends. There is certainly a belief that cooperation is needed to provide synergy; *"working based on responsibility is a completely missed point due to a lack of a*

common holistic view or knowledge about how the system is meant to function” (respondents at all levels).

Secondary information indicates that the Swedish democratic process has been increasingly questioned. Political parties and traditional popular movements have come to be criticized for their difficulties in engaging new members because of the weak confidence in the political parties *“This is partly caused by the increasing number of those in power engaged in politics without being elected, e.g., political experts, secretaries, consultants and municipal leaders, a view reinforced by the belief that money has more influence over the policymaking process”* (respondents at the national level).

An important subject of discussion is military organizations as part of the Swedish model, financed by taxes and retaining a high degree of skills that are important for emergency planning. According to the interviews, *“Sweden is building important capability into the preparedness system, we cannot afford to ignore military resources”* (respondents at the national and local levels). *“The military involvement in the planning system is difficult as they are often combining political aims, [and]...in the absence of clear policies, guidance and leadership, the military engagement remains outside the system, increasing culture gaps”* (FMV, 16 February, 2015).

The Swedish private-public arrangement is in need of significant development compared with what is currently being achieved. *“The question is not whether private-public partnership is an option, but how to integrate public-private agreements as part of the planning, [and] how to deal with given rules for commercial arrangements, as those are far too complex, together with too poor skills among actors”* (TA, 20 April 2015). It is simply impossible for the Swedish public sector to manage the delivery of essential goods and services when demands increase in times of peace and crisis. Private actors take action as long as they receive pay for what they do; therefore, their priorities are more limited if they are not obliged by law or if income is not provided. *“There must be a balance in this system because the private sector is extremely economical when using its maximum capabilities, e.g., there is a need for long-term business strategies ensuring deliveries in ongoing crises”* (respondents at the regional and local levels). Volunteers can apply for money if they qualify for support from the system. In general, MSB policy is to provide support to NGOs and voluntary actors if society requires their support. *“Since this area is quite unknown, it needs to be studied [by] charting volunteers, contributors [and] their possible roles in the system. Therefore, a starting point and the MSB priority for assignments and compensation on the current basis is that voluntary duties reflect the needs of society e.g., voluntary duties in crises are more often performed by the defense voluntary organizations, the Swedish Red Cross and the religious community, among many other voluntary organizations”* (MSB, 3 March 2015).

Human resources:

Interviews showed that by selecting and training people, actors can improve their adaptive capabilities at different levels. In particular, actors’ environments are loaded with external difficulties, e.g., knowledge, training, culture and competition among unique roles, and internal vulnerabilities, e.g., personnel, processes, budgets and managerial focus (FMV, NBHW, SCG, CG, and SC). Moreover, actors’ ability to coordinate and to cooperate varies substantially. Although an actor’s commitment to planning depends on the efficacy of the overall leadership, *“MSB should provide conditions for a complete coherent system. MSB as an actor has not had an operative responsibility in emergency preparedness, but taken operative tasks here and*

there; they have not been able to deliver their very primary obligation” (SNP, 3 March 2015). For example, on 8 January 2005, approximately two weeks after the tsunami disaster hit Southeast Asia, with over 500 Swedish victims, a heavy storm hit Southern Sweden, making the system’s vulnerability clear and leaving a deep impression on those affected by the disaster. The storm Gudrun was an incident that will be interpreted based on different legislations depending on local capacities, resources, operational decisions, exposure etc. “Leadership must be reinforced because if one does not use the principle of responsibility or other management, then actors are required to perform where and when necessary. Leadership is based on a voluntary basis and the opportunity to order itself, but it needs strong controls. Control must come from, e.g., rules given by the department or the government” (respondents at the national and regional levels),

Knowledge management:

Examining previous emergencies suggests that the influences of the military and the police have been challenged by new roles associated with demands from, e.g., terrorism and social change objectives. *“The emergency preparedness management functions today in a peace situation, but experience has shown that there are gaps in the system if a bigger crisis happens” (respondents at the regional and local levels). “The latest flaws of crisis management were revealed in several analyses of the forest fire in Västmanland. The analysis showed that the management structures are bottlenecks in the system” (SCG, 10 March 2015).*

There is a high degree of overlap in the planning of products and services to the system; in some cases, there are, for example, duplicated skills, tasks, and resources. This overlap causes difficulty for planners in agreeing and ensuring successful management. *“Avoiding overlap coordination and cooperation in general is best at the local levels. Although the coordination at the local level with, e.g., the military, home guard, police, fire service and other actors, works faultlessly, coordination becomes vague at regional and national levels. That vagueness is due to higher complexity, the lack of comprehensive policy complementing the responsibility principle and a lack of clear mandates for crisis operations” (BC, BCRT, CAB, CC, NPTA, SHG and NSP).*

Operations and process management:

Actors identify threats in internal processes of their organizations. Satisfactory risk management requires great understanding of actors’ dependence on the environment. Specifically, the current mechanisms and regulations create limitations when organizations are required to consider other partners. *“Too much focus is placed on cost efficiency, which limits the evolution of realistic planning. A broad national board of external reference should be established, comprising representatives of various agencies and organizations. All actors and other organizations in the system must continuously be informed, e.g., they must also learn about potential threats and about how to prevent them in their specific role (respondents at the regional level).*

The ambition of planning in the civil defense context is challenging. *“There is a great need of direction and guidance from the government, the Armed Forces, [and] the MSB e.g., there is a need for an exact agenda to plan civil defense building changes in society. In addition, guides for prioritization of resources are necessary to build on coherent planning across the country” (FMV, 18 February 2015). Because crisis responses in modern society are best characterized in terms of a network, actors require decision-making authority down to the local level, in accord with Boin, et al., (2005). “There is a necessity for guides in the managing of privacy, war*

placement, public-private mandates and roles, financial needs and the evaluation of law relating preparedness and war” (SS, SRSA, SRP, FHS, FMV, and SAF).

Actors believe that it would be interesting to know which method will be used in civil defense planning (MSB, SAF and SNP). It would also be helpful to know what processes are important to achieving the desired goals. *“The SAF has a process, which is based on doctrines and orders, to obtain the resources to end wars. Civil actors would like to have measures similar to doctrines, with orders on what is required to support preparedness planning, e.g., doctrines and orders adapted for civil planning”* (respondents at the regional and national levels).

Financial resources:

Insuring sufficient resources *“is the only way to improve the Swedish preparedness planning system, as it requires proactive planning that is based on the capability of essential resources to cope with the current expectations”* (MSB, 9 March 2015) *“The planning system must develop under an all-hazard approach. The changing character of today’s threats imply greater complexity, demands and an entirely new combination of skills at all levels e.g., dealing with social unrest, migration crisis, and terror”* (SMs, SC, SCG, SRC, SRR, TA, and TDC). More resources are required at governmental levels to address global trend analyses. Furthermore, there is a need for technical improvements to provide reliable information systems that are more accurate. Because Sweden sorely needs to develop a national model that can achieve better results, learning from one another can create a foundation for best practices. *“We must increase understanding of one another’s skills and tasks. In addressing new threats and a complex organizational environment, it is important to invest in IT and communication equipment because they are fundamental to the reliability of the preparedness system e.g., digitalization is the biggest change in our time, it not only provides opportunities for contacts and knowledge of what is happening beyond the traditional horizon, but it implies great challenges to actors”* (TDC, BC). Dealing with the available resources *“In a very near future, preparedness planning should involve all available actors in the prevention of all types of threats to civil society, including war e.g., in late budget directions (2016), conditions for a whole approach in civil defense are given, those are including all actors i.e., government agencies, municipalities and county councils as well as individuals, companies, associations, etc.”* (JU, MOD, MSB, SAF, NCI, NPB, FHS, NC, and PDC)

4.3 Empirical part three: Workshops and seminars

Planning preparedness that is able to handle transitions from permanent to temporary networks to cope with potential threats, high alertness and war is vital to the purpose of this study. Seminars and workshops held under the condition that participants should not be identified (“Chatham house rules”) is yielding information from heads of the Swedish system who are recognizing inherent vulnerabilities. Although confirming this information is difficult, interviews and documents are used to enhance credibility.

4.3.1 Coping with risks and potential threats

Sweden is facing new risks and complex potential threats. The present Swedish preparedness planning system is a critical infrastructure that must be improved and reinforced to meet larger combinations of complex situations *“In a very near future, preparedness planning should involve all available actors in the prevention of all types of threats to civil society, including war”* (JU, MOD, MSB, SAF, NCI, NPB, FHS, NC, and PDC).

Although new risks are envisioned, changing potential threats demand the development of legislation that addresses current requirements. Global trends are generating pressure for the development of a changed and/or new infrastructure. *“This situation is also creating pressure on actors to consider war as inherited potential threat and is driving the understanding of social and technological needs toward the protection of society against dangers of all sorts, e.g., demand for energy is expected to further increase due to booming middle class in Asia and our dependence on China for strategic metals remains”* (JU, MOD, PDC and DSS).

Present communication challenges demand reliable *“systems to create trust, vital for coordination and cooperation, as those could create awareness about the threats of today –not the same as before – [and] while the intricate connection between certain levels of new threats is increasing, it in turn increases the complexity in planning e.g., hybrid warfare which means that all possible means are used to impact opponents. Regular military units are combined with political disruption, economic warfare, blackmail, cyber-attacks”* (TDC, 25 February 2015). The implication that there is a need for a systematic, holistic approach to communication is accurate. *“One vital goal should be to encourage Swedish authorities in their work on civil defense. The current approach is in its start-up phase and requires direction and guidance from the government and responsible authorities e.g., communications system for many purposes”* (BC, NC, and FOI).

The decision to revamp defense planning has led actors to re-evaluate the current system, although no real planning for increased preparedness has yet begun (FMV, SAF, SNP and MSB). *“For instance, total defense planning and issues of civil-military cooperation have been linked to preparedness. On 1 January 1 2015, the last organizational obstacles for the police organization to follow the conduct of preparedness duties were removed. The aim is higher efficiency and flexibility.* With the reform, the police’s ability to assist other actors in the system was reinforced, increasing the police’s ability to coordinate and cooperate in emergency planning (JU, SS, DSS, MOD, SFB, SCG, FHS and SNP).

In the defense policy orientation for the Swedish Defense 2016-2020, the security situation has been worsened. Armed violence is again a tool that governments and other stakeholders in the region may use to reach their goals (FOI, 2015). A view that is placing demands for a holistic approach when building actors’ capability. *“We are concerned that a closer, larger crisis is about to occur. Although forums for planning cooperation at the national level remain highly incomplete, the need for exercising together is more obvious in the civil defense context. Actors need help to transform their experiences from continuous into temporary accurate actions, which can be achieved from learning and exercising processes for planning strategies...Actors also need help from the state and responsible authorities to understand how the system is meant to work, overall. Vulnerable areas are increasing, affecting trust and commitment to the system”* (FOI, SAF, DC, NC, FHS and NSP). This stresses not only focus on Sweden's defense capability but on civil actors’ planning ability. In an ongoing review of civil defense, there remains many questions about how actors ought to develop their share towards an all-inclusive planning (FOI, 2015) *“Actors are currently planning mostly based on peacetime; the plans that have been developed are grounded in requirements that include responsibility, equality and proximity principles. A capability to move permanent planning to temporary operations when crises arise is lacking. We must significantly reinforce leadership because it builds on obsolete regulations, mandates and tasks”* (NPTA, FOI and BC)

5 Analysis

5.1 Essential elements for addressing potential threats

Addressing the first question –“*What are the essential elements in the preparedness planning system that ensure the safety and security of civil society?*”-strategic practices are employed to ensure that planning elements in the Swedish system remain healthy. These practices were found to be indicators associated with essential elements in planning meant to ensure the safety of society. Based on the information collected, essential planning elements are always expected to relate to the goal of developing healthier resilience. Those elements must be in place for a system to be operational and are based on risk management (Baker *et al.*, 2007). Because some essential elements in the current preparedness planning system of Sweden use unique strategies or unusual applications, e.g., civil defense and military planning, such strategies and applications are found difficult to implement. Thus, we found it wise to use the structure of Van Wassenhove (2006) to organize the essential elements of the Swedish planning system (*Table 5.1*).

Table 5.1. Essential elements in the current preparedness planning system of Sweden

Human resources	Knowledge management	Operations and management	Financial resources	The community
Level in the system <ul style="list-style-type: none"> national level regional level local level international level Skills <ul style="list-style-type: none"> All-hazard view Civil defense Leadership joint planning Operationalization <ul style="list-style-type: none"> coordinated management military Processes <ul style="list-style-type: none"> peacetime emergency ongoing crises war Principles <ul style="list-style-type: none"> responsibility proximity parity 	Evaluation of earlier emergencies <ul style="list-style-type: none"> training, scenarios of emergency logistics analyses seminars, meetings networks recruitment revision research budget uses information defense/safety Planning coordination and cooperation <ul style="list-style-type: none"> public authorities private and public companies interest associations and organizations, NGOs military organizations volunteers Coordination of logistics planning <ul style="list-style-type: none"> military capabilities commercial actors private-public 	Commitment <ul style="list-style-type: none"> system structure planning process Different approaches <ul style="list-style-type: none"> principles specific details commercial doctrines short/long term Organizational behavior <ul style="list-style-type: none"> organization cultures understanding one another's tasks independent institutions skills/capability search for synergies private vs. public Leadership <ul style="list-style-type: none"> policies regulations rules Information <ul style="list-style-type: none"> channels public new media 	Resources <ul style="list-style-type: none"> financial budget regulations technical communication Running operations <ul style="list-style-type: none"> training continuous exercising meeting evaluations workshops seminars local focus Skills <ul style="list-style-type: none"> learning from one another national scenarios technical operational analytical information 	Civil society actors <ul style="list-style-type: none"> governmental commercial military volunteers individuals industry commercial Democratic process <ul style="list-style-type: none"> government dependence involvement responsibility trust commitment Legislation and authorities <ul style="list-style-type: none"> laws and regulations ordinances communication Critical infrastructure <ul style="list-style-type: none"> supply chain planning network

Human resources must be in place at all levels to achieve a higher level of joint planning (Christopher, 2011). In the Swedish system, one important principle is the responsibility to cooperate and coordinate with other actors, an ambition proven inconsistent in practice because actors have not been able to interpret the policies and regulations facilitating the coordination.

An opposite, if applicable, view adopted in earlier research is that the human element is essential to effective planning (Tomasini and Van Wassenhove, 2009; Tsai, 2002). This general understanding suggests strengths in the system not found in the extended bulk of regulations alone. However, the system also consumes a great amount of resources and structure. According to the regulations, actors are expected to manage their dependence on the environment based on democracy, trust and reciprocity. These ambitions are in some ways contradictory to previous studies, proving that an organization's dependence on its environment places inevitable limitations on organizational behavior (Pfeffer, *et al.*, 1978), causing the organization to become less democratic, less trusted and less effective. From this perspective, planning to address the all-hazard approach implies not only managing permanent supplies in peacetime (Jahre, *et al.*, 2009) but also managing various types of emergencies via several networks (McEntire and Fuller, 2002), managing temporary supply networks (Pfeffer, *et al.*, 1978), and coping with several combinations of unexpected complex threats (Perry and Lindell, 2007; Kreps, 1991).

Knowledge management has been shown to be a political instrument aimed at sidetracking attention from other critical infrastructural systems because it often represents a bottleneck in long-term planning within organizations. A major challenge to planning is balancing between Swedish actors' ability to respond quickly to sudden crises and having full control over what political processes must be called off both when reacting to a crisis and in between crises (Jahre, *et al.*, 2009). In earlier studies, higher demands were placed on legislators and other authorities (Pfeffer, *et al.*, 1978) to address democratic shortages, e.g., efficient guides toward a reformed system. One complication in the Swedish system in particular, however, stems from the requirement for civil-military coordination and combining different concepts, e.g., humanitarian, doctrines, policies, and business concepts (Kovács and Spens, 2009, 2007; Byman *et al.*, 2000; Oloruntoba and Gray, 2009). To respond to the call for more-efficient coordination and integration in the supply chain and between different supply chains (Jahre, *et al.*, 2009), the current system must quickly modernize the bulk of its legislation and regulation in the field. Allowing for different and more flexible distribution of activities and resources across structures would most likely make it possible for the military, businesses and volunteers to be part of the preparedness planning strategy. Indeed, interviews suggested that pre-positioning stocks could be planned in possible areas of crises.

Operations and process management is essential in planning, holding great implications for the adaptability of a system to crises. Although vulnerability exists within operation systems free of an external threat, vulnerability is considered an integral property of planning (Adger, 1999; Adger and Kelly, 1999). In this view, each crisis is to some extent unique, e.g., because of uncertainties about where and when a crisis will occur (Jahre, *et al.*, 2009), Swedish actors were found vulnerable because they were tailoring solutions to each incident. Actors often have difficulties identifying how to employ their own and other resources in a permanent network when establishing a temporary network in response to crises. Addressing the permanent network as part of process management is found to be a fundamental element for an efficient response (Jahre, *et al.*, 2009). Actors in the Swedish system continue to identify flaws in managing their processes, preventing them from focusing attention on new and potential threats and creating a lack of solutions to a common threat facing Sweden today.

Financial resources are essential elements affecting the conditions under which actors remain devoted to their commitment. This issue is often related to the arrangement of a given

network because actors should ensure development built on experience, training and new skills (Van Wassenhove, 2006). From this perspective, mobilizing resources in the system in Sweden is found to be an expensive issue because organizations often compete for the same resources within permanent structures, an issue that becomes apparent in temporary arrangements. However, it should be advantageous to share a common resource pool and to manage it toward efficient utilization (Jahre, *et al.*, 2009). Additional, civil-military coordination and cooperation can benefit actors in the system (OCHA, 2007; Gourlay, 2000). Network arrangements with military, commercial and industry actors remain in large part excluded from Swedish emergency planning. Based on the interviews conducted in this study, we understand that regulations, training and essential skills among actors must improve, adding a measure of uncertainty to the relationships that actors must forge during a crisis.

Community is considered the most significant element in planning. The case study shows that planning at county administrative boards has a low priority, e.g., planning coordination of activities, exercises and risk analysis. Consequently, actors in the system are poorly motivated to develop planning processes; the lack of communication affects processes and planning priorities negatively, which is inconsistent with previous studies that have shown planning to be a strategy in which exchanges can create social legitimacy (Pfeffer, *et al.*, 1978). Considering actors' loyalty to their geographical responsibility, municipalities have a large degree of autonomy and are responsible for local crisis management. Nonetheless, planning work lacks coordination with other municipalities, in part because of the dissimilar conditions and different needs between municipalities. Initially, threats are often addressed in interaction with several players, independent of any geographical limits (MacEntire and Fuller, 2002). Coordination with the military at the local level in Sweden is accessible and not often problematic. Specifically, the home guard helps inform, recruit and train other volunteers for emergency and wartime situations (Ekenberg, 2014).

5.2 *Actors in the system adapting to potential threats and ongoing crises*

In addressing the second question- *How do civil society actors adapt from permanent to temporary networks?* -we found that networks represent a critical infrastructure affecting the capability of the planning system. Actors' participation in permanent networks as part of the preparedness strategy were observed to be an essential element for responding efficiently to crises. There seems to be confusion about how actors should take on roles in preparedness, partly because planning processes are developed somewhat simultaneously in separate fields and to meet several goals, e.g., the military role in emergencies, crises and war. From this viewpoint, there appears to be a need for higher consolidation of actors in permanent preparedness planning because doing so is essential for adapting networks to solve ongoing crises. A contradiction appears to lie between what actors believe their contribution to the system is during the preparedness planning and the way actors must adapt in ongoing crises. From this perspective, actors' interplay in several networks obey the requirements established in the various phases of the preparedness process, although actors are expected to adapt to spontaneous networks by combining their capabilities as they are collected at unexpected levels of complexity (**Table 5.2.**). We obtained significant findings that address potential threats and ongoing crises by examining how actors are involved in planning (levels in the system), the interplay of several networks building preparedness capabilities (permanent networks) and actors' capability to shift to adapted networks (temporary network). Essentially, these findings

are a call for further understanding actors' ability to shift from permanent networks (in peacetime) to temporary networks (in ongoing crises) and back to more permanent supply-chain solutions in the development stage.

Table 5.2. Actors in the Swedish system adapting from permanent to temporary networks

Civil Society Actors	Shifting (transition) from permanent to temporary networks and back	
Level in the preparedness system	Interplay in permanent networks (preparedness)	Adapting to networks (ongoing crises)
International National Level <i>For example:</i> The Ministry of Defense Swedish Civil Contingencies Agency The Swedish Armed forces National Police	Effective use of personnel	Unexpected complexity
	Continuous training	Default to interact – policy, regulations gaps
	Regulations for top management	Complex management
	Support to organization	Complex communication
	Planning management	Complex environment
	Redundancy in the system	Budget constraints
	Main information sources	Indirect information
	Process development	Low importance – geographical responsibility
	Culture of reliability	Management gaps and leadership
	Redundancy building	Low level of managing
Regional Level <i>For example:</i> County Administrative Board County Council Regional Police	Job-design strategies	Low priority/budget constraints
	Low priority /budget constraints	Special skills from spontaneous volunteers
	Dependency upon one another	Lack of continuous training
	Planning emphasis	Lack of motivation in system
	Different organizational cultures	No one has overall view
	Lack of internal motivation	Low management focus
Local Level <i>For example:</i> Municipalities – The Home Guard	Coordination-cooperation	Short-term planning missed
	Budgets – economic sources	Conflicting goals and views
	Holistic planning strategy – long term	Missing coordination
All Levels <i>For example:</i> Coast Guard – Commercial – NGOs	Priority – unclear directions	Absence of holistic approach

Civil society actors and level in the preparedness system

In Sweden actors are assigned to relate and perform at different levels of governance, i.e., international, national, regional and local, and there are different types of such actors, e.g., policymakers, media, military, commercial and volunteers. The actors play different roles in the system, e.g., politicians and managerial experts. This harmonious approach (Kaldor, 2003) favors civil society actors' influence in areas creating pressure on the government for solutions. However, the interviews suggest that the MSB, which responsible for coordinating preparedness planning, has been criticized for its incompetence in its coordinator role. The lack of leadership and the lack of ability in creating conditions for joint planning have contributed to an inherent vulnerability in the Swedish system, despite the extensive delegation in the regulatory framework (FOI 2015). Specifically the extended role of military actors related to their involvement in the preparedness planning, is found to be difficult in the current system. As they are still perceived most appropriate when civil order is threatened (Pfaff, 2002).

Actors interplay in permanent networks

Looking for an effective use of resources, in accord with FOI (2015) "Planning in civil defense is part of Sweden's total defense, which is an activity that is activated upon alert". However, this effort is still difficult to realize in practice, partly because the absence of guidelines and policy and a mismatch in the Swedish structure because the traditional jurisdictions of the

military and politicians have been darkened by new, recent complex threats, e.g., terrorism, social unrest, new threats of regular warfare, irregular warfare agents and hybrid warfare, which means that all possible means are used to detract the opponent. Thus, in the latest reform undertaken toward higher efficiency, the Swedish police in cooperation with the Swedish military will follow the principles of preparedness and provide the required capacity. All authorities should consider overall defense requirements in their tasks, and they should plan to continue operations as long as possible, even during times of alert. In their planning for national defense, authorities should coordinate and cooperate with other relevant actors e.g., government departments, local authorities, business, voluntary etc. (FOI, 2015)

Supporting organizations in their planning management, measurements and methods for evaluating and developing organizations over time showed to be lacking. Because of the complexity of the Swedish system, timely crisis recognition depends on actors' capability to function and establish organizations for early emergency recognition. However, we found that organizations are poorly manned and equipped to identify and prevent crises and that neither legislators nor responsible authorities provide measures that support, for example, military engagement in preparedness planning, although such measures have been requested by all actors.

Priority and direction for the use of commercial actors and industry should be considered key pillars of modern societies (D'Alisa *et al.*, 2013, p. 212). We observed that combining public-private partnerships for the supply of important goods and services remains a challenge. Including commercial actors and industry in the Swedish system is of great importance because, on its own, the current system lacks the capacity to fulfil today's needs in times of peace or in ongoing crises.

Building redundancy, according to Swedish authorities, voluntary organizations and NGOs are important actors, other important actors are e.g., military groups, social movements, and networks (Kaldor, 2003). The authorities recognize that volunteers, have unique capabilities and have been proven to strengthen Swedish preparedness planning. However, it was observed that the Swedish system is requesting significant legislation and policies to include volunteers in the early planning work.

Networks in preparedness planning are often challenged in their ability to coordinate and cooperate. Actors found it difficult to interpret regulations because there are inconsistencies in the focus of legislators when providing policies, ordinances and budgets. For instance, findings show that social values and behaviors remain in focus mostly because differences, e.g., whether organizational planning has an essential effect on the overall economy. This finding represents a paradox because Brooks (2003, p. 3) claims that time aspects such as current, future, and potential are foundations for managing actors vulnerability. In the Swedish system, this framework illustrates the increased need for roles that can supply capacity at all levels in long-term planning practices. Therefore, the network should be considered to represent resource combinations and dependency upon each other in which resources are combined and recombined continuously and more or less consciously (Jahre *et al.*, 2009) in favor of building adaptive capacity and a culture of reliability in the system.

Actors adapting to temporary networks in respond to ongoing crises

Adapting to unexpected complexity is considered by respondents, a disturbing requirement because it clearly shows actors weaknesses in delivering essential resources and capabilities to the system. From this perspective, Jahre *et al.* (2009) argue that the temporary network used in

ongoing crises may need a new combination of the resources in the permanent setup of preparedness planning. In this respect, the current preparedness of the Swedish system is found to be dysfunctional with respect to its planning processes, representing a risk for a serious CI breakdown e.g., complex management, default to interact, unclear regulations, budget constrain, indirect information etc. Thus, actors in the Swedish system are requesting help from the state and demanding that responsible authorities bring understanding on how the system is meant to work overall i.e., management and leadership. Managing the interfaces between resources in a temporary network and how they can promote new combinations of relations and skills is vital (Jahre *et al.*, 2009). As adapting capabilities is provided by consistent leadership in the planning process (Baker *et al.*, 2007). Swedish actors showed a need for management options in their transition to temporary networks, as the management essentially showed failures in previous responses to crises. A holistic view from the responsible authorities is requested to aid actors in further understanding how their abilities should shift from permanent interplay to temporary networks.

6 Conclusions

This study analyses the Swedish emergency preparedness supply-chain network, its planning elements and actors of civil society taken part in the system to cope with potential threats and ongoing crises. Our conclusion is based on identified essential elements for planning to be operational. A framework that leads us to understand the supply-network complexity in shifting mechanisms in which civil society actors are adapting from permanent to temporary networks. In answering the first question—“*What are the essential elements in the preparedness planning system that ensures the safety and security of civil society?*”—*This study finds that essential elements for the preparedness system are human resources, knowledge management, operations and management, financial resources and the community.* However, these essential elements of planning need to be coordinated between actors and adapted to the contemporary threats, for the planning to be operational. In order to do that, the structure of the planning and the type of threats and crises will regulate essential elements and actors required in the system. First, considering the systematic structure of essential elements, it is not surprising that actors taking part in preparedness have found it challenging to coordinate. However, some of the resources remain elements of planning in need of good structure. Second, actors in the system have found it difficult to develop their planning processes. Partly because a lack of a common threat profile, key capabilities remain outside preparedness planning, e.g., military, business and voluntary. Third, mobilizing resources to temporary arrangements, the preparedness planning system showed to be a critical infrastructure not effective and not efficient. This is not unexpected, as organizations were found to be vulnerable and often competing over the same resources within permanent structures e.g., tailoring individual solutions to each incident. Overall a critical infrastructure was the ability to handle the relations in a temporary situation that leads to increased preparedness. This requires considering different approaches i.e., principles, doctrines, commercial and other specific methods, in the coordination between the actors at all levels in the system. In specific, there is a need for a coherent plan among the armed forces, through which civil defence conducts contingency planning and military defence implements defence planning. The civil defence emergency planning should be coordinated with both the armed forces defence planning and peacetime planning for emergencies and crises. Planning should be based on a holistic approach that encompasses the entire threat scale,

i.e., from peacetime to crisis and to heightened alert and to war. It should build on the frame of supply-chain network essential elements such as skills, training, resources and management. Moreover, a crucial element lacking in the planning was found to be the use of the civil society actors, e.g., recent revisions revealed that the Swedish voluntary sector has no legal basis for taking part in the preparedness system. Thus, we found it important to emphasize the value of working with different types of measurements to bring evidence on how the voluntary sector fulfils expectations. In this respect, a need to improve new empirical and statistical data regarding the importance of the voluntary sector in emergency planning, was showed to be important for the management of temporary operations. Recent research interests has certainly been influenced by expectations for the sector to produce labor opportunities, and therefore, inconsistencies in legislation and regulations have been observed.

In reply to the second question—“*How do civil society actors adapt from permanent to temporary networks?*”—we found that a contradiction seems to lie between what actors believe their contribution to the system is during the preparedness planning and the way actors must adapt in ongoing crises. From this perspective, actors’ interplay in several networks obey the requirements established in the various phases of the preparedness process, although actors are expected to adapt to temporary networks by combining their capabilities as they are collected at unexpected levels of complexity.

A problem with the relations adapting to potential threats in the supply-chain network, may still require targeting and managing other actors, i.e., military, voluntary and commercial, to tap their ability to adapt from permanent to temporary networks. The study showed that in a reformed system, all actors should be able to coordinate a capacity for civil defense, ensuring key functions in a long-term holistic planning. In that planning a strategic emphasis must be on directions for key priorities and on budget motivations for all organizations at all levels in the system. In this logic, commercial actors and industry were considered key pillars in the Swedish system. Combining public-private partnerships for ensuring the supply of vital goods and services remains a challenge. On its own, the current system has showed deficiencies in its capacity to fulfil the needs in times of peace and in ongoing crises.

Impacting the actors interplay in permanent networks however, measurements and methods for evaluating actors in civil society showed to be under development and vital for improving their adaptation to unexpected complexity. This could mean that the actors included in civil society can be further developed. Paradoxically, this situation is due to global changes and new types of threats that make it difficult for policy regulators and organizations to identify and avoid crises. Overall, this analysis should be performed by evaluating whether the civil society actors that are today a part of system should also be included in the future. This also means there is a need to investigate conflicting goals, views and the conditions under which more organizations should be included in today’s emergency planning system. Thus, the study disclose the importance to further analyze actors in the preparedness system.

The main contribution of this study lies in its extensive empirical data, which, combined with several theoretical views, can provide help in developing the general structure of the preparedness-planning field. Emphasizing managerial implications, this study is useful for considering contemporary policies guiding actors in building a planning structure for addressing new threats and ongoing, larger crises.

As a theoretical contribution, this study represents a first step in developing a model for emergency planning in developed nations.

Furthermore, as an empirical contribution, the study provides a holistic consolidation of views from relevant actors in the emergency planning field who understand the associated challenges while adapting the system to new threats. Thus, overall, important actors that today are not included in the system such as, military, commercial and voluntary need to be involved

7 Future research

Further research should establish a model for use by military, commercial and voluntary actors in emergency preparedness planning. Research should involve the supply-chain networks (permanent and temporary) adapted to the new threats. Moreover, research on actors building capability in emergency preparedness planning is needed, in particular considering the civil-military coordination and cooperation. Building such a capability pertains in particular to civil-military coordination, which should be further investigated in the context of civil defense in Nordic countries.

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4. The Act (2006:544): Municipalities' and county councils' actions before and during emergencies in peacetime and increased readiness.
5. Ordinance (2006:637): Municipalities' and county councils' actions before and during extraordinary events in peacetime and heightened preparedness.
6. The Act (2003:778) and Ordinance (2003:789): Protection against accidents.
7. The Act (1984:387): Police and Social Services.
8. The Act (2001:453): Health Care.
9. The Act (1982:763) and (1991:900): Local Government.
10. Ordinance (2007:825): County administrative board instruction.
11. The National Board regulation and general medical guidelines (SOSFS 2013:22): Medical preparedness.

Appendix 1: Interview respondents

Sources	Acronyms	Date
Swedish Federation of County Councils	SFCC	4 April 2014
Swedish Red Cross	SRC	4 April 2014
Stockholm Resilience Region	SRR	7 April 2014
Swedish Armed Forces	SAF	22 September--16 October 2014- -2 June 2015
Swedish municipality	SM	2 October 2014--7 May 2015
Nordic Council	NC	14 October 2014
Arena 143	AR	8 December 2014
Swedish Local Police	SLP	9 December 2014
County Administrative Board	CAB	9 December 2014
Swedish Home Guard	SHG	9 February 2015
Swedish regional Police	SRP	12 February 2015
Defense Material Administration	FMV	16 --18 February--31 August 2015
Stockholm Greater Fire Brigade	SFB	16 & 23 February 2015--3 June 2015
Swedish Telecommunications	TDC	25 February 2015
National Criminal Investigation	NCI	3 March 2015
Swedish National Police	NSP	3 March 2015
Contingencies Agency	MSB	3 & 9 March - 17 April - 5 May 2015
Swedish Coast Guard	CG	10 March 2015
Stockholm County Government	SCG	10 March 2015
Swedish Customs	SC	25 March 2015
National Board of Health and Welfare	NBHW	9 April 2015
Defense Council	DC	16 April 2015
Ministry of Justice	JU	16 April 2015
Defense Secretary of State	DSS	17 April 2015
Legal Secretary of State	LSS	17 April 2015
Ministry of Defense	MOD	17 April 2015
National Board Directors	NBD	17 April 2015
National Police Board	NPB	17 April 2015
(Parliamentary) Committee on Defense	PDC	17 April 2015
Secretary of State	SS	17 April 2015
Supreme Commander of Swedish Armed Forces	ÖB	17 April 2015
Broadcasting Commission	BC	19 April 2015
Traffic Agency	TA	20 April 2015
County Administrative Board	CAB	23 April 2015

National Defense College	FHS	19 May 2015
Swedish Rescue Services Agency	SRSA	19 May 2015
Board of Customs	BC	2 June 2015
County Council	CC	2 June 2015
Defense Research Agency	FOI	2 June 2015
National Public Transport Agency	NPTA	2 June 2015