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Organizational learning and change during the "Blue Skies"



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# Emergency Response Organization Resilience: Identifying Factors for Success

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As the frequency and destructiveness of natural disasters increases due to climatic changes and expanding development in vulnerable areas, the study of resilience offers possible solutions for minimizing losses from disasters. Much academic attention in the field of resilience focuses on community and organizational resilience generally; however, the specific resilience factors essential to emergency response organizations (EROs) have not been identified in previous research. When natural disasters occur, EROs must provide critical services in challenging and often dangerous environments, and disasters place increased demand on emergency services and their resources and personnel. For the purposes of this study, "emergency response organizations" (EROs) include fire departments, emergency medical services, police departments, public works departments, and Emergency Management Agency (EMA) departments. The critical functions provided by EROs are essential for community resiliency, and hence must be addressed in order to minimize and mitigate the costs of impacts from disasters. The concept of organizational resilience is directly applicable to EROs as their services are required throughout natural disasters and major emergencies. The resilience of EROs is also a critical component of community resilience due to their provision of key life-safety services including medical, fire and rescue, and emergency response. This study, building off of previous research in the organizational resilience field and proposing a model of ERO resilience factors, provides recommendations for improvements in the resilience of emergency response organizations that will ultimately result in enhanced community resilience to current disasters and projected climate change impacts in the future. Using the Delphi method, this research developed a list of expert-derived factors contributing to ERO resilience, then ranked and rated the factors to develop an expert consensus-based set of ERO resilience factors. The factors ranked by the expert panel as most important with high levels of consensus provide a framework to apply organizational resilience principles to EROs forming the Emergency Response Organization Resiliency Framework. This framework supports decision making and planning priorities to develop stronger, more resilient, emergency response agencies. Resilience of emergency response organizations directly contributes to community resilience, leading to stronger communities and organizations that are better able to survive and thrive in an age of increasing threats and natural disasters.

# Coordinating internal crisis management in the event of a serious incident - Strategic level in higher education institutions

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The aim of the presentation is to outline the findings of a fieldwork of how key staff from four Danish University Colleges coordinate their internal crisis management in the event of a serious incident and how practice can be even better. The study's emphasis is on how the existing knowledge of crisis management for handling and remedying episodes can be developed in interaction with the individual college's practice, framework, organization, and environment.

This study consists of four individual workshops conducted at each of the four University Colleges. At the workshop, selected key staff participated in a simulation exercise. The purpose of the exercises was to give the participants a number of dilemmas that the group had to deal with, and to create a true and fair view of the organization's behavior. Subsequently, the participants should contribute to developing strategies to remedy the episode based on workshops with the strategic crisis management team.

In a previous desktop study, we have investigated written emergency management plans from the same higher education institutions. An interesting result was that institutions tend to be quite specific on operational procedures but less precise on dimensions concerning crisis management on the strategic level.

A final finding is that it is a challenge for all crisis management teams to coordinate the response, especially to define which level of the crisis management team should respond, and it is abundantly clear, that crisis management on the strategic level was not been discussed earlier in their organizations. Another interesting result is that the crisis management teams are untrained in making a situational understanding; the organization lacks the tools to work on crisis management at the strategic level and coordinate across the crisis management levels.

The study is part of a broader study of institutions' work with emergency management in the Danish public sector, and it takes its point of departure in the sector of higher education. There is a specific focus on practices for working with emergency management concerning threats, violence and attacks. One main aim of the study is to investigate how researchers and representatives from the institutions in the sector can co-produce policies, best practices, and guidelines in matters of emergency management to be worked with in the future.

# Learning by doing and reflecting – the learning process of Swedish exercise organizers

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Major fire incidents in underground mines are difficult to manage and the Swedish municipal rescue service personnel perceived they were not sufficiently prepared to perform a safe rescue operation underground and therefore had initiated a series of collaborative training exercises with the mining companies<sup>1</sup>. Although the Swedish emergency medical service personnel have the main responsibility for the injured mine workers, they were previously not included in the initial collaboration exercises<sup>2</sup>. To improve the rescue operation a collaborative participatory action project was initiated. The aim of this study was to explore the learning process of the organizers of collaboration meetings and full-scale exercises included in the project.

**Method:** Included in the participatory action project were 16 Swedish key persons; researchers from Umeå University, managers and operative personnel from the emergency medical service, rescue service, two mining companies and a company working with education. This group has planned and organized collaboration meetings and full-scale exercises. Documentation from 11 full-scale exercises and 16 collaboration meetings were analyzed by Engeström's<sup>3</sup> theory of expansive learning.

**Result:** The group of organizers questioned the structure of the rescue operation and together they analyzed the process and modelled new tools for collaboration in order to create a better rescue operation. The new collaboration tools were implemented during the full-scale exercises. They continued to reflect on the process and consolidated and generalized what they had learned during full-scale exercises and collaboration meetings. The group of organizers started to understand each other's perspectives and understood the necessity to both consider their own organizational needs but also how their needs coincided with the other organizations.

**Conclusion:** The use of Engeström's expansive learning theory show that the group organizing meetings and exercises in collaboration gradually improved their understanding of the complexity of the major underground mine fire scenario. Through this collaborative process, they could improve their organization's rescue response, both at the management and operative level, in accordance with the response of the other organizations.

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# Enhancing risk governance by addressing key risk communication barriers during the prevention and preparedness phase in South Tyrol (Italy)

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As recently pointed out by the European Disaster Risk Management Knowledge Center, a good risk governance can only be achieved through effective communication among the different risk governance actors “working together to build trust, common understanding and alignment in an open, timely and problem-solving mode” (Bruinen de Bruin *et al.* 2020: 533). As well known, efficient risk communication should be set in quiet times (Pedoth *et al.* 2021). To address this, our contribution presents an explorative study to identify what kind of challenges and barriers can be acknowledged in the internal (among institutional actors) and external (between institutions and the population) risk communication linked to prevention and preparedness in “quiet times” in the Autonomous Province of Bolzano (Italy). After having identified a broad range of main actors, we undertook 20 semi-structured interviews to institutional actors, key informants and practitioners. Our main findings show a complex picture. First, a diffuse trust and reciprocal support have been reported among the different actors as positive factors. This, combined with excellent emergency management and the lack of major emergencies/disasters in the recent past, have instead led to potential barriers to an integrated risk communication strategy, due to a perceived sense of safety. Consequentially, it has emerged the need for more risk training/education and the establishment of a working group or dedicated staff in the field of risk communication; and, above all, the challenge of aligning different actors’ risk awareness by acting on institutional and public risk culture. The study is part of the Interreg Italy-Austria project RiKoST (Risk Communication Strategies), that aims at developing targeted risk communication tools, contents, and strategies to improve collaboration among public organizations and with external experts dealing with risk management in South Tyrol and Carinthia.

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# The Spectrum of Practices for Social Media Listening for Crisis Management

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Organizations involved in crisis management operations and communications are increasingly adopting processes involving social media as an information source. However, different crisis management priorities yield different configurations of practices in organizations. When seen from overhead, the different configurations, workflows, and set-ups can be categorized in different levels of maturity of practices that range from using social media as an avenue to reach audiences on their social media channels to sophisticated team configurations dedicated to constantly generating intelligence and analysis about the vulnerable population at risk. The study presents a preliminary classification of the maturity of practice by analyzing the adoption of social media as a source of information. In addition, we relate experiences by comparing features such as but not limited to resources (internal vs. external), level of connectivity, objectives, or location of practice within the organization (i.e., communications vs. operations center) or external to the organization (i.e., city, country, region). This analysis contributes to the further institutionalization and knowledge base on the way that social media is used in practice for crisis management strategies.

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# Cultural asset mapping: building networks among cultural stewards and emergency managers

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This paper investigates issues that arise at the intersection of cultural heritage and disasters and presents one example of "blue sky activities" that can have a significant impact on how cultural institutions fare in the aftermath of a disaster. The speaker is part of the *Delaware Project to Protect Cultural Heritage*, a collaborative asset mapping effort by HENTF (Heritage Emergency National Task Force) and DEMA (Delaware Emergency Management Agency).

In view of the frequency and force with which natural hazards are impacting communities around the world, cultural stewards employ a variety of approaches and methods in the attempt to preserve and protect the resources in their care. In the immediate aftermath of a disaster, the emergency responders' priority of saving lives and repairing critical infrastructure makes it difficult to place cultural heritage on the agenda of response organizations. The literature and practice show that closer cooperation between emergency managers and cultural stewards yields a positive influence on the response and recovery process, as well as on the outcome, by limiting damage to the collections. Asset mapping — the collection of geospatial and contact information, and the visualization of locations of assets on a map — is one way to improve cooperation.

Several states across the U.S. are currently creating lists of their cultural resources, a process during which conversations about professional and organizational identity, values, boundaries, and priorities can happen naturally. At the end of these processes stand databases and the visual presentation of cultural assets on charts that can be overlaid with flood maps, projected hurricane paths, and other vulnerability data points. Both the tangible product and the intangible process — the networking — are invaluable for successful preparation for and response to a future emergency or disaster. HENTF, a federal entity, has found partners in DEMA and cultural stewards across the State of Delaware, and the project has successfully completed the first steps towards an asset map that will help protect Delaware's cultural resources in the future.

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# The application of Capability Based Planning for emergency and disaster management needs

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Capability Based Planning (CBP) has been described as the standard for defence and military planning and has been in use for few decades. This approach offered the alternative to threat based planning and provided additional insights related to surrounding uncertainties and the impact of megatrends. While there were lessons learned and practices implemented the present applications of CPB at the national level impose unique challenges. Additionally, during the emergency and disaster events the close cooperation among civil and military actors responsible for collaborative emergency management require the harmonization of the plans and the orchestration of the execution of those plans. That means that CBP as the standard for military and defence has to be further explored by the civilian authorities in order to find the proper alignment and to take into consideration the fact that public safety and security environment is unique and differs from defence. Despite of the attempts to apply CBP approaches and techniques (Netherlands, Canada, USA), the experience and lessons learned provide insufficient data to prove that the CPB model can be mutually beneficial for both defence and civil societies.

This research is related to the potential application of CBP for emergency and disaster management. Key problematic research questions focus on: i) analyzing the key CBP aspects and inherent challenges with the potential application for disaster capabilities planning; ii) reflecting the lessons learned from emergency or crisis management where the CBP approach was tested; iii) analyzing stakeholder needs for both defence-based CBP and civil-based CBP. iv) proposing the conceptual model and insights on how this methodology can be applied for civil sector.

The research reviews and reveals the initial expectations for this type of planning and reflects on lessons learned and better practices that can be transferred to the public domain. The research also stresses on some additional challenges involved in applying CBP in the emergency and disaster sphere. Those issues are related to adoption and adaptation of CBP in regards with diversity of stakeholders, the differences in priorities, resources and organizational cultures is analyzed. The present research also gives some future food for thought in further development of CBP concepts, both for military and civil applications.

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