

Driving Innovation in Crisis Management for European Resilience

# D52.1 – Harmonized competence framework version 1

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**Executive Summary** 

In this deliverable D52.1 "Harmonized competence framework version 1" the overall competence framework will be drafted, based on desk research as well as interviews and workshops with CM professionals dealing with competence and learning activities.

The competence framework in this deliverable provides an opportunity to relate competence framework and competence management approaches in crisis management with one another and describe these in a structured and standardised way. Furthermore, this document aims to describe the core elements for a competence management system to be used in crisis management. It gives first hints how to set up and operate competence management activities in the context of crisis management. Please note that the structure of the competence framework outlined needs to be adapted to the size of the individual needs and activities of different organizations (*instance* of the competence framework). The organizational size and its undertaking within the scope of the competence framework will affect the necessary extent and formality of procedures described.

Nevertheless, the competence framework helps to identify and to handle competence gaps for staff involved in crisis management tasks and processes in a structured manner. The competence framework can be used by experts in crisis management to enhance learning and training activities from a competence-based perspective. It can be implemented in an entire organization or can be used to improve already existing learning and competence-developing activities. Stakeholders that are addressed in the first row by the competence framework are representatives of HR departments and management dealing with crisis situations. Nevertheless, for the time being this is not a handbook ready for implementation of the concept, but a methodological approach to be used as a competence-based learning and training basis for already existing learning and training activities in organizations. By starting with an introduction of the competence framework approach its scope and objectives and the benefits for different stakeholders, the key elements of the competence framework are illustrated. At the end, a specific chapter gives first hints for practitioners in crisis management on how to use the concept for their work.

The DRIVER competence framework in this report represents the first step to bring together and merge different existing approaches used in crisis management. The forthcoming deliverable D52.2 will detail the framework at hand in terms of usability for practitioners, cross-border and cross-organizational conditions as well further harmonization of already existing approaches.



# Table of content

1		Sumi	mary					
2		Intro	oducing the competence framework for crisis management					
	2.	1	About the competence framework	. 9				
	2.	2	Scope and objectives	10				
	2.	3	Benefits	10				
		2.3.1	Potential benefits for organizations in crisis management	10				
		2.3.2	Potential benefits for employees in crisis management organizations	10				
		2.3.3	Potential benefits for training providers in crisis management	11				
		2.3.4	Potential benefits for third party stakeholders	11				
		2.3.5	Potential benefits for people in crisis situations	11				
3		Basis	and sources of the competence framework	12				
	3.	1	DIN PAS1093	12				
	3.	2	SECUR-ED project	14				
4		Keye	elements of the competence framework	16				
	4.	1	Competence context	17				
		4.1.1	Contextual requirements	18				
		4.1.2	Drivers and triggers	18				
		4.1.3	Competence management contribution	19				
		4.1.4	Competence management objectives	19				
		4.1.5	Competence context examples	19				
	4.	2	Competence roadmap	21				
		4.2.1	Competence activities	22				
		4.2.2	Competence management activity specification	23				
		4.2.3	Competence management agreement	24				
		4.2.4	Competence roadmap examples	24				
	4.	3	Competence Model	27				
		4.3.1	Competence model selection	28				
		4.3.2	Competence model specification	29				
		4.3.3	Future-oriented competence model	31				
		4.3.4	Competence model agreement	32				
		4.3.5	Competence model examples	32				



4	.4 (	Competence measurement	33
	4.4.1	Instruments and approaches	33
	4.4.2	Information about measurement	35
	4.4.3	Measuring existing competences	35
	4.4.4	Competence measurement examples	37
4	.5 (	Competence development	38
	4.5.1	Competence selection	38
	4.5.2	Select appropriate development activities	40
	4.5.3	Competence development implementation	40
	4.5.1	Competence development examples	40
4	.6 (	Competence evaluation	41
	4.6.1	Competence development impact	41
	4.6.2	Competence management process monitoring	43
	4.6.1	Competence evaluation examples	46
5	Conclu	ision	47
6	Biblio	Jraphy	48
Ann	nexes		52



# Table of tables

Table 1: Example Competence roadmap	_ 25
Table 2: Comparison of advantages and disadvantages to impose task to THW functions	_ 27
Table 3: Annex No. and competence framework modules addressed	_ 53

# Table of figures

Figure 1: The competence framework for crisis management	9
Figure 2: Phases of the reference framework for competence modelling	13
Figure 3: Overview DRIVER Competence Framework	16
Figure 4: Example of generic competence classes and levels	30
Figure 5: A framework for identifying enterprise competence (adopted from Caird, 1992)	34
Figure 6: Example of analysis of competences by self-assessment	36
Figure 7: A visualisation of the Ecology of Learning Framework (ELF)	39
Figure 8: Kirkpatrick's levels of evaluation (Dalto, 2014)	42



# List of Acronyms

Abbreviation / acronym	Description
BMWI	German Federal Ministry of Economics and Technology
СМ	Crisis management
DIN	German Institute for Standardization
DOTMLFPI	Doctrine, organization, training, materiel, leadership and education, facilities, personnel and information
DRIVER	Driving Innovation In Crisis Management For European Resilience
ELF	Ecology of Learning Framework
EQF	European Qualifications Framework
i-SELF	Internet tool for self-evaluation and learner feedback
PAS	Publicly Available Specification
RFCM	Reference framework for competence modelling
SECUR-ED	Secured Urban Transportation – European Demonstration
SWOT	Strengths, weaknesses, opportunities and threats
THW	German Federal Agency for Technical Relief



# **1** Summary

Disasters and crisis situations are often global challenges attracting great attention around the world. Taking precautions and emergency measures is a challenge and of great importance. To make Europe more robust it is essential to focus on competences of crisis management organizations as a key factor to prevent and cope with disasters.

Within the last 20 years, competences have emerged as a promising concept for making human skills, knowledge and abilities manageable and addressable. From a management point of view, they provide a more adequate approximation of human performance factors than the notion of "knowledge" in traditional knowledge management approaches as they can represent a set of skills, knowledge, and abilities that belongs together and as competences go beyond mere "knowing" towards work-relevant action. For traditional training (and human resource development), competences allow for operationalizing learning goals and outcomes and thus can serve as a control instrument. Furthermore, competence management approaches aim at connecting the individual and the organizational perspective via the abstraction of competences (compare Schmidt/Kunzmann 2007). In DRIVER, WP52 seeks to depict the notion of competences and to apply the idea of establishing a competence framework for the field of crisis management. The most important arguments for a competence framework for crisis management in DRIVER include, for example, that a competence framework can structure the initial implementation of competence management activities and might serve to compare competence management and competence framework activities already present in crisis management organizations. Moreover, such a framework supports the standardisation of competence management and competence framework activities and links already existing human resource development with the goals of crisis management organizations from a competence-oriented and problem-solving perspective. The framework provides methods and approaches for the measurement of competences available to cope with crisis management threats, situations and corresponding processes and has the potential to strategically anchor competence activities of crisis management organizations. It serves as a means to optimize personnel development planning and recruiting and provides both a basis for the planning of further training in the context of competence development and for the determination of educational directions of activities aimed at increasing crisis readiness in organizations. Finally, a competence framework supports the quality management of organizations in crisis management.

To sum up, the competence framework comprises a general approach to identify and improve problems and challenges of crisis readiness from a training perspective and can be can be developed to a step-by-step guideline for competence gaps in crisis management. The proposed framework is generic; it is able to identify competence gaps of staff and to bridge these gaps by training that is adapted to these gaps.



# 2 Introducing the competence framework for crisis management

The competence framework in this deliverable provides the opportunity to relate competence framework and competence management approaches with one another and describe these in a structured and standardized way. In this chapter, the DRIVER competence framework and its generic logic will be depicted to establish a common understanding about the nature of the approach. Furthermore, the scope and the objectives as well as potential benefits of the competence framework for crisis management will be outlined.

#### 2.1 About the competence framework

Competence management approaches and the use of competence frameworks are key activities in human resource systems and practice (compare Leanne et al., 2005). Numerous approaches are already implemented in crisis organizations in Europe and worldwide (see examples in the ANNEX of this deliverable). However, there are different understandings and meanings in research and in practice about what a competence framework looks like (compare Ennis, 2008; Bauer & Karapidis, 2013). The scope here ranges from more generic frameworks such as those from the DIN PAS and SECUR-ED (compare e.g. Annex No. 4 and No. 14) to concrete and detailed competence catalogues directly serving as a set of objectives for competence development measures (compare e.g. Annex No. 24 and No. 28).

WP52 partners in DRIVER developed and agreed upon the following notion of the nature and structure of the competence framework (see following figure): The competence framework contains a set of components that provide the foundations and conceptual arrangements for designing, implementing, monitoring, reviewing and continually improving competence management activities in crisis management in a systematic way. An *instance* is an application of the competence framework in a specific crisis management situation, a specific process or phase of crisis management or for a

occupational

group.



The Figure 1: The competence framework for crisis management competence architecture as part of the

instance specifies the competence framework methods, tools and approaches for specific crisis needs. On the basis of the competence architecture the corresponding competence system comprises specific contents at all levels (e.g. competences, trainings, measures....).

specific



As a work definition of competences partners of WP52 of DRIVER agreed on the notion that competences are the demonstrated ability to apply knowledge and skills to achieve intended results. This work definition leans on the ISO definition ISO 22301:2012 – Societal Security – Terminology 2.2.16. At the level of the *instances* definitions can be delineate from the competence framework's definition of competences according to specific needs. In this sense, the adjustment of the definition is possible. Nevertheless, the consequences of different definitions have to be taken into account.

# 2.2 Scope and objectives

The competence framework helps to identify and to handle competence gaps and needs for staff involved in crisis management tasks and processes in a systematic and structured manner. The competence framework can be used by experts in crisis management to enhance learning and training activities from a competence-based perspective. It can be implemented in an entire organization or can be used to improve already existing learning and competence-building activities. Stakeholders that are addressed in the first row by the competence framework are representatives of HR departments and management dealing with crisis situations. Nevertheless, for the time being this is not a handbook ready for implementation of the concept, but a methodological approach to be used as a competence-based learning and training basis for already existing learning and training activities in organizations. The framework can help crisis management organizations to work systematically with competence management and can support a continued monitoring of competence management activities. Chapter 3 describes different sources that the DRIVER competence framework rests upon

# 2.3 Benefits

The competence framework is directed at and serves the following target groups:

# 2.3.1 Potential benefits for organizations in crisis management

The framework provides a standardized guideline to understand the importance of revealing competence needs and interlinking them with appropriate trainings based on given scenarios, processes and tasks to occur in specific crisis situations. By using a standardized approach, the learning and training efforts can be optimized (and often also reduced) by systematic processes in order to reveal learning needs. Furthermore, reducing efforts might also lead to reduced costs for absent employees from their work and a reduction of costs to initialize trainings appropriate for the target groups. Next, the competence framework has the potential to be adoptable for all training and learning needs; spanning a range including strategic issues, processes and work tasks relevant in crisis management. Moreover, if employees are able to cope with crisis situations in a better way, the organizations which set out to respond to contingencies might be able to contribute to society's overall security in an enhanced way.

# 2.3.2 Potential benefits for employees in crisis management organizations

In an organization that has implemented the competence framework, employees have the opportunity to learn about relevant tasks and work processes in a problem-oriented way while focusing on challenges that may occur in specific crisis situations. Employees can be enabled to act in



a way relevant for crisis situations. As a side effect, safety issues for their working behaviour in crisis situations are trained immanently.

## 2.3.3 Potential benefits for training providers in crisis management

By using the competence framework, training needs relevant for crisis management might be identified and tackled more quickly by following a step-by-step approach to fulfil competence needs, to align training and to measure employees' ability to act in an appropriate way. As a result, employees have a much higher awareness and problem-solving competence to interact in and with crisis situations.

## 2.3.4 Potential benefits for third party stakeholders

When applying the competence framework, newly emerging issues in terms of training can be properly communicated to all stakeholders. Also third party stakeholders can be enabled to use the same competence framework approach to train their employees. As an adoptable standard the competence framework might be easily interlinked and rolled-out to third parties not directly involved in crisis management activities driven by the target organization.

## 2.3.5 Potential benefits for people in crisis situations

Finally, the entire society might benefit from the outcome of training measures carried out by crisis management organizations for their employees, if the quality and the standards to avoid or recover from crisis are increased.



# 3 Basis and sources of the competence framework

The basis of the findings for the competence framework is derived from two sources mainly: The DIN PAS 1093 activity and the EC project SECUR-ED, in which WP52 partners made contributions (Fraunhofer IAO: DIN PAS 1093/SECUR-ED; TNO: SECUR-ED). These two activities illustrate how a general competence framework can be aligned to be used in different contexts of crisis management. The generic approach of the above described activities is in this deliverable complemented by sources linked to the issue of crisis management and emergency preparedness.

As an additional fundament to develop the general competence framework, project partners have collected field examples of organizations in the crisis management sector's competence management activities. For this data collection, straightforward templates were used. Additionally, the experience of TNO, ARMINES, MSB, FOI and Fraunhofer IAO from concrete crisis management projects and activities with organizations in crisis managements are integrated in this deliverable. Furthermore, practitioners' knowledge about concrete examples related to the competence framework chapters and steps are included to some extent and will be enlarged in the harmonised competence framework D52.2 (to be released in 2016). In this chapter, the two basic sources of the competence framework activities are outlined as a starting point.

# 3.1 DIN PAS1093

The DIN PAS 1093 "Human Resource Development with special consideration of Learning, Education and Training – Competence Modelling in Human Resource Development" is a Publicly Available Specification (PAS). It is a reference framework for the development as well as for the structural comparison and evaluation of competence modelling in human resource development. This specification refers to all processes in human resource development and addresses in particular the processes of vocational learning, education, and training.

The PAS 1093 is published in two documents: the main document and the application examples for PAS 1093. The main document PAS 1093 is approved and fixed (in contrary to the application examples that are published separately to enable and facilitate the continuous update and amend of the PAS 1093 by new practice examples).

The content of the PAS 1093 was developed in the Working Group "Competence for the Human Resource Development" established within a project of the same name funded by the German Federal Ministry of Economics and Technology (BMWi).

The Reference Framework for Competence Modelling (RFCM) comprises many common existing competence models and models in use. It constitutes an abstract standardized description format for future competence models and the comparison of existing competence models. It was developed, refined and approved in a consensual process within the working group by experts from business and research. The analysis, the inclusion, and the integration of numerous competence models from theory and practice ensure that all existing competence models can be mapped and described by the RFCM. The following phases, which intertwine and must constantly be revised in the sense of a



continuing improvement process, are necessary for the implementation of the RFCM (Stracke et al., 2009):

Pfulme	Tanks	Result	
Competence Context	Analysis of Competence Contexts in the organisation with the definition of Strategic Gools	Competence Strategy	
	Needs Acayse		
	Otservation of the organisational context by the application of the Competence Stralegy		
Competence Description	<ol> <li>Definition of the three dimensions in the Reference Framework (Structure of competence and activities, Competence Levels and methods for observation and measurement)</li> </ol>	Competance Model competance Competence Catalogue	
	<ol> <li>Deployment of a Competance Catalogue with definitions of competences and activities</li> </ol>	Composition and a second	
	<ol> <li>Selection and description of relevant goals, tasks and artuations as well as of procedures and instruments for Competence Measurement (on the basis of accertainable and measureable activities)</li> </ol>		
Competence Observation	<ol> <li>Deproyment and evaluation of the Competence Profile (target states through the determination of the relevant competences and the needed Competence Levels for the chosen goals, tasks and situations</li> </ol>	Competence Profile (birget and actual states) of the chosen organisational level	
	<ol> <li>Deployment and evaluation of the Competence Profile (actual state) after carrying out and evaluating the Competence Measurement</li> </ol>		
	<ol> <li>Definition of goals for Completence Building and of requirements for opportunities for human resource development and learning, education, and training</li> </ol>		
Competence Development	<ol> <li>Selection and development of activities for Competence Building iopportunities for human resource development and learning, education, and training)</li> </ol>	Competence Modification inside of the chosen organisational level	
	<ol> <li>Implementation of activities for Competence Building (opportunities for human resource development and learning, education, and training)</li> </ol>		
	<ol> <li>Evaluation of activities for Competence Building (opportunities for human resource development and learning, education, and training) with a second competence measurement</li> </ol>		
Competence Evaluation	11. Analysis and evaluation of the entire Competence Development with creation of a Competence Balance Sheet (target-actual comparison with assessment of the development).	Competence Balance Sheet and optimised Competence Model overall	
	<ol> <li>Evaluation and optimization of the entire Competence Management and the entire Competence Model</li> </ol>		

Figure 2: Phases of the reference framework for competence modelling



# 3.2 SECUR-ED project

The SECUR-ED project was a demonstration project with an objective to provide a set of tools to improve urban transport security. Participants included all the major stakeholders from across Europe.

Based on best practices, SECUR-ED integrated a consistent, interoperable mix of technologies and processes, covering all aspects; from risk assessment to complete training packages. These solutions also reflected the very diverse environment of mass transportation and also considered societal and legacy concerns. The key recommendation for urban transport security in the context of training and learning is to develop programs to keep staff at all levels in the organization aware and trained (including refreshment training) on basic security threats and responses. Unfortunately, many security issues in mass transportation suffer under the condition that competences of stakeholders are insufficient to cope with specific crisis situations. Therefore, training activities have been launched to bridge the gap between competences given by the stakeholders and specific requirements in crisis situations.

Unfortunately, training and learning activities have different shortages: (1) The requirements in crisis situations that have an impact on competence are fuzzy. (2) The competences of stakeholders available are not clear. (3) Specific crisis situations and the specific competence needs of different stakeholders derived from them are too complex to cover them with a general training. (4) The configuration of training and learning strategies follow no systematic logic/path and are often unique activities not transferable to other crisis scenarios. (5) Training and learning activities and a substantial improvement of competences to cope with crisis situations are difficult to be measured in a satisfying way.

The report deals with the organization and management of security training and defines a transferable competence and training framework that could be applied to enhance the level of security in any public transport system. In its first part, the deliverable accompanies and supports the training material that is developed in WP38. The staff groups for which training courses are developed include (1) front-line employees and passengers, (2) security employees, (3) operators in security command and control centres and operational control centres, and (4) security managers. The second part is not directly linked with the training material developed in WP38 but shows how the management of security competences could be done in a very systematic way.

In its first part, the deliverable is structured according to the four recognized stages of the training cycle and covers (1) a description of security threats of public transport operators, necessary security competencies and training needs of staff, (2) an overview of training design issues (e.g. training methods, instructional design, training models), (3) topics of training delivery (e.g. training topics), and (4) steps to be taken for training evaluation (on individual trainee as well as organizational level).

The second part expands the topic of security competences and competence measurement by outlining the competence framework. It is a holistic concept to support crisis management activities by a systematic approach to find out needed competences, to reach competence goals and to measure the success of learning and training activities. It is not a step by step manual to set-up activities but a report of the concept, its scale and scope including examples of its usage and recommendations for the implementation of the concept.



The target groups for reading this report are the developers of training lessons within SECUR-ED WP38 as well as all persons who are responsible for the application of the developed training courses during the demonstrations as well as afterwards.



# 4 Key elements of the competence framework

Based on the generic understanding illustrated in Chapter 2 the competence framework is a modular system of different key elements (Module 1-6). The complete process model is only needed in case of the first implementation in a crisis management organization. The modular kit includes steps and approaches (1.1, 1.2, ...., 6.1, 6.2) ). Optionally, and where available, these steps and approaches are illustrated by "good practices". The competence framework consists of six modules:

- 1. Competence context: Identification of context serving as a starting point for activities in competence management
- 2. Competence roadmap: Plan activities in competence management in order to meet the strategic targets
- 3. Competence model: Select, modify and elaborate the competence model
- 4. Competence measurement: Measure existing competences in order to identify competence needs and gaps
- 5. Competence development: Build and develop competences
- 6. Competence evaluation: Evaluate and optimize activities in competence management

Competence	2 Competence roadmap	Competence	Competence measurements	Competence development/	Competance
Li Contrained requirements Desist processifies contractual requirements Li bifrees and requirements Li bifrees and receivibuition of contribuition of contribuition of contribuition of contribuition of contribuition contribuiti	2.3. Competence activities ALEVENS are derived from the primers objectives ALEXANSERS incompetence incompetence incompetence account and activities ALEXANSERS Competence incompetence	Al Comprises andei selection investion of a compression enable from different annual for annual for	4.1 metroperants and approaches Dofine instruments instruments competition and approaches and approaches and an antiprepare personners instruments and activities and activ	L1 Competence aniestion Processor and patiest investional patiest investional Accessor acceso	6.1 Comprision development impact development impact definition of definition of development of the set of the

Figure 3: Overview DRIVER Competence Framework



# 4.1 Competence context

In this module the general conditions of an organization's context are identified. The described process requires an analysis involving all responsible stakeholders; including for instance the top management and department leaders of divisions, departments or teams. The process and its results serve as a starting point for activities in competence management.

Two important requirements encompassing organizations operating in the societal security and safety environment are cooperation and synergy, which are important due to the fact that the lone actors will have significant difficulties dealing with a crisis situation and eventual cascading effects by themselves.

Another common feature of organizations within this context is partitioning the time spectrum of a crisis into three general time sequences, each requiring its own set of measures and capabilities. These are represented by the before, during and after phases. In general, organizations are required to act during, and plan prior to all three phases. Moreover, organizations can have different focuses in relation to the time phases - some organizations focus on the during-phase while others primarily operate in the before- or after-phases.

Additionally, the organizations in the domain of crisis management face the challenge of not knowing which competences are necessary to attain. This is due to the evasive nature of risks, of which some can be complex to both identify and analyze. Some risks are simply part of the so called "unknown unknowns" –perhaps never thought of, but can nonetheless impact a society in ways and with magnitudes that are hard or even impossible to predict. Nevertheless, organizations in crisis management have to make assumptions on the nature of competences needed in specific crisis situations.

In an emergency and crisis management organization, one natural entry point for a competence framework and competence management can be found in the concept of capability. Capability-based planning is utilized in several countries in order to manage risks, build resilience and to complement an all-hazard approach (Lindbom et al., 2015). In this concept, competences are seen as a fundamental part of capabilities.

Chim et al. (2010:2) argue for using a capability-based planning method, in particular in the strategic planning context, as it can define which capabilities that are needed in order to attain a national preparedness for a range of contingencies. The method focuses on planning what an organization or cluster of organizations need to be able to do, in terms of dealing with contingencies, without the initial constraint of analyzing what resources are available. The question of resources and coordinating joint efforts by organizations is left to be dealt with in later phase of the capability-based planning methodology.

Chim et al. (2010:3) contend that the capability-based planning method has a broader view in relation to other approaches in terms of strategic planning. Compared to, for instance, threat-based planning, Chim et al. (2010:3) maintain that capability-based planning is better suited for use in an all-hazards approach as "... other strategic planning approaches ... tend to have a narrower organizational focus" (ibid.).

Returning to the subject of this paper, i.e. competence management, a capability-based approach, utilized in an operational or a strategic context will inevitably produce a list of requirements that the relevant organization(s) will have to address in order to develop the stipulated capabilities. Among these requirements, a key issue lies in developing and maintaining the appropriate competences of



an individual or cluster of organizations. The competence framework, as presented in this paper, sets out to be compatible with a capability-based planning method, as it in its first phase - the competence context – can address the competence-related requirements stipulated by a strategic or operational capability-based planning.

For more reading on the subject of capability-based planning, see (among others), Chim et al. (2010), Paul Davis (2002), Sharon Caudle (2005), Brian Jackson (2008) and Lindbom et al. (2015).

# 4.1.1 Contextual requirements

The purpose of this step is to describe the organization's surrounding context, including external aspects as the hazardscape; and the internal context, in which examples include laws and guidelines or organizational opportunities and limitations.

An organization within the societal security and safety domain will inevitably have to deal with its surrounding environment, the hazardscape – including potential risks, threats and hazards. The hazardscape is generally approached by using a risk and vulnerability analysis model, in some cases complemented by a scenario-based planning model.

Aside from the surrounding environment, an organization is also required to analyze its own prospects and limitations. In this analysis, examples of relevant factors are laws, guidelines and regulations; past incidents and lessons learned; the organization's mandate and responsibilities; different dimensions of the organization's political, economic and organizational opportunities and limitations. This step can be completed by using, for instance, a SWOT analysis or a DOTMLPFI analysis.

The output of the two described analyses is a map of challenges, requirements and needs that the internal and external contexts pose to the crisis management organization.

Most organizations already have processes in place to deal with the surrounding environment and to analyze the condition of the internal organization, showing the importance of linking an eventual competence framework to the relevant processes.

# 4.1.2 Drivers and triggers

The purpose of this step is to identify the challenges, embedded in the above-identified map of challenges, requirements and needs that will benefit from competence management activities.

The recognized needs and requirements are examined in order to identify triggers and drivers of competence management. In this setting, a trigger could for instance be represented by an adjustment of the organisation's responsibilities or by the occurrence of a particular crisis. Concurrently, a driver could be represented by a process which changes the organisation's long-term role and consequently, competence needs – i.e. technological change or a major change in societal consumption patterns. In order to conduct this step, an organization may for instance use workshops or other forms of interaction involving the relevant stakeholders.

The output of this phase is a specified compilation of challenges, requirements and needs which require competence management activities.



## 4.1.3 Competence management contribution

This step entails analyzing the potential contributions of competence management. The purpose is to examine the identified challenges, in order to discern and categorise the potential contributions of competence management.

A workshop with key stakeholders might be arranged in order to understand what types of competence management efforts are needed in the organisation, as well as when and where. In order to accomplish this, key stakeholders to participate in the competence management process have to be identified and selected. Key stakeholders might include executives, HR or organization development experts, or subject matter experts who are key performers in their target position. By involving various contributors a wide perspective on what is an essential contribution for the competence management activities can be provided.

The output is represented by broken down descriptions of competence management activities for the identified requirements and needs, in which competence management is deemed necessary.

## 4.1.4 Competence management objectives

The purpose of the last step is to define the field objectives to be supported by competence management. This involves identifying the abilities, which can be enhanced through utilising competence management, that are needed in the field in order for the organization to be able to address specific crisis situations, crisis tasks or crisis processes.

The steps above are designed to contribute and to lead to an opportunity map, showing challenges, requirements and needs that will call for competence management efforts and activities. The map can in turn be used as a starting point for strategic discussions regarding the prioritisation and implementation of competence management activities, in the next module: the competence roadmap.

#### 4.1.5 Competence context examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence context module in a crisis management organization.

During the flood 2013, THW faced a significant number of spontaneous volunteers, who were not part of any crisis management organization but wanted to assist CM efforts. Even though THW faces legal challenges regarding the coordination of spontaneous volunteers, it is commonly agreed that not including such large potential relief force, would be:

• Difficult to convey to the suffering population –  $\rightarrow$  risk of a potential PR crisis

• People who do not get included will most likely become active in undesired ways (blocking flood wall foundations, laying sandbag inefficiently – hence wasting sandbags etc...)

• Motivated ad-hoc volunteers, who are refused, might insult or even attack CM professionals and keep them from taking necessary measures.

Hence, the following coordination options arise:

1) Without pre-registration, similar to the situation in 2013



2) With a pre-registration (possibly online), similar to the idea of "Team Austria". This option is not favoured by THW, as it is believed to have a negative effect on the motivation of CM-THW-volunteers. This aspect will be discussed later in the document.

# Describe the contextual requirements and needs (e.g. technology, innovation, experiences, developments)

In order to incorporate these people into the CM effort, the following requirements and needs arose:

- Training needs for those THW volunteers who the Federal Agency for Technical Relief defines as responsible for incorporating ad hoc volunteers into CM efforts,
- Demand of a selection process, that clearly defines who is responsible for what, which in turn defines the training need for each THW function,
- A software/program that allows THW to register ad-hoc volunteers, their abilities and other attributes (e.g. immunisation status).

#### Identify and prioritize central drivers and triggers for the introduction of competence management

Priority and central driver for the introduction of competence management is: "what assists THW in enacting its legal tasks?" Hence, the following prioritisation has been done:

- Additional "manpower", especially regarding tasks that do not require specific training (shovelling sand for instance). This additional help would allow specifically trained THW volunteers to focus on other, more complicated or dangerous tasks, for which training is a prerequisite.
- Would keep motivated ad hoc volunteers busy, keeping them from performing uncoordinated and unwanted tasks (laying sand bags in the wrong place, hindering CM).
- Foster and reinforce positive attitudes towards THW and its operations.

# Analyze and identify contributions of competence management for the contextual requirements and needs

Through the experiences that were made during the flood 2013, the need for the incorporation of ad hoc volunteers was identified. Competence management allows us to look at what competences are present (conveyed during the required trainings) and which competences, that could be useful, are not taught or reinforced during THW's current trainings. Furthermore, the necessity to gather information about the ad hoc volunteer can identify the necessary function of technology (software/program) allowing to register such volunteers.

#### Define objectives in the field to be supported by competence management

After the need for dealing with ad hoc volunteers has been identified, the objectives are the following:

- Identify which THW function is responsible for what action, necessary when incorporating ad hoc volunteer into CM efforts,
- Take a look at each identified function and all training courses relevant for qualification,
- See how the necessary information needed to generate competence can be included into the training program.



If identified functions, such as a platoon or squad leader, prove to be overworked in a crisis management situation, the competence management process might result in the identification of a new function (development of a new function). This would result in the development of:

- A new training program,
- A new operations tactics and strategy,
- New requirements (computer, cell phone, transportation etc...), and
- Introducing this new function into the network of CM in an operational scenario.

Additional examples are to be found in Annex No. 4, 6, 14, 24, 42.

# 4.2 Competence roadmap

The second module of the competence framework consists in the depiction of a competence roadmap that defines how the project associated with competence management in crisis management is executed, monitored, controlled and closed. To some extent, the process described below is similar to that of a generic project management process. We are aware that there are different approaches to design competence management processes. Here, we focus on those core elements which seems to most essential to implement competence management activities in organizations. The objective of the competence roadmap is to specify all steps and activities to be included in the competence management from a crisis situation context-oriented point of view.

The competence roadmap aims to:

- Establish and share all management information important to be known with the project's relevant stakeholders,
- indicate the processes to be applied in the competence management project to all relevant stakeholders, and
- assign the different actors of the project the roles and tasks to be performed.

The competence roadmap is elaborated by the project manager or by the management team. The editorial work of the document is progressive. Several feedback loops will be required to take into account the different perspectives and stakeholders of the project.

Four key steps are relevant for the definition of the competence roadmap:

- Step 1. Derive an initial competence roadmap with the contextual objectives. Here, the purpose and scope of the competence management activities for which competence could be critical to solve a crisis situation should be taken as the starting point. Different topics of the competence roadmap are defined and a first version is proposed based on the information provided by the module on the competence context and the contextual objectives.
- Step 2. Specify and prioritize competence management activities with the relevant departments of the organization. A first description of the different activities is provided by means of individual and/or collective interviews.
- Step 3. Defined of the different activities of the competence management project. Activities are specified in considering, among other topics, the levels, the time frame, the validity, the resources, the responsibilities, the processes and tasks.



 Step 4. Validate the competence roadmap in cooperation with relevant decision-makers. The competence roadmap has to be fixed in written form and agreed with the relevant decision-makers (e.g. directors or division managers).

The following section provides a detailed description of how an organization can achieve the four steps.

# 4.2.1 Competence activities

The first step of the process defining the competence roadmap aims to outline the structure of the roadmap document and to provide a first version of it based on the content and output of the framework's first step - the competence context module.

#### 4.2.1.1 Define the content of the competence roadmap

The competence roadmap describes the rules and the methods supporting the achievement of the objectives of the crisis management organization's competence management. In establishing efficient and systematic processes and methods the competence roadmap is a document which is critical for an organization's successful competence management, and can be broken down into nine key chapters:

- Project description. Context of the competence management project, issues and objectives for each actor in crisis management, constraints (technical, actors, regulations, delays, milestones, organizations), deliverables (format, rules), initial budget,
- Project organization. Actors (competences, names, roles, links, impact on the project, expectations, validation criteria), organization chart, project management, decisional circuits, instance of supervision,
- Project planning and tasks. Phases and milestones of the competence management project (scheduling, duration, hypothesis, technical organization,
- Quality. Roles and responsibilities, insurance quality, control quality (process and output),
- Communication. Communication plan (which information of the competence management process for whom and when), support change, constraints and hypothesis,
- Management procedures. Meetings (dates, project phase, minutes), change management procedures, documentation management,
- Risks management. Risk identification, risk analysis, frequency gravity matrix definition,
- Performance indicators. Quantitative and qualitative competence management measures, definitions, shapes, frequencies, gap analysis,
- Lessons learned. Thematic, dimensions to improve, dimensions that function correctly. Optionally, factors such as specific legislation or guidance material, business risks and contractual obligations should be taken into account.

The choice of the chapters, size and level of details of the content of the competence roadmap depends on the complexity of the competence management project.

#### 4.2.1.2 Provide a first version of the competence roadmap

A preliminary version of the competence roadmap has to be produced by the project leader starting with information described in the contextual objectives eventually completed with other contextual information such as enterprise environmental factors (governmental or industry standards, organizational structure, culture, management practices, and sustainability, infrastructure and



personnel administration, etc.) or organizational process assets (standardised guidelines, work instructions, proposal evaluation criteria and performance measurement criteria, change control procedures, historical information and lessons learned knowledge base).

At the end of this first phase, a first version of the competence roadmap is available. This version will be completed by means of a set of workshops with the relevant departments of the crisis management organization.

# 4.2.2 Competence management activity specification

In order to complete the preliminary version of the competence roadmap, a set of workshops are organized with the relevant departments of the organization. Objectives of workshops are to collect information that will support the definition of the final competence roadmap. Several actions are proposed to structure this process:

- Define targets and topics of the workshops. Contextual objectives and the preliminary competence roadmap are used to firstly identify the different departments to be contacted for participating in the competence management process. Secondly, topics are defined for collecting information about different competence management measures to be addressed.
- Organize workshops with departments. Individual and/or collective interviews of representative of relevant departments are organized following the targets and topics identified in the precedent phase.
- Analyze and organize data collection. Results of workshops are analyzed and organized to support the definition of the content of the competence roadmap.

At the end of this process information that will be used to define the content of the competence roadmap has been collected and organized. Finally, the content of the different sections of the competence roadmap has to be finalized, in particular the work breakdown structure, the schedule baseline, the cost baseline and the responsibility matrix.

#### 4.2.2.1 Define the work breakdown structure

The work breakdown structure is a hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the competence management project.

The work breakdown structure allows to:

- Identify all the activities to be planned,
- Elaborate the budget, duration and quality of the project,
- Supervise the realisation of the different activities of the project.

#### 4.2.2.2 Define schedule baseline

The schedule baseline is the approved version of a schedule model for the competence management process. The schedule model presents linked activities with planned dates, duration milestones, and resources. At a minimum it includes a planned start and planned finish date for each activity. A defined target start and target finish for each activity may be defined. The schedule model can be presented in tabular form, it is more often, presented graphically, using different formats such as bar charts, Gantt charts and milestone charts.



#### 4.2.2.3 Define cost baseline

The cost baseline of a competence management process is the approved version of the time-phased project budget.

Main components of a project budget and cost baseline are:

- Activity costs estimates for the various project activities along with any contingency reserves.
- Cost of activities is aggregated into their associated work packages costs.
- Cost of work packages are aggregated into control account.
- Summation of the control accounts makes up the cost baseline.
- Management reserves are added to the cost baseline to produce the project budget.

In order to provide the cost baseline, a four-phases-method to setup competence management processes is proposed:

- 1. Define precisely the target of the cost evaluation.
- 2. Search in the organization data, equivalent tasks or activities achieved in project of the past. Identify associated real cost, date, location of the realisation and elements related to the size of the task.
- 3. Consider the real cost of the task and apply some corrective coefficients related to the size ratio of the task, of the evolution of economic conditions between the time the task have been performed and now and to the location where the task has been realized.
- 4. Evaluate the sum of all the estimations.

#### 4.2.2.4 Responsibility assignment matrix

The responsibility assignment matrix lists and characterises the persons involved in the planned tasks of the competence management project. The decision to assign a team member as a contributor on a work package must be validated by the hierarchical person in charge.

#### 4.2.3 Competence management agreement

The last phase of the process is dedicated to the validation of the competence roadmap. Three phases have to be considered:

- Identify all the decision-makers and inform them about the competence roadmap.
- Update the competence roadmap in considering their feedbacks if any.
- Once the definitive final competence roadmap is ready, ask every decision-maker to sign or confirm it.

# 4.2.4 Competence roadmap examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence roadmap module in a crisis management organization.

As the presence of ad-hoc volunteers during the flood 2013 was new to THW, the topic became a central aspect during the evaluation phase. Any competence gap analysis by THW is followed by the following process – in this case described according to the need for incorporating ad-hoc volunteers in CM activities on sight.



# Flood operations 2013

# Competence Roadmap

Flood operation	Evaluation phase	Competence gaps	Resulting work	E-3 initiates a task	The produced	After it has been	If the document
2013		found during	assignment for	force, that works	document is then	approved by THW-	has been approved
		evaluation phase	"competence	on a solution,	circulated among	headquarter	by the Federal-
			development	closing the	the different	divisions, it needs	THW-committee,
			division" Referat E-	competence gap	affected divisions	to get approved by	it is then signed
			3		of THW	the Federal THW	into action and
					headquarters	committee (THW	applied (in case of
						president, THW	a curriculum) in all
						vice president,	relevant courses
						head of	
						department	
						finances, head of	
						department	
						operations, the	
						federal volunteers'	
						spokesperson, all	
						16 regional	
						volunteers'	
						spokespersons, all	
						8 state	
						commissioners )	
Month 0-1	NN	NN	NN	NN	NN	NN	NN

Table 1: Example Competence roadmap

#### D52.1 HARMONIZED COMPETENCE FRAMEWORK VERSION 1



#### **Evaluation phase**

Evaluations follow different steps, of which the first step is taking place at THW headquarters, where federal operations are managed. The evaluation comprises the success of coordination and command centres (at headquarters, regional division, branch and unit level), the cooperation with municipalities, the cooperation with other CM organizations, the cooperation with ad-hoc volunteers and media relations

#### Task force

The task force consists of competence division staff, THW federal training academy staff and elected THW-volunteers. The constellation of this task force varies depending on the topic.

A competence roadmap is solely created by THW after an operation is finished, never during. Since THW tasks are pre-defined, all training courses are tailored to the specific needs. If alterations are necessary, an assessment and competence management process is started.

Primarily, the need for altered or new training programs affects the "competence development" division and the training academies. However, when a new technology, such as a new soft- or hardware is needed, THW's IT department would have to be involved. Furthermore, any new technology procurement would require a proper procurement procedure, not only affecting THW but also, depending on the technology's worth, the Federal procurement agency and possibly the Ministry of the Interior. In any case, it will always affect the "General Affairs" division, as it is responsible for everything concerning THW operations within Germany.

Identification and selection of the target group(s) to be addressed

As a part of the competence roadmap, for example, specific groups of THW CM volunteers who will handle the different tasks that were identified as crucial when incorporating ad-hoc volunteers in THW CM efforts have to be identified and selected. The table shows the comparison of advantages and disadvantages of imposing the task to certain THW functions/positions. When the appropriate group(s) for the task has or have been identified, the target group(s) of the competence management process has or have been selected.

Type of THW function/position	Advantage of imposing task	Disadvantage of imposing task		
Platoon leader	<ul> <li>Possesses leadership skills</li> <li>Has an overview of the situation</li> <li>is already on scene, hence is familiar with the circumstances</li> </ul>	<ul> <li>Is already heavily involved in THW operations and has little to no capacity left for coordinating ad- hoc volunteers</li> <li>Might not feel comfortable dealing with people outside of the THW structure</li> <li>Carries already a great deal of responsibility (morally and legally)</li> <li>The training already lasts one week. Additional course contents would make it difficult for volunteers to attend the training</li> </ul>		



#### D52.1 HARMONIZED COMPETENCE FRAMEWORK VERSION 1

Group/squad leader	<ul> <li>Possesses leadership skills</li> <li>Has an overview of the tasks, that are required</li> <li>Is already on scene, hence is familiar with the circumstances</li> </ul>	<ul> <li>Is already heavily involved in THW operations and has little to no capacity left for coordinating ad- hoc volunteers</li> <li>Might not feel comfortable dealing with people outside of the THW structure</li> <li>The training already lasts one week. Additional course contents would make it difficult for volunteers to attend the training</li> </ul>
Althelfer/Reservehelfer	<ul> <li>Some of them are retired and therefore available on short notice</li> </ul>	Do not train regularly and hence might lack routine
Volunteer with a new function ("ad-hoc volunteer coordinator")	<ul> <li>Since he/she has no other task, the focus would be solely on the ad-hoc volunteers</li> </ul>	<ul> <li>Possibly needs intensive leadership training.</li> <li>Does not get the opportunity to lead frequently, as THW handles smaller CM scenarios on a more regular basis.</li> </ul>
THW consultant	<ul> <li>Has an overview of THW units deployed in the area</li> </ul>	Does not know the competencies of ad-hoc volunteers and is therefore not able to "sell" this resource to the requester

Table 2: Comparison of advantages and disadvantages to impose task to THW functions

Additional examples are to be found in Annex No 4, 7, 8, 14.

# 4.3 Competence Model

The module of the competence model helps crisis managers to analyze and to determine adequate competence profiles needed to be in place in respective crisis management organization to handle tomorrow's societal crisis. With the competence model as a foundation, respective organizations are able to better recruit, train and evaluate their staff.

The competence model helps to define the competence profiles needed to fulfil the task respective crisis management organisations are set to carry out. A competence model is a set of pre-defined properties (knowledge and skills) that in different combinations will be documented as requirements for a specific competence profile. Since the model contains pre-defined properties it helps creating a common language when describing which kind of knowledge and skills a certain competence is built up by. Hence, one effect in the long run is a facilitation to support others with the right competences during a societal crisis. It is also easier to co-ordinate training courses and evaluation of competences in a multinational context.



To use this part of the competence framework an input regarding the tasks the organization is set to carry out is needed. Finally, it has to be analyzed to which level different competences need to be developed. The outcome is an appropriate competence model to cope with a specific crisis situation or crisis tasks and processes.

Most competence models are developed for a specific branch; regarding crisis management there are some examples aiming primarily at the decision-makers. It is assumed that the development of a more comprehensive competence model within DRIVER would be beneficial for the European crisis management domain. Below there are three examples of competence models and their structures:

Example 1) The Garudas competence model<sup>1</sup> focuses very much on personal skills and contains 16 main properties, each property is then divided into two opposite characteristics. Those opposite characteristics help avoiding requirement on competing abilities. The Garudas competence model focuses on problem solving abilities, collaboration abilities and abilities to achieve results.

16 main properties:

Problem solving ability

System flexibility, Holistic approach, Abstract thinking, Risk willingness, Impulsive

**Collaboration ability** 

Empathy, Social contact, Social flexibility, Need of support, Trust

Ability to achieve results

Competitiveness, Influence, Self-confident, Independence, Psychological strength, Physical energy

Example 2) A competence model built up by tiers of building blocks in a hierarchical fashion<sup>2</sup>

This type of competence model consists of several layers of competence blocks that are part of the competence profile where the first tier serves as building block for the higher tiers. The lower tiers in this case consist of competences with a broad application to the societal crisis management domain as a whole, moving up the tiers competences more and more related to specific tasks can be found.

Example 3) A competence model built up by tiers of building blocks in a horizontal fashion

Here the competence block is outlined horizontally and depending on what type of profile to be created separate between them by grading the level to be achieved to be fit for the job. For specific tasks it can be complemented with add-ons, for example for fire fighters (smoke diving, putting out different type of fires etc.), ambulance personal (first medical response etc.).

# 4.3.1 Competence model selection

This step gives first hints how to select a competence model appropriate to the needs derived from the competence context. To do so, the competence framework relates to the DIN PAS 1093 logic that illustrates a reference understanding for competence modelling (compare Stracke et al. 2009, p. 13). From these key principles of a competence model, the selection of an appropriate competence model should be done.

Derived from this understanding, a competence model consists of four core elements:

• The definition of the relationship between contextual needs (activities) and competences,

<sup>&</sup>lt;sup>1</sup> <u>http://www.kristianstad.se/upload/BarnUtbildning/dokument/Garudas\_kompetensmodell.pdf (Only in</u> <u>Swedish for the moment)</u>

<sup>&</sup>lt;sup>2</sup> http://www.americascareers.com/CompetencyModel/Info\_Documents/OPDRLiteratureReview.pdf



- The validity of the competence model,
- The specification of various competence classes and values/characteristics,
- The annotation of a competence catalogue fixed and mandatory for all stakeholders.

## 4.3.2 Competence model specification

According to the competence model selected this step serves to specified with detailed content concerning competence classes and the corresponding competences inside, the proficiency levels and their format (numeric, degrees of maturity...) and area of application. A selection of contents to be specified is included in the following paragraphs:

#### 4.3.2.1 The definition of the relationship between contextual needs and competences

As a starting point it is necessary to identify and define a complete set of roles performed by employees/teams that covers all activities within the scope of the crisis situation. The next step entails the selection or development of a suite of competence criteria derived from the work activities that encompasses every role. The role of each employee is specified by work activities that they must be able to undertake. The definition between competences and activities can turn out very differently: They can be structured one-to-one, one-to-many or in a hierarchical way. That means that all relationships between competences and activities (as longs as they are properly defined and explicitly described) can be chosen. When matching competences to activities they should be interlinked according to specific (operative and strategic) objectives to cope with crisis situations. A recommendation is not to oversize the number of relationships between competences and activities - less could be more.

The output of this step is to have a detailed overview about the relationships between contextual contexts and competences needed to cope with them as a starting point to find the appropriate aggregate level of the competence model.

#### 4.3.2.2 The validity of the competence model

The selection of a competence model also depends on the aggregate level: Will it be used on the top level or the entire organization, for one or different departments dealing with the crisis situation, for specific or all job roles involved of crisis situations. Some of these aspects have already been specified within the competence roadmap and can help to choose (and to not forget) to include or exclude specific stakeholders and organizational units.

The output of this step is to know what a specified competence model should include or exclude.

#### 4.3.2.3 Define and specify competence classes, competences, competence levels and terms

Competences are scalable to different levels. For the development of a competence model they should be clearly described in their scale. Competence levels can define a minimum standard as well as a maximum standard. When levels are differentiated and described, their internal cohesion and their consistent composition must be considered in relation to each another. This is to ensure that every higher level includes the same contents of all lower levels contained within it.

If level 1 < 2 < 3 < 4 < 5, then level 2 is also 2 < 4 or vice versa: level 4 > 2. (compare Stracke et al. 2009, p.20).



A clear use-relation between the context and the quantity of levels should be given, so that the levels enable an economically reasonable measurement.

To sum up, the competences should be clustered in competence classes, the quantity of levels has to be defined, described and differentiated from one another and the terms of condition should be specified. The output is the definition and description of the competence classes, competences, competence levels and terms.

	Professional	ofessional Competence1 Competence		Competence
ses	cc	1 2 3 competence levels	1 2 3 competence levels of	1 2 3 competence levels
28	Methodic	Competence 1	Competence 2	Competence
Competence d		1 2 3 competence levels	1 2 3 competence levels of	1 2 3 competence levels
	Social	Competence 1	Competence 2	Competence
	Personal	Competence 1	Competence 2	Competence
	9	competence levels of	competence levels o	competence levels

Figure 4: Example of generic competence classes and levels

There is variety of different competence classes (compare Stracke et al, 2009). A widespread way to classify competences in organization is the following:

- Professional competence: Professional competence denotes organization-, process-, taskand workplace-specific skills and knowledge. Furthermore it signifies the ability to categorize and evaluate organizational knowledge, to identify problems and generate solutions.
- Methodic competence: Methodic competence means the cognitive skill which can apply flexibly and in different contexts to comprehensive situations (like problem structuring or decision-making, for instance).
- Social competence: Social competence means the ability to act in situations of social interaction in a communicative, cooperative and self-organized way for a successful development and realisation of aims and plans.
- Personal competence: Personal competence means the ability for self-assessment and to provide oneself a basis to develop further within one's work. This competence is reflected in an openness to changes, an interest to manage one's one life actively and to participate in social life, and in the creation of situations and chances for this by one's own initiative.



Also different ways to specify the competence levels can be chosen. One approach is to use qualitative levels of maturity. The advantage of this approach is to enable an exact estimation of which competence level applies to the learner.

#### Example by using the European Qualification Framework (EQF)

#### Step 1)

With the help of the competence model it should be analyzed what competence properties are needed for each and every role in the organization. For example, what physical skills are required, what social skills, what type of academic skills are required? The result should be documented in a first version of a competence profile, in this step just the variety of different skills that the profile needs to build up by is determined, not to which extent.

#### Step 2)

In this step of the analysis it is determined to what level the various competence skills that you documented in the first version of the competence profile are needed. This is done by using the result from step 1 and analysis with the help of European Qualifications Framework (EQF). The result from this second step is a finalized competence profile for each role in the organization.

Specifying a number of properties derived from the competence model in a competence profile will not be enough when specific courses, training programmes and exercises are to be designed. The European Qualifications Framework (EQF) acts as a translation device to make national qualifications more readable across Europe, promoting workers' and learners' mobility between countries and facilitating their lifelong learning. The EQF aims to relate different countries' national qualifications systems to a common European reference framework. Individuals and employers are able to use the EQF to better understand and compare the qualifications levels of different countries and different education and training systems. Since 2012, all new qualifications issued in Europe carry a reference to an appropriate EQF level.<sup>3</sup> The framework covers all type of public educations as well as training arrange by employers. EQF has established 8 different levels of knowledge, all the way from elementary school to the highest academic degree possible. This marking of levels later helps when a gap analysis shall be conducted, since the levels of existing competence properties against the desired ones can be compared.

The comparison of profiles, for example of firefighters, across borders will be much easier in the future when implementing the competence framework and its inherent competence model.

#### 4.3.3 Future-oriented competence model

A robust competence model has the ability to be adaptive to future needs. Even if not all threats in crisis management that may occur in future can be overseen, a competence model should be chosen in a way, that

- new competences can be added easily,
- existing competences can be neglected or erased,
- competence classes can be enlarged,
- new relationships between competences and activities can be drawn,

<sup>&</sup>lt;sup>3</sup> http://en.wikipedia.org/wiki/European\_Qualifications\_Framework



- upcoming processes and work tasks changes can be integrated in the model,
- the competence model has the feature to be adopted to other competence management activities within an organization or between organizations in a location, in distributed locations or even cross-border (at least to some extent) and that
- the consideration of existing management systems or procedures (e.g. quality or safety management, review of staff, already existing competence models in the training units for specific crisis situations) will be taken into account. So the competence model should be adoptable and practicable according to the already existing systems and practices.

To reveal information needed that may stress on one or more of these aspects, experts and specialists in crisis management from all stakeholder groups involved in competence management activities should be consulted to evaluate and improve the competence model systematically. That can be done in regular intervals (before or after crisis situations) or problem-driven (during a crisis situation).

#### 4.3.4 Competence model agreement

An important activity in the development of the competence model is to integrate selected decision makers from the strategic and operative levels of crisis management organizations/departments in the process. At least the development of the scale and scope of the competence model, the objectives of the activity and the experts from the departments or organizations involved should be addressed. Furthermore, the objectives as well as the result of the competence model should exist in a written form. Based on the "competence model report", all decision makers should agree in the result to guarantee, that the commitment to the competence management activities based on the competence model can be carried out without discussing the model itself again.

#### 4.3.5 Competence model examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence model module in a crisis management organization.

At THW, the competence model of the functions/positions to coordinate ad-hoc volunteers consists of the following competences:

- Specific operational knowledge (i.e. how to fill a sandbag correctly),
- Specific operational knowledge (allowing to assess the successful performance of a task)
- Leadership
- Communication
- Control function (i.e. safety and security aspects)
- Coordination
- Negotiation
- Strategic thinking

Additional examples are to be found in Annex No. 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, 40, 41, 42.



# 4.4 Competence measurement

In the last decade, the concept 'competences' has been considered a valuable one to match individual performance and career planning with organizational job needs (Marko & Savickas, 1998; Miller, Scully, & Winstead, 2003). The use of competences in the workplace implies that the components of effective job performance can be clearly isolated, identified and measured (Garavan & McGuire, 2001). There are two main reasons why one should measure competences (Caird, 1992):

- To assess competences needed in the organization and inform advisers and managers how to deal with it (input for the Competence roadmap, Chapter 4.2)
- To formulate appropriate approaches for the development and evaluation of training and education programmes (input for Competence development, Chapter 4.5)

Years ago, McClelland (1973) formulated recommendations that are still relevant. The most important are: The assessment focus should be formative and progress-driven. Therefore, incremental changes in competences should be outlined and ways to improve a competence should be made explicit. Of course, an assessment procedure is only going to be as good as the definition of the criteria one is seeking to assess (Caird, 1992). In the next sections we will elaborate on that.

The main objective from a user perspective is to determine the extent to which crisis management professionals meet the established competence criteria.

#### 4.4.1 Instruments and approaches

In this phase, one first needs to decide which element of competences should be measured. To start with: a measurement consists of assigning numbers or labels to the units of analysis that accurately represent their position on the variables under study (Korb, 2012). Often competences are defined in combinations of knowledge, performance skills and psychological variables. See for instance Figure 4 (Caird, 1992). One may look at function specific or at more generic social and psychological competences. They can be of general need or can be critical for the function under hand. One have to decide which level is required (beginner or expert), and last but not least, the behavioural output needs to be defined. The competence model (paragraph 4.3) needs to give more insight in that. When these decisions are made the right instruments can be chosen.





Figure 5: A framework for identifying enterprise competence (adopted from Caird, 1992)

When selecting a competence measurement instrument, the most important questions for practitioners in crisis management are:

- What is the main reason for measurement: to assess competences needed in the organization or to formulate appropriate approaches for the development and evaluation of training and education programmes
- Are the competences that should be measured covered by the instrument?
- Do the results of the measurement align with previous assessments or at least with hypotheses made (reliability and validity of the instrument)?
- How consistent are results of the same tests with the same employees or organizations over the course of time (test-retest reliability)?
- Are there clear rules for the observation specified?
- Does the measurement procedure take place in a systematic and consistent setting?
- Is the process evaluated by a single person only or at least evaluated by two independent persons?
- Is there a process implemented if evaluation results differ between different evaluators?

Different measurement methods can be chosen to determine the current competence level. A few are mentioned here:

- Card-sort for (on-line) self-assessment, i.e. i-SELF (internet tool for self evaluation and learner feedback), presenting cards with statements about one's competences (Theunissen and Stubbé, 2011). The crisis management professional can make an assessment of the level of his/her competences.
- Assessment by peers or experts with the same card sort method. Let expert colleagues also make an assessment in the same way.
- Questionnaires specifically asking for the competences and the level of mastering. With the list of required competences questions can be asked about the level of mastering. Can be more simplified than the first method.
- Observation/Recording of activities of an employee at work: This method comprises observing the employee at his/her work, i.e. in a natural working environment.



- Structured interviews exploring a particular job: It consists of open ended questions asked to the candidate which help explore a particular job-related competence better.
- Employee meetings, development meetings or group discussions.
- Role play in simulations of work situations: Using role play in simulation exercises reveals a great deal of information regarding the behaviours of the employee.
- Ratio analysis for the verification of the attained performance and results and their connection with competences and activities for competence building.
- Self-assessment and analysis of activities, achieved performance and results.

## 4.4.2 Information about measurement

As important as choosing an instrument is choosing a target group, the persons involved in competence measurement. To identify the relevant target groups, the concept of 'stakeholder' can be borrowed from management and marketing studies. Stakeholders are the groups or individuals who can affect or are affected by the activities that make up business. There are many stakeholder analyses techniques available, providing an exhaustive picture of relevant target groups together with their characteristics and needs (Parmar et al., 2010). This information can be used when one will inform and prepare the target group.

In this respect, it is important to plan each competence measurement episode in consultation with the individuals involved. The information should include:

- When and where the measurement will take place,
- Its objectives and its implications for the work of the crisis management professional,
- Which competence criteria the employee will be assessed against,
- Who will assess the criteria,
- Feedback for each crisis management professional what has been measured (summary of results that includes their competence and identify work for which they are not yet competent). This should be discussed with the professional.
- an action plan to meet competence goals: this may be closing a competence gap, maintaining a certain competence level or development to reach a higher level or a new competence (see also Chapter 4.4 on competence development).

# 4.4.3 Measuring existing competences

This step serves to both measure existing competences and to compare existing competences and competences needed in the future. In this final phase measurements are compared to draw conclusions. There are two scientific approaches (Hoenkamp-Bisschops, 1982):

- Qualitative measurements, which involve analysis of data such as words (e.g., from interviews), pictures (e.g., video), or objects (e.g., an artefact) and
- Quantitative measurements, which involve analysis of numerical data.



Often a combination of techniques provides the best insights from these measurements

To measure employees quality for certain processes or work tasks in crisis situations, two steps should be taken into account:

- Running the assessment of the competence status of all relevant stakeholders (current values) and an
- analysis by comparing desired value and current value.

To do so, some of the methods defined in the former paragraph will be set out in practice and data will be collected. For instance when the self-assessment method is applied, this method can give an analysis on competence classes as well as on individual competences. Self-assessment by means of the card method can give a competence score picture like below:



Figure 6: Example of analysis of competences by self-assessment

In this example, taking a norm score of 80 for each competence class, it can be determined where a person or a group of persons stands. In the example, the blue line depicts the level where the employee stands. It can be seen that knowing the role in a team scores very low, i.e. 30 points. This means that this competence should be trained with an adequate training program.

- The results of the measurement items of an observation must concur with the corresponding, defined activities of the competence profile(s) of employees derived from the competence model.
- The quality and the process of the measurement methods should be continuously documented.
- Critical for success are quality criteria if the measurement process and the use of its methods are valid, reliable and objective as well as economically efficient (compare Stracke et al., 2009, p. 25ff).

#### *Identify existing competences*

In this phase, to measure existing competences one has to be sure which competences to measure. In general, two approaches are often used for competence identification: First, hierarchical task analyses which aim at a decomposition of job functions into tasks, goals, necessary knowledge, skills


and conduct (Annet, 2000; Carlisle, 1986; Earles, Driskill, & Dittmar, 1996; Goffin & Woycheshin, 2006). Second, cognitive task analyses, which primarily aim at revealing knowledge structures, cognitive processes and goals that underlie working behaviour (Annet, 2000; Williams & Pierce, 1999; Jenkins, Stanton, Salomon & Walker, 2009). As such, hierarchical task analyses start from a job characteristics perspective and cognitive task analyses emphasize individual differences (Annet, 2000). Both approaches use qualitative techniques like interviews, behavior observation, document analyses, expert consultation or consensus (Earles et al., 1996; Goffin & Woycheshin, 2006; Heijde & Van Der Heijden, 2006).

#### *Identify competences needed in the future*

Of course, competences needed in the future may be the same as the existing competences. However, in our fast changing society it is possible that even competences themselves become obsolete or less important (Theunissen & Stubbé, 2013). For the crisis management functions of the future it is certainly unclear what the core competences will be. These jobs might include new tasks or new organizational concepts and may require new competences. When employees are not familiar with these competences, it is difficult for them to anticipate on how they have to operate in future. Task analyses are not the best methods to identify future competences, because they require that the task is already known and performed in practice.

A workaround is collecting the available body of knowledge about the future functions. This may be information obtained from consultation of subject-matter experts or documents when available. With this input a priori competences can be formulated that could reasonably be considered important and specific for a certain job and at the same time generic enough to remain relevant in our rapidly changing society. An example of such a measurement instrument is the competences for multidisciplinary cooperation in a Network Centric Organization questionnaire (NCOQ). A questionnaire constructed using the i-SELF approach (de Koning, Kuijt-Evers, Theunissen, van Rijk, & Huis in 't Veld, 2011).

#### 4.4.4 Competence measurement examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence measurement module in a crisis management organization.

Once the type of THW volunteer has been selected (platoon leader, group/squad leader), THW can analyse the curriculum for each specific function.

- 1. Does the curriculum cover the competences necessary to incorporate ad-hoc volunteers?
- 2. The THW platoon or group/squad leader can be asked to assess their own abilities regarding specific competences needed to incorporate ad-hoc volunteers.
- 3. THW can ask specific volunteers to take a test that allows to measure competences in certain areas.
- 4. An exercise can be held where specific volunteer are faced with the task to incorporate adhoc volunteers.

By this way, the status quo can be measured and compared to the desired status.



The competence measurement process would be accompanied by the THW training academy personnel. The results would then be discussed with representatives of E-3 (competence development division).

Additional examples are to be found in Annex No. 3, 4, 14, 22, 23, 24, 26, 37, 39.

#### 4.5 Competence development

An important characteristic of competences is that they can be acquired by learning and development (van Merriënboer, van der Klink, & Hendriks, 2002). Professionals in crisis management have to be flexible and sufficiently equipped to be able to face the new daily challenges. This implies a need for continuous development (Stubbé & Theunissen, 2008). The most well-known forms of interventions for learning are in-school education and in-company training and development programs. Success of learning programs are, however, not only determined by the quality of education or training but also by the interpersonal, social, and structural characteristics that reflect the relationship of the learner and educational program to the broader real life context (Cascio & Aguinis, 2005). According to the Social Ecological Theory, preferably, the whole ecology of learning should be addressed when planning interventions for learning. This includes micro (individual), meso (organizational) and macro (society) levels (Weiner, Lewis, Clauser, & Stitzenberg, 2012) development. In the next sections it is described how this ecology of learning can be taken care for when thinking about competence development.

#### 4.5.1 Competence selection

This section illustrates how to develop competences. The major objective of this section is to show how to decide if competences should be further developed or not and which interventions (training, procedures) are needed.

- This process includes to prioritize and decide if specific competences should be developed or not to improve performance of staff in crisis situations.
- Based on the results, a manager or HR responsible person in the crisis management organization is able to decide, which competence should be improved to cope with crisis situations in a given context in a better way.

For this phase it is important to obtain the full picture of the situation. As input we may use the results from competence measurement (Chapter 4.4) and all the other modules. This may result in a large amount of information from which it is difficult to prioritize and select. To organize all this information, the Ecology of Learning Framework (ELF) can be used (Theunissen et al., n.d.). ELF is based on the principles of Social Ecological Theory and comprises of the following <u>building blocks</u> (see figure below):

- Five levels of influence (M1-Micro: learner; M2-Meso-small: group; M3-Meso-large: organization; M4-Macro-small: collection of organizations; and M5-Macro-large: country or collection of countries) as well as
- Four intervention elements (Target groups, Characteristics, Objective, and Intervention activities.





Figure 7: A visualisation of the Ecology of Learning Framework (ELF)

First, on each of the five levels the Target groups, their Characteristics and the intervention Objectives must be identified. Next, based on this information it can be decided which Interventions to plan. Interventions can aim at changing people (training, influencing behaviour), changing the circumstances (e.g. procedures, protocols, physical space) or on a combination of both at each level.

If the objective of an intervention is to change people, we can draw from the field of educational studies and instructional design. (Instructional Design Central, 2012; Merrill, Drake, Lacy, & Pratt, 1966). In the case of competence development, the objective of the M1 individual level is often competence improvement or competence maintenance. Competence-related objectives can be formulated on the other levels as well. For instance: not every individual needs all important competences when these are already available at the M2 team level.

The next step to solve for practitioners in crisis management is to select which learning strategy and training method is the most appropriate in order to develop and increase competences at different levels. This selection is based on a check of the potential of the different learning strategies and learning and training methods to develop competences needed for specific crisis situation needs.

First, it should be investigated if appropriate training measures to develop competences are already available. Second, based on evaluation criteria such as time, cost, quality, adequateness and other measures the suggested learning strategies and training methods are to be assessed. Third, it should be decided which training measures are to be executed until when and who will be responsible for the whole process.

The outcome of the prioritisation and selection of competence developing measures is a development plan to extend and maintain the competences of staff so that they are able to cope with crisis situations in their specific context. Examples of specific actions may include:

- Participation in already existing (basic) training programmes,
- attending external courses not offered yet,
- on-the-job supervision of employees,



- refreshment of trainings in a systematic way as well as
- limited-term placement in specialized teams or other departments or organizations having already the competence to cope with specific processes and tasks.

#### 4.5.2 Select appropriate development activities

This step serves to assess existing measures of personnel and organizational development with respect to competence development needed. It is important to look at methods to observe if the interventions are successful. The observations could be both positive (a successful intervention) or negative (the intervention fails to achieve the intended objective) (Nato, 2011). For evaluation purposes of the success the instruments from both competence measurement (Chapter 4.4) and competence evaluation (Chapter 4.6) can be used.

#### 4.5.3 Competence development implementation

To have a consequent and systematic monitoring of measures provided to develop competences, for each employee a personal development plan is needed. The personal development plan gives details about proposed actions for training and development. Each action should clearly include its objectives, in terms of which competence will be developed until when and to which extent. Furthermore, the present status is illustrated and the outcomes are codified. Based on this development plan a schedule should be established to review progress against the personal development plan and update as appropriate to new challenges in processes and work tasks that might occur to cope with specific crisis situations.

#### 4.5.1 Competence development examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence development module in a crisis management organization.

Depending on which type of volunteer has been selected to cover certain tasks (see coordination options), the following aspects have to be taken into consideration:

- Which competence needs to be present at what level?
- Would adding specific competence development measures to the already existing curriculum prolong the training course duration to the extent that THW CM volunteers can no longer attend the entire training session due to time restrictions?
- Does incorporating ad-hoc volunteers justify a training course solely dedicated to this particular issue?
  - If yes, which prerequisites are necessary (squad leader training, platoon leader training, trainer courses, and or even specific education and training for particular tasks etc...?

Additional examples are to be found in Annex No. 1, 3, 4, 5, 10, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 26, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 43, 44.



#### 4.6 Competence evaluation

The evaluation of competence improvement and its impact on crisis management improvement aims to check if the potential crisis situations/tasks or processes can be coped with by means of the employees involved. To assure an effective and consistent standard setting of competences for employees in crisis management organizations a process of monitoring and continuous improvement is required.

Evaluation can be defined as a systematic empiric analysis of the consequences of a goal-oriented activity in order to benchmark and modify it (compare Rossi et al., 1999).

Based on the results of a workshop with different security operators in Europe in the context of the SECUR-ED project, it became apparent that the different operators had very heterogeneous approaches concerning the evaluation of security training and its impact. Some of the operators have a very structured system of evaluation, whereas others do not spend much effort to check the efficiency of their training courses. However, the focus of most activities lies in evaluating the training itself instead of the impact of the competence building measures on threats, crisis management processes and/or work tasks.

Furthermore, the evaluation usually does not include the competence management process itself. The approach of the methodology once implemented is often "written in stone" and underlies merely minor modifications – even if it is not useful to support crisis management activities.

This chapter focuses on both the assessment of the impact of competence management activities on crisis management (Chapter 4.6.1) and the evaluation of the competence management process itself (Chapter 4.6.2).

#### 4.6.1 Competence development impact

How the measurement of the results will be configured and carried out is one of the key questions in competence management activities. The measurement of competence management activities should take into account customers, business processes and financial aspects when performance criteria on competence activities are to be monitored (compare Hermann, S., Becker, T., Karapidis, A., 2005). Since 1959 Kirkpatrick has developed an approach of evaluation based on four levels (compare Kirkpatrick, 1998).





#### Figure 8: Kirkpatrick's levels of evaluation (Dalto, 2014)

From this perspective the readiness-to-cope can be evaluated on different levels:

First evaluation level: The first level is about the reaction of the trainee to the training and learning activity. This sort of measurement is concerned with the trainees "feel and mood" about specific training and learning activities.

Method for the first level evaluation: The reaction of the trainee to the learning and training activities will usually be measured by feedback sheets. Most organizations do not do any more than this type of measurement and analysis. The drawback is that we do not really know, if the trainee has actually learnt anything that can be used in his every day work. What really seems to be being asked of the trainee was how "happy" he/she is with the learning and training activity. Typical questions on the first evaluation level are:

- Is the content of the training program comprehensible?
- Are the topics of the training course up-to-date and realistic?
- Is the training program really useful?
- Is the trainer able to impart knowledge and skills?

Second evaluation level: The second level is about the trainee and the effect of building knowledge and learning new skills to cope with a crisis situation. This sort of measurement is what knowledge the trainees build up in the training and learning activity.

Method for the second level evaluation: Evaluation can be improved by using a pre-test and post-test and comparing the results. The questions need to be posed in an objective manner and closely related to the training and learning objectives. So, by this way it can be seen if the training actually



delivered knowledge and if this was understood by the trainees at the time. An organization that does it this way can be confident that the trainee has actually learnt something at that time.

Nevertheless, trainees often have difficulties to remember the objective of the training and learning activity they attended when confronted with this a few days later or – even worse – months later. Techniques to replay can be used to remind for specific issues. But if the knowledge comes into action in crisis scenarios, processes or work tasks cannot be measured on this level of evaluation and is still an open issue.

Third evaluation level: The third evaluation level is about the trainee and the execution of knowledge in a security relevant work situation. The challenge is how to measure the behavioural change of employees in specific security relevant work tasks. This should be the minimum demand of any training and learning activity provided. Furthermore, for any organization dealing with security management the key question is: will the training effect some measurable change in employees' behaviour in security relevant situations or not?

Method for the third evaluation level: This change in behaviour can be measured e.g. by hidden observations. So a small-scale experiment with a manipulated work situation or a real-life work process situation can reveal if the employee is able or not to handle a crisis. By using measurement before/after the training and learning activity a behavioural change is measurable.

Fourth evaluation level: The fourth evaluation level is about the impact the training and learning activities have for the benefit of crisis situations at all. According to Kirkpatrick the major question is if training and learning activities have actually been translated into tangible benefits to the organization to cope with crisis situations in a satisfying way.

Quite simply: have effectiveness and/or efficiency of the organization been improved? Have the number of incidents in crisis situations been reduced? Even if the question itself is quite simple, to measure on this level needs to address key areas such as competence development, engagement, higher productivity, performance ratings, reduced turnover, or more ready-now employees for specific positions (compare Pfeffer, 1998).

Method for the fourth evaluation level: In this context, methods and metrics will be used which really have an impact on organizations balance sheets and KPIs. Training and learning activities have to be proven to deliver results and be cost effective. Conduct ROI measurement (benefit/cost ratio) that aims to compare the impact with the cost of learning and training activities.

#### 4.6.2 Competence management process monitoring

Focusing on the different evaluation levels there is a gap between the need in crisis management (usually level 3 and 4) and the outcome of evaluation results provided by HR (usually level 1 and 2) for decision-makers in crisis management (compare Philipps & Schirmer, 2005, p. 2ff). So there is a lack of evidence about the success of the competence building measures to cope with threats, processes and work tasks in crisis situations in a more satisfying way better than before.

The analysis of the strength and weaknesses of the competence management process is needed. A robust method in this context is a SWOT analysis that can be done on the individual level (competence building) and on the organizational level (impact of activities).

The key activities to analyze the strength and weaknesses are:



- SWOT of quality, cost and time of competence management activities to support the competence context issue (e.g. to cope with specific crisis situations in a better way)
- SWOT on the different results (e.g. opportunity map, competence roadmap, competence model, competence needs, competence measures) of each competence management activity done in the entire process

The outcome of the SWOT activities is a catalogue of strength, weaknesses, opportunities and threats of the competence management activities carried out as well as the impact of the activities.

#### 4.6.2.1 Identify and define measures of optimisation

To identify and define measures of optimisation a report of activities carried out and results measured according to their impact is needed. This report should be based on the results of strength and weaknesses mentioned in the previous chapter. The report consists of the most important results for the different stakeholders involved in the competence management activities. In most of the competence management activities in the context of crisis management, different persons, groups, departments or even organizations are parts of the process. All of them need specific information that should be included in the report. Furthermore, a well-chosen communication strategy guarantees that the results of the main evaluation report are comprehensible for all stakeholders.

#### 4.6.2.2 Design the competence management process sustainably

All organizations in crisis management should periodically review their arrangements and achievements in managing competences in a crisis management context. Based on the review, sustainable measures should be taken into account to improve the impact of competence management activities on the concrete context (e.g. an ice storm scenario). To design the competence management system in a sustainable way it has to be audited with sufficient frequency to give confidence that it is meeting the intended objectives, operating as intended and to initiate improvement where appropriate.

The concrete measures are:

- To plan and implement a monitor programme to check the objectives intended in a systematic way and that the methods and procedures of the competence management activities are followed in a professional way.
- Based on the results, an improvement action plan and the monitoring of the effectiveness of the actions in addressing the issues identified should be carried out.

#### 4.6.2.3 Evaluation of competence framework used

In this paragraph, the necessity to check if all competence management processes have been done in an appropriate and standardized way will be outlined.

Competence framework usage is not an approach that can be implemented in a one-day action in organizations. It is a process that needs political commitment, know-how, resources, communication



and defined process-ownerships on different hierarchical levels. To measure the quality of the competence framework "in-use" process itself, there are different options how to do this.

a) Measuring if the competence framework is properly implemented or not in the organization

By using a quick-check list of all competence framework phases used, it is easy to identify which element is implemented (not-partly-fully) in departments involved. That includes not only the employees as "first responders" but also the training units, middle-management responsible for it and departments aligned to those activities.

b) Measuring if the competence framework is used or not

For many methods implemented in organizations the key question is if the competence framework is used and accepted by all stakeholders or not. By interviewing all relevant stakeholders an activity map of the competence framework "in-use" can be developed. This activity map shows to which extent the competence framework is used and accepted, where the bottlenecks are, if usability is given or not, if cost/benefit has been taken into consideration on the operational level and why some elements are not implemented yet. This activity map could be the starting point to re-adjust the implemented competence framework in a way that all stakeholders can use it for their purposes.

#### 4.6.2.4 Roll-out of competence evaluation activities

The roll-out of evaluation activities can be classified into five different categories:

Planning phase of the evaluation process:

In the planning phase of the evaluation process first the need and the reason of the evaluation should be fixed. Next, three documents have to be provided: The first document contains all relevant information how the evaluation data will be collected (data collection plan). The second document contains all relevant information how to measure the ROI of the learning and training activities (analysis plan). The third document is the project plan and illustrates, timelines, objectives, target groups etc. of the evaluation process.

#### Data collection:

This phase outlines the methods of the evaluation that will be used. It gives an overview of different data sources and responsible stakeholders, the questionnaire and the concrete data collection process, tests of instruments before the evaluation starts and action plans.

Isolation of non-intended effects:

Because of many factors (e.g. new employees, new work processes, changing situations) that can influence learning and training activities it is necessary to exclude such influences systematically. That can be done by using control groups to identify effects of a bias, forecast and trend analysis and specific assessment of stakeholders to reveal influencing effects.

Data analysis:

#### D52.1 HARMONIZED COMPETENCE FRAMEWORK VERSION 1



This phase should analyze the evaluation data. Usually, that will be done by differentiating between hard (e.g. productivity, cost, time) and soft (e.g. satisfaction rate with work, employer loyalty) data analysis. The analysis approach is to choose the parameters, to nominate basis values, to nominate target values that should be reached in a defined period of time including aligned improvement activities and an overall value for the improvement potential.

#### Evaluation report and consequences for improvements:

This phase of the evaluation should report the evaluation results. Parts of the report are strength, weaknesses, opportunities and threats (according to SWOT analysis) of the training and learning activities done and the impact to organizational performance concerning crisis management. To communicate these results is as important as to analyze them in a systematic way. So, report information should be provided for different stakeholders in a customised and separate way. Furthermore, the report results should be communicated as early as possible to avoid that the results are outdated before they reach their addressors. By communicating the results the discussion about improvements should be initialized based on the findings of the report.

#### 4.6.1 Competence evaluation examples

On the basis of the given structure of the competence framework an example provided by THW illustrates the application of the competence evaluation module in a crisis management organization. The evaluation of the relevant competences conveyed during the new or altered training courses can be measured in the following ways:

- Distributing a survey asking participants to rate the course and its effectiveness as well as
- controlling the success of training course content by making the participants take a test.

Additional examples are to be found in Annex No. 1, 3, 4, 9, 14, 23, 24, 26.



## 5 Conclusion

Decision-makers in crisis management have recognized the growing importance of competences. The increased impact of crisis on individuals and communities requires a continued and systematic development of competences for staff and volunteers to respond. This report gives an overview of the DRIVER competence framework in crisis management. It is not a step-by-step manual but a generic guideline to make use of competence management to support crisis management. By means of its general character the framework allows to link already existing competence achievements or to develop new approaches in crisis management organizations. The competence framework can be used to align training needs to concrete processes, tasks and threats in a systematic way. Competences needed for different tasks in different threat scenarios, measuring the competence gaps, aligning training activities to concrete competence needs, measuring the impact of the training activities according to the results of the task handling and a continuous monitoring of new needs to handle the tasks are the core elements of the activities. So, the competence framework enables crisis management organizations to prepare their employees (as well as e.g. volunteers or external staff) in a holistic way for known threats that can happen before a crisis starts. Moreover, the competence framework is most appropriate to be used to build up new competence-based learning activities based on a post-crisis analysis. From this perspective, lessons learned activities from crisis situations that already occurred are taken into account as well. Furthermore, the approach also helps for future threats by showing a systematic way for reaching competence development goals fast, in high quality and in a cost-efficient way.

All crisis management organisations should systematically and periodically review their arrangements in managing competences and implement improvements. The framework outlined provides a benchmark for such reviews.

The DRIVER competence framework in this report represents the first step to bring together and merge different existing approaches used in crisis management. The forthcoming deliverable D52.2 will detail the framework at hand in terms of usability for practitioners, cross-border and cross-organizational conditions as well further harmonization of already existing approaches.



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# Annexes

The 44 annexes are included in the next pages. The Annex N° is indicated in the right upper side of each page.

	Modules of the DRIVER competence framework								
Annex No.	1) Competence context	2) Competence roadmap	3) Competence model	4) Competence measuremen t	5) Competence development	6) Competence evaluation			
1					X	X			
2			X						
3			X	X	X	X			
4	X	X	X	X	X	X			
5			X		X				
6	X		X						
7		X	X						
8		X							
9						X			
10					X				
11			X						
12			X		X				
13			X		X				
14	X	X	X	X	X	X			
15					X				
16					X				
17			X		X				
18			X						
20			X		X				
21			X		X				
22			X	X	X				
23			X	X	X	X			



#### **D52.1 HARMONIZED COMPETENCE FRAMEWORK VERSION 1**

24	X	X	X	X	X
25		X			
26		X	X	X	X
27		X			
28		X			
29		X		X	
30		X		X	
31				X	
32				X	
33				X	
34		X		X	
35				X	
36				X	
37			X	X	
38				X	
39			X		
40		X			
41		X			
42	X	X			
43				X	
44				X	

Table 3: Annex No. and competence framework modules addressed

# Training programs for building competences in early intervention skills (2002), Denmark

#### Provider/project coordinator

Dr. Nancy Baron, Director of GPSI, Nairobi Kenya Dr. Soeren Buus Jensen, Director of Psychatric Clinic, Valby Denmark (2002)

#### Addressed need/gap

Training need described to prepare helpers to carry out early interventions with a psychosocial and mental health focus. Each disaster requires emergency response specifically for its survivors. Addressed skill gaps are:

- Fostering Good Helper Survivor Dialogues
- Knowing How to Share Information
- Coordination Skill
- Meeting Survival Needs
- Uploading Human Rights
- Mental Health Education
- Follow-up to Explore Latent Problems or Needs
- Taking Care of Caretakers

#### Short description

This concept outlines a skill and competence based approach for training groups of helpers to integrate this perspective into early interventions following trauma for different scenarios. Training curricula should consist of building skills for needs assessment and emergency response, preventive brief interventions and clinical interventions. The approach has been validated in different disaster situations.

#### Technology readiness level

TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Supervisors of trainers and practitioners, helpers for appropriate emergency response

Experimental and/or practical experiences

Based on different scenarios where the approach has been validated.

Source: <u>http://www.who.int/mental\_health/emergencies/4.3\_key\_resource\_jensen\_and\_baron\_article.pdf</u>

### Emergency Response and Recovery Competences in Health Care Administration: Competence Survey, Analysis, and Report (2005), US

#### Provider/project coordinator

Joseph A. Barbera, MD, Anthony G. Macintyre, MD, Greg Shaw, DSc, Valerie Seefried, MPH, Lissa Westerman, RN, Sergio DeCosmos Institute for Crisis, Disaster, and Risk Management The George Washington University

#### Addressed need/gap

Competence and skill catalogue for emergency response and recovery for the development of a validated instructional curriculum for emergency management.

#### Short description

The academic approach is developing peer-reviewed emergency response and recovery competences for selected Veterans Health Administration job categories. The competences primarily describe knowledge and skills essential for adequate job performance during the emergency response and recovery phases of an incident. The competences will be used to guide the development of earning objectives for the instructional curriculum.

#### Technology readiness level

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified
- TRL 9 actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Crisis management professionals in health care administration

Experimental and/or practical experiences Scientific research project

Source:

https://www.training.fema.gov/EMIWeb/edu/docs/VHA-EMA%20Emerg%20Resp%20and%20Rec%20Competency%20Report.pdf

# Core competences and the Kansas City, Missouri fire department (2006), US

Provider/project coordinator John F. Neeley, Battalion Chief Kansas City, Missouri Fire Department

Addressed need/gap

The results of this study show that the Kansas City, Missouri Fire Department mustimplement a systematic training program.

#### Short description

The purpose of this approach is to identify key components of the Kansas City, Missouri Fire Department's skills training program, examine our current processes for evaluating the acquisition and maintenance of core skills and competences, compare our processes to those of other similarly situated fire service agencies, and identify any departmental processes, either formal or informal, that may impact the successful implementation of the strategic initiatives related to defining and maintaining core competences and skills. The activities also sought to recommend specific objectives towards the implementation of a skills training program in accordance with NFPA 1001.

#### **Technology readiness level**

TRL 1 - basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 - technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Firefighter, HR units to educate firefighters

Experimental and/or practical experiences

Source: http://www.usfa.fema.gov/pdf/efop/efo38806.pdf

## DIN PAS 1093 Human Resource Development with special consideration of Learning, Education and Training – Competence Modelling in Human Resource Development (2009), Germany

Provider/project coordinator DIN e.V.

#### Addressed need/gap

This Publicly Available Specification (PAS) is a reference framework for the development as well as for the structural comparison and evaluation of competence modelling in human resource development. This specification refers to all processes in human resource development and addresses in particular the processes of vocational learning, education, and training.

#### Short description

The Reference Framework for Competence Modelling (RFCM) comprises all existing competence models, constitutes an abstract standardized description format for future competence models and the comparison of existing competence models. It was developed, refined and approved in a consensual process within the working group by experts from business and research. The analysis, the inclusion, and the integration of numerous competence models from theory and practice ensure that all existing competence models can be mapped and described by the RFCM.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified
- TRL 9 actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups HR professionals and decision-makers in competence management

#### Experimental and/or practical experiences

-

Source:

Stracke, C. (2009): DIN PAS 1093. Human Resource Development with special consideration of Learning, Education and Training – Competence Modelling in Human Resource Development, Beuth Verlag, Berlin

## Disaster Preparedness and Disaster Management: Self-Assessment Survey to Judge the Adequacy of Community-Based Physician Knowledge, Skills and Competences (2009), US

#### Provider/project coordinator

Bruce R. Guerdan - board certified in Emergency Medicine and Family Medicine, is an Emergency Medicine attending physician at Lower Keys Medical Center in Key West, Florida, and serves as State Air Surgeon for the Florida Air National Guard.

#### Addressed need/gap

Status quo analysis of disaster preparedness and disaster management in accordance to skills and competences

#### Short description

Survey results to reveal lack of competences and skills in disaster preparedness. Disaster preparedness and disaster management have received a high level of attention in the aftermath of the United States' recent experience with both natural and manmade events. Primary care physicians are often forced to respond with little or no formal training. Physicians in training receive little to no education on this subject. There are several organizations and academic institutions that have made inroads into training on this subject. There is no standardized assessment tool to judge these clinicians' competence and skills. Currently available training and some of the major response organizations are reviewed. A format for the development of an assessment tool and a pilot survey completed at two community hospitals are both discussed.

#### Technology readiness level

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

#### TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Private entities, academic institutions, and government agencies could all use this information to more objectively design both ongoing education and future assessments of knowledge.

#### Experimental and/or practical experiences

Self-assessment approach to reveal skill- and competence shortage in disaster preparedness and disaster management.

Source: <u>http://www.aapsus.org/articles/28.pdf</u>

### Cultural Competence in Crisis Intervention (2010), US

#### Provider/project coordinator

Dr. Nasiah Cirincione-Ulezi holds a Master's degree in Special Education from the University of Illinois at Chicago and a Doctorate in Curriculum and Instruction from Loyola University of Chicago.

Dr. Angelique Jackson holds a Master's degree in Urban Education and Accelerated Brain Based Learning from Cambridge College and a Doctorate in Curriculum and Instruction from Loyola University of Chicago.

#### Addressed need/gap

Given the immediate demands placed upon the professional during a crisis situation, factors of culture and cultural identity are often neglected. Yet, the professional and client in crisis often come from different cultures, i.e., age, gender, race, ethnicity, language, nationality, religion, occupation, income, education, mental and physical abilities. To this end, crisis intervention often requires an immediate development of trust between two people from different cultures for purposes of restoring the client's coping mechanisms to a pre-crisis level of functioning.

#### Short description

Cultural competence is a value that must be embraced by both professionals and the agencies they work within in order to effectively manifest at a level that will be meaningful to clients during crisis intervention. Effective crisis intervention practiced with cultural competence results in positive outcomes for all involved in the crisis intervention. If professionals are willing to engage in the necessary work required in practicing from a culturally competent framework, such as developing self-awareness of their own cultural biases, they assist clients in feeling validated and respected during crisis situations.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Crisis management professionals

Experimental and/or practical experiences unclear

#### Source:

<u>http://www.crisisprevention.com/Resources/Article-Library/Nonviolent-Crisis-Intervention-Training-Articles/Cultural-Competence/Cultural-Competence-in-Crisis-Intervention</u>

### Competences Developed for Disaster Healthcare Providers: Limitations of Current Processes and Applicability (2010), US

#### Provider/project coordinator

Elaine Daily - Independent Consultant, Madison, Wisconsin USA; Immediate Past- President, Nursing Section, World Association for Disaster and Emergency Medicine

Patricia Padjen - Program Manager/BSN Advisor, University of Wisconsin Oshkosh College of Nursing, Oshkosh, Wisconsin USA

Marvin Birnbaum - Professor Emeritus, Department of Medicine, University of Wisconsin, Madison, Wisconsin USA

#### Addressed need/gap

Review of different competence approaches in disaster healthcare that are not standardised and cannot be used, accepted and adapted universally for different provider.

#### Short description

Hundreds of competences for disaster healthcare personnel have been developed and endorsed by governmental and professional organizations and societies. Imprecise and inconsistent terminology and structure are evident throughout the reviewed competence sets. Universal acceptance and application of these competences are lacking and none have been validated. Further efforts must be directed to developing a framework and standardized terminology for the articulation of competence sets for disaster health professionals that can by accepted and adapted universally.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Disaster healthcare provider

Experimental and/or practical experiences

- Discussion to develop a framework and standardized
- Joint Terminology for the articulation of competence sets for disaster
- Health professionals that can by accepted and adapted the competence activities universally

Source:

http://brown.edu/initiatives/global-health/sites/brown.edu.initiatives.global-health/files/uploads/daily%20COMPETENCY%20REVIEW%20PAPER.pdf

## Understanding Competence Development and Management and Personnel Development Systems in European Fire and Rescue Services (2010), EU, Ireland

Provider/project coordinator

EC Leonardo Project LLP/LdV/PA/2010/IRL-CP605 Directed by Derek Ross, Stamina Consulting Ltd., Dublin, Ireland

#### Addressed need/gap

This EC project will identify models of best practice of competence development, competence management, and personnel development systems for use by the Fire and Rescue Services involved in the Partnership.

- Share information, knowledge and expertise of fire and rescue service competence management and personnel development (CMPD) systems;
- Identify good practice and new CMPD concepts;
- Use the knowledge gained through this research to help enhance health, safety and welfare for emergency services personnel, the public and society.

#### Short description

A key objective of this EC Leonardo research project is the shared exploration and development of training concepts and benchmarking methods for competence development and management with an aim to improve systems for all European Fire and Rescue Service organizations.

Technology readiness level

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Fire and rescue service, emergency services

#### Experimental and/or practical experiences Research-oriented approach with experimental concept proof including fire and rescue services

#### Source:

http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCIQFjAA&url=htt p%3A%2F%2Fwww.leargas.ie%2Fest%2Fproduct\_show.php%3Fid\_project%3D2010-1-IE1-LE004-02462-1%26id\_product%2D1&oi=Bo70U7vIEoKC4gTiu4D4AO&usg=AEOiCNE98Nall\_1OXC2VUdUAzIE

<u>1%26id\_product%3D1&ei=Bo70U7ylFeKC4gTju4D4AQ&usg=AFQjCNF98NalL1OYG2VUdUAzlF</u> <u>ylFlb0Hw&bvm=bv.73373277,d.bGE</u>

## The Validation of Non-Technical Behavioural Markers (skills and competences) for Merchant Navy Officers (2012), UK

Provider/project coordinator Warsash Maritime Academy Southampton Solent University (September 2012)

#### Addressed need/gap

The intent was to establish the validity and usability of the Behavioural Markers (BMs), in order to enable industry to assess the performance of the deck and engine room teams and to improve selection, training and promotion processes and procedures for merchant navy officers.

#### Short description

The specific objectives of this project were to:

- Identify whether the behavioural markers proposed by Devitt an Holfrod (2010) were appropriate for use within the industry to measure effective competence in resource management skills laid out in the STCW Manila amendments of 2010.
- Compare the selected categories and elements and check for overlapping.
- Identify the appropriate number of behavioural markers that could be partically observed in each category

#### **Technology readiness level**

TRL 1 – basic principles observed

#### TRL 2 – technology concept formulated

- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Merchant Navy Officers

Experimental and/or practical experiences Skill and competence validation under an experimental situation

#### Source:

http://www.warsashacademy.co.uk/news-events/resources/validation-of-non-technicalbehavioural-markers-kdevitt-sholford-sept12.pdf

### Disaster risk reduction/disaster risk management Competences tailored for the Haiti earthquake disaster (2012), US

Provider/project coordinator Tulane University's Disaster Resilience Leadership Academy (DRLA)

#### Addressed need/gap

- Strengthen disaster risk reduction competences in Haiti
- build deeper expertise within the disaster management community in Haiti

#### Short description

Disaster risk reduction an increasingly multi-disciplinary field and can have many competences in various domains. It is important that scopes of work are clearly defined with specific competences tailored to each role and responsibility. This is crucial not only to the disaster risk reduction professional but also is needed in the measurement of curricula success. In order to understand the current competence level addressed by existing DRR/DRM tools and training documents, the Haiti SLDRP team used the competence categories to catalogue each curriculum in the Haiti SLDRP curriculum database.

#### Technology readiness level

TRL 1 - basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

#### TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

All stakeholders in crisis management like the Haitian Red Cross, Haiti's Directorate of Civil Protection (

Experimental and/or practical experiences Demonstrated in the context of the Haiti earthquake context

Source:

http://www.drlatulane.org/library/SLDRP-Haiti-Curriculum-Mapping-Report.pdf

# Core Competences for Disaster Medicine and Public Health (DMPH) (2012), US

Provider/project coordinator Disaster Medicine and Public Health Preparedness American Medical Association

#### Addressed need/gap

Formal training in DMPH can enhance the ability of all potential health system responders to be useful in an emergency as volunteers or as members of well established organizations with significant disaster expertise.

#### Short description

Effective preparedness, response, and recovery from disasters require a well-planned, integrated effort with experienced professionals who can apply specialized knowledge and skills in critical situations. While some professionals are trained for this, others may lack the critical knowledge and experience needed to effectively perform under stressful disaster conditions. A set of clear, concise, and precise training standards that may be used to ensure workforce competences in such situations has been developed. The competences set has been defined by a broad and diverse set of leaders in the field and like-minded professionals through a series of Web-based surveys and expert working group meetings. The results may provide a useful starting point for delineating expected competences levels of health professionals in disaster medicine and public health.

#### **Technology readiness level**

TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

# TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

The competences proposed here are designed to drive preparation of educational materials and programs for provider education.

#### Experimental and/or practical experiences

Concept for delineating expected competences levels of health professionals in disaster medicine and public health.

Source: <u>http://ncdmph.usuhs.edu/Documents/Core-Competencies.pdf</u>

# Competency-Based Emergency Management Degree Programs for Public Affairs and Administration (2012), US

Provider/project coordinator University of Central Florida, USA

#### Addressed need/gap

Experiences of designing and developing an academic emergency management program within a public administration program. Including anaylsis of emergency management competences on different levels: depth, scope, nature and type

#### Short description

Emergency management competencies can be summarized in two categories: intraorganizational and interorganisational. While the former includes important issues as organizational management, technological competency, and comprehensive and supported decision making, the latter incorporates issues relating to leadership, networking, coordination, and collaboration.

#### Technology readiness level

#### TRL 1 – basic principles observed

#### TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies

Target groups Public Affairs and Administration

Experimental and/or practical experiences Recommendations to develop competence-based emergency management degree programs

Source:

http://www.naspaa.org/jpaemessenger/Article/VOL17-4/04\_Kapucu.pdf

### Cross-Disciplinary Competence and Professionalisation in Disaster Medicine and Public Health (2012), US

#### Provider/project coordinator

Frederick M. BURKLE, Jr. - Harvard Humanitarian Initiative, Harvard University, Cambridge, Massachusetts and Woodrow Wilson International Center for Scholars, Washington, DC. James M. LYZNICKI - Center for Public Health Preparedness and Disaster Response, American Medical Association, Chicago, Illinois

James J. JAMES - Center for Public Health Preparedness and Disaster Response, American Medical Association, Chicago, Illinois

#### Addressed need/gap

This paper discusses evolving efforts to improve the internal quality performance initiatives of Foreign Medical Teams (FMTs), and to develop competence-based education and training leading to professionalization of providers practicing disaster medicine, public health preparedness, and humanitarian health care in crises.

#### Short description

The principles discussed have the starting point that response to humanitarian crises and largescale natural disasters worldwide have shown consistent failures in coordination, intervention and documentation of impact outcomes. The response to the Haitian earthquake of 2010 catalysed the international community to address these shortcomings and requirements for greater accountability, stringent quality performance oversights, documentation and reporting, and a recognized process leading to professionalization of the humanitarian community. Evidenced-based studies indicate the need to use a cross/multi-disciplinary approach to developing competences leading to curricula and course development, and eventual certification and registry of providers.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Providers practicing disaster medicine, public health preparedness, and humanitarian health care in crises

Experimental and/or practical experiences

Discussion to improve learning, competences and skill building

Source:

http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCoQFjAA&url=http%3A%2F%2Fhhi.h arvard.edu%2Fsites%2Fdefault%2Ffiles%2Fpublications%2Ffinal\_nato\_chapter\_cross\_disciplinary\_competency.doc& ei=h5n9U8K2DqSw0QXTloDwBA&usg=AFQjCNEh7qz859ugpxLp14kgrMk8phJw5Q&bvm=bv.74035653,d.d2k

### SECUR-ED - Competence Framework for mass transportation (2013), EU

#### Provider/project coordinator

Coordinator of the project: Thales (France)

This project has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 261605.

#### Addressed need/gap

Many security issues in mass transportation suffer under the condition that competences of stakeholders are insufficient to cope with specific crisis situations. Therefore, training activities have been launched to bridge the gap between competences given by the stakeholders and specific requirements in crisis situations

#### Short description

The SECUR-ED competence framework is a holistic concept to support crisis management activities by a systematic approach to find out needed competences, to bridge competence gaps and to measure the success of learning and training activities. It is not a step by step manual to set-up activities but a report of the concept, its scale and scope including examples of its usage and recommendations for the implementation of the concept.

#### Technology readiness level

TRL 1 - basic principles observed

TRL 2 - technology concept formulated

TRL 3 – experimental proof of concept TRL 4 - technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and gualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Crisis management coordinators, HR for improvement of employees in organisations dealing with crisis management issues

Experimental and/or practical experiences

Tested with Deutsche Bahn service employees and service trainer (concerning competence elicitation);

Evaluated/reviewed by different training and learning companies in crisis management (Hamburg Consult / NICE / MTR3 / Bombardier / ATM) Evaluated by research (University of Würzburg)

Source http://www.secur-ed.eu/

### ACRIMAS - Aftermath Crisis Management System-ofsystems Demonstration (2012), EU project

#### Provider/project coordinator

Hans-Martin Pastuszka, Fraunhofer Institute for Technological Trend Analysis (INT), Euskirchen, Germany; Authors: Dirk Stolk (TNO, The Hague, The Netherlands) and a team of coauthors from: CMI, Fraunhofer, JRC, NCSR Demokritos, NIFV, TNO, T-Soft, TSF and UNU-EHS

#### Addressed need/gap

Improvement needs in twelve clusters: Capacity building, Community awareness raising (Society's resilience), Prepare civil-military cooperation, Harmonisation, Training and exercises, Evaluation, C3 and Situation assessment, Volunteer management, Inform and Involve the public, Information management, Supply of basic services to enable crisis management operations and Logistics.

#### Short description

ACRIMAS was a 15 months Support Action with 15 partners from 10 European countries, dedicated to provide comprehensive advice to the European Commission DG ENTR in preparation of the call for a Demonstration Project on Aftermath Crisis Management and to develop a roadmap for the execution of this demonstration. This roadmap elaborated a systematic development process for CM systems, procedures and technologies in Europe, to be implemented within the demonstration project. The proposed process aims for gradual evolvement of CM capabilities through demonstration and experimentation (DE) activities, transfer of related knowledge between stakeholders and at promoting an environment for co-development of CM technology and methodology where users, providers and researchers can work together. ACRIMAS also dealt with topics such as "harmonization" and "training and exercises" with results for the discussion of competence frameworks and competence development.

#### Technology readiness level

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Crisis management professionals and decision makers

Experimental and/or practical experiences Research project

Source Aftermath Crisis Management System-of-systems Demonstration Phase. Retrieved from http://www.acrimas.eu

# Master programs on safety and crisis management (2014), France

Provider/project coordinator Université Paris 1 Panthéon-Sorbonne

#### Short description

Engineering schools and universities offer training programs dedicated to safety and crisis management. Mines ParisTech offers a specialized master on industrial safety control, a one-year training program aiming at students learning basis of risk and crisis management. Six topics structure the master: regulations and norms, risk analysis, safety management system, human and organisational dimensions of safety management, emergency and business continuity management and leadership. Sorbonne University offers a master on risks and crisis global management, a one-year training program aiming at students learning basis of risk and crisis management. Twelve topics structure the master: risk management in enterprise, quality and risk management, risk analysis, economical intelligence, risks territories, public actions and risk management, law, geographical information systems, safety management tools, statistics and probabilities, English and accountability.

Technology readiness level

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling
- technologies)
- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified
- TRL 9 actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Students of risk and crisis management

Experimental and/or practical experiences ongoing

Source

Master 2 Professionnel Gestion globale des risques & des crises. (2013). Retrieved from <u>http://www.master-mri.org</u>; <u>http://www.univ-paris1.fr/diplomes/m2ggrc/le-master</u>

# Eight-Dimension Adaptive Performance Model (2000), US

#### Provider/project coordinator

Personnel Decisions Research Institutes, University of Illinois and Michigan Ste University.

#### Addressed need/gap

Understanding, predicting, and training adaptive behaviour in work settings.

- Eight dimensions of adaptive performance: Handling emergencies of crisis situations; Handling work stress; Solving problems creatively; Dealing with uncertain situations; Learning; Interpersonal adaptability; Cultural adaptability; Physically oriented adaptability
- Development of a new instrument, the Job Adaptability Inventory.

#### Short description

To develop a taxonomy of adaptive job performance and examine the implications of this taxonomy for understanding, predicting, and training adaptive behaviour in work settings. In Study 1, over 1,000 critical incidents from 21 different jobs were content analysed to identify an 8-dimension taxonomy of adaptive performance. Study 2 reports the development and administration of an instrument, the Job Adaptability Inventory, empirically examined in 24 different jobs. Factor analyses (n=3334) supported the 8-factor model.

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

# TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Employees (suitable for different domains and different jobs)

#### Experimental and/or practical experiences

The model and the instrument are created and validated in more than 20 different jobs types (e.g. service jobs, technical jobs, support jobs, law enforcement jobs, and several different types of military jobs, as well as supervisory and managerial jobs ) in 11 different organisations (military, federal government, state government, and private sector organization, research).

#### Source

Pulakos, E. D., Arad, S., Donovan, M. a., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. Journal of Applied Psychology, 85(4), 612–624. doi:10.1037//0021-9010.85.4.612

# Crisis Management Capability analysis and derivation of research needs (2007), EU

#### Provider/project coordinator

ESRIF - EUROPEAN SECURITY RESEARCH AND INNOVATION FORUM - WORKING GROUP 4 "CRISIS MANAGEMENT".

#### Addressed need/gap

To analyse the capabilities needed for crisis management

- 37 core capabilities (CC) clustered in five theme's: Common Capabilities (5 CC, e.g. Planning), Prevent mission Area (4 CC, e.g. Information Gathering), Protect mission Area (4 CC, e.g. Critical Infrastructure protection), Response Mission Area (21 CC, e.g. On-site incident management), Recover mission area(3 CC, e.g. Restoration of lifelines).
- From each CC the following analysis are performed in detail: Criticality analysis" (impact/probability vs. urgency of need: low/ med/ high vs. short/ med/ long-term); "Capability / gap analysis" (shortfalls/weaknesses of current/ known capabilities vs. "ideal future" capabilities); Derived research topics/ questions/ needs and other systemic requirements; Related key technology/ knowledge areas and comments.

#### Short description

The TCL, following the US "major all-hazards approach", describes 37 core capabilities related to the four homeland security mission areas Prevent, Protect, Respond and Re- cover, amended by "common capabilities" relevant for all mission areas. Based on a detailed analysis input is given for a research agenda.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups All parties involved in crisis management

Experimental and/or practical experiences Not applicable

#### Source:

Prinz, J., Unger, C., & Pastuszka, H.-M. (2007). ESRIF WG4 "CRISIS MANAGEMENT" - Capability analysis and derivation of research needs (pp. 1–22).

# Competence Framework for Firefighters (1990 updates until 2014), Sweden

Provider/project coordinator Swedish Civil Contingencies Agency

Addressed need/gap

- To provide comprehensive education and training for fire fighters and their commanding officers.
- Core Competences descriptions for firefighter and their commanding officers.

#### Short description

The Swedish system for fire and rescue services is decentralized. This means that every local fire chief is responsible for ensuring that his /her personnel have the necessary competencies for handling potential incidents and contingencies within their geographical area. MSB provide the necessary training for fire fighters and their commanding officers. The courses and training programmes are developed incrementally. Input from research, incidents, developments of technology and techniques as well as from experts within MSB is used as a basis for this development. Hence, the course plan in itself represents a framework describing the needed competencies and skills. There exists no tool for helping fire brigade commanders to match needs for competencies with existing courses and training programmes.

#### Technology readiness level

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

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TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Not applicable – the competence framework is kept in the form of a course plan.

Target groups Firefighter and local fire and rescue services

Experimental and/or practical experiences In use in Sweden

Source:

Retrieved from http://www.fitting-in.com/sweden/sweden.htm
## Building Core Competencies in Crisis Management Through Organizational Learning: The Case of the French Nuclear Power Producer (1999), France

#### Provider/project coordinator

Dr. C. Roux-Dufort, EDHEC Graduate School of Management, Department of Management and Strategy

Emmanuel Metais (professor in the Department of Management and Strategy at the EDHEC Graduate School of Management, Lille, France.)

#### Addressed need/gap

Different learning phases based on nuclear power incidents (lessons learned and the needs to enhance competences and skills)

#### Short description

In this approach, the authors take the case of the French nuclear industry to illustrate how the most powerful French electricity producer and supplier, EDF, had succeeded, for 20 years, in building a core competence in nuclear risk and crisis management. Referring to the future deregulation of the European electricity market and the fierce competition of substitute resources of energy, the article shows that nuclear safety is a crucial issue for the survival of EDF and the European nuclear industry. The authors explore how EDF has learned from Three Mile Island in 1979 and Chernobyl in 1986 to improve and enrich continuously its core competence in risk and crisis management. The authors distinguished three phases in the learning process of EDF: the technical phase (1977–1982), the human phase (1982–1989), and the cultural phase (1989–1995). Each phase is analysed as a step toward a greater awareness of the multidimensional nature of risk and crisis management.

#### **Technology readiness level**

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified
- TRL 9 actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Nuclear / electricity industry

#### Experimental and/or practical experiences

The authors explore how EDF (most powerful French electricity producer and supplier) has learned from Three Mile Island in 1979 and Chernobyl in 1986 to improve and enrich continuously its core competence in risk and crisis management

#### Source:

http://www.sciencedirect.com/science/article/pii/S004016259800033X#

# IBERO – Instrument for assessment of preparedness with regard to geographic area responsibility (2006), Sweden

Provider/project coordinator Stockholm County Administrative Board (CAB)

#### Addressed need/gap

In the Swedish CM system the (primary) municipalities (ca 300) have the prime geographic area responsibility. The CAB's (regional branches of national government; ca 20) have the regional area responsibility and also exercise oversight over the municipalities. Of course, national government has the national level geographic responsibility. IBERO is developed by the Stockholm CAB as a tool for those having geographic area responsibility at any level. The user community consists mainly of municipalities in and outside of Stockholm County. In what follows the user will be assumed to be a municipality. In this context, the IBERO-model can be interpreted as representing a risk assessment concept, which includes processes that can produce a capacity gap analysis. This analysis may in turn be used in identifying concrete competence gaps.

#### Short description

IBERO is based on a database of stylised scenarios. The users select scenarios relevant for them and are supported by the tool in assessing their consequences in the particular area of responsibility and – more importantly in this context – the available CM capability in ten categories:

- Detect
- Create situation picture
- Decide and lead
- Inform
- Communicate and collaborate
- Rescue/protect directly threatened individuals and objects
- Prevent further spread
- Care for those in need of help (beyond rescue/protection)
- Take care of the deceased
- Recover.

Capability is judged as high, medium, low or irrelevant for the scenario at hand. The tool supports in aggregating over several events; with regard to consequences this is interesting for (nearly) overlapping events, but for capability it is also of interest to detect gaps common for classes of events as a guide for capability development.

Obviously capability is made up of several components (e.g. plans and equipment), but education, training, experience from training/real incidents, and channels for collaboration clearly have a competence character, which motivates seeing IBERO as a competence framework. But note that the consequences are also of relevance for prioritising capability gaps. The IBERO is an instrument which can be used by actors in a country's crisis management system within the context of different risk categories (examples: floods, IT-attacks or power failures). The IBERO process identifies the risk's consequences, and analyses what capacities that are needed to deal with the consequences.

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Crisis management units within municipalities and CABs

#### Experimental and/or practical experiences

Used by several Swedish municipalities (according to google search).

Source

http://www.lansstyrelsen.se/stockholm/SiteCollectionDocuments/Sv/publikationer/2006/Manual\_IBERO.pdf

http://www.lansstyrelsen.se/stockholm/Sv/manniska-och-samhalle/krisberedskap/risker-i-lanet/rsa/ibero/Pages/default.aspx

http://www.lansstyrelsen.se/stockholm/SiteCollectionDocuments/Sv/publikationer/2006/Hur%20fungerar %20IBERO-2.pdf

## The National Education and Competence Framework for Advanced Critical Care Practitioners (UK) (2008), UK

Provider/project coordinator Department of Health

Royal College of Nursing The intensive care society Hinchingbrooke health care (NHS Trust)

#### Addressed need/gap

Standardisation of job activities and career pathways including needed competences in a systematic way

#### Short description

This document describes: The role of an Advanced Critical Care Practitioner, how the role should function within the critical care team, the benefits of introducing the role in clinical practice and National Framework of Education and Competence for the role within recognised standards of practice. According to these descriptions competences are aligned to different career pathways and job activities in a systematic way.

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 - technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Advanced Critical Care Practitioners

Experimental and/or practical experiences Guideline to enhance competences for advanced critical care practioners

Source:

http://www.ficm.ac.uk/sites/default/files/documentfiles/National%20Education%20%26%20Competence%20Framework%20for%20ACCPs.pdf

### Core Competences Framework (2011), UK

#### Provider/project coordinator

Coordinator of the project: The Emergency Planning Society, UK

#### Addressed need/gap

Lack of a documented set of competences for practitioners working in Emergency Management Need for support of Emergency Management as a profession Need for practitioner education, training and development to facilitate continuing professional development

#### Short description

It has been the long term vision of the Emergency Planning Society to establish a documented set of competences for practitioners working in Emergency Management. The launch of this framework is the culmination of over 4 years work which has not only seen the development of the Emergency Planning Society Core Competences Framework but also the development of National Occupational Standards for Civil Protection.

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 - technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Individual job seekers in Emergency Management, HR professionals in Emergency Management, policy makers

#### Experimental and/or practical experiences

The Framework has been developed in partnership with Central Government, Training Providers, Academic Institutions, Consultants and Emergency Planning Society Members

Source:

https://www.google.de/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CCgQFjA A&url=https%3A%2F%2Fwww.the-

eps.org%2Fresources%2Fdownload%3Fid%3DE1%252FChxzT2Rwmzqy0p4%252ByCvPYrGv3 8fh6o%252Fc1Wf2N9WM%253D&ei=vj3jU-

r1D8Pb7Abl94HQDg&usg=AFQjCNGfqdKB1rByCPfJlc97yfoSbx1C8A&bvm=bv.72676100,d.bGE

## Disaster Core Competences and guidelines for Hospital Personnel (2011), US

Provider/project coordinator

Department of Health, Division of Emergency Medical Operations

#### Addressed need/gap

The Department of Homeland Security has identified National Preparedness Guidelines to support a capabilities-based planning process to define critical tasks and activities in order to achieve the national mission areas of "Prepare, Prevent, Protect, Respond and Recover." That includes skills and competences for the medical sector.

The list of core competences reflects disaster preparedness and response knowledge, skills, and abilities applicable to various hospital personnel roles, and offers a consistent approach for assessing hospital readiness for no-notice as well as anticipated disaster events.

#### Short description

This third version of Florida's Recommended Disaster Core Competences, reflects the latest in federal and state guidance and the current state of the art preparedness for Chemical, Biological, Radiological, Nuclear, and high-yield Explosive events (CBRNE). These guidelines support hospitals with planning for response to all hazards, determining job specific competences and training personnel. The disaster core competences are intended to establish a baseline of knowledge for all levels of hospital personnel.

#### Technology readiness level

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 - technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

#### TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups All hospital personnel, crisis management professionals and trainers

Experimental and/or practical experiences Guidelines and competence list for practical use

Source:

http://www.calhospitalprepare.org/sites/main/files/fileattachments/corecompetenciesfloridadh2011.pdf

## Operational Competence - Preventing loss of life and injuries from emergency incidents while reducing risks within local communities (2012), UK

Provider/project coordinator

Fire and Rescue Services (FRS) – Developing Skills for saver communities

#### Addressed need/gap

This operational competence guidance has been produced to give Fire and Rescue Services (FRS) a framework for achieving competence for their operational firefighters and commanders, to ensure that they can use their skills, knowledge and understanding safely and effectively in an operational environment.

#### Short description

The solution first defines operational competence, and then looks at how National Occupational Standards (NOS) can be used to assess competence thereby reducing risk. Finally it explains how this approach could fit into a Quality Assurance (QA) framework for FRS.

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Firefighter, HR units to educate firefighters

Experimental and/or practical experiences

It is meant as a guidance document for FRS and is not intended to dictate how things must be done; this is a matter for each individual FRS.

Source:

http://www.sfjuk.com/wp-content/uploads/2012/11/Operational-Competence.pdf

### Cultural Competences Curriculum for Disaster Preparedness and Crisis Response (2013), US

#### Provider/project coordinator

U.S. Department of Health and Human Services, Office of Minority Health

#### Addressed need/gap

To cope with cultural and linguistic issues in disaster situations like working with an interpreter, locating translated materials, negotiating cultural differences, and implementing the CLAS Standards into organizational policy.

#### Short description

A broad range of skills and competences are introduced in the curricula. The four courses provided are designed to equip disaster and crisis volunteers and personnel with the awareness, knowledge, and skills needed to provide culturally and linguistically appropriate services to diverse communities during all phases of disaster. This set of courses is designed to integrate knowledge, attitudes and skills related to cultural competences in order to help decrease racial and ethnic health care disparities brought on by disaster situations.

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Crisis volunteers and personel

Experimental and/or practical experiences Concept in use and provided by the U.S. Department of Health and Human Services, Office of Minority Health

Source: https://cccdpcr.thinkculturalhealth.hhs.gov/

## County of Louisa – Department of Emergency Services (Virginia, USA) Firefighter/EMT Core Competences (2014), US

Provider/project coordinator Department of Emergency Services

Addressed need/gap

- To provide comprehensive education and training for all Fire and Rescue personnel
- To create a mentoring environment that promotes learning and enhance individual skills
- Core Competences descriptions for firefighter, medic firefighter, assistant chief, fire chief and station lieutenant

#### Short description

The approach consists of a competence catalogue as a basis to identify, which competences are necessary to cope with different work tasks. Competences has been divided into distinct skill-sets including physical/technical expertise, public service, communication, teamwork and professionalism.

**Technology readiness level** 

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Firefighter, HR units to educate firefighters

Experimental and/or practical experiences Already in use for firefighters in the county of Louisa, Verginia (USA)

Source: http://www.lcfems.org/body.asp?BodyPage=5

## Civil Security and Competence Management for the fire brigades (2014), Belgium

#### Provider/project coordinator

Directorate-General Belgium: ETE-Workgroup (education / training / exercise). Workgroup initiated by "Directorate-General Civil Security of the Federal Public Service Home Affairs" in Belgium. (www.civieleveiligheid.be). Additional partners are firefighter experts from "Föderale Fachzentrum für Zivile Sicherheit" (KCCE) and HR-experts from the University of Vives.

#### Addressed need/gap

- Restructure the learning activities of firefighters on a competence-oriented basis
- Competence-oriented descriptions of tasks and process of firefighters to recognise which competences are necessary to cope with their tasks.
- Definition of a common language in learning and education for firefighters (competence lexicon) that all stakeholders speak "the same language"

#### Short description

Competence catalogue as a basis to identify, which competences are necessary to cope with different work tasks. Functional descriptions of work tasks included. Outcome: competence lexicon for firefighters

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 - technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

## TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Firefighter, HR units to educate firefighters

#### Experimental and/or practical experiences Tested with different fire fighter associations and fire fighter unions

Source:

http://www.civieleveiligheid.be/de/news/services-incendie/reform-der-feuerwehrausbildungenvon-kompetenzen-zu-kursen

## Crisis Management Training Programs for Firefighters (2014), France

Provider/project coordinator

BFASC, Direction de la défense et de la sécurité civiles

#### Short description

French firefighters training programs are described in different national reference guidelines. Each guideline describes the legislative framework, professions concerned by the training program and the different trainings units. Fourteen specialities and five technical guidelines are available. The guidelines are released by the Ministry of interior (direction defence and civil security) and target firefighters and HR units to educate firefighters. The guidelines focus at needs or competence gaps in terms of prevention, recognition and intervention in hazardous environment, intervention into underground sites, canyons, cynotechnie, forest fires, radiological risks, rescuing and clearing, water rescue, underwater rescue, chemical and biological risks, mountain rescue, rescue and protection from falling or manoeuvre during forest fires.

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 - technology validated in lab

TRL 5 - technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Fire fighters

Experimental and/or practical experiences ongoing

#### Source

BFASC. Direction de la défense et de la sécurité civiles. Interventions en site souterrain. (2004). Retrieved from

http://fnspf-rec.midiway.fr/docs/textes-

juridiques/gnr\_interventions\_en\_site\_souterrain.pdf?sfvrsn=0Short description:

## Crisis Management Training Programs for local government representatives (2014), France

Provider/project coordinator

HCFDC, Haut Comité Français pour la Défense Civile

#### Short description

Organisations such as French Academy for Fire, Rescue and Civil Protection Officers (ENSOSP) or French High Committee for Civil Defence (HCFDC) organise training for local government representatives. These training programs focus, for example, at local government representatives understanding crisis situations, lead crisis with the application of communal backup plan (PCS) and to organise institutional communication during crisis situations. Another training program deals with local government representatives understanding French organisation of crisis management, how to develop a communal backup plan (PCS), local government representative responsibility, communal continuity of activity, communication during sensitive and crisis situation, human factors of crisis management and how to participate in a crisis management exercises.

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Local government representatives

Experimental and/or practical experiences ongoing

#### Source

HCFDC- Convention simplefiee de formation professionnelle. (2013). Article L.920-1 du code du travail.

Retrieved from <u>http://www.ensosp.fr/SP/sites/default/files/articles/formation-elus-locaux/ENSOSP-2013-PLAQUETTE-ELUS-GESTION-CRISE.pdf</u> and https://www.bcfdc.org/formations/gestion\_communal.php

and <u>https://www.hcfdc.org/formations/gestion\_communal.php</u>

### Training programs at THW "Bundesschule" (2014), Germany

Provider/project coordinator THW

#### Short description

One of THW's (Federal Agency for Technical Relief) most important tasks is to train its volunteers, preparing them as much as possible for all scenarios that they might face. That includes soft skills such as leadership, resolving interpersonal conflicts as well as hard skills such as handling equipment like chain saws, welding equipment, explosive agents or driving boats and vehicles in general. In order to ensure an agency-wide quality of education (standard operating procedures), THW established the "THW Federal School" (THW Bundesschule) with two branches (one in Hoya near Bremen and one in Neuhausen near Stuttgart) as well a training and education department (Referat E3). Sometimes, when a new activity/task is added to the THW performance spectrum, there is either no industry standard available that THW can refer to, or it has to adjust private sector guidelines to its needs and applications. Either way, this process requires a significant amount of time, effort and funds. In conclusion: 1) There is a constant need for new training programs. 2) Training programs have to be adjusted to ever changing technologies and altered laws. 3) It would be beneficial if the time span of setting up, developing and establishing new guidelines could be reduced. The THW Federal School also operates an e-learning portal.

#### Technology readiness level

TRL 1 - basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups THW CM volunteers

Experimental and/or practical experiences ongoing

Source Example provided by THW www.thw.de

THW-Bundesschule (2014). Retrieved from <u>http://www.thw-bundesschule.de/neuhausen/cms/front\_content.php?idcat=11&lang=1</u>

## Training program for crisis managers (2014), Austria

Provider/project coordinator SKKM

Short description

Due to the structure of the SKKM ("Staatliches Krisen- und Katastrophenschutzmanagement" -"State Crisis and Disaster Management") guidelines, there is a training program for crisis managers. This is split into three levels. This education covers a wide range of knowledge about communication (especially in crisis situations), leadership, relevant laws, humanitarian aid in disasters and catastrophes, psychosocial support in disasters, strategic planning, cartography, and conflict management. After completing the third level, the participants can choose between two specialisations: business management (organisational) or disaster management (operational).

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Crisis managers

Experimental and/or practical experiences ongoing

Source

SKKM Zivilschutz in Österreich. Retrieved from <u>http://www.bmi.gv.at/cms/BMI\_Zivilschutz/mehr\_zum\_thema/skkm/start.aspx</u>

## Guidelines for the management of disaster operations (2007), Austria

Provider/project coordinator SKKM; BMI

#### Short description

One of the important developments is more than two years ago, but it is almost fundamental for crisis management in Austria. The "Guidelines for the management of disaster operations" where released in the year 2007, produced by the Federal Ministry of the Interior. These guidelines where created by SKKM "Staatliches Krisen- und Katastrophenschutzmanagement" - "State Crisis and Disaster Management". SKKM is a group of experts, all involved in disaster management – representatives from different authorities, the Austrian Armed Forces, Fire-brigade, rescueservices. By installing permanent specialized bodies with experts from both, administration and operational organisations, a basis for ongoing further development and adaptation of the SKKM's base has been created. The aim of this project was to create a consensual basis for management procedures, the organisation of management and the means of management for all relevant authorities and operational organisations. With these guidelines a set of regulations in terms of language and action was created that will facilitate joint operations in the event of disasters. Especially long-term knowledge and experience from numerous federal and provincial authorities, as well as operational organisations, have flowed into these guidelines. It serves as a basis for staff and management training, as initiated by the SKKM, in order to achieve national unification of integrated operation management in the event of disasters.

The main part of the SKKM Guidelines is the "Management in disaster operations". This chapter describes the frame of general remarks and the principles of management. The management organisation, procedure and several tools are integrated. One of the core principles – decision-making – is also explained. The chapter "Staff Work" includes the standardized collaboration of a group of persons, organized along division of labour principles and designated as staff, whose purpose is to assist and counsel the head of operations in the fulfilment of management tasks. To fulfil these tasks there is a command structure, which is guided by the head of operations. For working in this, structure and procedures there are standardised templates for documentation, information, decision-making and communication.

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling
- technologies)
- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Crisis managers, government representatives

Experimental and/or practical experiences ongoing

Source

Republik Österreich. Richtlinie für das führen im Katastropheneinsatz. (2006). Retrieved from <u>http://www.bmi.gv.at/cms/BMI\_Service/Richtlinie\_fuer\_das\_Fuehren\_im\_Katastropheneinsa</u> <u>tz.pdf</u>

## The Main School of Fire Service, Warsaw (2014), Poland

Provider/project coordinator MSFS

Short description

The Main School of Fire Service (MSFS) is an academic facility of state services subordinate to the Minister of Internal Affairs. It educates the firefighters of the State Fire Service, officers of other services and guards, subordinate to the Minister of the Internal Affairs. MSFS also trains civilians. At the same time MSFS also enjoys the status of organisational unit of the State Fire Service operating on the basis of the Act on the State Fire Service of 24 August 1991. According to the act, the School provides cadet officers with the opportunity to serve as trainees in the School Rescue and Firefighting Unit. The School's mission is to train the most highly qualified staff in the following areas: natural disasters and social threats assessment, as well as life, health, property, and other values protection against those hazards. MSFS also aims at focusing on patriotic values, dedication to public service and respect for discipline in work and duties. (Source: https://www.sgsp.edu.pl/)

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab
- TRL 5 technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

- TRL 7 system prototype demonstration in operational environment
- TRL 8 system complete and qualified
- TRL 9 actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Firefighters

Experimental and/or practical experiences ongoing

Source

Main School of Fire Service (2014). Retrieved from <u>https://www.sgsp.edu.pl</u>

## Police Headquarters, Warsaw (2014), Poland

Provider/project coordinator Police headquarters

#### Short description

The Police is one of the most active entity within the field of both preparation and training dedicated to crisis management and providing security. It is also one of the unique bodies which provides its officers with comprehensive training strategy consisting of:

- International exchanges of experiences;
- International internships;
- Paneuropean training courses;

• Training session regarding operational skills, acquiring knowledge derived from lessons learnt (LL) and psychology.

During the recent two years there was a significant number of international internships dedicated for Polish police officers. Especially active was the Anticrime Department, which participated in bilateral internships and mutual activities in:

- Place: Lyon, France. Scope: dynamic thievery getting;
- Place: Chisinau, Moldova. Scope: experience and LL exchange;

• Place: Tampere, Finland. Scope: BASIC course for SIRENE offices operators (organized by CEPOL – European Police College);

- Place: Zagreb, Croatia. Scope: experience and LL exchange.
- Place: Slupsk, Poland. Scope: international workshops SIMUNITON addressed towards direct compulsion.

• Place: Logrono, Spain. Scope: terrain tactics, negotiations and controlling techniques, experience exchange (organized under the umbrella of European Union Police Services Training project).

There were also a number of internal courses and training sessions which were directed towards police officers from across the country. The most significant ones during recent two years were:

- SIS II system training session;
- National workshops on tactical life-saving;
- Training sessions on Crisis Management Simulator created in Police Academy in Szczytno;
- National workshops on prevention tactics and techniques;
- Creating leaders workshop, which addressed the most crucial issues in police work;

• The bomb alert at the school, simulation of the bomb alert at one of the schools – national simulation training;

#### **Technology readiness level**

TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 - technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 - technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Policemen

Experimental and/or practical experiences ongoing

Source Police headquarters (2014). Retrieved from: <u>http://www.warsaw.in.gov/index.aspx?nid=240</u>

### Voivodeship Office, Poznan (2014), Poland

#### Provider/project coordinator

Voivodeship Office, Security and Crisis Management Department SCMD

#### Short description

The Voivodeship Office in Poznan fulfils the role of a regional government. One of its departments, Security and Crisis Management Department SCMD, is responsible for providing and maintaining security in case of emergency or crisis situations. They conduct plenty of training, evaluation and simulation sessions, however most of them is organized in prompt – after some need emerges. SCMD is obliged to enhance capabilities of the personnel, which includes training sessions, however they are not provided with any guidelines, imposed by central government. As a result it is difficult to identify and describe practices they conduct, as they are not systemized and often not properly registered. There are however two coaching activities, which are worth mentioning and took place in last two years. Those are:

• Defence workout "KROKUS 2014" – Organization and functioning of the defence system at local and regional level, with special attention paid to mail and exchange information system. The scope of the workout was to enhance procedures, check out stored equipment and personnel knowledge, and prepare the crisis management personnel to properly react in case of emergency or crisis situation.

• Training session in Dolsk – Functioning of the Wielkopolska Voivodeship in case of bioterrorist attack. The aim of the training session was firstly to theoretically solve emerging problems and secondly to put the words into action and practice proposed solutions in the simulation environment (pen and paper style).

#### **Technology readiness level**

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 - experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 - technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Crisis managers, government representatives

Experimental and/or practical experiences ongoing

Source

Voivodeship Office (2014). Retrieved from <u>http://www.poznan.uw.gov.pl</u>

### City Hall, Poznan (2014), Poland

#### Provider/project coordinator

Poznan City Hall, Security and Crisis Management Department

#### Short description

Similarly to the Voivodeship Office there is a Security and Crisis Management Department in Poznan City Hall. As they are independent entity, they set up their own crisis management strategies along with training and evaluation sessions. There is plenty of activities which are organized regularly and should be taken into account when considering crisis management training sessions. Those are:

• Detection and Alarm System Tests – based on launching sirens. Trainings are being conducted once in a quarter; silent test are being conducted every day by checking a radio communication between crisis management center and both sirens and sms warning system;

• Crisis management simulation games dedicated towards the personnel of Security and Crisis Management Department (both man-made and natural disasters);

• Training session in the field with participation of Fires Brigades, Emergency Services and Crisis Management Center. The main objective of the sessions is to enhance mutual understanding and train joint action in terms of time-pressure, feeling of insecurity and equipment and time deficiency;

• Defence workouts – the aim is to prepare the personnel and crisis management task teams (with particular responsibilities assigned) to conduct proper actions and make best decisions in case of crisis situations regarding vital critical infrastructure;

#### **Technology readiness level**

TRL 1 - basic principles observed

TRL 2 – technology concept formulated

- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups Personnel of the Security and Crisis Management Department

Experimental and/or practical experiences ongoing

#### Source

Poznań Town Hall (2014). Retrieved from <u>http://en.wikipedia.org/wiki/Pozna%C5%84\_Town\_Hall</u>

## Competencies for multidisciplinary cooperation in a Network Centric Organization (NCOQ) (2014), Netherlands

Provider/project coordinator TNO, The Netherlands.

Addressed need/gap

- To provide an instrument that can be used to implement Network Centric Organization in Safety and Security domains. A questionnaire with 71 items in 7 scales (Leadership skills, Working in ad hoc teams, Open mind for ICT tools, Own role in behalf of the team, Information processing, Social skills, Communication skills) using a 7-point Likert scale ranging from 1 (totally applicable) to 7 (totally not applicable)
- Assessment thru the iSELF: an Internet-tool for Self-Evaluation and Learner Feedback to stimulate self-directed learning in ubiquitous learning environments.

#### Short description

The organizational structure of crisis management organizations is changing from a hierarchical organization to a so-called Network Centric Organization (NCO): when there is a crisis or calamity, people from different organizations, on different hierarchical levels have to work together.

This questionnaire makes it possible to measure competencies needed for this new way of cooperating.

#### **Technology readiness level**

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

All parties involved in crisis management, for example, the police force, the fire departments, the paramedics, the military or officers of a dike-reeve.

#### Experimental and/or practical experiences

The questionnaire is used in two field studies and one experiment (n=294) and showed good statistical reliability and validity.

Source:

Theunissen, N. C. M., & Stubbé, H. E. (2014). iSELF : The development of an Internet-Tool for Self-Evaluation and Learner Feedback. Electronic Journal of E-Learning (EJEL), 12(4), 313–325. Retrieved from http://www.ejel.org/volume12/issue4/p313

### Dutch competency profiles of functions in Crisis Management (2014), Netherlands

Provider/project coordinator VR Academie and TNO, the Netherlands

#### Addressed need/gap

- To provide competency profiles building on qualification profiles and experiences of functions in Population Care and Crisis Communication
  - Core Competences descriptions for: General Commander Population Care; Team Leader Population Care; Duty Officer Population Care; Leader Crisis Care Center; Preparation Team Leader follow-up phase; Head Task Organization Population Care; Communication Advisor Regional Operational Team; Communication Advisor Incident Command Post; Head task organization Communication; Team Leader Press and public relations; Environment Analyst; Editor web and social media; Information Coordinator; Communication Advisor Top Regional team.

#### Short description

The competencies are based on information from the national programme GROOT/GROOTER. In this programme the IFV (Dutch Institute for Physical Safety) together with the Dutch Safety Regions, developed qualification profiles, training frameworks and models for the aptitude tests of prototypical functions in Population Care and Crisis Communication. To use this information for training purposes, competencies were formulated and validated in three workshops with stakeholders in crisis management. The result is a Competency framework of 14 functions with about 12 core competencies each. Competences has been divided into job oriented competences, social competences and personal competences.

Technology readiness level

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

#### TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### **Target groups**

Functions in Population Care and Crisis Communications

Experimental and/or practical experiences

Validated by stakeholders from Safety Regions, IFV (Dutch Institute for Physical Safety) and Training agencies operating in the Crisis Management Domain.

Source:

Theunissen, N.C.M. (2014) Competentieprofielen voor functies in de crisiscommunicatie en de bevolkingszorg (TNO-memo) Soesterberg: TNO.

## Competencies developed for disaster healthcare providers (2010)

#### Provider/project coordinator

The Nursing Section of the World Association for Disaster and Emergency Medicine (WADEM)

#### Addressed need/gap

To investigate the possibility of endorsing an existing set of competencies for Disaster healthcare personnel. It was found that:

- Hundreds of competencies for disaster healthcare personnel have been developed and endorsed by governmental and professional organizations.
- Imprecise and inconsistent terminology and structure are evident throughout the reviewed competency sets.
- Universal acceptance and application of these competencies are lacking and none have been validated.

#### Short description

This study was undertaken for the purpose of reviewing published disaster health competencies to determine commonalities and universal applicability for disaster preparedness. Lacking standards for best practices as a foundation, many organizations and institutions have developed "core competencies" that they consider essential knowledge and skills for disaster healthcare personnel.

Further efforts must be directed to developing a framework and standardized terminology for the articulation of competency sets for disaster health professionals that can by accepted and adapted universally.

#### Technology readiness level

#### TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups Disaster healthcare personnel

Experimental and/or practical experiences Not applicable

#### Source:

Daily, E., Padjen, P., & Birnbaum, M. (2010). A review of competencies developed for disaster healthcare providers: limitations of current processes and applicability. Prehospital and Disaster Medicine, 25(5), 387–95. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21053183.

## Competence Portfolio Jönköping County Fire Department Association (2014), Sweden

#### Provider/project coordinator

The Jönköping County Fire Department Association (Räddsam F).

Addressed need/gap

- Core and specialised competence requirements for the different roles (generic and specialised) that constitute a functioning fire prevention unit.
- Developing and securing the emergency response capability of a fire department's tactical units.
- Ensuring that firefighters in different municipalities have the same capacities, in order for them to be able to cooperate and overlap each other's geographical zones.

#### Short description

Räddsam F is an association consisting of thirteen municipalities in Jönköping County. Departing from individually conducted risk analyses and law requirements, the association has produced a capability profile which is to be developed and maintained by the included fire departments. The capability profile is a wide concept; part of it is although related directly to a competence portfolio and competence management.

The competence portfolio stipulates competence requirements as part of the capacity requirements of a "fire emergency unit". Concrete examples include the ability to perform certain tasks in the field, having certain knowledge or holding certifications; for instance conducting BA-operations and manoeuvring fire engines. Räddsam F is currently developing and testing an education framework which aims to realise the goals set in the capability/competence portfolio.

#### Technology readiness level

TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling

technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

Firefighters, fire engineers (civil engineers in fire prevention), the various sub-units a fire emergency unit.

Experimental and/or practical experiences

In use.

Source:

http://raddsamf.se/dokumentbank/

http://raddsamf.se/sokresultat/?q=uppgiftskatalog

http://raddsamf.se/download/utbildningsmaterial/uppgiftskatalogen/Uppgiftskatalog\_100518 (LE\_BI).pdf

http://raddsamf.se/download/utbildningsmaterial/uppgiftskatalogen/Uppgiftskatalog\_100518 (RE\_R%C3%A4ddning\_senhet).pdf

http://raddsamf.se/download/utbildningsmaterial/uppgiftskatalogen/Uppgiftskatalog\_100518 (SE\_Losstagningsenhet) .pdf

https://www.msb.se/RibData/Filer/pdf/18961.pdf

## Training for high-level decision-makers, Institute for National Defence and Security Policy Studies (2014), Sweden

Provider/project coordinator

The Institute for National Defence and Security Policy Studies (IHT).

Addressed need/gap

- To provide education and training for the Swedish society's high level decision makers and crisis managers to respond to and manage the most severe crises which can impact a society.
- The need for personnel from all levels and organisations in the Swedish crisis management system to understand each other's roles, responsibilities, organisations and crisis management modus operandi.
- To provide the target groups a platform for interaction and cooperation in order to support the decentralised Swedish crisis management system.

#### Short description

IHT sets out to provide educations that address Swedish and international security policy and the roles of the Swedish crisis management system and the Swedish Armed Forces at in peacetime crisis situations. IHT also conducts international contract education efforts for foreign civilian and military personnel. The IHT is a sub-institution of the Swedish Defence University.

#### **Technology readiness level**

TRL 1 – basic principles observed

- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 - system complete and qualified

TRL 9 - actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

#### Target groups

The national courses address leaders and managers, high-level civil servants and desk officers who in their line of work need comprehensive knowledge of the Swedish crisis management system, civilian-military cooperation and the security policy relevant for these areas.

Experimental and/or practical experiences In use in Sweden.

Source: Correspondence with the IHT. http://www.fhs.se/en/about-the-sedu/institute-for-national-defence-and-security-policystudies/about/ https://www.fhs.se/sv/utbildning/uppdragsutbildningar/ledarskap/strategisk-chefsutveckling/omstrategisk-chefsutveckling/ https://www.fhs.se/sv/utbildning/uppdragsutbildningar/krishantering/fran-hotbild-tillriskhantering/om/

## Civil servants' training, CAB Västra Götaland (2014), Sweden

Provider/project coordinator

The County Administrative Board of Västra Götaland.

Addressed need/gap

- To provide education focusing on the responsibilities of the security and emergency preparedness officers/functions among the local 49 municipalities of the Västra Götaland Region.
- To inform and educate the local politicians of the Västra Götaland Region.
- To provide education for the civil servants of the regional/local crisis management system in the Västra Götaland Region.

Short description

In the Swedish CM system the (primary) municipalities (ca 300) have the prime geographic area responsibility. The CAB's (regional branches of national government; ca 20) have the regional area responsibility and also exercise oversight over the municipalities. Of course, national government has the national level geographic responsibility.

The CAB Västra Götaland is responsible for a regional area enveloping 49 Swedish municipalities. Each municipality has a security emergency preparedness function. In order to cope with the municipalities' personnel turnover on the security functions, the CAB Västra Götaland has developed an education package to promote continuity.

The CAB Västra Götaland complement this education effort by each year mounting a regional interaction course, in which personnel from regional governmental bodies who have crisis management responsibilities are invited together with municipality representatives.

A third effort entails a crisis management conference, which sets out to reach the political representatives of the municipalities, who participate in a conference with crisis management responsible civil servants. The objective of the conference is to educate and inform the newly elected local politicians once each four year mandate period.

Technology readiness level

- TRL 1 basic principles observed
- TRL 2 technology concept formulated
- TRL 3 experimental proof of concept
- TRL 4 technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies) TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 - system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies;

Target groups

Civil servants holding relevant positions in the organisations involved in the regional and municipal crisis management system of Västra Götaland. The local politicians of the Västra Götaland Region.

Experimental and/or practical experiences In use in Sweden.

Source: Correspondence with the CAB Västra Götaland. <u>http://www.lansstyrelsen.se/vastragotaland/Sv/manniska-och-</u> samhalle/krisberedskap/krissamverkan-vastra-gotaland/Pages/krissamverkan.aspx