Tool for evaluating organizational emergency management capability.

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组织应急管理能力评价工具

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【摘要】紧急状态下良好的应急管理能力在受灾组织和地区已倍受关注。一个在研的瑞典多学科研究子课题针对包括发展和提高组织的适应力和应急能力有潜在重要性的区域或过程的确定问题进行研究。本文阐述了从引导会谈到区域和过程确定的一些初步发现，并提出使组织能够持续评估和发展他们组织应急管理能力的方法。会谈由来自瑞典区域共同体的四个不同部门的代表举行。初步结果表明当评估组织应急管理能力时，应该包含以下区域和关键过程：现有组织应急能力评估，风险和易损性分析，能力储备，操作能力、预警机制、行动通讯、安全培训和组织培训、领导和管理、个体和组织认知能力等。本文提出的能力的自我评估方法是基于包含五个从低到高成熟等级的成熟模型，一个组织通过能力建设和从上一阶段中去掉响应的不足来逐级向上发展，每个成熟水平是基于如何使组织对新知识和经历的认知和反应来描述的。每个区域和过程是按照五个成熟等级来描述，自我评价按照一个组织内发生的前期准备行动的分析，讨论和反思来进行准备的。

【关键词】应急管理；能力评价；能力成熟标准

TOOL FOR EVALUATING ORGANIZATIONAL EMERGENCY MANAGEMENT CAPABILITY

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Emergency management, capability evaluation, capability maturity level.

Abstract

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Crises or emergencies have drawn attention to the need of good emergency management capability in affected organizations or regions. An ongoing subproject in a Swedish multidisciplinary research programme aims at identifying areas or processes that are potentially important to include in the work of developing and improving an organization's resilience and emergency management capability. This paper presents preliminary findings from interviews conducted to identify such areas or processes and proposes a first version of a methodology that can enable organizations to continuously evaluate and improve their organizational emergency management capability. Interviews were conducted with four representatives from different administrations within a regional public body in Sweden. Preliminary results show that when evaluating organizational emergency management capability, areas or key processes such as the following ought to be included: assessment of existing organizational emergency management capability, risk and vulnerability analysis, competence provision, operational surveillance and alarm functions, operationalization, communication, safety culture and organizational culture, leadership and management, individual and organizational learning. The proposed methodology for self evaluation of capability is based on a maturity model containing five maturity levels, low to high. An organization develops in stages upwards through the levels by building on the strengths and removing the weaknesses from the previous level. Each maturity level is described based on how the organization learns and reacts to new knowledge and experiences. Each area or process is evaluated and described according to the five maturity levels. The self evaluation provides for analyses, discussion and reflection concerning the proactive management activities taking place in an organization.

Introduction

Crises or emergencies are unexpected events that may strike any sector of society and any type of organization. The causes are often complex in nature. Recent events have drawn attention to the need of good emergency management capability in affected organizations or regions. The current focus of emergency management capability is on the proactive and systematic work of reducing risks and uncertainties in an organization and on the everyday preparation for the managing of potential crises or emergencies. Research on emergency management has shown that there can be many deficiencies in the preparations and planning for emergencies, and that efforts should focus on promoting resilience (Boin and McConnell, 2007), which is the capability to keep processes within safe limits and, when needed, the capability to bring operations back to a safe state after disruptions.

In a Swedish multidisciplinary research programme, FRIVA (Framework Programme for Risk and Vulnerability Analysis), a subproject has focused on identifying areas or processes that are potentially important to include in the work of developing and improving an organization's resilience and emergency management capability. The research has also aimed at proposing a methodology that can assist large organizations in continuously assessing and improving their organizational emergency management capability.

In order for these efforts to be proactive and successful, it is vital to have a continuous evaluation of processes essential for this capability. These evaluations should be systematically performed and supported by a management system. Such a system can contain goals, plans for development, actions, and evaluation for each area or process considered important to include. There may be a need to assess specific areas or processes separately, as well as to do a more comprehensive evaluation of the overall emergency management capability of an organization. Through the evaluation, process development activities can be guided towards a more robust, efficient and resilient organizational performance. When emergencies arise, the organization itself stands better prepared and connected to the surrounding world.

Aim of the paper

This paper (i) presents preliminary findings from interviews conducted to identify areas or processes that can be potentially important to focus on when developing or improving the emergency management capability in an organization; (ii) proposes a first version of a methodology that can enable organizations to continuously evaluate and improve their organizational emergency management capability.

Theory and Method

Interviews were conducted with four representatives from different administrations in the southernmost regional public body in Sweden. The interviewees were: the traffic unit manager of the public transport administration responsible for city and regional buses and trains; the co-ordinator of the property management administration (for properties owned by the regional body); one of two disaster co-ordinators of a university hospital; and the medical unit manager of the emergency room at the same university hospital, who was also chairman of the disaster committee.

The interviews aimed to identify areas or key processes that are considered necessary when evaluating organizational emergency management capability. The interviews also provided information and knowledge about each administration's core activities, their existing safety and risk management processes, and their continuous improvement work.

A literature review on the topic of emergency/crisis management capability as well as on capability maturity models was also conducted to support and complement the information gained through interviews.

Results – areas of importance for emergency management capability

Preliminary results from the interviews and literature review show that when evaluating organizational emergency management capability, areas or key processes such as the following ought to be included: assessment of existing organizational emergency management capability, risk and vulnerability analysis, competence provision, operational surveillance and alarm functions, operationalization, communication, safety culture and organizational culture, leadership and management, and individual and organizational learning.

What follows is a description of the identified areas.

Assessment of existing organizational emergency management capability

Ideally, the organization should thoroughly and continuously examine how well it works with developing and adapting its emergency management capability, and use the findings to make improvements. On a more concrete level, there is a need to establish aims and goals, to analyze or assess associated needs, and to examine how well these needs are met. This process can be performed more or less systematically and with varying degrees of integration with other processes, which in a maturity model corresponds to different levels of process maturity. The current needs can be identified in part through risk and vulnerability analyses or analyses of past emergencies and incidents. These analyses may provide good advice on probable future needs for resources in emergency management and for dimensioning activities to strengthen the capability. They may point to opportunities to decrease or eliminate risks. Results from the analyses should also affect emergency management planning, education and training.

Risk and vulnerability analysis

Substantial attention should be put on proactive efforts that aim to find and examine risks and vulnerabilities concerning the organization's mission, the activities in the organization and its basic conditions (ISO/PAS 22399:2007). The risk and vulnerability analysis process aims at understanding these two aspects of the context in which the organization is working, and should be performed integrated into regular work processes. The systematic analyses entail data collection and analysis of information on, for example, system and procedural weaknesses, latent conditions on different organizational levels, available resources and competence.

Competence provision

The competencies an organization needs to successfully perform its activities and operations, its emergency management, and to develop its emergency management capability need to be mapped out. Competence not only involves the knowledge, experience and capabilities of the individuals, but of the entire corporation.

Input to the competence provision can be gained from the risk and vulnerability analyses, analyses of past

emergencies and events and above all the managing of them. Methods for developing and ensuring access to competence include recruiting, education, training or obtaining equipment.

Operational surveillance and alarm functions

To protect an organization, or that which the organization is to protect, it is necessary to detect as soon as possible threats to and deviations from normal operations. This enables swift deployment of actions to minimize the degree and duration of disruptions and strains, which may decrease suffering as well as costs. Therefore, a function is needed that constantly monitors the state of operations and intercepts possible signals about rising threats.

Emergency response requires the recognition of an emergency and the initiation of response activities. That, in turn, necessitates a state of continuous readiness that is able to initiate emergency response actions. In cases of imminent threat to operations, or disturbances of operations that are in progress, such a monitoring function should initiate an adequate organizational response.

How a surveillance process and associated alarm function should be manifested varies depending on organizational size, operational activity, and tasks and methods concerning emergency management. Sometimes different levels of alert may be appropriate, so that the initial attention to a potentially critical situation does not necessarily result in the initiation of vast response activities. Sometimes it is more appropriate to let a group monitor a developing situation and decide if and when emergency response operations are to start. It is important to remember to maintain watchfulness for other threats that may arise in parallel with the first.

Operationalization

Operationalization in this context means the ability to go from written plans, goals and operation plans to concrete action and the implementation of written plans. There is a need to concretize planned activities. In relation to emergency management capability, this activity can be specific or more comprehensive. Operationalization of the emergency management plan is fundamental: to be in possession of only one is inadequate (Pollard and Hotho, 2006). The plans need regular revision and systematic testing. Simulations and scenario exercises yield important information that can lead to continuous updating of plans and even better operationalizations.

Operationalizations can also be more comprehensive in an organization. Organizations that are more prepared for crisis relates to having a stronger ability to integrate crisis/emergency management and strategic implementation strategies (Pollard and Hotho, 2006). An integrated strategy makes it possible that emergency management, as well as emergency management capability, become a process with an implementation strategy.

Implementation or an operationalization in an organization always means that a change takes place and for the change process to be successful, it has to be managed efficiently regarding content, people and processes (Kaarstad and Heimdal, 2005). An ability for operationalization (i.e. carrying out written plans) requires that persons with different knowledge and competencies are involved in the implementation. Flexibility is also needed which allows people with the right competence but perhaps with a lower rank in the organization to solve a problem. This means that the organization is able to temporarily become flatter, and when the problem is solved, go back to its original (and often) more hierarchical form. For example, in emergency treatment it has to be possible for doctors to climb up and down the hierarchy level, the first day functioning as the head and the next as doctor. Co-workers in the work setting must be able to accept that the same person takes on different roles.

Communication

Awareness of the key role of communication is fundamental. Effective communication and employee involvement are practices that best drive organizational changes forward. The practices that hinder change the most are failing to communicate to all employees about change, not articulating the change vision, or being dishonest (Greenbaum et al., 1998). Communication should thus be managed more strategically as a

corporate process. An administrative plan for communication vertically, within and between parts of the organization needs to be made clear.

Poor communication can have its origins in insufficient openness or an unawareness of other organizational members' needs for information and communication. Through education these needs can be clarified and attitudes changed, but above all, an overall picture and understanding of the activities in the organization can be created. Co-workers need to have such an overall picture and be aware that individuals are important communication links in creating this systems view. Education can also highlight the transmitter/receiver/dialogue perspectives and increase motivation and employee involvement.

Good communication and listening skills across groups and individuals can achieve a shared situational awareness with respect to risk and safety. Mearns et al. (2001) suggest that conflicts of opinion and misunderstandings between subcultures and individuals can often be precursors to accidents and incidents. Good communication can prevent errors and also catch and mitigate errors. A diversity in safety attitudes can be beneficial, as subcultures can bring new perspectives 'that can provide a forum for learning, innovation and development' (Mearns et al., 1998).

In addition, establishment of links with the media is vital for good communication with the public.

Safety culture and organizational culture

It has been shown that the most important factor regarding the behaviour of organizations before, during, and after major crises is the character of the collective mind (Udwadia and Mitroff, 1991), which is expressed here as the existing organizational cultures. It has often been pointed out that the organizational culture shapes the safety culture (i.e. the attitudes, values and perceptions regarding safety and safety work that individuals and groups in the organization have). Individuals' behaviour in relation to risk and safety is also an important part of the culture. Sometimes a safety culture is recognized as one that is reporting and just (i.e. the organization has succeeded in creating trust between involved parties leading to the fearless reporting of risk and safety related incidents and anomalies with a will to make improvements).

The safety culture is very much affected by the commitment to safety that the leadership in the organization has and shows.

Leadership and management

The leadership and the way to lead shape the foundation for how efficient and successful the work will be performed in an organization. Factors such as organizational structure and distributed power of decision can also affect the performance. As mentioned, resilience is a characteristic worth striving for in the daily work of preventing and preparing for crises and emergencies. Leaders can facilitate resilient responses and behaviours when an emergency emerges if beforehand they, for example, have created expert networks, trained for situational and information assessment, learnt how to support and facilitate emerging nodes of co-ordination, organized outside forces, and worked with the media to provide a crisis rationale (Boin and McConnell, 2007).

Individual and organizational learning

Good organizational learning is considered important for successful organizational development and improvement efforts related to several areas such as safety, risk management, and productivity. Learning is a process that starts with the detection of a potential problem, continues with an analysis and assessment of the problem to identify feasible solution options, is followed by the selection of an adequate subset of these options and ends by implementing these in relevant operations (Koornneef, 2000). Organizational learning cannot be taken for granted, because organizations can only learn through people (Argyris and Schön, 1996). For organizational learning to take place, the individual must notify a learning agency. Such an agency consists of people with adequate explicit and implicit knowledge about current operational processes. The learning agency needs to be linked to management, which have the power to make decisions that can change the conditions, goals or resources of the work processes (Koornneef, 2000). In many activities such an agency for learning is missing.

For good learning to take place in relation to safety and risk management a close link is emphasized between the risk assessment process (which specifies existing risks), the risk management process (which establishes risk controls), the operational process (which carries out the controls), and the learning process (which assesses and improves the controls) (Koornneef and Hale, 2004).

Knowledge management

Strong and well-developed possibilities for knowledge management can increase an organization's emergency management capability. Strong needs can exists for having robust mechanisms for communication to facilitate information and knowledge exchange and to disseminate best practices. To achieve an effective knowledge management, support for communication, knowledge sharing and learning, co-operation, co-ordination and social interaction needs be developed and stimulated within an organization (Andriessen, 2003).

Results – evaluation of emergency management capability based on a maturity model

A first version of a methodology for evaluating an organization's emergency management capability is presented here. In order to have proactive and successful measures for improving emergency management capability, it is vital to have a continuous evaluation of the processes essential for this capability. These have already been presented. A recurrent evaluation of these processes creates opportunities to find strengths and weaknesses in the organization and show where resources need to be put to strengthen weak parts.

The self evaluation is carried out by use of the Emergency Management Capability Maturity Model (EMCMM). The model contains five maturity levels, low to high; an organization develops in stages upwards through the levels by building on the strengths and removing the weaknesses from previous levels. Each level is described based on how the organization learns and reacts to new knowledge and experiences (Strutt et al., 2006), see Figure 1.

The process orientation gives an overall picture and an aspiration for long-term improvements and solutions. The evaluations should be carried out systematically by, for example, stating goals and plans for the development of each area or process, action plans and evaluations plans, as well as a distribution of responsibilities for the actions.

Each process or area is evaluated and described according to the five maturity levels. The self evaluation provides for analyses, discussion and reflection concerning the activities taking place in the organization. It is important to provide feedback of the results to the organization. For each process, a vital focus is the transition between the maturity levels in the model: how to improve, what type of learning processes exist, how they can be developed and improved, when 'good enough' is reached, and how to remain on that level.
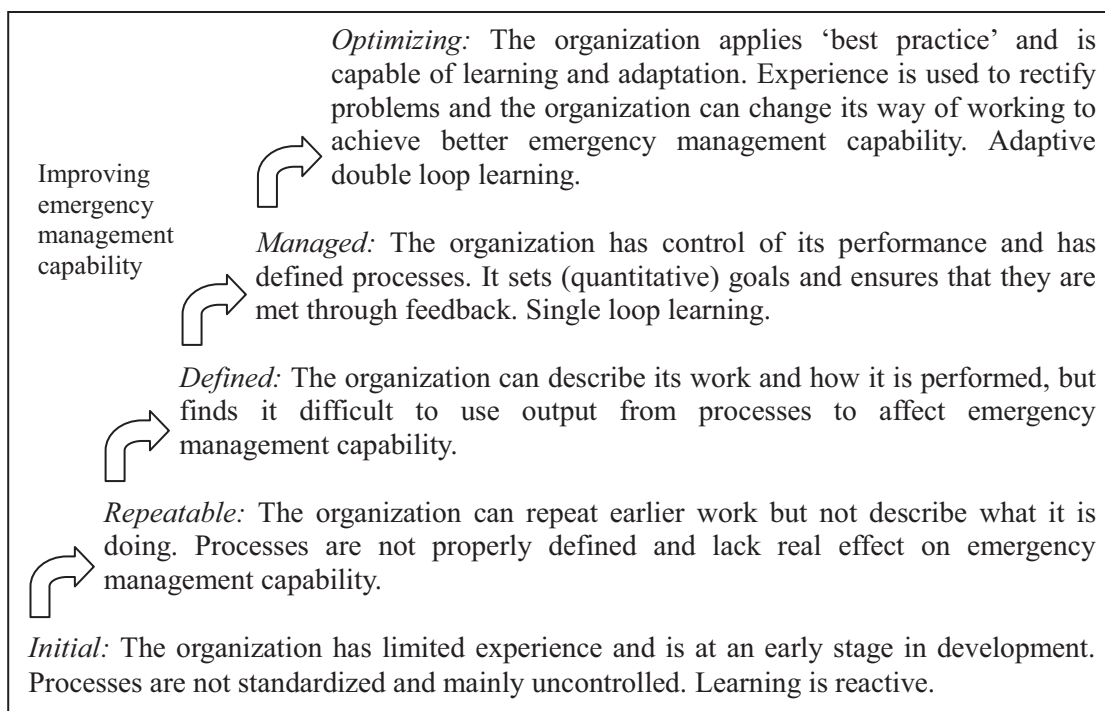

Optimizing: The organization applies 'best practice' and is capable of learning and adaptation. Experience is used to rectify problems and the organization can change its way of working to achieve better emergency management capability. Adaptive double loop learning.

Improving emergency management capability

Managed: The organization has control of its performance and has defined processes. It sets (quantitative) goals and ensures that they are met through feedback. Single loop learning.

Defined: The organization can describe its work and how it is performed, but finds it difficult to use output from processes to affect emergency management capability.

Repeatable: The organization can repeat earlier work but not describe what it is doing. Processes are not properly defined and lack real effect on emergency management capability.

Initial: The organization has limited experience and is at an early stage in development. Processes are not standardized and mainly uncontrolled. Learning is reactive.

Figure 1. Maturity levels when evaluating organizational processes important for emergency management capability (inspire by Strutt et al., 2006).

Discussion

This paper has focused on organizational processes found in interviews to promote resilience and emergency management capability. A first version of a methodology for self evaluation of an organization's capability maturity was also proposed.

All interviewees recognized the different organizational areas and key processes presented in the paper as important for emergency management capability. The interviewees worked at different administrations in a regional public body in Sweden: public transport, property management, university hospital emergency ward medical unit, and disaster co-ordination. Depending on the type of organizational activity, some processes were extra highlighted as important. For example, in the public transport administration (trains and buses) the communication (and information) process was found to be especially vital for their normal activity and therefore also for their emergency management capability.

Successful risk and safety management emphasizes the proactive approach to finding weaknesses and anomalies in an organization. Reactive methods are important, but combined with proactive methods, a stronger management can be achieved. Above all, higher capability requires proactive as well as reactive approaches. The self evaluation of emergency management capability provides the opportunity to work in a proactive manner and continuously evaluate and improve the capability.

However, the existing attitudes, commitment, and resources to work proactively in an organization often depend on the existing safety culture and organizational leadership. Sometimes increased awareness needs to be achieved as well as knowledge about the importance to have a systems view on risk, safety, and emergency management.

For organizational learning to take place, individuals that have gained insight on how to perform a work process more efficiently or have experienced a problem, must in some way notify a learning agency (for example through a written report). In some organizations, such an agency can be ill defined or lack proper

knowledge and resources to perform good analyses for learning and improving the capability. Nevertheless, several of the areas or processes that were put forth in the paper as important for emergency management capability are also important for the general normal activities that take place in an organization. They need to function well in order to yield effective normal daily work, which means that the cost for thinking in terms of an emergency management perspective need not be so high.

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Åsa Ek received an MSc in computer science and engineering in 1997 at the Faculty of Engineering, Lund University, Sweden. In 2006, she received a PhD in ergonomics at the same university, where she currently works as a Research Associate. Her research area is human and organizational factors related to safety, and especially safety culture and safety management applied to transport related areas. She is a member of the Lund University Centre for Risk Assessment and Management, and of the Human and Organizational Factors in Risk Management Group, Lund University.

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