Emergency management

Global best practice for an incident response system

by Ernst-Peter Döbbeling

In the public and private sectors, a key task is minimizing the impact of the disasters and crises that follow natural, negligent or intentional incidents. When major incidents occur, they regularly demonstrate the importance of an effective response. Fortunately, ISO 22320:2011, *Societal security – Emergency management – Requirements for incident response*, enables organizations to respond efficiently and effectively.

At first it might be surprising to see the publication of an International Standard for incident response. This is because emergency management is widely seen as a matter for public or governmental organizations operating within a legal framework.

But today, incident response has become a broader multi-organizational, multinational concern in which private and public actors collaborate. Following business continuity analysis, many companies have identified the requirement for a response system.

The result of a need for a standard based on international experience, ISO 22320 outlines global best practice for establishing an incident response system. While it does not touch on legal regulation, it defines minimum requirements for the single- and multi-organizational collaboration of parties involved in preparing and implementing effective incident responses.

Emergency management explained

"Emergency management" can be defined differently according to the language, nationality, organization or legal regulations involved. For ISO 22320, emergency management is the overall approach for preventing and managing emergencies. As shown in **Figure 1**, emergency management consists of all three phases of a disruptive event (before, during and after) and various activities.

Incident response comprises actions to stop the causes of an imminent hazard, and/or mitigate the consequences of destabilizing or disruptive events, and/or recover. These events include natural disasters, terrorist threats, poor IT security or an industrial fire disrupting the product chain. The main activities of an incident response are :

- Warning, alerting and activation of incident response
- Command and control, information, coordination and cooperation
- The response to the incident to save lives and mitigate negative effects.

The warning of the population at risk is a key part of incident response. An ISO standard currently in development, ISO 22322, *Societal security – Emergency management – Public warning*, will cover this.

"Command and control" has its origin in military and police terminology. It is now a more generic term for target-orientated
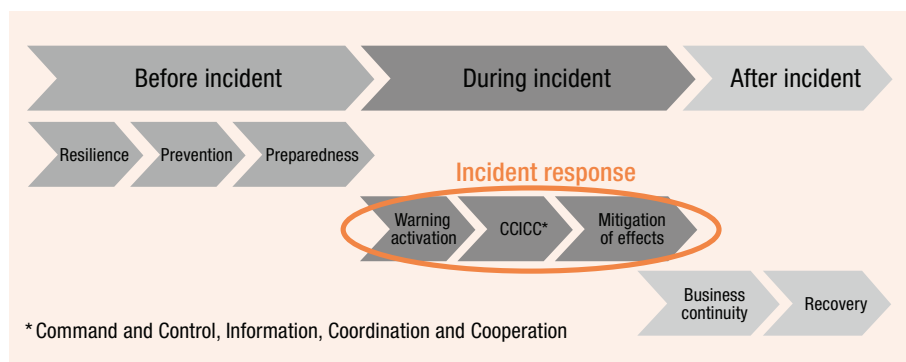

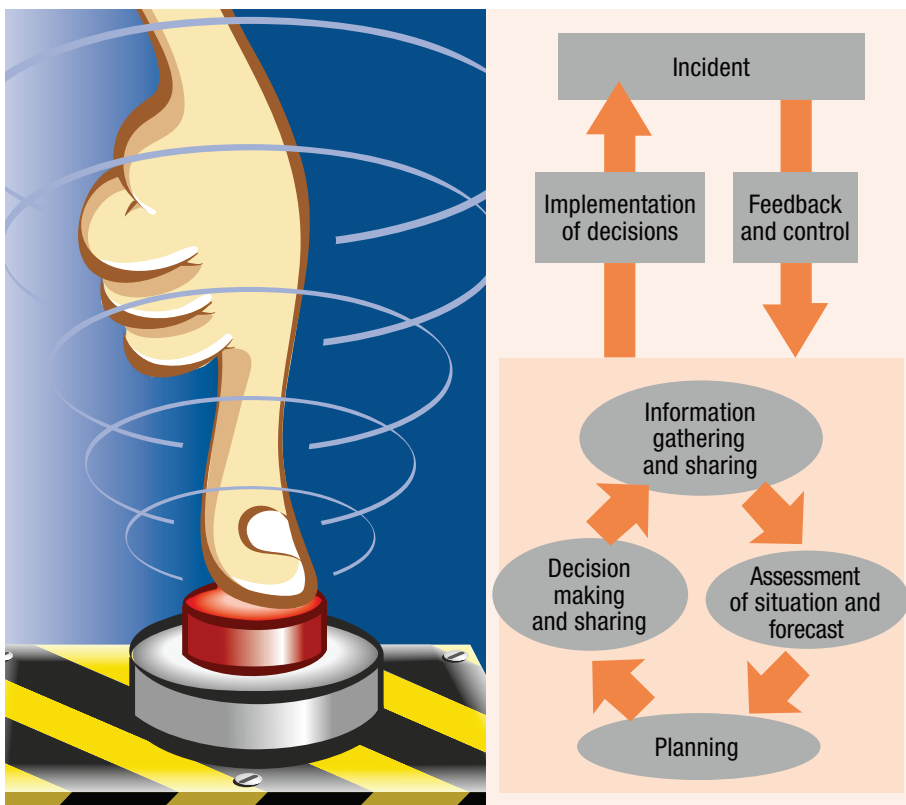**Figure 1** : *Phases of emergency management.*

Figure 2 : Example of the command and control process in a single hierarchical organization with limited coordination needs.

decision making in which decisions are taken under time pressure and with incomplete information. It is more effective when a structured command and control system is implemented. This ensures, for example :

- A common understanding of aims and purpose
- A common operational picture of the situation
- Links with other organizations outside the line of command
- The appointment of relevant managers.

In the standard, command and control can be organized for public emergency services as well as for private industries. The standard gives examples for typical roles and responsibilities ; but of course these must be adapted to the local framework of incident response and to the types of possible incident.

The standard also describes how to : identify and define incident response levels; structure command and control according to political, strategic and tactical needs ; and create a response system which is scalable to different incident types and sizes.

The command and control process follows the principle of Plan-Do-Check-Act. Adapted to incident response, the process includes four steps as shown in the **Figure 2**

example. This process changes due to the impact of response measures (positive) or to the evaluation of the incident (negative).

Operational information provides the basis for situational assessment and decision making. The production, integration and dissemination of operational information are essential elements in command and control. In an emergency or crisis, normal information paths can be interrupted and the information itself can be subjective, intentionally manipulated or wrong.

ISO 22320 supports the definition and implementation of effective incident information processing. It describes the

Figure 3 : The process of providing operational information.

implementation of an ongoing process for providing operational information, including necessary activities, as shown in **Figure 3**. It also explains how information can be integrated, evaluated and interpreted to create operational information which fulfills quality criteria. All professionals in incident response are aware of the high importance of information processing and documentation.

ISO 22320 applies to all private- and public-sector organizations.

Another process in energy management is coordination. Often, many organizations have to respond to an incident and interact. For example, public emergency services interact with private industry services, industry interacts with energy or water suppliers, and police interact with fire and ambulance services. Each organization has its own line of hierarchy, command and information.

Coordination is the way in which such different organizations work together to achieve a common objective. The challenge is to integrate individual responses to achieve synergy to the extent that the incident response has a unified objective and a consensus decision-making process. Without coordination, organizations have difficulties in identifying a common incident response goal and accepting strategic implementation.

ISO 22320 lays out the principles for a multi-organizational command and control process with an enhanced need for coordination and information sharing, as shown in **Figure 4**. Following a best praxis analysis, effective coordination is shown for the :

- Setting of boundaries (geographical and areas of responsibility) between the different organizations
- Interoperability of communication, geographic and information management networks
- Identification of common and transparent decision-making procedures
- Implementation of an information sharing and situational awareness policy
- Implementation of a communication flow plan and communication guidelines
- Division of operational tasks

- Preparation and implementation of a logistic support network.

Cooperation is an agreement to work or act together for common interests and values. The complexity of national and international public and private collaboration has produced new ways of working together in incident response. Private-public partnership or contract-based company partnerships have partly replaced traditional systems. An example is public emergency services combined with private services supplying food, energy or shelter.

Private companies implement mutual support to avoid service interruption and ensure business continuity. They agree in advance by contract or arrangements to contribute with their resources to incident response.

Incident response comprises actions to stop the causes of an imminent hazard.

Cooperation has to be assessed, prepared, established and tested in advance on the basis of risk analysis. This facilitates opportunities for effective and economical incident response planning. Cooperation can reduce or share costs and improve business continuity and recovery.

Benefits to all

ISO 22320 applies to all the private- and public-sector organizations that can be involved in incident response. An organization can use this standard to identify its individual performance requirements and organize decision making in crises when normal hierarchical decision making is interrupted.

A good reaction to disruptive situations is driven essentially by information availability and information exchange. The standard outlines the information process and the relevant quality criteria.

In incident response today, collaboration between organizations, companies or governments is based on coordination, cooperation and public-private partnership.

In many countries, the hierarchical structure is still the only way of handling incident response in emergency management. For them, this standard presents a wider view for preparedness in incident response.

For developing countries, this standard is a neutral best praxis document for planning and implementing a complete, well-structured incident response system.

An ISO standard-based incident response system offers the opportunity for transborder collaboration. It also facilitates good incident response coordination between governmental organizations and industry. ∎

Figure 4 : *Circular chart for a multiple hierarchical command and control process with enhanced relevance of coordination.*

About the author

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He has previously been Chief Fire Officer at CERN (European Organization for Nuclear Research), Geneva, Switzerland, and Director of Fire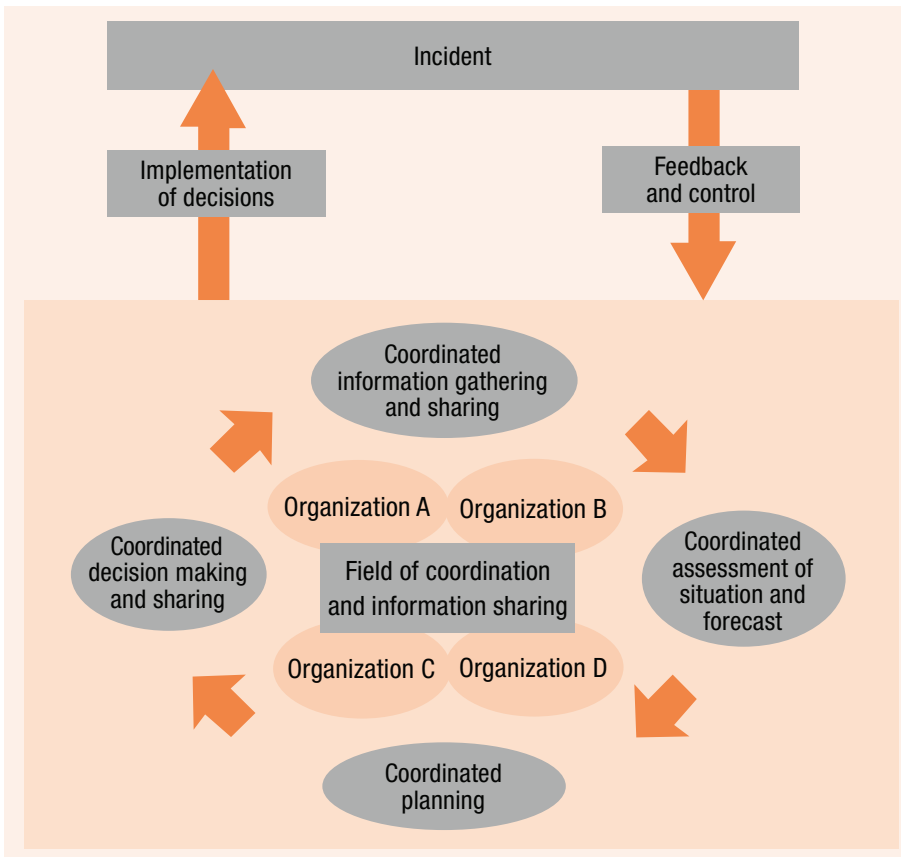 and Rescue at Ludwigshafen on Rhine, Germany.