ResiStand

INCREASING DISASTER RESILIENCE BY ESTABLISHING A SUSTAINABLE PROCESS
TO SUPPORT STANDARDISATION OF TECHNOLOGIES AND SERVICES

Report on End-User standardisation demands

ResiStand

Report Title:	Report on End-User standardisation demands			
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ResiStand Project

Standardisation is a powerful tool to achieve better interoperability. However, it needs to overcome a lack of interest and modest participation from stakeholders. Also, promising research results are not always used as the basis for new standards.

The overall goal of ResiStand is to find new ways to improve the crisis management and disaster resilience capabilities of the European Union and individual Member States through standardisation.

ResiStand contributes to an improved disaster resilience by identifying and analysing the drivers, constraints and expectations of three main stakeholder communities: Standardisation Organisations, End-Users and Suppliers, consisting of researchers, industry and SMEs.

Based on this information, gaps in standardisation are identified and a prioritised roadmap for new initiatives will be created. The roadmap will be complemented by a critical evaluation of standards as a tool to improve disaster resilience.

ResiStand aims at implementing a pre-standardisation process that supports the development of standards. The feasibility of the process will be tested by developing a new work item. The aim is that stakeholders will continuously utilize this "ResiStand Process" in the future, and that the project delivers a better understanding of the potential of standards for contributing to an improved disaster resilience.

ResiStand will support the management of increasing threats to society such as armed conflicts, terrorism, pandemics and natural disasters, which have increasingly cross-border, even global consequences due to the on-going globalisation.

Protection of citizens through anticipation, preparedness, response and adaptation to crisis situations – i.e. maintaining disaster resilience – will be more efficient. Collaboration between national, European and international stakeholders will be improved by unified processes and management systems as well as by technical, procedural, operational and semantic interoperability.

Executive Summary

In the context of the ResiStand Project, Work Package 3 *"Identification of standardisation needs and requirements"* has the objective to identify and analyse standardisation demands of End-Users, i.e. representatives/members of organisations active in crisis management and disaster resilience (see also D3.1 "Contact list of the End-User Community").

This report presents the standardisation needs identified within the WP3 activities, as gathered from various sources (questionnaire, desk research and workshops), and analysed according to specific and defined criteria as presented in the document. More in details, D3.3 complements, extends and updates the initially identified standardisation needs of Task 3.2 (see D3.2 *"Preliminary report on End-User Standardisation Demands"*) by means of four, End-User specific, workshops. During these workshops, End-Users have been asked to formulate, on the basis of their view, perspective and experience, standardisation needs in the field of disaster management as well as to provide views and opinions on drivers/benefits (on one side), and barriers/restraints (on the other side) that ease or prevent their participation in the standardisation process.

As outcomes of this work, a total of 210 standardisation needs have been identified, considering both the ones preliminary identified in Task 3.2 (130) and the additional ones collected during the workshops. Needs have been classified across disaster management phases and subordinated operational tasks as defined in ResiStand's Conceptual Framework (RCF – see D1.1 "ResiStand Handbook"). In addition, by means of defined criteria, needs were clustered in various thematic areas, varying from common terminology to common procedures, from data sharing to training & education, etc. Among them the area "Common Procedures" got the majority of needs (86) followed by the area "data sharing" (32).

The results will be transferred into the ResiStand web-catalogue to ease their further use in the project. Being assigned to phases, tasks, and thematic areas, the identified standardisation needs can then be further processed and analysed together with results on existing standards (WP2) and standardisation opportunities (WP4).

The results presented in this report will serve as basis for identification of standardisation gaps in WP5 "Preparation and roadmapping for standardisation activities", and conclusions for the "ResiStand process" in WP6 "Towards a sustainable process".

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List of Abbreviations

CM	Crisis Management
DM	Disaster Management
E-UC	ResiStand's End-User Community
NGO	Non-Governmental Organisation
RCF	ResiStand's Conceptual Framework
SMI2G	Security Mission Information & Innovation Group
SUC	ResiStand's Suppliers Community
WP	Work Package

1 Introduction and objectives

D3.3 presents the main standardisation needs from End-Users involved in disaster management complementing, consolidating, extending and updating the needs preliminary identified in Task 3.2, by means of the results gathered in four End-User Community (E-UC) workshops.

In order to perform such action, D3.3 takes as main inputs the following elements:

- The Conceptual Framework and the definition of functional tasks (Task 1.1)
- The preliminary End-User standardisation demands (Task 3.2)
- End-User workshops outcomes, results and comments

The deliverable focuses on the description of the workshops and their results as a source of information for consolidating End-User needs from Task 3.2 and identifying new ones provided by the workshops participants. Moreover, it reports about how data has been analysed first, classified then and clustered afterwards. Finally, it describes the preparatory work of WP3 data for the web-catalogue of standardisation gaps, incl. data storage and use of semantic technologies for managing, clustering and categorizing the data.

D3.3 is structured in 5 sections. Section 1, this section, is introductory reporting about the motivations, inputs, content, structure and audience of this deliverable. Section 2 covers the approach and methods, with a focus on needs identification and gathering from various sources (questionnaire, desk research, and workshops), data classification and aggregation and finally standardisation drivers and restraints identification. Section 3 then covers the data analysis and the consolidation of the most relevant outcomes from the various sources, so that to identify a final list of End-Users standardisation needs. Section 4 follows with a description of the specifications and functionalities of the web-catalogue for standardisation needs to be implemented in WP5. Section 5 reports the conclusions.

D3.3 is meant to learn from the knowledge and experience of the End-Users in disaster management, starting from the ones participating in the project workshops up to a large community (the ResiStand End-User Community) that has the interest in sharing main needs and requirements for standardisation in disaster management. Such information will be then used to provide a basis for identification of standardisation gaps (WP5), and conclusions for the "ResiStand Process" (WP6).

Therefore, the outcomes of D3.3 also represent an interesting element for the Standardisation Bodies that are looking at needs for standardisation reflecting the End-Users' perspective, as well as to the Suppliers (see D4.1 for more details) being interested in having a structured and validated End-User standardisation demands list.

2 Approach and methods

2.1 Needs identification and data gathering

Within this section, the different sources (questionnaire, desk research and workshops) from which the End-User needs were collected within WP3 are described. The section gives also information on the data classification and aggregation processes.

2.1.1 Questionnaire and desk research

In T3.2, an online survey and desk research were executed to identify preliminary needs of End-Users. Standardisation needs for crisis management were collected according to the four disaster management phases (mitigation, preparedness, response and recovery). This outcome was used as a starting point to implement the Task 3.3. In terms of the overall methodology, various steps were taken: identification of End-Users, compilation of a preliminary list of standardisations needs (based on questionnaire and desk research), and final consolidation of End-User standardisation needs (based on workshops) .

Therefore, in the last step and based on the four workshops performed and conclusions achieved during T3.3, the results from T3.2 were complemented, refined and handed over for further synthesis. D3.2 has gathered the information from desk research and online questionnaire. This two-fold approach (desk research and online survey) carried out an extensive research to find standardisation needs. Desk research has brought a widespread analysis while a questionnaire is more specific getting straight feedback from End-Users' experience.

In terms of online questionnaire, the methodology was based on ResiStand Conceptual Framework to align the scope of the European mandate to establish security standards with the ResiStand's goals, paying attention to the proper classification of End-Users needs within the four disaster management phases. The questionnaire, as a direct source of information, has taken the advantage to include complementary questions beyond standardisation needs. The participation in previous standardisation activities, what type of standard could be useful, reasons why the described problem has not been addressed by standardisation so far, as well as the professional profile of the participants were additional questions added to the online questionnaire. Various End-Users received the questionnaire by means of different dissemination channels (e.g. e-mail to direct consortium contacts, website, social media, etc.), which in turn they were also allowed to forward the document among their network. Finally, a total of 35 responses were received from different countries and different types of organisation. Members from governmental organisations were the group more active.

A further source of information used was desk research. Main databases, like EU CORDIS and its 'sub-database', the Disaster Risk Management Knowledge Centre of the European Commission, were scanned to identify relevant R&D projects, which might have gathered information on standardisation needs raised by End-Users before. Because of the high volume of data, customized searches were launched using keywords related to "standard" and "best practice" among others. After each analysis, relevant information was handled and stored in a structure database taking into account the questionnaire design. In essence, results from both sources must be harmonized to be adopted in next activities. A short description of the needed standard was enclosed linking both sources of information. Additionally, a new assessment of the results was performed to ensure a consistent research where conclusions are robust for further synthesis.

Finally, this research has identified 192 standardisation needs. This information was used to prepare End-User workshops and to provide added-value information to WP5.

2.1.2 Workshops

In order to complement and update initially identified standardisation demands from T3.2, four workshops were organised. The aim of such workshops was to consolidate End-Users and crisis managements experts, mainly first responders, on areas in which standardisation could concretely support their everyday activities in the field of disaster management. By carrying out the workshops, there was the possibility to involve actively the End-Users to collect their expert contribution on standardisation needs and so to complement, update and possibly add information to the questionnaire and desk research findings.

In order to gather well-balanced feedback, also from a geographical perspective, the workshops were organised in four different locations: Helsinki 24th January 2017; Brussels 1st February 2017; Berlin 22nd-23rd February 2017 and Rome 8th March 2017. To ease the users' presence and to raise the attractiveness of the workshops, where possible, dates and venues were selected in proximity to relevant events on the topics of disaster resilience and crisis management (Brussels with the SMI2G security research brokerage event, Berlin with the 20th European Police Congress and Rome with Second Scientific Seminar of the Knowledge Centre for Disaster Risk Management: Science for Policy and Operations). Moreover, the events in Rome and Brussels were organised back to back with the ResiStand's Supplier Community (SUC) working sessions of WP4, to provide an additional platform for networking.

As a result of this organisational procedure, the set of workshops achieved, as highlighted by the following figures, a homogeneous distribution in terms of both geography and type of participants. Such achievement allowed giving strength to the identification of needs gained by a multiple and various perspective, and contributed to overcome the initial barriers to find a common ground in order to build standards (i.e. fragmentation of tools, different terminology and procedures, etc.). A total number of 37 experts attending the E-UC workshops was reached. In the following charts, the nationality and the types of organisations[1] of the End-User attendees are resumed. For further information, please refer to Annex 1.
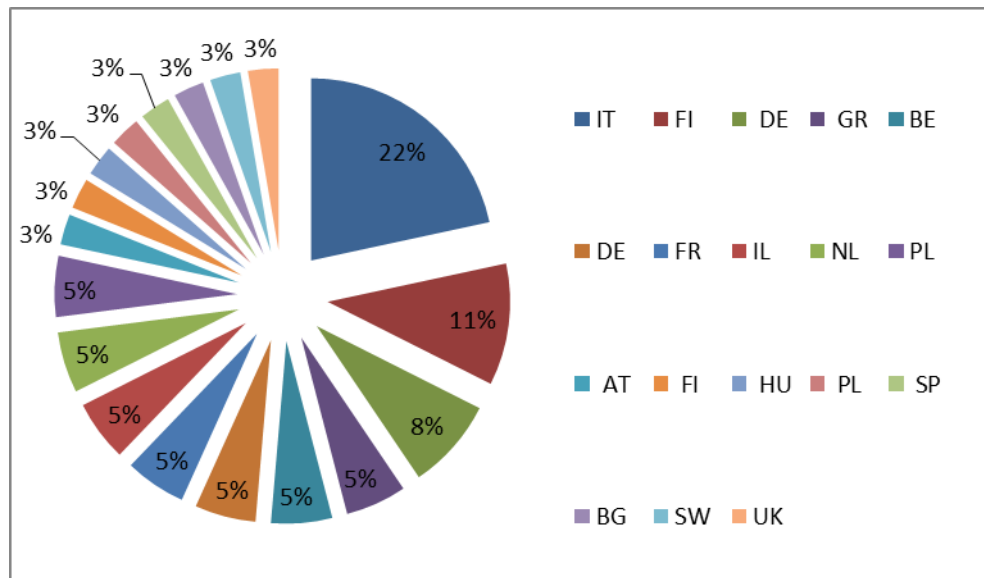
Figure 1:   Geographical Distribution of the End-User workshop attendees

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[1] As defined in "D1.1 ResiStand Handbook"
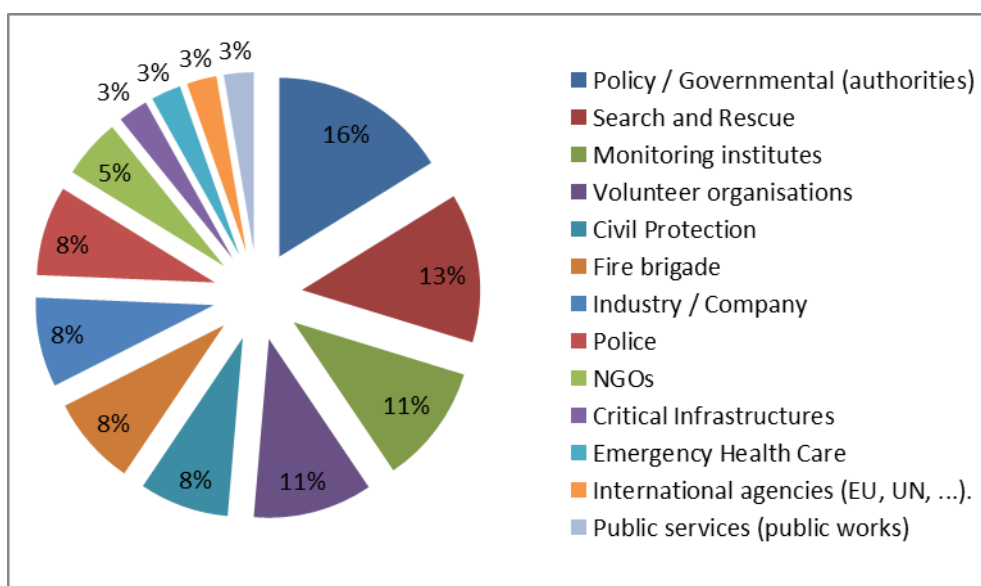
Figure 2:   Type of Organisation of the End-Users workshops participants

Starting from the first workshop in Helsinki, each workshop was resourceful to understand criticalities and room for improvements in their organisation, in order to be more effective in terms of information gathering, time constraints, relevance of the topics, management of participants and sessions, etc. in the following workshop.

An example of such improvement was the change in methodology after the first workshop in Helsinki to a more participative and interactive method. The initial approach was to perform a detailed analysis of a sub-set of standardisation needs preliminary identified (from Task 3.2) as relevant by the End-Users and prioritized. Although such an approach allowed a robust basis to consolidate each of the standardisation need identified one-by-one, lessons learned was carried out to optimize the workshops flow. The methodology and management of the following workshops was improved by giving to the participants a wider possibility to communicate their needs from their own expertise and background in addition to the previously identified standardisation needs.

The result was an approach more and more interactive, preserving the possibility of the experts to share directly their knowledge on standardisation needs on the field of disaster management and giving them time to freely discuss important points. This approach also gave the possibility to identify benefits, drivers, challenges, improvement actions and actors as described in Section 4.

In line with previously identified needs, the participants were asked to describe and share with their colleagues (organised by group of maximum six people) the fields in which the standardisation could effectively support their daily activities according to their expertise. Within an interactive working session, experts had the possibility:

1. to formulate and write down their needs;
2. to present these standardisation needs;
3. to stick and position them on a poster[2] according to a timeline representing the urgency of the requirement (immediately, within three years, within five years and after five years) and a disaster management phase (mitigation, preparedness, response and recovery).

As example, the results of one of the working sessions are reported in Figure 3.

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[2] See in Annex 1 an example of the used posters
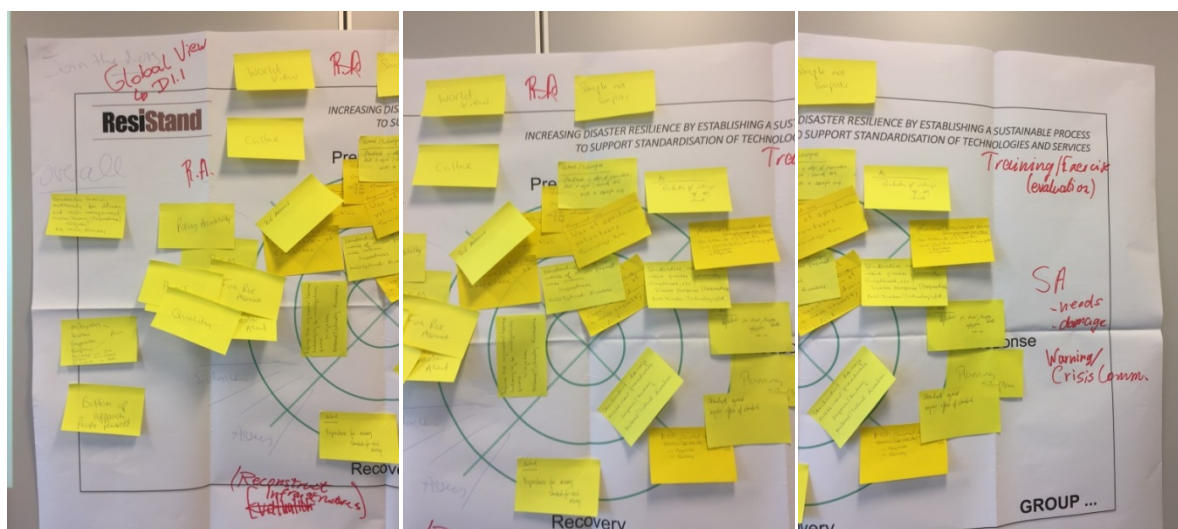
Figure 3:   An example of the working session results

Such posters were the basis for End-User standardisation needs discussions[3]. Furthermore, other consortium partners, mainly experts in standardisation, were also present during the working sessions to support the moderator and further inspire the debates with technical topics.

Debriefings and lessons learned have been implemented after each workshop to optimize the participative methodologies used to the specific requirements of the audience and to the objectives to be met. For example, after Brussels workshop, it was decided to fix a maximum number of needs per expert in order to focus the attention and to have the possibility to examine in depth concrete standardisation needs.

The needs discussed during the workshops were collected in an excel file and further elaborated by the consortium in order to create a workshop outcome that could be comparable with the questionnaire and desk research ones. From the workshops a total of 80 needs were collected that added to the 130 needs form the desk research and questionnaire constitute a list of 210 needs. The complete needs list is reported in Annex 2. The needs classification and aggregation processes are described in the following paragraphs.

2.2   Data classification and aggregation

2.2.1   Classification of needs

Both the workshops and desk research/questionnaire needs were collected in an excel file and the needs were further processed by the consortium to describe the three sources of information as consistent as possible. The following items were used to describe the needs also in the excel file[4]:

- ID: assigned by the consortium to give a unique tracking number to each need in order to facilitate the identification of the needs, associating disaster management phase and a serial number e.g. MT-01, PR-05, RSP-11, RCV-30. Where MT refers to mitigation phase, PR to preparedness, RSP to response and RCV to recovery one
- Thematic Area: assigned by the consortium for all needs identified in WP3. This list was derived directly from a synthesis of the most recurrent topics of the needs:
  - Common terminology: refers to those needs asking to implement the same operational language (both verbal and graphical)

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[3] These discussions were recorded by a second consortium member, always present only to take notes of the working sessions through predefined templates. Please find an example of such templates in Annex 1.
[4] Reported in a word table in Annex 2

- o Common procedures: refers to the needs requiring common decision support tools and procedures to respond coherently at European level in case of a crisis
- o Community role and communication: refers to the role that the community can have within a disaster (active role or only training for first panic-reduction) and to how the critical situation should be communicated to the public
- o Best Practice sharing: groups all the requirements expressing the need for operational ways to evaluate the efficiency of disaster management process and to share the "lesson learnt"
- o Data sharing: relates to all the difficulties that End-Users face, due to multiple internal organisations, in collaborating when collecting and exchanging data and information
- o Training and education: covers the needs referring to the training and education of first responders
- o Legal / Social issues: refers to socio and legal implications of disaster management
- o Equipment: refers to equipment requirements / specifications that should be standardised according to the participants' daily experience
- o Communication equipment: refers specifically to disaster management communication equipment requirements / specifications that should be standardised according to the participants' daily experience

The "thematic area" association was found valuable in order to have a clear overview of the most relevant areas in which the experts recognised the need of specific standards. Therefore, this overview can support in identifying the standardisation topics priority according to the experts joining the project initiative.

- Summary or translation into specific standardisation needs: drafted by the consortium based on the experts' original quotation or on sources from the analysed projects.
- Needs/problem description: provides the original End-Users quotes in case of Questionnaire and Workshops and to the original source from desk research (quotes deliverables or descriptions by partners of the respective project or by the evaluating partner)
- Disaster management phases (mitigation, preparedness, response, and recovery): assigned by the End-Users within the workshops and the questionnaire and by ResiStand partners for the desk research results.
- Disaster management tasks and sub-tasks: according to the RCF (see D1.1) and assigned by the End-Users within the questionnaire and by ResiStand partners for the desk research and workshops needs.
- Timeline: this information is available only for workshop needs and was assessed directly by the participants.
- Type of standard that could solve the problem: assigned by End-Users in case of the questionnaire. Where the experts could not provide an assessment as we well as in case of the workshops and desk research a proposal was made by the ResiStand partners.
- Source: origin of the respective standardisation need: desk research / questionnaire / workshops. In case of the desk research the acronym of the project is mentioned.

2.2.2 Data aggregation

Based on the criteria described in the previous paragraph, it was possible to compare the needs coming from the different sources. In section 3.2 the list of needs collected per workshops will be reported and pie charts will clarify their distribution according to the related "thematic areas" and disaster management phases. The same kind of tables and charts will report the overall results for the four workshops, for 3.2 results out of the questionnaire and the desk research and for all three sources together respectively.

2.2.3 Limitations of the transfer of data into the web-catalogue

Within the tasks 3.2. and 3.3., mostly qualitative methods were used for the explorative collection of data/End-User needs. Qualitative methods have the advantage of giving researchers the opportunity to talk about an issue in depth. In many cases, this is especially beneficial when exploring new topics. To this end, open questions were used within the questionnaire of task 3.2, but as a natural result the given answers varied strongly in their level of detail. Therefore, it is not possible to apply them to the web-catalogue in a

comparable and consistent way without further processing them beforehand. For the transfer into the planned web-catalogue this data had thus to be restructured, shortened and simplified (e.g. by adding short interpretation of more concrete standardisation needs) in order to be able to work properly with the data in the following activities of WP4 and 5. Moreover, the answers given by the End-Users in 3.2 as well as in 3.3 had to be subsequently assigned to thematic areas (common procedure, common terminology, community role and communication, best practice sharing, data sharing, training and education, legal/social issues, equipment) for creating new opportunities to cluster them in the web-catalogue. This was done with great diligence after a critical evaluation. However, as this was done retrospectively it cannot be guaranteed that the End-Users themselves would have chosen the same categorisation for all the mentioned needs. These factors have to be kept in mind, when looking at the data in the web-catalogue.

2.3   Standardisation Drivers and Restraints identification

Within this paragraph, the drivers and restraints sessions methodology is explained. Both the End-User and Supplier community workshops hosted also a session dedicated to the identification of drivers and restraints that the experts experience when participating in standardisation processes.

The questions raised within the first part of the working session were the following:

1. *What is the actual benefit that the organisations gain by participating in standardisation?*
2. *What is the reasoning and what are the future expectations that encourage organisations to participate in standardisation?*
3. *What are the challenges and restraints that organisations feel to limit or prevent their participation in standardisation?*

An example of this brainstorming session is reported in Figure 4.

The experts were then asked to mark their 3-5 most relevant challenges (see Figure 4).

These restraints were then further discussed in a second working session trying to analyse them and propose some active solutions and actors to solve the current situation. Some specific questions/ were formulated to stimulate the discussion:

1. *What should be done to improve the situation?*
2. *Who should take the responsibility of future action?*

An example of this second brainstorming session is reported in Figure 5.

The analysis of the standardisation drivers and restraints identification process outcomes is reported in section 4.

Figure 4:   Example of the first brainstorming session outcomes

Figure 5:   Example of the second brainstorming session outcomes

3   Analysis of the needs and results

Within this section, the results from the desk research/ questionnaire and workshops are described and compared.

3.1   Summary of preliminary needs from E-UC (from desk research and questionnaire)

The main objective of Task 3.2 *"Initial identification of End-User standardisation needs"* was to identify a preliminary set of standardisation needs of End-Users. Based on the overall Conceptual Framework for ResiStand described in the *"ResiStand Handbook"* (Deliverable 1.1) these needs were clustered according to the four disaster management phases (*mitigation, preparedness, response* and *recovery)* and related tasks. Both sources of information initially yielded a total of 192 descriptions of standardisation needs, however, some of the needs identified in the desk research were considered being too generic to be taken into account in the analyses of (more concrete) standardisation needs. As a result, a final list of 130 standardisation needs has been identified in Task 3.2, 95 from the desk research of previous and ongoing EU projects and 35 as result from the questionnaire. Clustered and analysed along the ResiStand's Conceptual Framework of disaster management phases and subordinated operational tasks, the following findings could be made: The disaster management phase with most standardisation needs identified was the response phase (n=65), followed by the preparedness (n=37) and mitigation phase (n=24). Only four standardisation needs were identified for the recovery phase.

In general and as indicated above, seven out of ten standardisation needs were generated by desk research. This pattern is followed by every phase except from recovery where both sources had the same weight (50%) (It is noted that recovery phase only has 4 standardisation needs). For further details on the results, please see D3.2.

The following table (Table 1) depicts a breakdown of standardisation needs based on DM (Disaster Management) phases and its related tasks.

Table 1: Breakdown of standardisation needs by DM phases

Phases	Questionnaire	Desk Research	Total	DM Tasks covered
Mitigation	5	19	24	3 out 4
Preparedness	14	23	37	3 out 4
Response	14	51	65	7 out 14
Recovery	2	2	4	1 out 6

As expected, desk research results provide a wider amount of data for analysis of standardisation needs. By comparing both sources of information, questionnaire results do not provide any information on 21 tasks while from desk research, 16 tasks are not addressed.

In terms of lack of information, the analysis does not provide any kind of information about standardisation needs for 11 tasks. These tasks clustered by disaster management phase that are not covered by described standardisation needs are:

1. Mitigation (consisting of 4 tasks in total)
    a. Trend analysis
2. Preparedness (consisting of 4 tasks in total)
    a. Personnel management
3. Response (consisting of 14 tasks in total)
    a. Disaster causes elimination
    b. Disaster area clearance
    c. Basic needs supply/restoration
    d. Operations support
    e. Logistics
4. Recovery (consisting of 6 tasks in total)
    a. Environmental impact recovery
    b. Economic impact recovery
    c. Establishment of recovery organisation structure
    d. Determination and implementation of recovery programme

The five most frequent DM tasks[5] mentioned were: *capacity development* (28); *command, control and coordination* (14); *information management* (13); *warning/crisis communication* (13), and *risk assessment* (11). These top five again reflect the predominance of needs in the response and preparedness phase, as three subcategories/tasks came from the response phase (*command, control and coordination; information management; warning/crisis communication*) and the most often cited DM task was in the preparedness phase *(capacity development)*. However, the fifth most frequent listed DM task came from the mitigation phase (*risk assessment*).

Finally, preliminary End-User standardisation needs were categorized by *thematic areas*. The results of this categorization process are reported in section 3.3.1.

For more detailed results and further information on the study and its limitations, please see Deliverable 3.2 *"Preliminary Report on End-User standardisation demands"*.

3.2 End-User standardisation needs from workshops

Aggregated needs graphs and quantities separated per workshops as well as for the overall workshop results are described within this paragraph.

3.2.1 Needs from Helsinki workshop

To frame briefly the context, this workshop was held in Helsinki (Finland) on 24th January 2017. A group of 10 participants attended the workshop, representing: policy/governmental organisations (authorities), public services, search and rescue operators (majority) and volunteer organisations. Jointly with the geographical representation of the participants, the distribution of type of organisations are represented in the following pictures.

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[5] It has to be noted that in D3.2, a slightly different interpretation of the DM task level out of D1.1 Project Handbook has been used. While D3.2 included also the listed "sub-tasks", here in D3.3 only the upper level (written in italic letters) is used, to ensure more consistency with the deliverables out of WP2 and WP4.
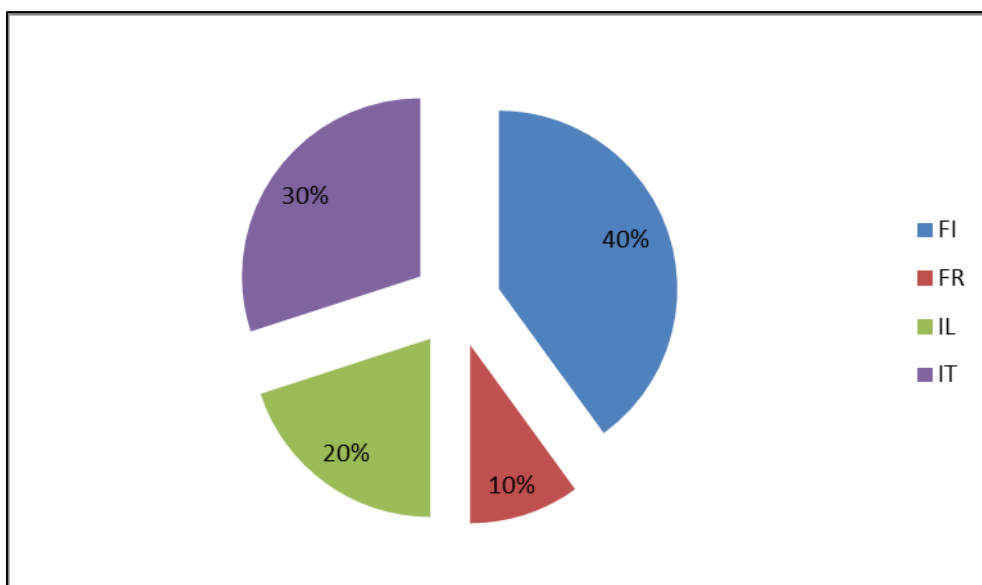
Figure 6:   Participants Nationality distribution
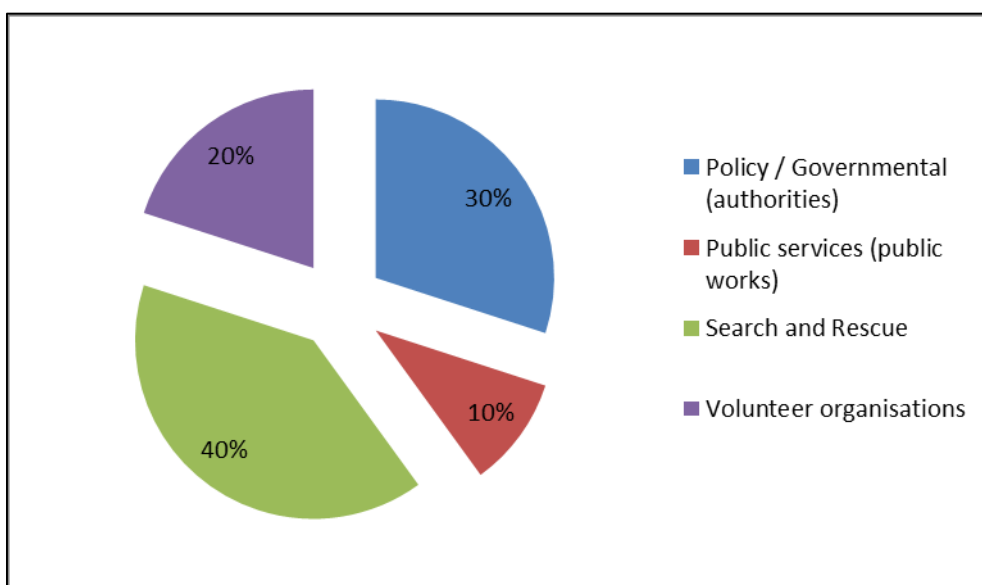
Figure 7:   Participants type of organisation distribution

Table 2 reports the complete list of needs collected during Helsinki workshop. These needs, after the workshop, were processed and harmonised by the consortium. As shown in Figure 8 and Figure 9, the experts focused on standardisation needs in preparedness and response phases and the topics were equally distributed among common terminology, common procedures, community role and communication, data sharing and training and education thematic areas.
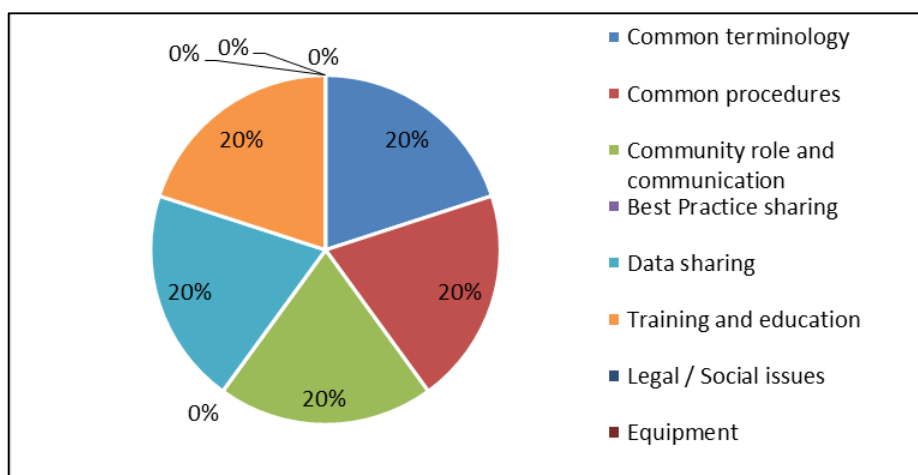
Figure 8:   Helsinki workshop needs thematic area distribution
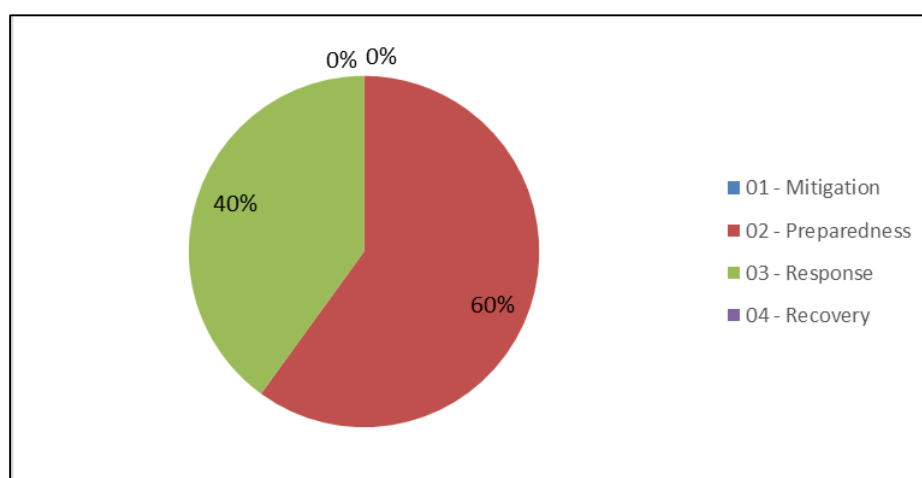
Figure 9:   Helsinki workshop needs DM phases distribution

In particular, there were highlighted: the needs of an understandable and shared taxonomy, lacks in general guidelines and procedures at European level promoting integrated command (especially for cross-border cases); lack of data sharing (both for risk assessment and response operations) jointly with security standards and protocols; lack of standards in crisis communication; sharing and update of good practices within the community; and international training.

Table 2: Helsinki workshop complete needs list

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Common terminology	PR - 69	Common terminology and taxonomy	02 - Preparedness	(International) Cooperation establishment
Common procedures	RSP - 98	Operational procedures at European level	03 Response	Command, control and coordination
Community role and communication	PR - 70	Communication with the public	02 - Preparedness	Capacity development
Data sharing	RSP - 99	Sharing of data	03 Response	Command, control and coordination
Training and education	PR - 71	International trainings	02 - Preparedness	Capacity development

3.2.2 Needs from Brussels workshop

This workshop was held in Brussels (Belgium) on 1st February 2017, attended by a group of 6 participants representing: emergency health care, industry, international agencies, monitoring institutes, non-governmental organisations (NGOs) and volunteering organisations; all equally distributed. The participants by type of organisations and geographical representation are reported in the following pictures.
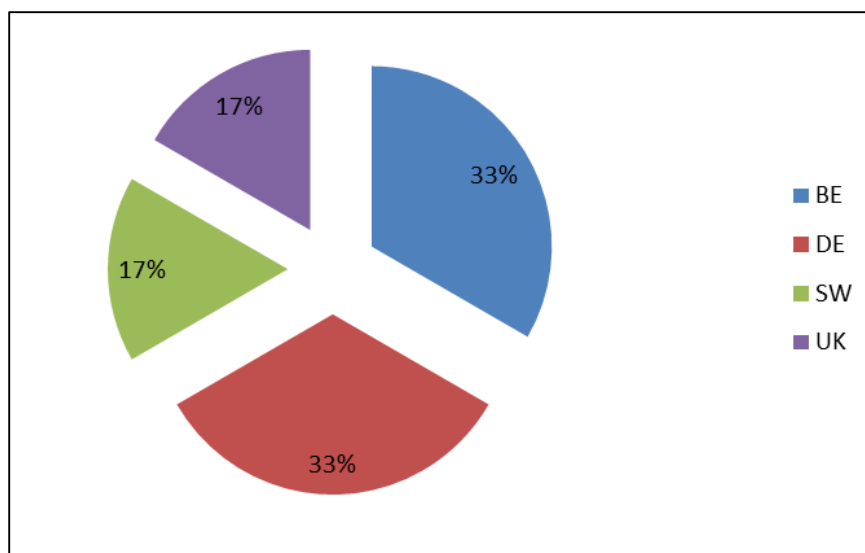
Figure 10:   Participants Nationality distribution
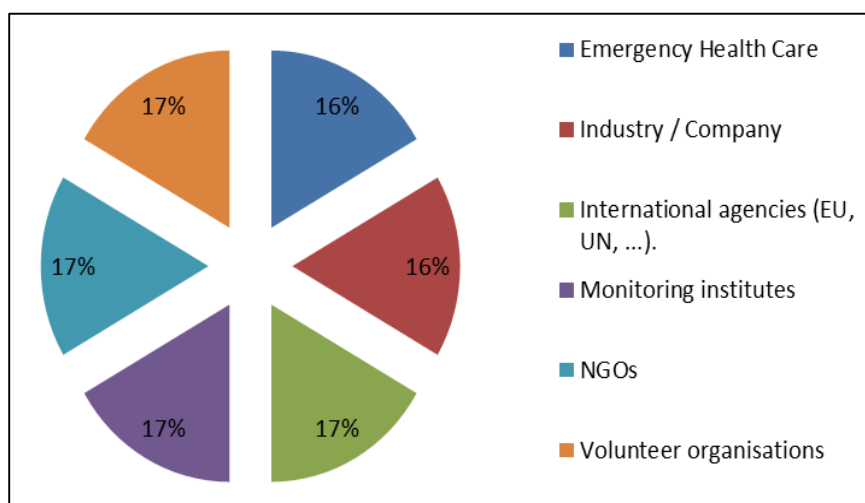
Figure 11:   Participants type of organisation distribution

As shown in Figure 12, a relevant percentage of needs collected during the workshop was covered by common procedures (over 50%) thematic area, followed by common terminology and data sharing (13%) and lastly by training/education, equipment and communication (covering interconnection of tools, protocols to enable communication, etc.) (7%). In particular, concerning the needs covering common procedures, a strong emphasis was generally given to assessment processes and related supporting tools (e.g. risk assessment tools, risk management systems, needs assessment process, dependencies assessment supporting tools, damage assessment supporting tools).

Based on Figure 13, the most highlighted phase is preparedness (over 50%), followed by response (33%) and mitigation/recovery (7%).
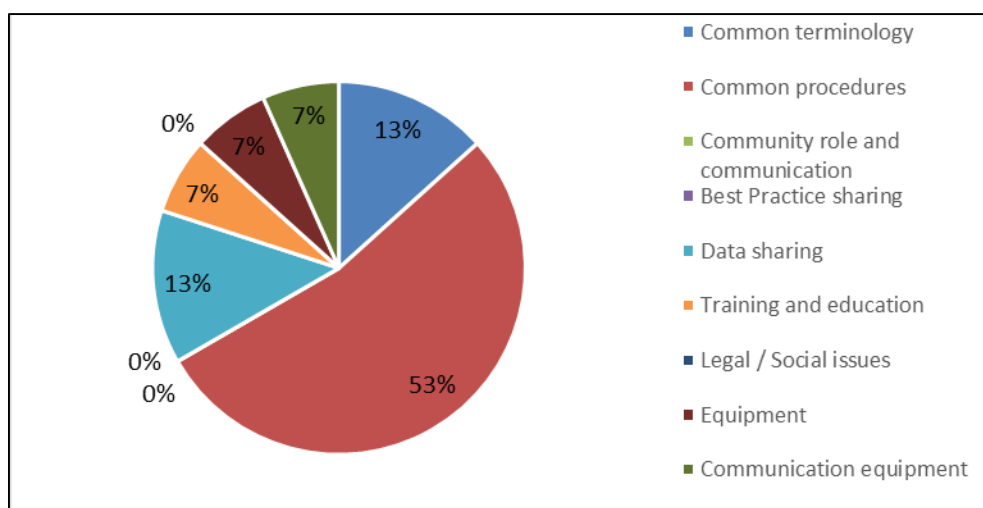
Figure 12:   Brussels workshop needs thematic area distribution
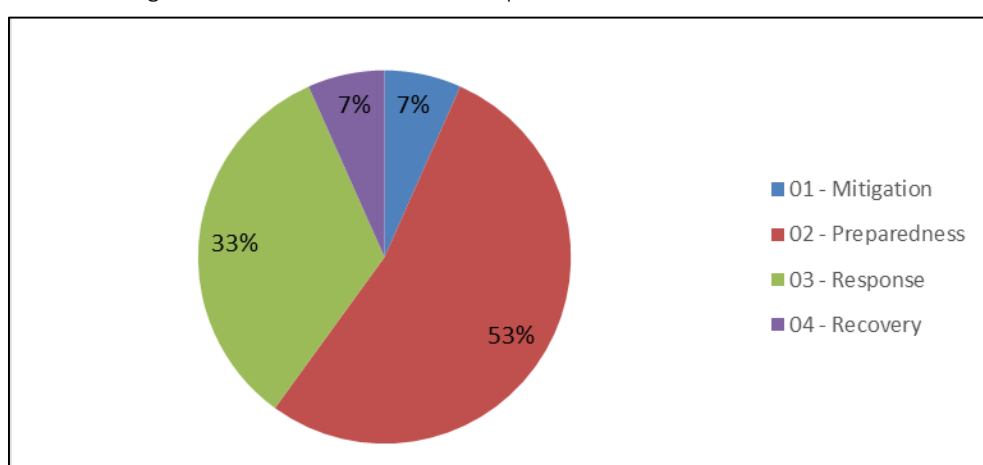
Figure 13:   Brussels workshop needs DM phases distribution

Table 3 reports the complete list of needs collected during Brussels workshop, also in this case later processed and harmonised by the consortium.

Table 3: Brussels workshop complete needs list

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Common terminology	MT -01	Standard definition of mitigation concept	01 - Mitigation	Exposure reduction
Common terminology	PR - 04	Standard definition of crisis management team composition	02 - Preparedness	Personnel management
Common procedures	PR - 05	Standardised risk assessment supporting tool	02 - Preparedness	Asset management
Common procedures	PR - 06	Spontaneous volunteers regulation	02 - Preparedness	Personnel management
Common procedures	PR - 07	Standardised risk management systems	02 - Preparedness	(International) Cooperation establishment

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Common procedures	PR - 08	Standard Preparedness plans	02 - Preparedness	Capacity development
Common procedures	RSP - 01	Needs assessment process	03 Response	Situation assessment
Common procedures	RSP - 02	Dependencies assessment supporting tool	03 Response	Situation assessment
Common procedures	RSP - 04	Damage assessment supporting tool	03 response	Situation assessment
Common procedures	RCV - 01	Standardised recovery actions	04 recovery	Determination and implementation of recovery programme
Data sharing	PR - 01	Common and standardised template for casualties' registration	02 - Preparedness	Asset management
Data sharing	RSP - 03	Registration of refugees supporting tool	03 Response	Information management, Monitoring/data collection
Training and education	PR - 03	Standard exercises evaluation	02 - Preparedness	Capacity Development
Equipment	PR - 02	Standard disaster management equipment	02 - Preparedness	Capacity development
Communication equipment	RSP - 05	Emergency communication channel	03 - Response	Operations support

3.2.3   Needs from Berlin workshop

This workshop was held in Berlin (Germany) from 22nd to 23rd February 2017. In this occasion, a group of 10 participants attended the workshop, representing: monitoring institutes, (majority), fire brigades, industry, NGOs, police, Search and Rescue operators, volunteering organisation. In the following pictures, the geographical representation of participants and their organisations are reported.
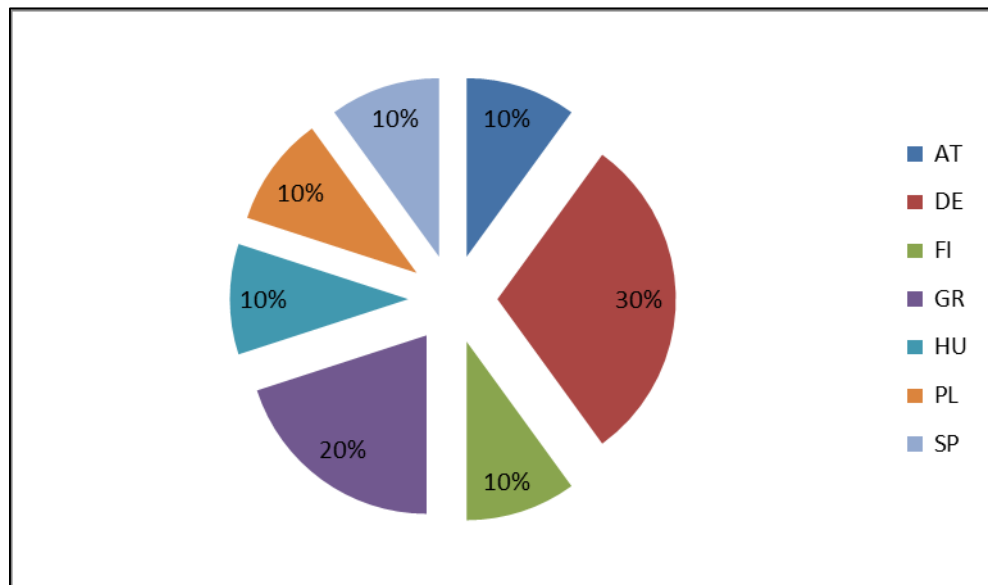
Figure 14:   Participants Nationality distribution
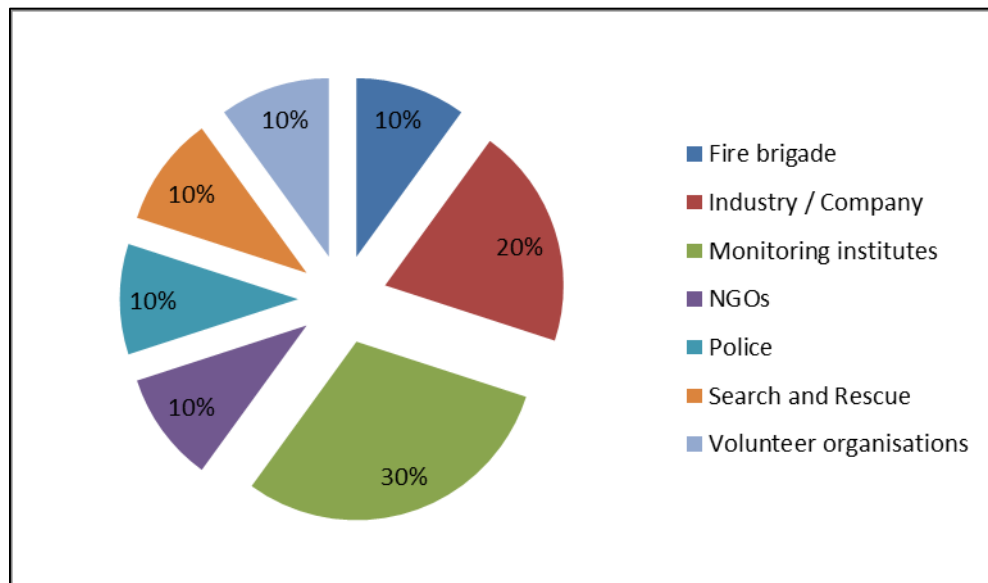
Figure 15:   Participants type of organisation distribution

Figure 16 and Figure 17 show that within Berlin event almost all the thematic areas were discussed with a predominant interest for the common procedures. Also in Berlin workshop the discussed needs were associated mostly to the preparedness and response phases but this time the most predominant phase, differently from the previous workshops, was the one on response.
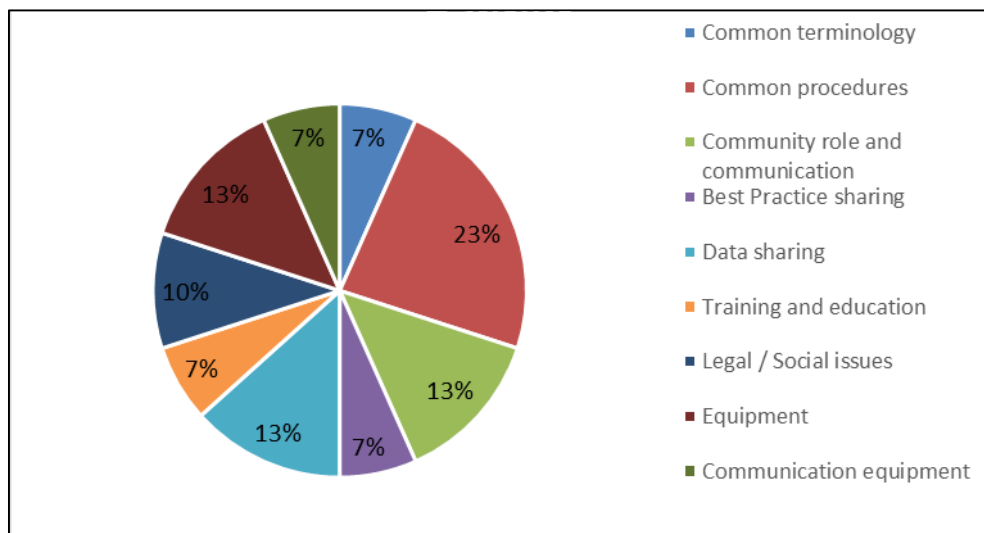
Figure 16:   Berlin workshop needs thematic area distribution
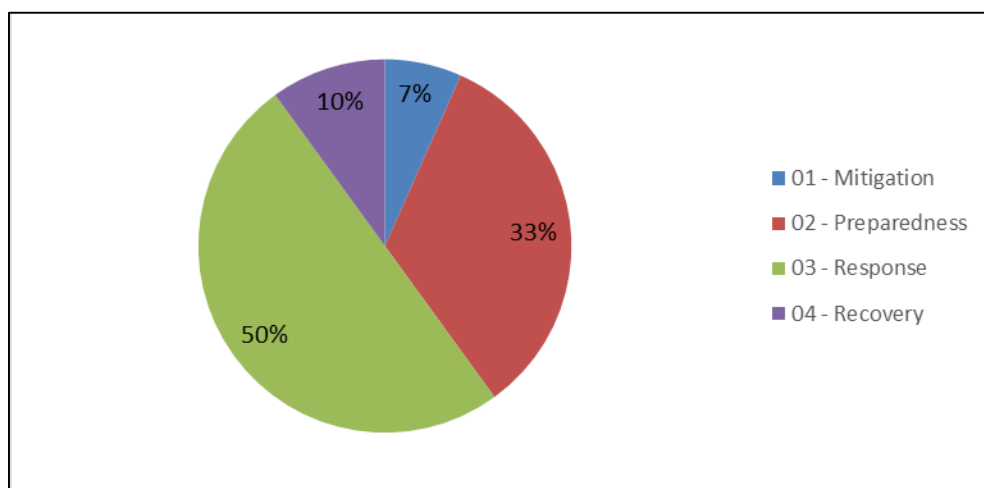
Figure 17:   Berlin workshop needs DM phases distribution

Concerning the main needs identified in the thematic area of common procedures, differently from the Brussels workshop, the topics were wider, covering the theme of critical infrastructures (interconnection, security plans), disaster management (European level, dynamic dimension of risks, integrated migration and border management), resilience and volunteer regulation. Table 4 reports the complete list of needs collected during Berlin workshop.

Table 4: Berlin workshop complete needs list

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Common terminology	PR - 10	Common terminology including terms and definitions for all disaster management phases	02 - Preparedness	(International) Cooperation establishment

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Common terminology	RSP - 11	Standard emergency signs	03 Response	Operations support
Common procedures	PR - 09	Operation Security Plans for CIP	02 - Preparedness	Capacity development
Common procedures	PR - 16	Methodology against "dynamic" risks	02 - Preparedness	Monitoring / detection
Common procedures	RSP - 06	European disaster management	03 Response	Command, control and coordination
Common procedures	RSP - 13	IBM 2.0: Integrated border management	03 Response	Command, control and coordination
Common procedures	RSP - 14	Resilience Assessment tool	03 Response	Situation assessment
Common procedures	RSP - 16	Volunteers regulation	03 Response	Command, control and coordination
Common procedures	RCV - 03	Interconnection of critical infrastructure	04 recovery	Re-establish infrastructure
Community role and communication	PR - 11	Standardisation of how the public should respond to different incidents	02 - Preparedness	Capacity development
Community role and communication	PR - 12	The role of community	02 - Preparedness	Personnel management
Community role and communication	PR - 15	Community Policing - PEELER Police.	02 - Preparedness	Capacity development
Community role and communication	RCV - 04	Standard plans for citizens' resilience	04 recovery	Determination and implementation of recovery programme
Best Practice sharing	MT -03	Process and indicators to measures the success of civil protection	01 - Mitigation	Monitoring and review
Best Practice sharing	PR - 18	Foster lesson learning	02 - Preparedness	Capacity development
Data sharing	PR - 14	Operational side of crisis management	02 - Preparedness	Asset management
Data sharing	RSP - 10	Interoperability of information systems	03 Response	Information management, Monitoring/data collection
Data sharing	RSP - 15	Standardisation of interfaces	03 Response	Command, control and coordination
Data sharing	RSP - 18	Data visualization for COP	03 Response	Command, control and coordination
Training and education	PR - 13	Training and exercises for security and crisis management	02 - Preparedness	Capacity development
Training and education	PR - 17	Training for first responders and citizen	02 - Preparedness	Capacity development
Legal / Social issues	MT -02	Socio-technical gap between research and real operational environment	01 - Mitigation	Monitoring and review

Thematic Area	ID	Summary or translation into specific needs	Disaster management phases	Disaster management tasks
Legal / Social issues	RSP - 19	Citizen privacy framework	03 Response	Information management, Monitoring/data collection
Legal / Social issues	RCV - 02	Insurance regulations	04 recovery	Determination and implementation of recovery programme
Equipment	RSP - 07	Common equipment specifications	03 Response	Operations support
Equipment	RSP - 09	Connectivity of Hydraulic Equipment	03 Response	Operations support
Equipment	RSP - 17	Equipment interoperability	03 Response	Operations support
Equipment	RSP - 20	Smart equipment for crisis management	03 Response	Operations support
Communication equipment	RSP - 08	Emergency communication channel	03 Response	Operations support
Communication equipment	RSP - 12	Interoperability across languages	03 Response	Command, control and coordination

3.2.4 Needs from Rome workshop

This last workshop was held in Rome (Italy) on 8th March 2017. A group of 11 participants attended the workshop, representing: civil protection (majority), critical infrastructures, fire brigades, police and policy/governmental organisation (authorities). Jointly with the geographical representation of the participants, the distribution of type of organisations is represented in the following pictures.
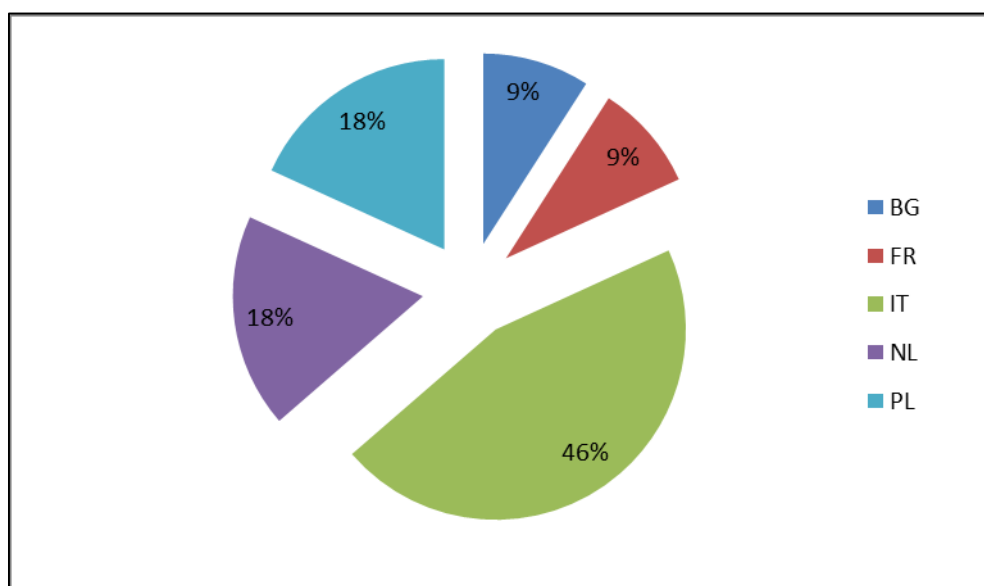

Figure 18:   Participants Nationality distribution
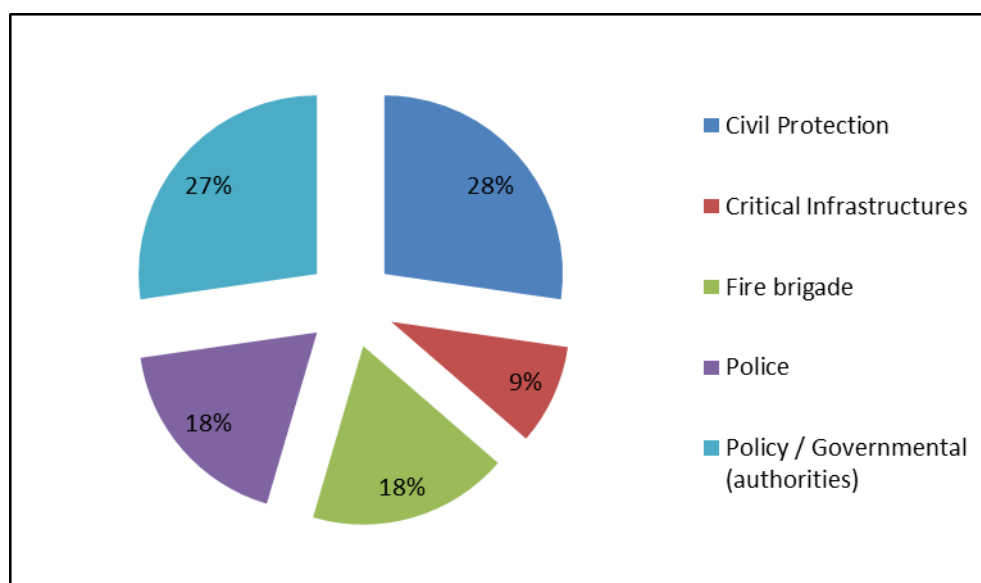
Figure 19:   Participants type of organisation distribution

Figure 20 and Figure 21 show that, also within Rome workshop, the most discussed thematic areas were the need to achieve common procedures and the need to facilitate data sharing process. Furthermore, also in such occasion, the discussed needs were associated mostly to the preparedness (43%) and response (40%) phases with a balance between the two phases. Similarly, the phases of mitigation and recovery, 10% and 7% respectively.
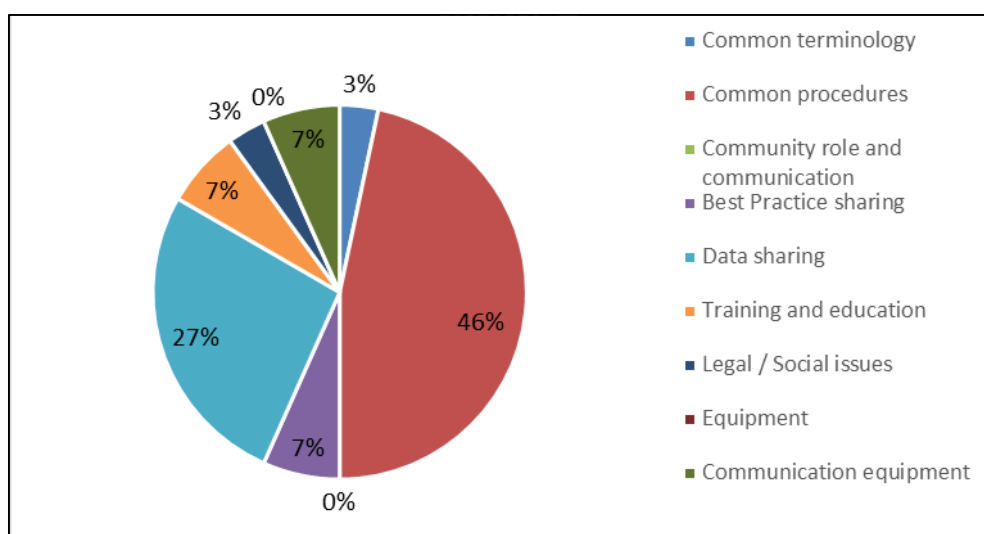
Figure 20:   Rome workshop needs thematic area distribution
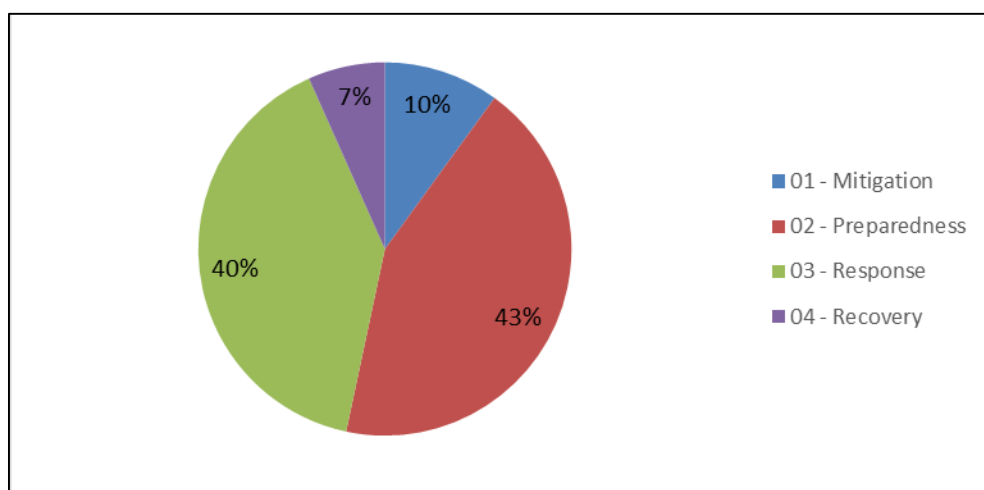
Figure 21:   Rome workshop needs DM phases distribution

By focusing on the most relevant needs to have common procedures, the main topics were at management and collaboration level (development and maintenance of disaster management plans, international CBRN risks management, cross border collaboration, cascade effects management, crisis management at European level, waste management, international collaboration and resource management), at technological and operational level (impact of new technology, command and control level management) and economic level (evaluation of costs). Table 5 reports the complete list of needs collected during Rome workshop, processed and harmonised by the consortium.

Table 5: Rome workshop complete needs list

Thematic Area	ID	Summary or translation into specific standardisation needs	Disaster management phases	Disaster management tasks
Common terminology	PR - 31	Crisis management teams	02 - Preparedness+ 03 - Response	Personnel management
Common procedures	MT -06	Standardised risk assessment	01 - Mitigation	Risk assessment
Common procedures	PR - 21	Development and maintenance of DM plans	02 - Preparedness	Capacity development
Common procedures	PR - 22	International CBRNE risk management	02 - Preparedness	Asset management

Thematic Area	ID	Summary or translation into specific standardisation needs	Disaster management phases	Disaster management tasks
Common procedures	PR - 23	Cross border collaboration	02 - Preparedness	(International) Cooperation establishment
Common procedures	PR - 25	"Cascade effects" management	02 - Preparedness+ 01 - Mitigation	Capacity development
Common procedures	PR - 26	European crisis management guidelines	02 - Preparedness	Capacity development
Common procedures	PR - 27	"New technologies effect" management	02 - Preparedness	Capacity development
Common procedures	PR - 28	Disaster waste management	02 - Preparedness+ 01 - Mitigation + 03 Response	Capacity development
Common procedures	RSP - 21	International collaboration	03 Response	Command, control and coordination
Common procedures	RSP - 22	Command and control level management	03 Response	Command, control and coordination
Common procedures	RSP - 23	Command and control level management	03 Response	Command, control and coordination
Common procedures	RSP - 25	Resource management across organisations	03 response + 04 recovery + 02 Preparedness	Command, control and coordination
Common procedures	RSP - 27	Risk assessment methodology	03 Response	Situation assessment
Common procedures	RCV - 05	Direct and indirect costs evaluation tool	04 recovery	Establishment of recovery organisation structure
Best Practice sharing	PR - 19	Sharing of capabilities	02 - Preparedness	(International) Cooperation establishment
Best Practice sharing	RCV - 06	Disaster management evaluation methodology	04 recovery	Establishment of recovery organisation structure
Data sharing	MT -04	Lack of a common data sharing	01 - Mitigation	Risk assessment
Data sharing	MT -05	Standardised hazards and risks GIS	01 - Mitigation	Risk assessment
Data sharing	PR - 24	Standardised data and information sharing	02 - Preparedness	Asset management
Data sharing	RSP - 24	Data and information exchange	03 Response	Information management, Monitoring/data collection
Data sharing	RSP - 28	Optimised communication	03 Response	Command, control and coordination
Data sharing	RSP - 29	Open data protocols	03 Response	Information management, Monitoring/data collection
Data sharing	RSP - 30	Standardised situation report	03 Response	Information management,

Thematic Area	ID	Summary or translation into specific standardisation needs	Disaster management phases	Disaster management tasks
				Monitoring/data collection
Data sharing	RSP - 32	Data and information exchange	03 response + 04 recovery	Information management, Monitoring/data collection
Training and education	PR - 20	Standard training	02 - Preparedness	Capacity development
Training and education	PR - 29	Disaster manager	02 - Preparedness	Personnel management
Legal / Social issues	RSP - 31	Humanitarian assistance	03 response + 04 recovery	Situation assessment
Communication equipment	PR - 30	Optimised communication	02 - Preparedness+ 01 - Mitigation	Asset management
Communication equipment	RSP - 26	Optimised communication	03 Response	Command, control and coordination

3.2.5   Summary of End-User needs from workshops and considerations

Aggregated workshops results are herein reported.

It is possible to deduce from Figure 22 and Figure 23 that the End-Users mostly discussed needs regarding the common procedures (38%) and data sharing topics (19%) and were associated mostly to response (43%) and preparedness (42%) phases.
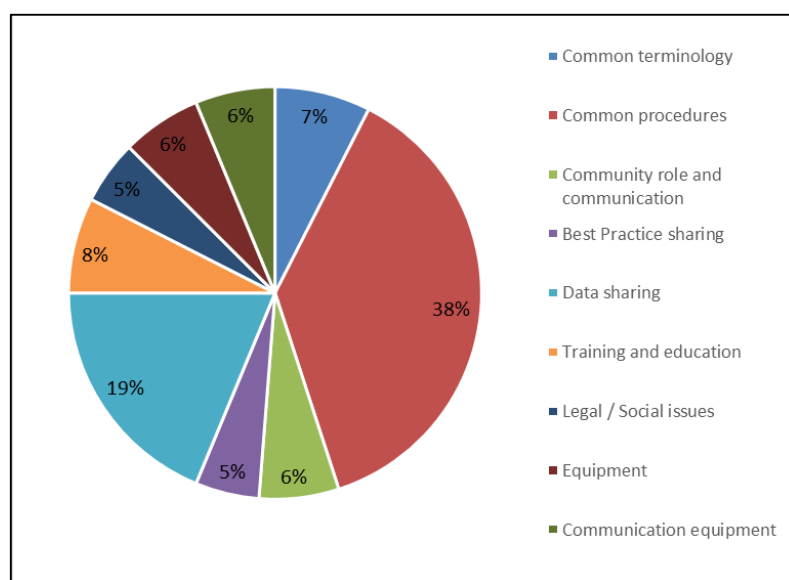
Figure 22:   Aggregated workshops results – Thematic areas
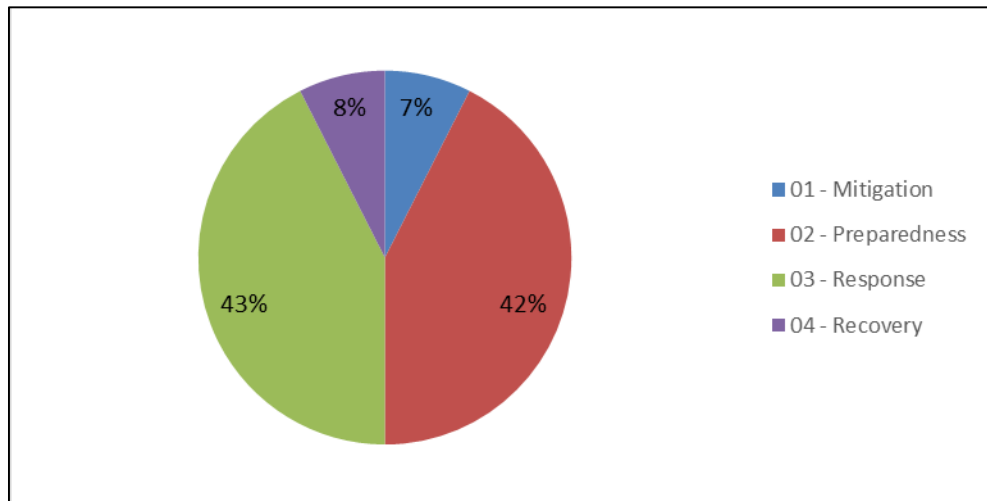
Figure 23:   Aggregated workshops results – DM Phases

3.3 Consolidated list of End-User's standardisation needs

3.3.1 Similarities and differences

In order to compare the outcomes of the desk research/questionnaire and the results of the workshops, an analysis on the thematic areas and disaster management phases distribution was carried out on the first source needs, as already done with the workshops needs in section 3.2.5.

Also in the case of desk research/questionnaire needs, the most relevant thematic areas of interest for the End-Users, including the ones that are members of the E-UC, were the common procedures (43%) and the data sharing ones (13%). Nevertheless, Figure 24 shows that the desk research/questionnaire outcomes focused also on common terminology (12%) and community role and communication (11%) topics.

Figure 25 confirms that the needs derived from the desk research/ questionnaire, like in the case of the workshops needs, mostly refer to response (50%) and preparedness (28%) phases, with the first as the predominant one.
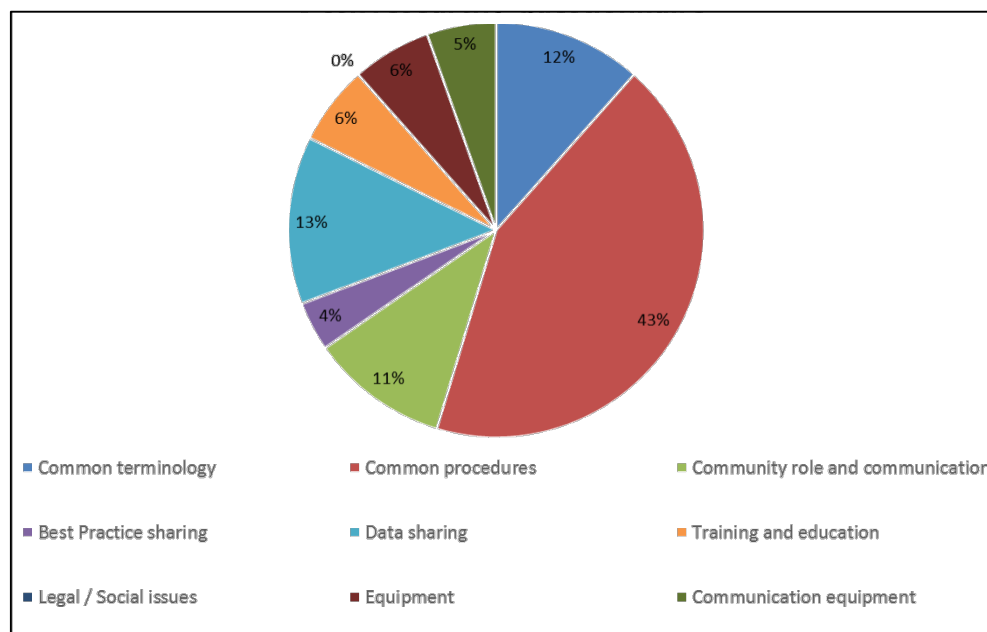
Figure 24:   Desk research / Questionnaire needs thematic area distribution
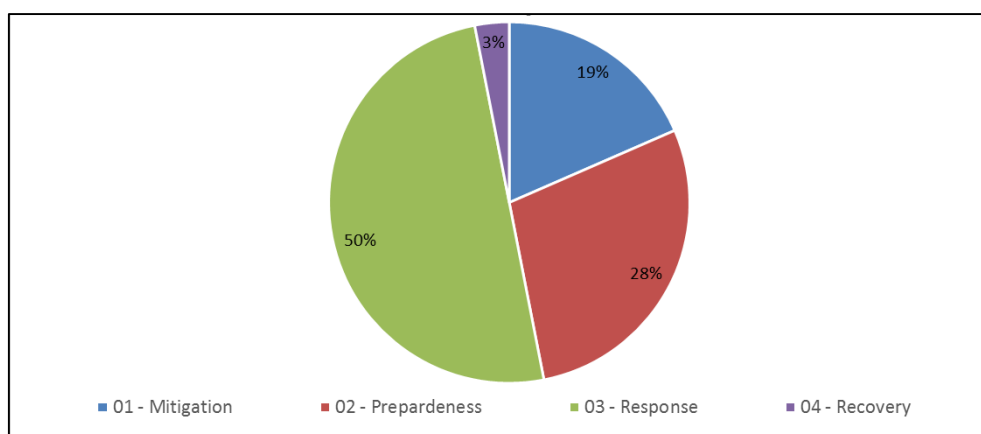
Figure 25: Desk research / questionnaire needs DM phases distribution

3.3.2 Aggregated figures

Within this paragraph, the distribution of the needs collected both from the workshops and from the desk research/ questionnaire, in terms of covered thematic areas and disaster management phases are analysed.

According to the recurrence of needs in Table 6, it is possible to observe that the End-Users most frequently expressed the need of new/improved standards in order to achieve common procedures at European level in the response phase. 34 needs are, indeed, related to the Common procedures thematic area and have been associated to the response phase. Always according to the recurrence of needs in Table 6, it is possible to deduce that the End-Users did not show up concrete requirements in some phases and on some thematic areas. No needs were collected in recovery phase on common terminology or in response phase on best practice sharing, for example.

Figure 26 and Figure 27 show the thematic area and DM phases distribution of the needs collected both from the workshops and from the desk research/ questionnaire. Considering the total number of needs, the most relevant thematic areas for the End-Users are common procedures (41% of the needs are related to it), and data sharing (15%) together with the common terminology (10%). Furthermore, the pictures confirm that the most discussed DM phases are the ones on preparedness (in 47% of cases) and response (34%).

Table 6: WP3 Workshop needs Thematic Area – DM phases

Thematic Area	01 - Mitigation	02 - Preparedness	03 - Response	04 - Recovery	TOTAL
Common terminology	2	14	5	**0**	**21**
Common procedures	16	29	**34**	7	**86**
Community role and communication	4	4	10	1	**19**
Best Practice sharing	5	3	**0**	1	**9**
Data sharing	2	4	26	**0**	**32**
Training and education	**0**	12	2	**0**	**14**
Legal / Social issues	1	**0**	2	1	**4**
Equipment	**0**	4	9	**0**	**13**
Communication equipment	**0**	1	11	**0**	**12**
					210
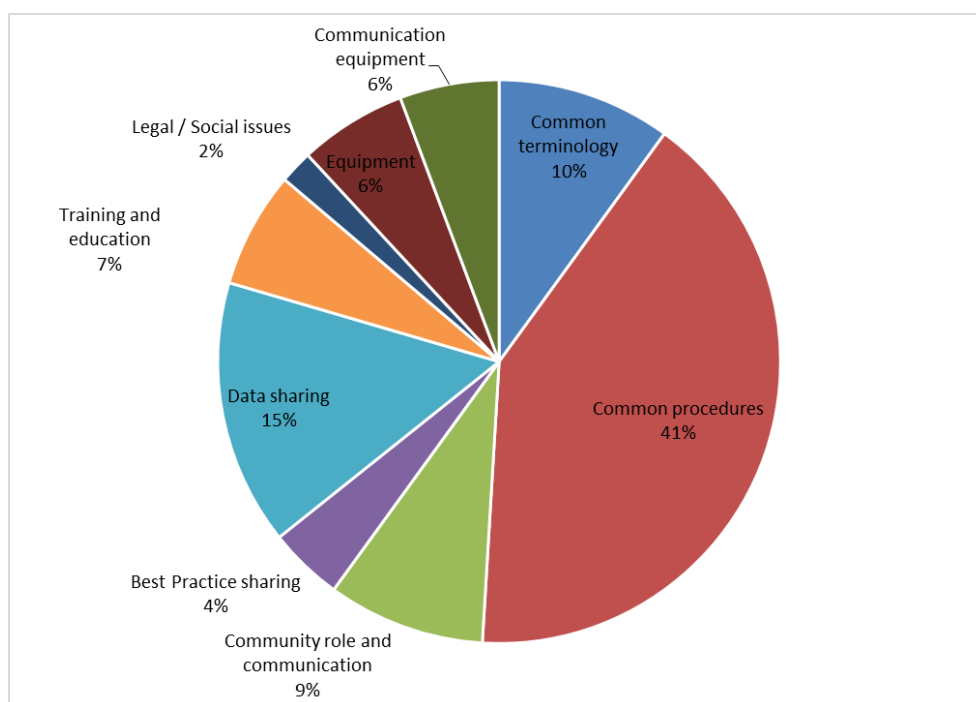
Figure 26: Distribution of End-user community needs according to Thematic Areas
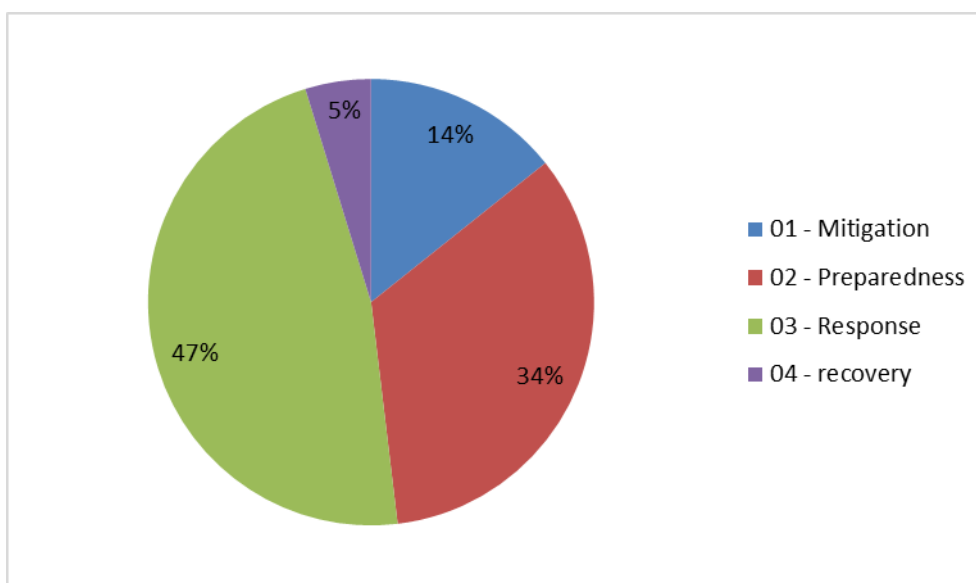
Figure 27: Distribution of End-user community needs according to DM phases

In order to complete the analysis of the areas in which the End-Users expressed mostly its needs for standardisation, the information on the distribution of the disaster management tasks has been reported in the following graphs.

Figure 28 shows that both the workshops and the desk research/questionnaire needs are mostly related to the risk assessment task within mitigation phase. 14 needs among 30, the 47%, have been, indeed, related to this task. The trend analysis one, instead, did not receive feedback.
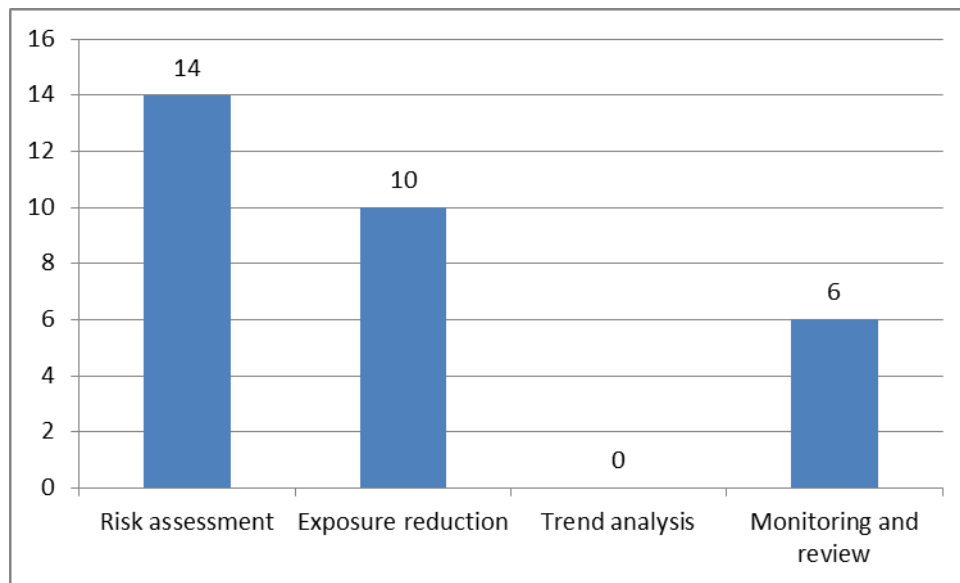
Figure 28:   Mitigation phase tasks distribution

From Figure 29, it is possible to deduce that, the most discussed task for preparedness phase was the capacity development one. 44 needs among 71, the 62%, are indeed about the need to have standards to support the End-Users building new capacities.
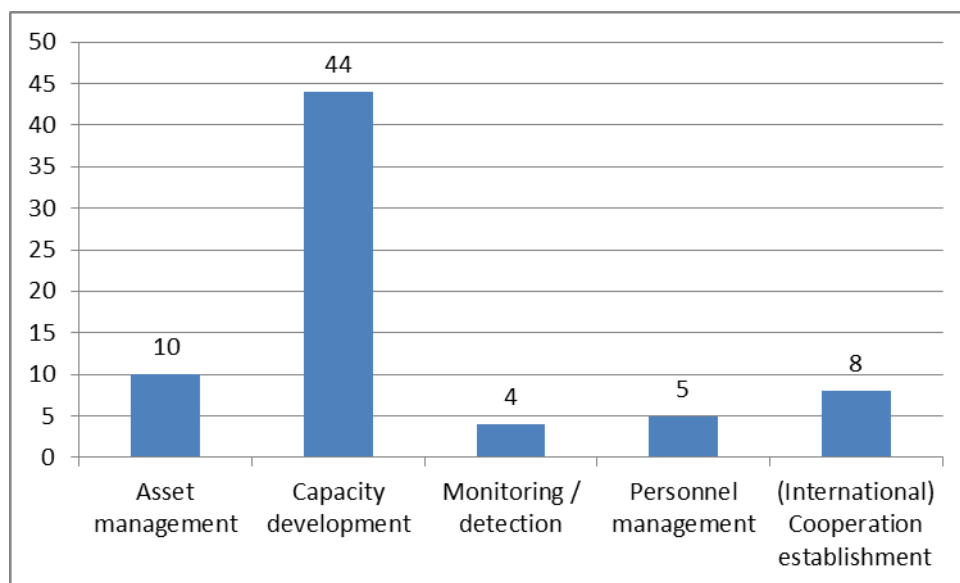
Figure 29:   Preparedness phase tasks distribution

For response phase, according to data shown in Figure 30, the experts expressed the needs for standardisation mostly for task related to command, control and coordination activities. 28% of needs (28 needs among 99) are indeed related to these topics. Needs relayed to warning / crisis communication and information management tasks were also discussed by the End-Users, in the 13% of cases.
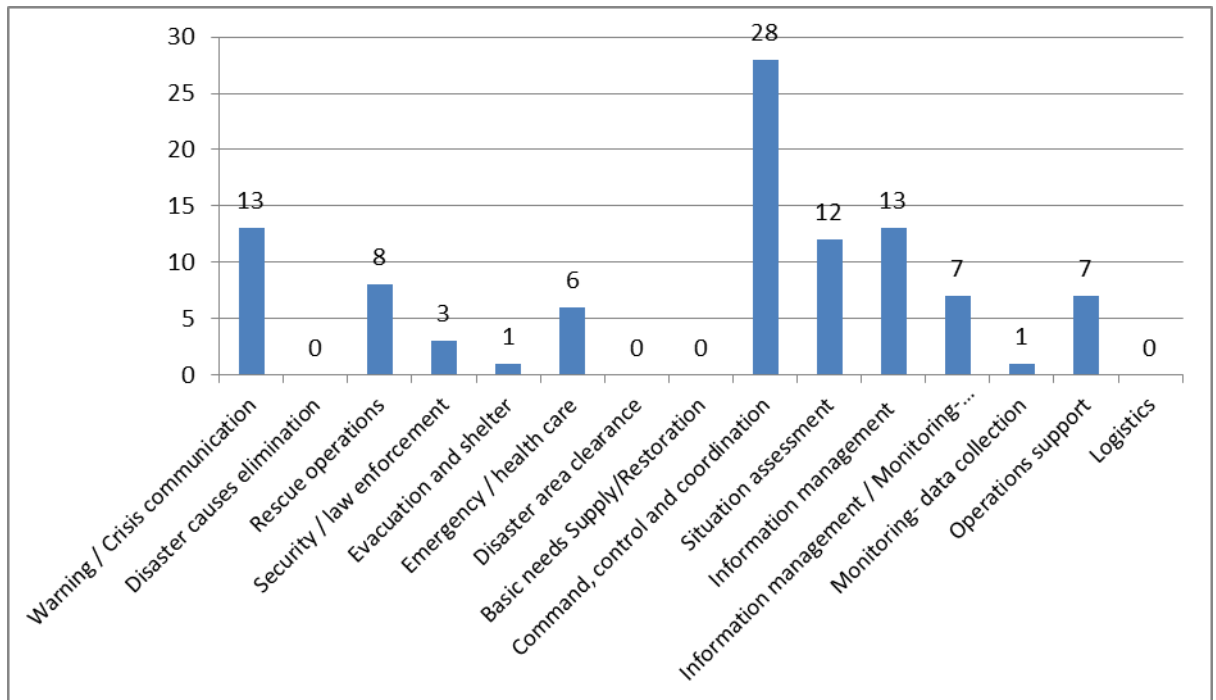
Figure 30:   Response phase tasks distribution

Finally, the recovery phase needs, according to Figure 31, are distributed between the tasks related to the re-establishment of infrastructures, to the determination and implementation of recovery programme and to the establishment of recovery organisation structure. No feedbacks were received, instead, on environmental impact recovery and economic impact recovery topics.
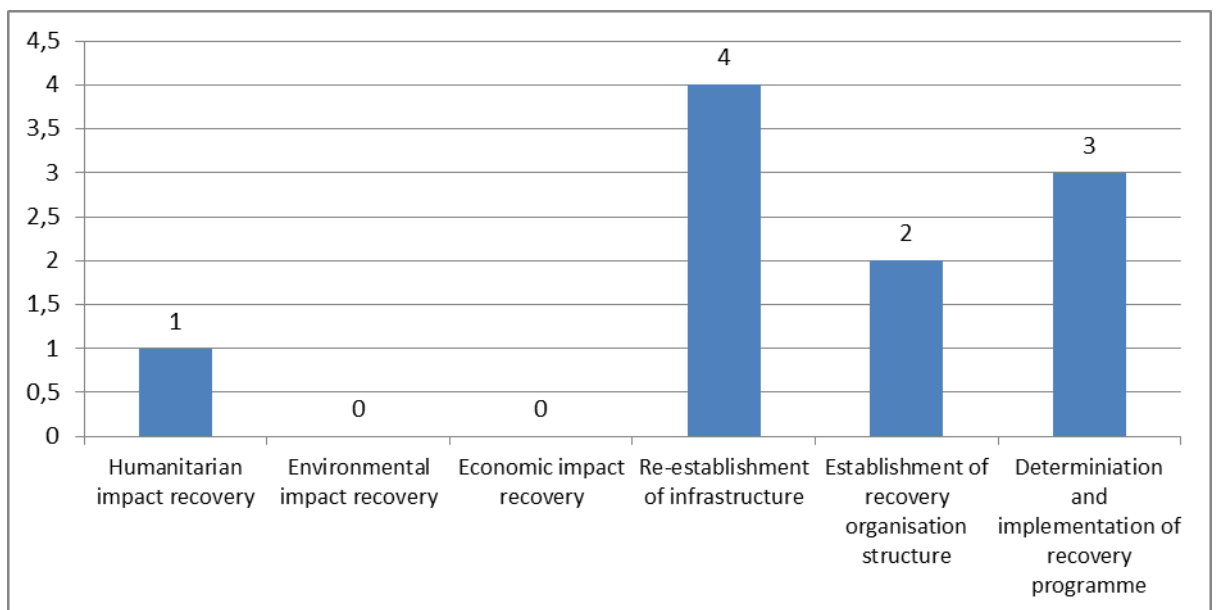
Figure 31:   Recovery phase tasks distribution

4   Drivers and Constraints analysis

During the workshops, in interactive working sessions, the benefits, drivers and restraints of standardisation were discussed with the participants, in accord to the methodology reported in section 2.3.

4.1.1   Brussels Workshop

In the workshop in Brussels, the End-Users discussed the several questions concerning standardisation benefits, drivers, challenges and restraints as well as actions and actors to improve the challenging situations.

Benefits

The collated answers of the participants to the discussed question "What are the actual benefits that the organisations gain by participating in standardisation?" are listed below:

- Learning: standardisation of best practices
- Bottom up influence: give visibility to specific needs and achieve cost savings in investing on programs that effectively face disasters in an efficient way
- Increased efficiency
- Improved readiness
- Improved operability
- Give confidence to disaster management actors
- Speed up processes → severity of consequences
- Speed up crisis management process thus reduce disaster consequences severity
- Improved collaboration with stakeholders thanks to semantic interoperability
- Common language/semantic operability
- Efficient cross vertical information management

Drivers

Listed below are the participants' answers concerning the reasoning and future expectations that encourage organisations to participate in standardisation (drivers).

- Legal obligations
- Cost savings
- Fear
- Pride to be part of a standard
- Standards have to be simple not simplistic
- Costs
- Attitude of major players/cooperation

Challenges, improvement actions and actors

In the course of the work session, several different challenges and constraints were identified. Then the main challenges were prioritised by the participants during the workshop, identifying three main challenges/restraints, listed in the following.

1. *Standards lack user-friendliness.* The End-Users discussed what should be done to improve the situation regarding the challenge that the standards lack user-friendliness. They supposed to make standards easier to use and understandable but at the same time not simplistic. Long documents

should be avoided and "one pager" documents preferred. Easy and immediate information is needed accompanied by the possibility for the End-Users to enhance these documents themselves afterwards. Furthermore, standardisation organisations should approach experts proactively so standards should derive from the effective End-User needs. Everyone involved in standardisation processes is important for this action but specifically the standardisation organisations and experts of the End-User community.

2. *High standardisation costs.* To improve the high standardisation costs, the participants discussed the possibility to decrease costs and produce really useful and usable standards that should come from the end-user and not from an industrial push. One way that was mentioned, would be to share the economic benefits deriving from a standard sale with the participants that contributed to its development, external to standardisation organisations. This could lead to a bigger involvement of more End-User organisations and could push these organisations to participate in other standardisation processes as well. A possible actor could be an "end-user coordination body" to give visibility to their everyday needs and the standardisation bodies.

3. *Major players' perception of competition instead of collaboration.* Another subject of discussion was the perception of major players focussing more on competition than on cooperation. One way to improve this situation was identified during the discussion: Standardisation organisations need more responsibility to bring major players of disaster management to the same table and facilitate collaboration. The relevant actors for this action are the standardisation bodies.

4.1.2 Berlin Workshop

In Berlin, the participating End-Users discussed the described questions concerning standardisation benefits, drivers, challenges and restraints as well as actions and actors to improve the challenging situation in two groups during the workshop.

Benefits

The identified answers of the participants to the question, what the actual benefit that the organisations gain by participating in standardisation is, are listed below:

- Improved efficiency and economies of scale
- Influencing standardisation process - can co-shape
- Standard that fits the organisation. The standard will be more customized
- Improved compatibility and interoperability. The reason we need standardisation is to have compatible systems.
- Building institutional resilience and good practices
- Better performance
- Clarify organisation objectives
- Exploit the research results due to standards support a better dissemination of results
- The use of standards as good reference to increase customer's portfolio
- Minimization of complaints. At the end, entities that are not using standards will have higher costs. This is also driver to make long-term work easier
- Reduce costs
- Improve interoperability

Drivers

Listed below are the participants' answers concerning the reasoning and future expectations that encourage organisations to participate in standardisation.

- Early development in technical state of the art. Early information on what is developing
- Neutral standardisation process politically
- Assisting developing countries particularly with international standards. Developing countries make a lot of money from standards

- Involvement and interest of industry. If industry is not involved, there will be no standard; Needs to be a relationship between End-Users and industry and agreement on common interests
- Receiving funding to participate in standardisation
- Having different liaison people involved could support participation in standardisation
- Reactive to incidents / caused by triggers e.g., discussing standardisation after 9/11
- Consistent quality of standards
- Standards make companies (and entities) more transparent for their own employees. A better networking relationship is critical to manage crisis
- Have specific mandate
- Simplified procurement processes
- Be up to date with standards
- In general, standards generate a democratic environment among End-Users and suppliers
- Simplified communication process
- Better quality procedures
- Competition among organisations / in the EU to reach higher number of participants
- Influence standardisation process and fulfilling organisation expectations/objectives

Challenges, improvement actions and actors

There were identified nine challenges for participation in standardisation processes.

1. *Conflict between industry and End-Users*. Industry proposed solutions are optimal for the interests of industry but may not be optimal for End-Users. One way to improve this would be to have joint discussions and efforts between industry and End-Users. The actors who could be responsible for these kinds of actions are standardisation bodies as well as policy makers and governments.

2. *Lack of participation.* The second main challenge discussed was a twofold concern: the lack of mandate and funding to participate in standardisation and the lack of law enforcement participation in standardisation. It was discussed that this could be improved by having different "liaison people" (both from standardisation organisations and End-User organisations) involved that could support the participation in standardisation. These should take the processes into account that are used to get the involvement of End-Users. These processes could be changed in a way that End-Users would be continuously involved to ensure the right balance of stakeholders in these processes. This could be designed as an assessment process - if there is not a balanced representation then standards cannot be developed. This would give the different stakeholders the opportunity to share ideas and be involved in standardisation processes. Another improvement action identified was a rising of awareness and showcasing successful incidents and stories as well as formulating benefits of standardisation and showing where improvements could be made because of standardisation. This information could be used to improve the situational awareness of the End-Users. Actors to be involved in those kinds of activities are: governments, companies, agencies, standardisation organisations and end-user organisations.

3. *Unidentified benefit in the involvement in standardisation process*. Another challenge that was prioritised by the workshops' participants was the fact that benefits of participation in standardisation are not known. One suggested way to improve was publishing a paper that outlines the process and the benefits. "Standardisation brokers" should be put into End-User organisations. These suggested improvement actions could be carried out by standardisation and end-user organisations.

4. *Lack of training.* The lack of training of End-Users on how to contribute to the standardisation process was also discussed. Here improvement activities could be the training of End-Users on what to expect both from research and standardisation. Also, a liaison officer/group acting as a broker for standardisation, that "speaks the operational language as well as the research/standardisation language", could be involved in end-user organisations to facilitate End-Users in participating. The actors that could be involved in these activities are end-user organisations, projects and standardisation organisations.

5. *Incompatible timelines between End-Users and industry.* The relevant actors for such identified and discussed challenge are industry and End-Users. The industry should be forced to consider short

term processes and dedicate effort and money into short-term problems. On the other hand, the End-Users have to consider the issues that they bring to the table.

6. *Unclear benefits of standardisation* (for top-level person in organisation). Actions for improving these situations are the enhancement of marketing aspects, the explanation of the benefits of standardisation in detail by showing and learning from best practices, success stories and failures as well as adding knowledge about standardisation into training and education. The discussed actors for these improvements would be a cooperation of think tanks and standardisation organisations as well as ResiStand partners to increase awareness in their respecting home countries.

7. *Lack of money and resources*. The discussed action for improvement was finding a way to make the industry pay to promote for standardisation by assistance on travel costs and expert refunding. Another possibility would be to make standardisation a requirement for organisations and to produce simple material about standardisations. Actors who could be involved in these improvements could be the national governments/EU and the industry/private sector.

8. *Complex standardisation procedures*. The main actors identified for this challenge were the standardisation organisations about making standardisation procedures more (end) user-friendly. Improvements actions could be better ICT tools, a redesign of the standardisation procedure and adding these better ICT tools to manage standardisation. Standardisation processes should be more accessible and explained better, e.g. by using simple manuals during meetings.

9. *Level of detail VS standardisation*. The fact that some needs are too specific to be standardised was another challenge that the participants identified as important during the workshop. This could be improved by standards getting more flexibility, because in the end they have to be applicable and usable. A clear hierarchical cascade from standards to guidelines needs to be defined as well as a well-defined framework about families, groups, etc. There has to be a better understanding of different types of standards and an obligatory regular check of the standardisation process has to be made part of the procedure. Actors who could take responsibility for these actions would be the managers of TCs, standardisation bodies as moderators and End-Users as participants.

4.1.3 Rome Workshop

In Rome, the participating End-Users discussed standardisation benefits, drivers, challenges and restraints as well as actions and actors to improve the challenging situation in two groups during the workshop.

Benefits

The identified answers of the participants to the question, what the actual benefit that the organisations gain by participating in standardisation is, are listed below. The first group did not want to make a distinction between benefits and drivers as they thought both of these categories are similar with their influence on standardisation. So the results of the first group are the same for the identified drivers and benefits.

- Better information (results in more effectiveness of disaster management)
- Preserving the quality of a product (balance quality/price)
- Force organisations to progress
- Image/quality management
- Increment professionalism
- Faster/simpler cooperation
- More influence (make others adapt to own standards)
- Cost reduction (e.g. due to better exchange opportunities of tools/equipment)
- Ambition
- Increased knowledge by participating (e.g. on developments)
- knowledge sharing between organisations
- Create a network and support the same in the standardisation process
- have a bottom up approach, to foster an inclusive approach
- advocate, push the real end users' needs

- be more familiar with the standardisation results: if I've participated to the process, then I would be more familiar with the documents I gather
- find a way to talk the same "language" in crisis management
- increased interoperability
- foster the creation of more binding standards

Drivers

As described the first group discussed the drivers and benefits jointly, skipping a real distinction of the two topics. Thus, the list of identified drivers is the same as the one for the identified benefits:

- Better information (results in more effectiveness of disaster management)
- Preserving the quality of a product (balance quality/price)
- Force organisations to progress
- Image/quality management
- Increment professionalism
- Faster/simpler cooperation
- More influence (make others adapt to own standards)
- Cost reduction (e.g. due to better exchange opportunities of tools/equipment)
- Ambition
- Increased knowledge by participating (e.g. on developments)
- have a bottom up approach, to foster an inclusive approach
- match the voluntary and binding approach
- financial incentives: e.g. ISO application
- better knowledge of the standardisation process
- advocate, push the real end users' needs

Challenges, improvement actions and actors

The most important challenges identified and discussed in the Rome workshop were grouped in seven elements. The participants also determined actions to improve these situations. The challenges, related improvements and actors are:

1. *Costs of training people on standardisation process*. The costs of people training could be improved by taking its implementation into account during the whole process and also implementing a communication/PR budget. The costs could also be reduced if the developed standard is smooth and easy for the users. Other actions identified were: implementation should be part of the standardisation projects and this should not end before having a fully developed standard. Tax reduction for training in standardisation was another improvement action that was proposed by the participants. The actors for these activities could be national authorities and persons involved in standardisation processes.
2. *Lack of understanding the benefits of standardisation*. Another considered challenge was the lack of understanding of the benefits of standardisation. National Standardisation Bodies were identified to take care of improvement actions: better communication and education about benefits, sharing of evaluation of procedures and certifications, sharing of bad practices and publishing more interactively draft standards.
3. *National/cultural aspects*. To improve the challenge of National and Cultural experts, the workshop participants discussed that the benefits of having transnational standards should be made clear by experts.
4. *High cost of certification* (which is needed to enable proper testing). There was no improvement found out about the costs of certification. The end-users came to the conclusion that they should accept the price for quality. Actors involved in this are regarding to them the end-users, certification institutes and suppliers.
5. *Lack of mandate and funding*. Suggested improvement actions for this challenge that were discussed were to have a dedicated funding to cover at least travel expenses and the time for tasks

or getting a kind of sponsorship by being involved in European projects. Another action to improve this would be to create business models and share best practices internally. The participants identified governments, the EU and PPP (Public Private Partnership) as well as standardisation bodies as the relevant actors for this.

6. *Lack of awareness of standardisation benefits*. To improve this the communication about standards should be better, the process should be explained, have standardisation bodies take care of an "advertising campaign", show best practices, find first responders that can have a "helicopter view": they can participate in the standardisation processes and also promote it as they are aware of its' importance.

7. *Lack of communication of experience in standardisation*. Standardisation results are not visible and the lack of communication about them. To improve this, the end-users proposed to share best practices that are not binding, raise the knowledge of policy makers and create advocates among end-users to promote the benefits of standardisation. Actors who should be responsible for these actions could be end- users themselves and international networks organisations.

4.1.4 Analyses

The workshops showed that the participating End-Users are well aware of the possible benefits of standardisation processes for their work. In every workshop, several benefits and drivers were discussed. It nevertheless is noteworthy that almost in every group work the identified challenges and restraints for organisations to take part in standardisation processes outnumbered the mentioned benefits and drivers. Because of this, a lot of time was taken to discuss these restraints and challenges in a constructive way by thinking about actions that could improve these individual situations and talking about which actors could promote actions to enhance these challenges/ these challenging or constraining situations for the End-Users.

It is rather obvious that there are reoccurring challenges that are mentioned nearly in every workshops and every group of the carried-out workshops.

One of the major challenges seems to be of a financial kind. Several End-Users found that the lack of funding or the costs of participating/certificate in standardisation are a challenge for them and preventing them from more partaking in standardisation processes.

Another reoccurring issue was the lack of knowledge about standardisation in general: the lack of knowledge of standardisation processes, benefits of standardisation. Several End-Users thought that the standardisation organisations should publish more information about their processes and standardisation. Many of them also thought that publishing best practices and success/fail stories would help in overcoming this challenge.

Another important issue mentioned several times was to be found in the characteristics of standards themselves. They give the impression to many End-Users that they are very complicated and not user-friendly. All in all, the workshops showed that the reputation of standards and standardisation should strongly be improved and good results and usefulness of standardisation processes should be made more visible for the End-Users.

The cooperation between industry, End-Users and standardisation bodies was addressed several times during the workshops. It is noteworthy that the End-Users seem to wish for implementing new points of contacts/organisations that would interact with all of the mentioned stakeholders and that were able to "translate" between these organisations. The End-Users seem to think that the current communication between these stakeholders is worth to improvements.

Many of the participants thought that integrating knowledge about standardisation into existing trainings and education about standardisation to raise more awareness is another important issue among other End-Users.

The following resumes the main challenges, improvement actions and related actors identified during the workshops.

Table 7: Challenges, improvement actions and actors

Challenges	Improvements	Actors
Conflict between industry and end-users	Having joint discussions and efforts between industry and end-users. Industry and end-users discussing	Standardisation organisations and governments, Policy

Challenges	Improvements	Actors
	standards together	makers
Lack of mandate and funding to participate in standardisation; Lack of law enforcement participation in standardisation	Having different liaison people involved could support participation in standardisation. Consider processes that standardisation organisations are using to involve end-users. Processes could be changed to have continuous involvement with end-users. Standardisation to ensure right balance of stakeholders.	Governments, companies, and agencies, Standardisation organisations, and End-User organisations
Benefits of participating in standardisation not known	Paper that outlines process and what the benefits will be. Also at the end of the project/standard development, provide information on the use of the standard/research. Standardisation Brokers within the end-user organisation	Standards organisations, End-User organisations
Lack of training	Have liaison officer/group involved in an organisation - someone that speaks operational and research/standardisation language. Improve English level, understanding the procedures, broker role dedicated to the job of facilitating end-users in participating.	End-User organisations, projects and standards organisations
Incompatible timelines between end-users and industry	Force industry to consider short term. Dedicate effort and money to short term problems. End-users have to consider the issues that they bring to the table. Needs to have KPIs to define if the process has changed or not	Industry and End-Users
Unclear benefits of standardisation (for top-level person in organisation	Improve marketing aspects, standardisation should add into training and education. (i.e. Police academies), explain benefits in detail: best practices, success stories and failures to show and to learn from	Cooperation of think tanks and standardisation organisations, ResiStand partners could increase awareness in their countries
Lack of money and resources	Make it a requirement, simple material about standardisation, industry paying to promote standardisation: assistance on travel costs and expert refunding	Government/EU, industry/private sector so public sector could pay less
Complex standardisation procedures	Better ICT tools, a re-design of procedure is useful to make it more user-friendly. Add better ICT tools to manage standardisation. It needs to be more accessible, standardisation explained during meeting or on simple manuals	Standardisation organisations
Level of detail VS standardisation	The needs are different in relation to the context. Standards have to get some flexibility. At the end standards must be applicable and usable. A clear hierarchical cascade from standards to guidelines needs to be defined. A well-defined framework about families, groups, etc.., standards have to be applied to different circumstances, regular checks (as part of standardisation), better understanding of various types of standards (level of detail)	Management of TCs, standardisation bodies as moderators, users as participants
Costs of training people on standardisation process	Take implementation into account during the whole process. Include also a communication/PR budget. Usage of the standard that is developed should be easy and smooth for the users of the standard. Also on learning aspects. E.g. develop an e-learning module. Implementation should be part of the standardisation project. The project should not end after having developed the standard. Detaxation of following the training	The development team; participants should take this into account throughout the development process. National authorities should promote/support implementation
Lack of understanding the benefits of standardisation	Communication (and education) about benefits 'Hard facts' of the benefits	National Standardisation Bodies
National/cultural aspects	As light as possible (but then you might miss the real need for the standard; national standard might be more substantial) Show benefits of transnational standards	Experts
High cost of certification	Accept price for quality	End-Users

Challenges	Improvements	Actors
		Certification institutes of products (TuV, TNO, …) Suppliers
Lack of mandate and funding.	Have dedicated funding to cover at least experts travel expenses and time task. See it as an internal task and not external issue (have governmental mandate).	Government, EU (awareness), suppliers with PPP
Lack of awareness of standardisation benefits	Improve the communication standards importance, push to use standardisation (procurement), explain the standardisation process, have bodies that take care of dedicated "advertising campaign", show best practices, find the first responders that can have a helicopter view: they can participate in the standardisation process and also promote it properly given that they are aware of its importance (gov+stand+end)	Government, Stand-organisations, and End-Users
Lack of communication of experience in standardisation.	Share best practices, not binding--> make it a law --> rise knowledge of policy makers, create advocates among End-Users to promote the benefits of standardisation process	End-Users, international networks organisations

5 Web-catalogue for Standardisation Needs

The list of standardisation needs collected in WP 3 will be stored in a catalogue. As a data driven web-catalogue, it provides to the users the means to observe the information collected in the project, add additional items, analyse and cluster/categorize the data (WP 2 & WP 3 data) for the further identification and visualization of the standardisation gaps (See Figure 32).
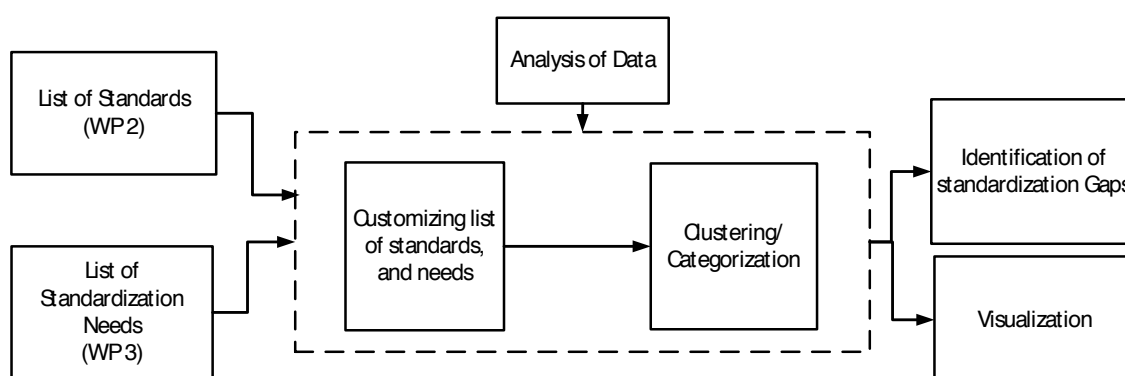
Figure 32: Identification and visualization of the standardisation gaps process

The catalogue will be developed as a web-based application and it would have the following functionalities:

- Data storage
- Search and flexible data sharing
- Data protection
- Member area with different types of user roles
- Possibility for interoperability (Export to excel)
- Part of the ResiStand website (Link to the catalogue on the page)
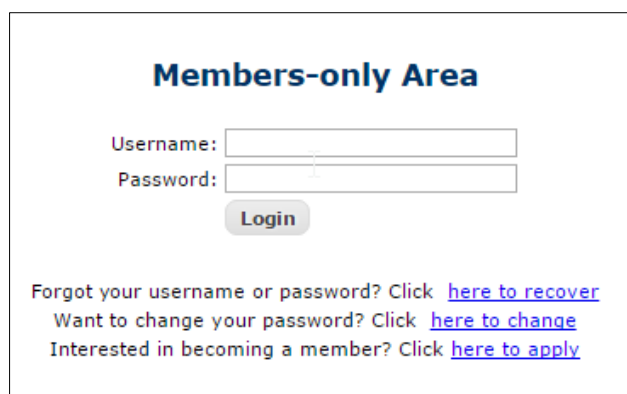
5.1 Specification

The catalogue will be hosted by Microsoft SQL Server 2008 R2.

5.2 User Management

In order to ensure security and control in the management of data, a member area will be developed (See Figure 33) and the following user roles will be stablished:

- *Observer*: search/view items
- *Administrator:* add/edit/delete items

Figure 33:   Member area

5.3   List view option for the list of needs

The list of standardisation needs was identified through workshops, questionnaire and desk research in WP3, as outlined before. The list will be displayed under the list view option in the web-catalogue. The list will contain approximately 200 needs identified in the area of disaster management.

The database will display the data through the so called "list view option". This option will display the data by following their main attributes specified in the excel files.

1. Item number
2. Source (WS & Task 3.2)
3. Standardisation Need
4. Disaster Management phase and related tasks
   a. Mitigation
      i. Risk Assessment
      ii. …
   b. Preparedness
      i. Capacity development
      ii. ..
   c. Response
      i. Warning/Crisis communication
      ii. …
   d. Recovery
      i. Humanitarian impact recovery
      ii. ..
5. Time Priority
6. Field of application
7. Type of Standard (advised to cover the need)
   a. Basic Standard
   b. Process Standard
   c. Product Standard
   d. Service Standard
   e. Terminology Standard
   f. Testing Standard
8. Additional Information

The main purpose of the List View is to search through the different lists by using different search criteria. In addition, it would be possible to export the data to MS Excel. An example of the display of data is shown in the Figure 35.

Analysis of the data in later stages of the project could be represented in different types of chart (e.g. donut chart,) or heat maps, etc. (See Figure 34).

Percentage of needs in Disaster Management Phases
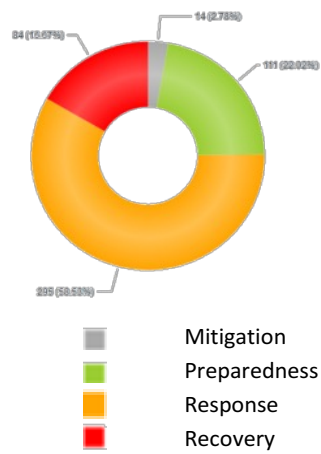
Figure 34:   Example of a representation of data

Figure 35:   Example of a data structure in the database

6 Conclusions

The objective of this report was to present an insight on the End-User standardisation demands, by consolidating, extending and updating the preliminary identified End-User needs in Task 3.2.

In this context, various sources of information have been used to identify the End-User standardisation demands: online questionnaire, desk research (Task 3.2), and workshops (Task 3.3). Four End-User specific workshops have been organised, in different locations in order to gather a balanced geographical distribution of End-Users' participation. Moreover, to extend the participation chances, workshops have been organised, when possible, side-by-side to relevant events in the topic of Disaster Management and more in general of Security (the Brussels workshop is an example in this sense). As result of this organisational process, a total of 37 End-Users, members of the ResiStand E-UC, joined the workshops.

During these workshops, End-Users have been asked to formulate, on the basis of their view, perspective and experience, standardisation needs in the field of disaster management as well as to provide views and opinions on drivers/benefits (on one side), and barriers/restraints (on the other side), that ease or prevent their participation in the standardisation process.

Considering both the needs preliminary identified in Task 3.2 (i.e. through questionnaire and desk research) and those arising from the workshops, a total of 210 standardisation needs have been identified. Needs have been classified across disaster management phases and subordinated operational tasks as defined in ResiStand's Conceptual Framework (see D1.1 "ResiStand Handbook" for more information). The various phases were well represented by the needs, with the response one gathering the majority with 47% followed by the preparedness phase (34%), with recovery being the phase with the lowest number of standardisation needs. Regarding DM phase tasks, for mitigation one, the most discussed was the risk assessment. The capacity development topics were, instead, the most relevant for preparedness phase. For response phase, the End-Users expressed the need for standardisation to support mostly command, control, and coordination activities. Finally, the recovery phase has a balance on the needs distribution among its tasks (re-establishment of infrastructure, establishment of recovery organisation structure, determination and implementation of recovery programme) except for environmental impact recovery, and economic impact recovery tasks on which no feedbacks were received.

Furthermore, the identified standardisation needs were clustered by thematic areas (as defined in Section 3). In percentage terms, "common procedures" got the majority of needs (41%) followed by the area "data sharing" (15%) and "common terminology" (10%).

As a follow-up, the list of needs collected in WP3 will be stored in the ResiStand web-based catalogue, so that to provide the users with the possibility to observe the collected information, add additional items, analyse, and cluster/categorize the data for the further identification of potential standardisation items.

Regarding the drivers/benefits and barriers/restraints that ease or prevent the End-User community participation in the standardisation process, the workshops showed that the participating End-Users are well aware of the possible benefits of standardisation processes for their work; nevertheless, is noteworthy that the identified challenges and restraints for organisations to take part in standardisation processes outnumbered the mentioned benefits and drivers. One of the major challenges seems to be of a financial kind; other reoccurring issues were the lack of knowledge about standardisation in general and the characteristics of standards themselves. They give the impression, indeed, to many End-Users that they are too complicated to be applied within everyday DM activities. Possible solutions to these challenges were also discussed and reported in section 4.

Therefore, the information collected from the workshops and the desk research/questionnaire reported within this document and summarised above, can be considered as one of the most crucial elements for the

creation of new standards that could concretely support the End-Users with their everyday activities, and as suggestions to overcome the obstacles at the basis of the scarce End-Users participation in standardisation processes.

Moving forward, the results presented in this report, both the needs and the drivers/constraints, indeed, will serve as basis for identification of standardisation gaps in WP5 "Preparation and roadmapping for standardisation activities", and conclusions for the "ResiStand process" in WP6 "Towards a sustainable process".

References

[1]   ResiStand D1.1 "ResiStand Handbook"

[2]   ResiStand D3.1 "Contact list of the End-User Community"

[3]   ResiStand D3.2 "Preliminary Report on End-user Standardisation Demands"

Annex 1   Workshops details

A.1.1   Working session poster template
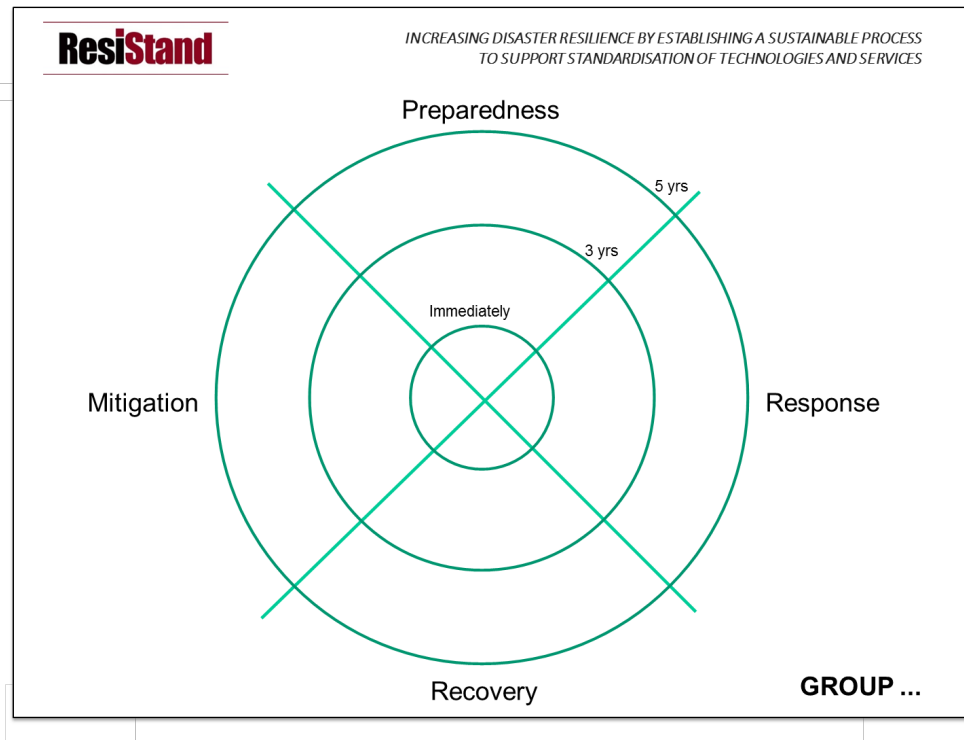
Figure 36:   Working session poster template

A.1.2 Outcomes collection template

Table 8: Outcomes collection template

STANDARDISATION NEEDS: (in order of time relevance per each phase) - if more than one phase is associated to the need specify it in brackets --> response (+ preparedness)		
Phase	**Standardisation needs Description**	**General remarks:**
preparedness		
response		
recovery		
mitigation		

A.1.3 Helsinki Workshop

Workshop identification	End-User workshop on standardisation needs
Date	24 January, 2017
Location	SFS, Malminkatu 34, Helsinki, Finland
Timeframe	10.00 – 16.30h
Participants	10
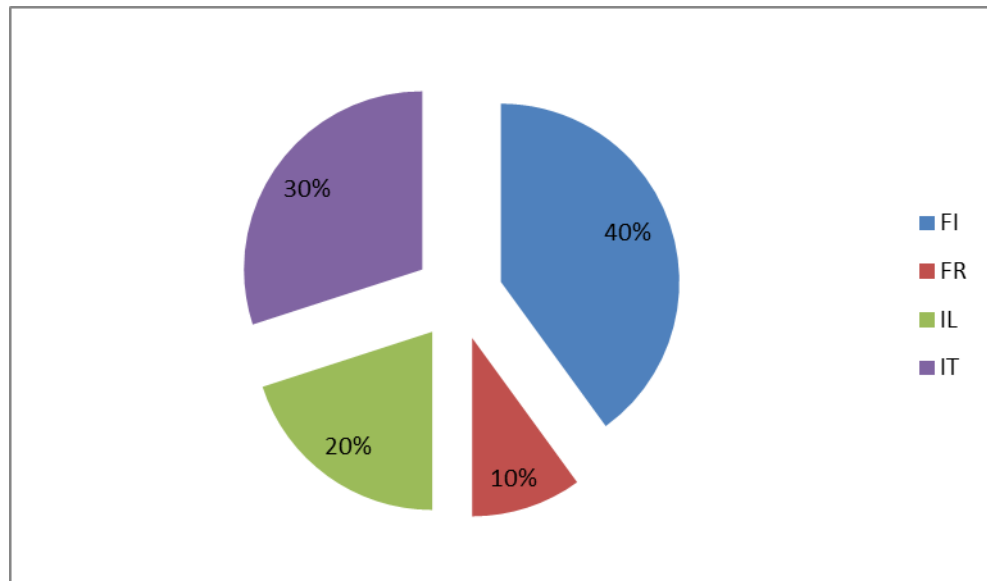
Figure 37:   Participants Nationality distribution
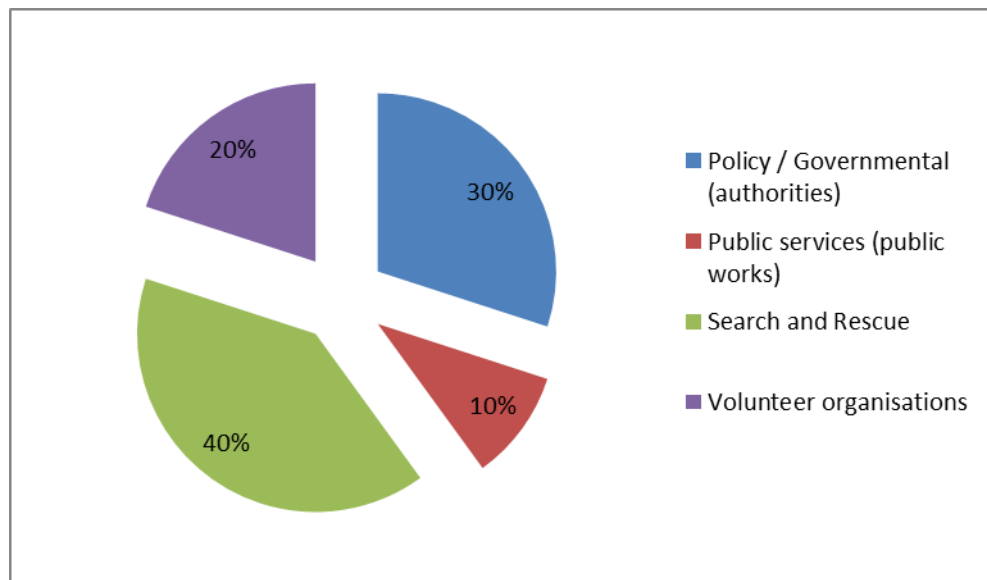
Figure 38:   Participants type of organisation distribution

A.1.4   Brussels Workshop

Workshop identification	Parallel End-User and Supplier Workshops on standardisation needs and opportunities
Date	1 February, 2017
Location	CEN-CENELEC, Avenue Marnix 17, Brussels, Belgium
Timeframe	9.30 – 16.00h
Participants (End-Users)	6
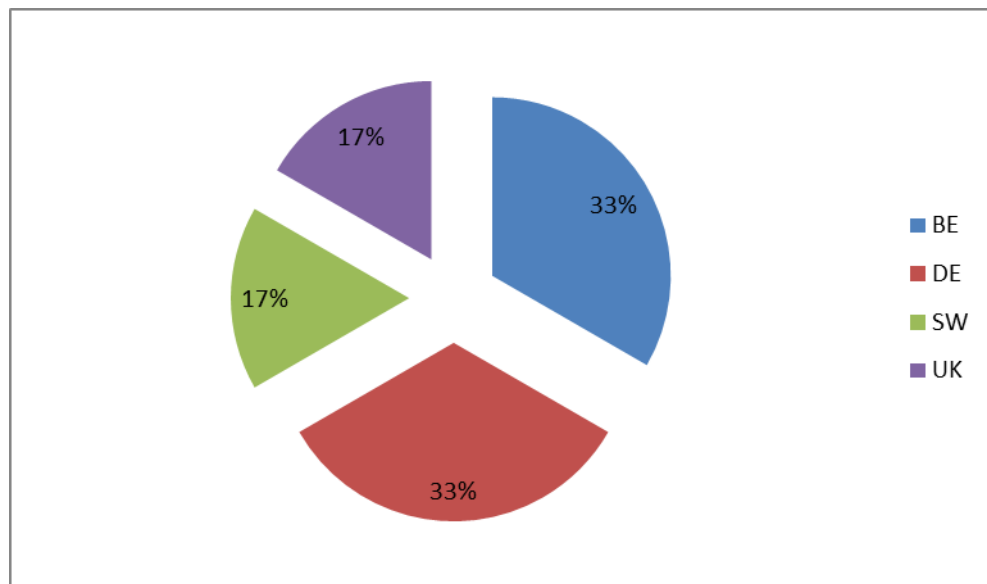
Figure 39:   Participants Nationality distribution
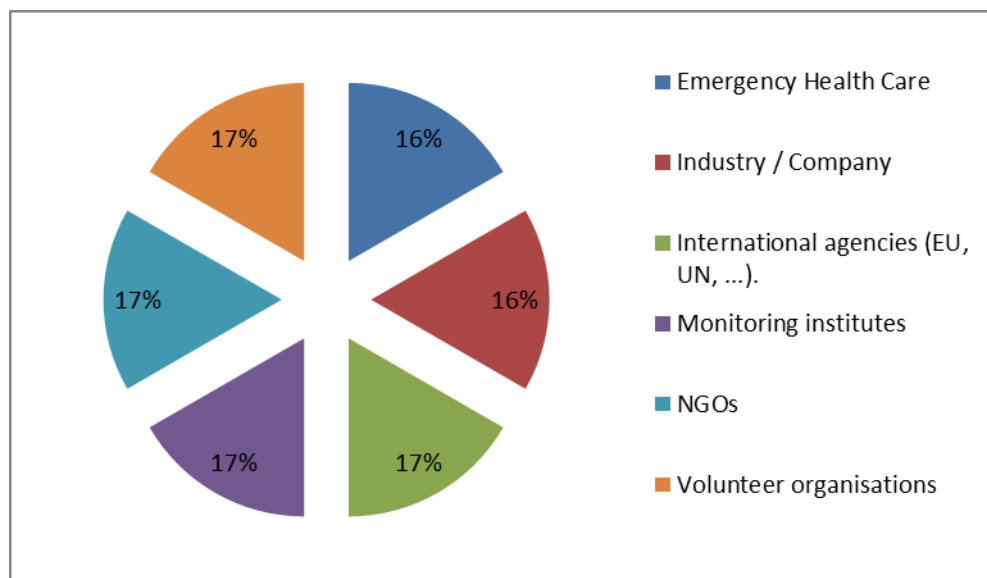
Figure 40:   Participants type of organisation distribution

A.1.5   Berlin Workshop

Workshop identification	End-User workshop on standardisation needs
Date	22 – 23 February, 2017
Location	Fraunhofer-Forum Berlin, Anna-Louisa-Karsch-Strasse 2, 10178 Berlin, Germany
Timeframe	22 February 12.00h – 23 February 13:30h
Participants	10
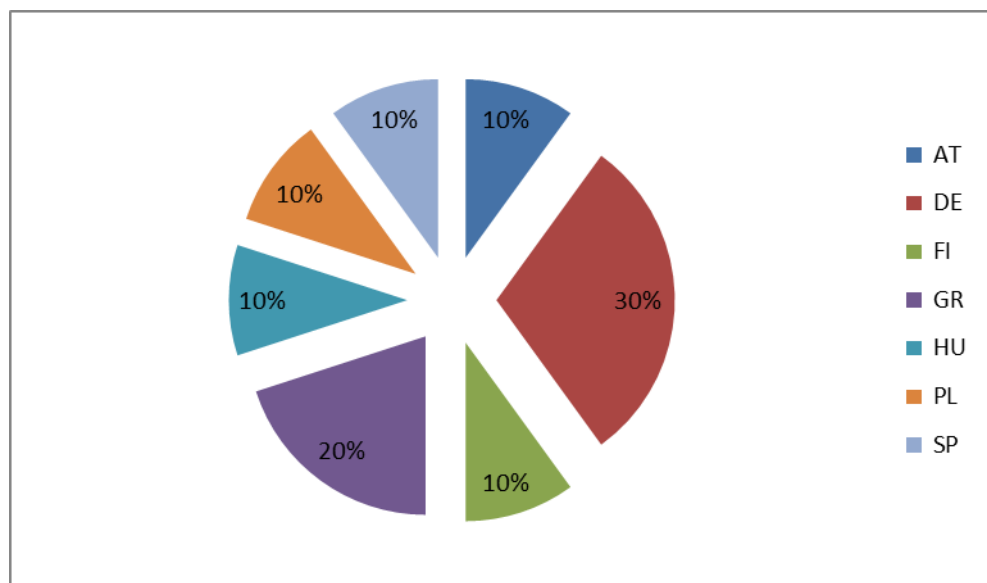
Figure 41:   Participants Nationality distribution
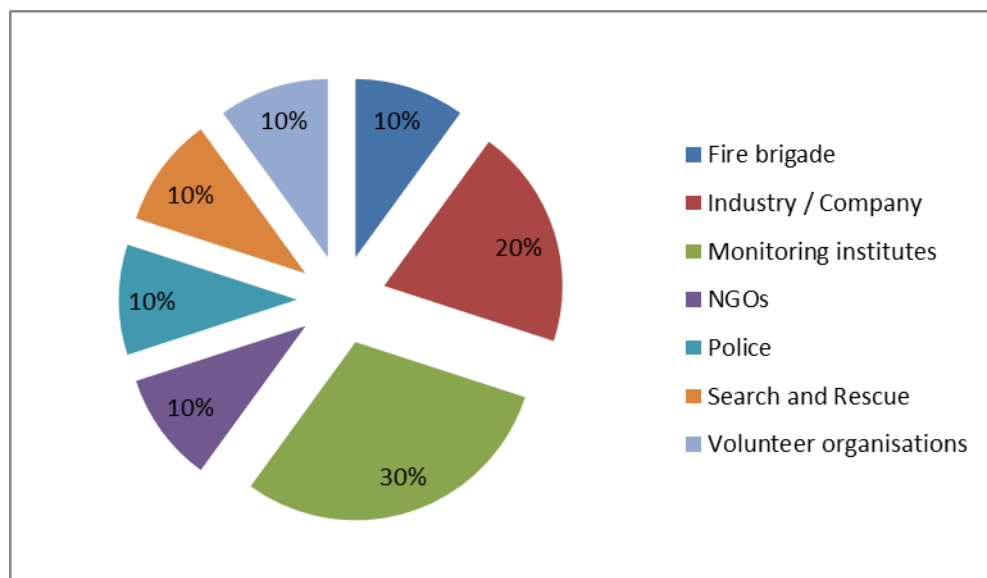
Figure 42:   Participants type of organisation distribution

A.1.6   Rome Workshop

Workshop identification	Parallel End-User and Supplier Workshops on standardisation needs and opportunities
Date	8 March, 2017
Location	Courtyard by Marriott Rome Central Park, Via Giuseppe Moscati 7, 00168 Rome, Italy
Timeframe	10.00h – 17:00h
Participants (End-Users)	11
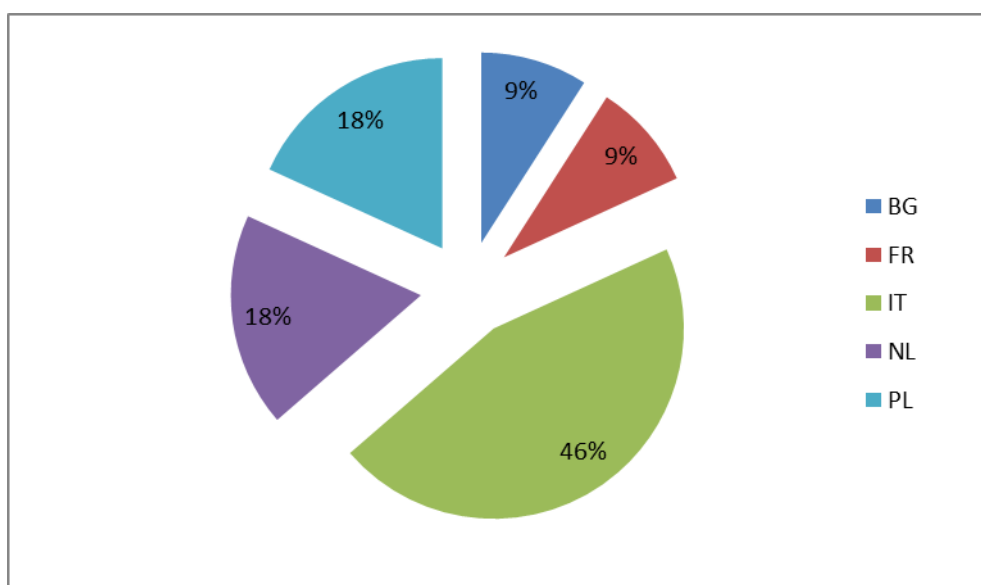
Figure 43:   Participants Nationality distribution
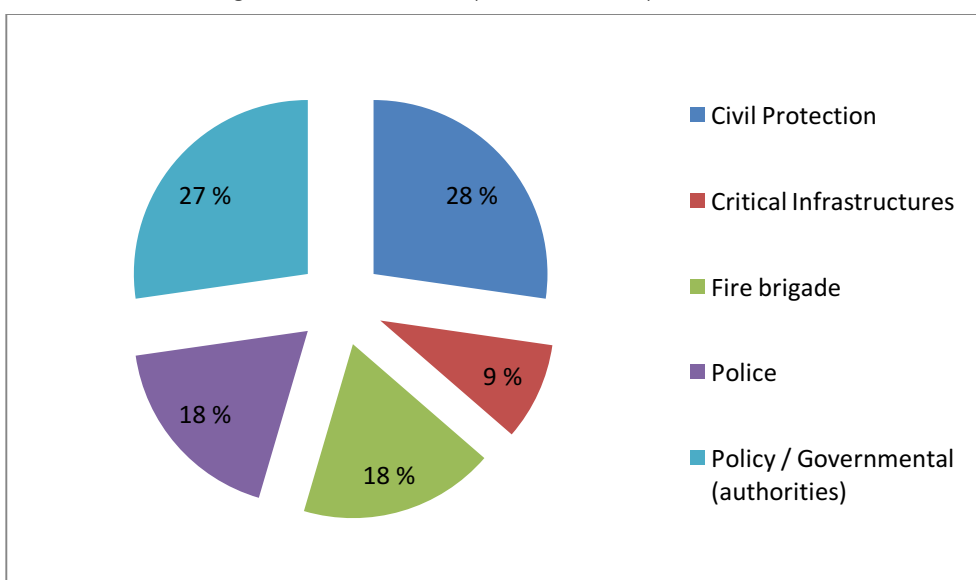
Figure 44:   Participants type of organisation distribution

A.1.7 Drivers and Restraints session posters templates

ResiStand GROUP … INCREASING DISASTER RESILIENCE BY ESTABLISHING A SUSTAINABLE PROCESS TO SUPPORT STANDARDISATION OF TECHNOLOGIES AND SERVICES

Benefits	Drivers	Challenges / Restrains
What is the actual benefit that the organizations gain by participating in standardization?	What is the reasoning and what are the future expectations that encourage organisations to participate in standardization?	What are the challenges and restrains that organisations feel to limit or prevent their participation in standardization?

Figure 45:   First Drivers and Restraints session posters template

ResiStand GROUP … INCREASING DISASTER RESILIENCE BY ESTABLISHING A SUSTAINABLE PROCESS TO SUPPORT STANDARDISATION OF TECHNOLOGIES AND SERVICES

Challenge / restrain	What should be done to improve the situation?	Who are the actors?
Select 3-5 main challenges	Identify improvement action	Who should take the responsibility of future action?

Figure 46:   Second Drivers and Restraints session posters template

Annex 2   Standardisation needs lists

The table with the complete list of the identified needs is reported (questionnaire, desk-research, workshop,). The table reproduces the structure of the need collection and aggregation excel file (as described in section 2.1).

ID	Thematic Area	Summary or translation into specific standardisation needs	Needs/problem Description	Disaster management phase	Disaster management task	Disaster management sub-task	Timeline	Type of standard	Source
MT - 03	Best Practice sharing	Process and indicators to measures the success of civil protection	Development of process and indicators to measures the success of civil protection. Different KPIs are aligned with behaviour and culture of countries	01 - Mitigation	Monitoring and review		more than 5 years	Basic standard	Berlin Workshop
MT - 07	Best Practice sharing	a standard reporting system for a lessons learning tool (Training tool)	For the lesson learning tool (Training tool), a standard reporting system is the most important need to be addressed.	01 - Mitigation	Monitoring and review			Process standard	PULSE
MT - 08	Best Practice sharing	how to process lessons learned, incl. uptake from further organisations	In the context of fire related emergency, a stakeholder says "A lesson learned becomes so after that a relevant number of people certified the importance of the arguments. I think that after this step it is necessary to standardize the lessons learned so that a large numbers of organisations can use it, and secondly it is necessary to inform all the stakeholders involved in the same process"	01 - Mitigation	Monitoring and review			Process standard	ELITE
MT - 09	Best Practice sharing	how to conduct lessons learned (data collection/evaluation/implementation of lessons	NO standard on how to conduct a lessons learned process, including data collection and evaluation and implementation of improved practices	01 - Mitigation	Monitoring and review			Process standard	DRIVER

		learned)							
MT - 10	Best Practice sharing	debriefing processes after operations, also to optimize lessons learned	Debrief Plan debrief procedures beforehand One should have a standardized debrief plan before the event occurs. Several experts noted that debriefs after an operation is often lacking. This must be conducted more systematically in order to improve the implementation of lessons learned. After a crisis one should revise the risk analysis.	01 - Mitigation	Monitoring and review			Process standard	ELITE
PR - 18	Best Practice sharing	Foster lesson learning	how to learn in crisis disaster? Organisations need to learn how to face specific disasters (investment, number of resources, planning, etc.). There is not specific task for each disaster. EUC does not care about the scenario. Learning is a key value. It's necessary to foster lesson learned (good and bad actions/decision. how to document/standardize this topic? Best/worst practices guidelines?	02 - Preparedness	Capacity development	Training	3 years	Basic standard	Berlin Workshop
PR - 19	Best Practice sharing	Sharing of capabilities	Insight into capabilities of partners (other services, crisis partners); what can they do.	02 - Preparedness	(International) Cooperation establishment		immediat ely	Basic standard	Rome Workshop
RCV - 06	Best Practice sharing	Disaster management evaluation methodology	standardised disaster evaluation methodology. To support the lesson sharing. To evaluate the good and bad practices and learn from experience	04 recovery	Establishment of recovery organisation structure		3 years	Basic standard	Rome Workshop
PR - 56	Best Practice sharing	recommendatio ns how to increase resilience (best practices)	We need a standard about resilience with good practices and concept for crisis management based on agility more than on planning. It should concern development of good	02 - Preparedness	Capacity development	Response and recovery planning		Basic standard	M/487

			practices, not requirements for certification. Such an approach is complementary to ISO 22301 (Business continuity management systems – Requirements). It concerns both agility during response phase and preparation for agility. It assumes a good understanding of the context (organisation and capabilities).						
PR - 05	Common procedures	Standardised risk assessment supporting tool	A standardised risk assessment supporting tool is needed in order to have a common and shared methodology to evaluate natural/technological/intentional disasters risk thus facilitating communication and cooperation	02 - Preparedness	Asset management		5 years	Product standard	Brussels Workshop
PR - 06	Common procedures	Spontaneous volunteers regulation	A standard is needed to regulate the "use" of spontaneous volunteers: definition of "spontaneous volunteer", task to be assigned, responsibility of their organisation, etc.	02 - Preparedness	Personnel management		5 years	Basic standard	Brussels Workshop
PR - 07	Common procedures	Standardised risk management systems	Standardised risk management systems are needed as an evolution of the currently existing ISO in preparedness phase	02 - Preparedness	(International) Cooperation establishment		5 years	Basic standard	Brussels Workshop
PR - 08	Common procedures	Standard preparedness plans	A standard is needed defining the steps of preparedness that a region/community has to implement with the oversight of a specific body	02 - Preparedness	Capacity development	Preparedness communication	immediately	Terminology standard	Brussels Workshop
PR - 09	Common procedures	Operation Security Plans for CIP	Operation Security Plans for CIP: Different organisational procedures required related to the protection of critical infrastructure. There are guidelines from EC and a directive. Organisations are not obliged to do it meaning that nothing happens. Needs to be standardisation of what	02 - Preparedness	Capacity development	Response and recovery planning	3 years	Basic standard	Berlin Workshop

			should be included and use across infrastructures in order to be compatible. The critical infrastructure security plan of one country should interact with those from other countries. Whilst there are some plans, there is a lack of security plans at EU level							
MT - 06	Common procedures	Standardised risk assessment	risk assessment: standardised way to evaluate risks in infrastructures	01 - Mitigation	Risk assessment	Risk analysis	5 years	Basic standard	Rome Workshop
MT - 11	Common procedures	methodologies for quantification of resilience measures in the context of CIP	Standardized methodologies for quantification of resilience measures in the context of CIP	01 - Mitigation	Exposure reduction	Property protection (incl. critical infrastructure)		Process standard	E-UCIRCLE
MT - 12	Common procedures	how critical infrastructures manage risks wrt extreme weather events	Understanding the link between Climate Change (through changing Extreme Weather Events) and subquent Risk towards Critical Infrastructures. Each CI owners/operators and CI policy makers have their own Risk Management approach, which may or may not take Extreme Weather Indicators (EWIs) into account. This process of Risk Management in itself could be standardized. In case the process of Risk Management in itself cannot be standardized: let each CI owner/operator/policy maker make use of their own Risk Management Process, and support them using a generic Risk Management Process.	01 - Mitigation	Exposure reduction	Property protection (incl. critical infrastructure)		Process standard	INTACT
MT - 13	Common procedures	applications used by CI	Different CI owners/operators/policy makers	01 - Mitigation	Exposure reduction	Property protection		Process standard	INTACT

		owners/operators/policy makers to do risk assessment	make use of different applications for doing Risk Assessment: because of this difference in applications, it is difficult to share/compare lessons learned on e.g. mitigation measures.			(incl. critical infrastructure)			
MT - 14	Common procedures	risk assessment approach for CI	Standard risk assessment approach for cross-border strategic infrastructures	01 - Mitigation	Exposure reduction	Property protection (incl. critical infrastructure)		Process standard	FORTRESS
MT - 15	Common procedures	a) a standard EU procedure for engaging with member states about cross-border CI, as well as b) a process for managing these identified CI	At present, Critical National Infrastructure (CNI) protection varies significantly across CNI sectors as well as across EU nations. While there are already some EU directives in place which ensure standardisation across some CNI (though often more in the safety than security space, e.g. The Seveso Directive), more could be done to understand, share or even standardise the way in which EU nations manage CNI security, particularly in relation to those sectors where the loss of an asset will have an impact across national boundaries. Equally, there will be some assets in some EU states which are relied upon by other states for day to day critical activity. It may therefore be helpful to have a standard EU procedure for engaging with member states about cross-border CNI, as well as a process for managing these assets once they have been identified. I know there is also already a process in place to protect EU CNI, such as the Galileo programme, so it may be helpful to	01 - Mitigation	Exposure reduction	Property protection (incl. critical infrastructure)		Process standard	Questionnaire

			share the standards relating to this more widely, though I think a number of member states have stronger controls in place for some of their key assets.						
PR - 16	Common procedures	Methodology against "dynamic" risks	Analysis of risk area in Europe related to Critical infrastructure and climate change. (to reduce the impact of risk that evolves with the climate change) Define a methodology to implement measures (training/planning..) against these sort of "dynamic" risks.	02 - Preparedness	Monitoring / detection		3 years	Basic standard	Berlin Workshop
PR - 21	Common procedures	Development and maintenance of DM plans	Municipalities (IT) have DM-plans but don't maintain these (current plans are outdated, of no use). There is a need of a kind of standard (simple) model to support development and maintenance of DM-plans.	02 - Preparedness	Capacity development	Response and recovery planning	3 years	Basic standard	Rome Workshop
PR - 22	Common procedures	International CBRNE risk management	Test standards w.r.t. CBRNE risk management; e.g. to test decontamination and protection equipment. International need	02 - Preparedness	Asset management		immediat ely	Testing standard	Rome Workshop
PR - 23	Common procedures	Cross border collaboration	Standard procedure to regulate collaboration across borders for local first responders is needed	02 - Preparedness	(International) Cooperation establishment		immediat ely	Basic standard	Rome Workshop
PR - 25	Common procedures	"Cascade effects" management	specific plans for the impact of "cascade effects" of extreme events on the infrastructure network. Plans to address e.g. snow+earthquakes, plans to address different scenarios, different combinations of extreme events, take into account complex scenarios.	02 - Preparedness	Capacity development	Response and recovery planning	3 years	Basic standard	Rome Workshop
PR - 26	Common procedures	European crisis management guidelines	emergency guidelines to manage crisis, common command, control chain for example, different	02 - Preparedness	Capacity development	Response and recovery planning	immediat ely	Basic standard	Rome Workshop

			standards exist but not a standardised European unique way to manage emergencies.						
PR - 27	Common procedures	"New technologies effect" management	plans to assess the risks coming from "new technologies" (e.g. smart/autonomous vehicles). Be prepared for future risks.	02 - Preparedness	Capacity development	Response and recovery planning	more than 5 years	Basic standard	Rome Workshop
PR - 28	Common procedures	Disaster waste management	Disaster waste management: standardisation to manage a huge quantity of mixed waste coming from a disaster.	02 - Preparedness	Capacity development	Response and recovery planning	5 years	Service standard	Rome Workshop
PR - 34	Common procedures	standard protocol or template to assist emergency services in e.g. cross-border activation of the Civil Protection Mechanism	Attempting to develop a working inter-agency protocol for emergency services to work together on a cross border basis between neighbouring international jurisdictions to deal with a major emergency incident that would require the initiation of the Civil Protection Mechanism	02 - Preparedness	(International) Cooperation establishment			Process standard	Questionn aire
PR - 35	Common procedures	experimental setup to practice CM and to test new CM solutions	Lack of standards on experimental setup (includes scenario design, data analysis and assessment, logistical experiment design procedures, data collection, societal and ethical aspects) to practice CM and to test new CM solutions	02 - Preparedness	Asset management			Process standard	EDEN
PR - 37	Common procedures	Harmonisation in capacity building and mapping (e.g. by standardising OCHA (UN Office for Humanitarian Affairs) approach)	Harmonisation in capacity building and mapping: A standard way of assessing capacity is essential in order to build trust and understanding among organisations, which is the first step towards cooperation, sharing resources and jointly plan capacity.	02 - Preparedness	Asset management			Process standard	ACRIMAS

PR - 40	Common procedures	approach to analyse (fast) the situation wrt incident response in each CBRN field respectively	Need for a standardised approach to perform a fast analysis at incident response.	02 - Preparedness	Monitoring / detection			Process standard	SAVE ME
PR - 43	Common procedures	curriculum for disaster preparedness for healthcare practitioners	Currently no standardized curriculum exists for disaster preparedness for healthcare practitioners,	02 - Preparedness	Capacity development	Response and recovery planning		Basic standard	MEDIA4SEC
RSP - 01	Common procedures	Needs assessment process	A standardised needs assessment process is required. A standard is needed to support first responders in univocally and quickly defining the needs (in terms of population/structural/ first needs and timelines) related to a disaster event.	03 Response	Situation assessment		3 years	Basic standard	Brussels Workshop
RSP - 02	Common procedures	Dependencies assessment supporting tool	A standardised dependencies assessment supporting tool is needed in order to have a common and shared methodology to evaluate natural/technological/intentional disasters consequences thus facilitating communication and cooperation among disaster management actors. It could be proposed as an open platform dedicated to CI Operators, Civil Protection and Emergency agencies.	03 Response	Situation assessment		5 years	Service standard	Brussels Workshop
RSP - 04	Common procedures	Damage assessment supporting tool	A standardised damage assessment supporting tool/procedure is needed in order to have a common and shared methodology to evaluate natural/technological/intentional disasters consequences thus facilitating communication and	03 response	Situation assessment		3 years	Product standard	Brussels Workshop

			cooperation among disaster management actors						
RSP - 06	Common procedures	European disaster management	Standard organisation of disaster mngt - in each country different names for doing the same thing. Standard terminology needed. It is fundamental also to have the right level of command and control in a certain crisis situation (local, regional, national, …). Need to have also the same norms (like e.g. INSARAG). This norm enables to work together across countries, but also across types of services.	03 Response	Command, control and coordination		3 years	Basic standard	Berlin Workshop
RSP - 13	Common procedures	IBM 2.0: Integrated border management	Integrated border management (IBM 2.0) and coordination of different organisations. Currently not working very well. Integrated border management fell apart. Would reduce illegal migration. A standard should be set up to propose something tangible, balanced and well found (Preparedness and response)	03 Response	Command, control and coordination		5 years	Basic standard	Berlin Workshop
RSP - 14	Common procedures	Resilience Assessment tool	Resilience Assessment: Standard resilience of critical infrastructure assessment tool is needed. Fill in a form and receive information on how good critical infrastructure is and how it can be improved. Help identify where to spend money to increase resilience. Big need for police. Will have information / common assessment on the resilience of the critical infrastructure	03 Response	Situation assessment		3 years	Product standard	Berlin Workshop
RSP - 16	Common procedures	Volunteers regulation	management of volunteers (coordination, responsibilities,	03 Response	Command, control and		immediately	Basic standard	Berlin Workshop

			communications, administrative issues) from different countries to act rapidly is quite complicated. There is not standardised procedure.		coordination					
RSP - 21	Common procedures	International collaboration	Necessary to have the same norms (like e.g. INSARAG). This norm enables to work together across countries, but also across types of services. [Short-term need]	03 Response	Command, control and coordination		immediat ely	Basic standard	Rome Workshop
RSP - 22	Common procedures	Command and control level management	Having the right level of command and control in a certain crisis situation (local, regional, national, …).	03 Response	Command, control and coordination		3 years	Basic standard	Rome Workshop
RSP - 23	Common procedures	Command and control level management	Connection political level and operational level (e.g., in IT) should be eased (now too difficult).	03 Response	Command, control and coordination		3 years	No idea	Rome Workshop
RSP - 25	Common procedures	Resource management across organisations	a standard should be developed in order to support the resource management across organisations E	03 response	Command, control and coordination		3 years	Service standard	Rome Workshop
RSP - 27	Common procedures	Risk assessment methodology	Situation (risk) assessment methodology during a crisis (not only CBRNE but also other types of disasters). A kind of common consensus is needed.	03 Response	Situation assessment		3 years	Basic standard	Rome Workshop
RSP - 34	Common procedures	"limited key information" to share (pre, during, post incident) to improve preparedness, coordination and debriefing	The process to define the "limited key information" to share (pre, during, post incident) to improve preparedness, coordination and debriefing (between different actors and different hierarchical levels) must be standardized.	03 - Response	Command, control and coordination			Process standard	M/487
RSP - 37	Common procedures	(SOP) for intervention rules and coordination	Establish a standard operational procedure (SOP) for intervention rules and coordination mechanisms ("command & control") with respect	03 - Response	Command, control and coordination			Service standard	IMPRESS

		mechanisms wrt the interaction between the health and psychosocial services as well as with other relevant stakeholders	to the interaction between the health and psychosocial services as well as with other responders, ESF and relevant stakeholders;						
RSP - 42	Common procedures	command practices	EU PC Mechanism aims to organise a coordination based on a modular approach of emergency response in the Union. Nowadays, a real Incident command system, operable at top level (interagency and for cross border incidents), could give an harmonization of command practices, in order to have a better interoperability in case of major incidents; and on another hand being fully connectable to others command systems in the word, e. g. US IC system and UN practices (closed to previous one). I have some works on this topic.	03 - Response	Command, control and coordination			Process standard	Questionn aire
RSP - 45	Common procedures	interoperability and comparability of command and control structures	interoperability and comparability of command and control structures among organisations as well as nations/regions	03 - Response	Command, control and coordination			Terminology standard	Questionn aire
RSP - 49	Common procedures	record and report Health impact parameters	New standard to record and report Health impact parameters	03 - Response	Emergency health care			Process standard	IMPRESS
RSP - 50	Common procedures	patient-management in mass casualty	Standards on patient-management in mass casualty incidents (e.g. minimal	03 - Response	Emergency health care			Process standard	M/487

		incidents	data-set for patient-management in mass casualty incidents, management of data of affected persons in mass casualties, which shall duly take into account privacy issues and personal data equipment) to close the gap in (inter)national pre-hospital patient-management with differing national standards.						
RSP - 52	Common procedures	response requests	If a response is requested through various mechanism it is not a surprise what at the end will arrive on the spot	03 - Response	Emergency health care			Process standard*	Questionn aire
RSP - 53	Common procedures	deepening the issues of a) organisation of shelter supplies b) development of a safe return plan in ISO 22315	The organisation of shelter supplies as well as the development of a safe return plan has been described in ISO 22315 "Societal security — Mass evacuation — Guidelines for planning" briefly. A following Standard deepening these issues could be helpful.	03 - Response	Evacuation and shelter			Process standard	Questionn aire
RSP - 67	Common procedures	post incident monitoring	Need for a standardised approach for post incident monitoring/to support mass screening in case of a CBRN attack	03 - Response	Monitoring/da ta collection			Process standard	SLAM
RSP - 68	Common procedures	Emergency call line responses	Emergency call line standards/guidelines which tell staff how to react when several/more people call in with the same symptoms	03 - Response	Rescue operations			Process standard	EDEN
RSP - 69	Common procedures	approaches to measure residual risks of secondary exposure	Lack of general knowledge regarding available methodology and lack of standardised approaches to measure residual risks of secondary exposure and to set allowable levels of contamination. "Best practice"	03 - Response	Rescue operations			Process standard	EDEN

			should be set as benchmark for assessment for secondary exposure and allowable contamination levels						
RSP - 71	Common procedures	Scoring systems for injuries	Scoring systems for injuries already in place and implemented are not totally standardised.	03 - Response	Rescue operations			Process standard	IMPRESS
RSP - 76	Common procedures	SOPs e.g. in evidence gathering, securing (crime) scene	Quick reaction, on-time intervention, SOP in evidence gathering, securing crime scene maintaining public order,	03 - Response	Security/ law enforcement			Basic standard	Questionn aire
RSP - 79	Common procedures	time-temperature-curves for fires in buildings	The research team (of ELASSTIC) sees no need for new regulatory activities regarding direct plane impact on buildings, but it recommends to the EU to check if the regular time-temperature-curves for fire design cover fires initiated by plane, car or truck impacts on buildings, too. (source: ELASSTIC D 4.6)	03 - Response	Situation assessment			Basic standard	ELASSTIC
RSP - 80	Common procedures	Methodology for sourcing information (social media, tweets, crowd source information)	Methodology for sourcing information (social media, tweets, crowd source information) to assess impact of wide scale disaster and identify public needs.	03 - Response	Situation assessment			process standard	M/487
RSP - 81	Common procedures	Early detection through weak signals using social media	Early detection through weak signals using social media	03 - Response	Situation assessment			process standard	M/487
RSP - 82	Common procedures	acquiring digital information from victims/public and sending it to the whole command &	Standardize the way of acquiring digital information from victims/public and sending it to the whole command & control system (it may include developing a common 'victim ticket', to be filled in by victims using smart phone	03 - Response	Situation assessment			Process standard	M/487

		control system	emergency applications).						
RSP - 83	Common procedures	information filtering & delivery for top level organisations	Improve decision support system and situation awareness by information filtering & delivery for top level organisations	03 - Response	Situation assessment			Process standard	M/487
RSP - 90	Common procedures	solutions to respond properly to the social media community	Public authorities are dependent on industry and SME's to build solutions to respond properly to the social media community. There is a need for new ways to obtain and analyse (social media) data, but the European market is extremely fragmented. There is no one single app in the EU that informs all citizens about potential ongoing crisis.	03 - Response	Warning/crisis communication			Process standard	MEDIA4SEC
RSP - 92	Common procedures	social media use by response organisations	Need for standards for level of service w.r.t. social media use by response organisations, including methods of coordination (p.136)	03 - Response	Warning/crisis communication			Process standard	ATHENA
RSP - 96	Common procedures	information and communication in operational network	How to organise operational networks on rapid change situation by information and communication?	03 - Response	Warning/Crisis Communication			Process standard	Questionnaire
RCV - 01	Common procedures	Standardised recovery actions	Standardised recovery actions should be defined within preparedness phase in order to allow an "easy" recovery	04 recovery	Determination and implementation of recovery programme		5 years	Basic standard	Brussels Workshop
RCV - 03	Common procedures	Interconnection of critical infrastructure	interconnection of critical infrastructure is needed. In particular interoperability among different critical domain like energy, transport, etc.	04 recovery	Re-establish infrastructure		3 years	Basic standard	Berlin Workshop
RCV - 05	Common procedures	Direct and indirect costs	a standard for the evaluation of the direct and the indirect loses from	04 recovery	Establishment of recovery		5 years	Service standard	Rome Workshop

		evaluation tool	disaster is needed		organisation structure				
RCV - 07	Common procedures	psychosocial support after disasters	Structured best practices in psychosocial support after disasters. Readily available all over Europe, easy to apply and implement (high end expertise on psychosocial support/ procedures is not necessary, support level of excellent standards accommodated).	04 - Recovery	Humanitarian impact recovery			Service standard	OPSIC
RCV - 08	Common procedures	methods and guidelines for establishing a sampling strategy (CBRNE)	The workshop participants supported the idea of developing standardized methods and guidelines for establishing a sampling strategy. Nonetheless, there was general consensus that there is no single ideal solution that could facilitate simulation and modelling of scenarios to be effectively used by first responders. Need for pre-standardisation efforts to harmonize assessment of complex indoor infrastructures for CBRN contamination and decontamination re-occupancy decision. It was noted that dispersion of CBRN agents in a complex building is heterogeneous. In a PRACTICE workshop it suggested that it would be useful to establish a strategy/standard operating procedures for modelling the CBRN agents in such context. In the same workshop, it was suggested that remote techniques are available in other fields but for the time being, they cannot be a good solution for predicting the future incidents. In addition, the	04 - Recovery	Re-establish infrastructure			Testing standard	PRACTICE

			participants emphasized the importance of being involved in the design, development, technical documentation and validation of the model. (source: PRACTICE D9-9)						
RCV - 09	Common procedures	building the specification for the infrastructure being rebuilt	When restoring physical infrastructure (roads and rail lines) a very wide range of methods are used for building the specification for the infrastructure being rebuilt. This often leads to the use of previous specification losing the opportunity to build back better.	04 - Recovery	Re-establish infrastructure			Process standard	Questionn aire
RCV - 10	Common procedures	technical specifications for recycled construction materials and there use to rebuilt infrastructure	The use of recycled debris in the reconstruction and rehabilitation of infrastructure	04 - Recovery	Re-establish infrastructure			Product standard	Questionn aire
RSP - 98	Common procedures	Operational procedures at European level	Operational procedures are very important. At European level, it is necessary to better define the general guidelines for an integrated command, in big operations or in cross borders incidents. It is important the respect of the existing procedures. Sharing good practices and lessons learned to be formally adopted (i.e.: the floods directive is a directive which is become mandatory also for other states). Sharing information through scientific paper, newspaper, articles, newsletter. Guidelines needs to be simple, not going too much in deep. Debriefing is important but there is no standard yet. It has to be simple	03 Response	Command, control and coordination			Basic standard	Helsinki Workshop

			and accessible also from the other organisations						
MT - 20	Common procedures	guidelines for risk analysis of building structures	(standardisation need: guidelines for risk analysis of building structures) Information in EUROCODE EN 1991-1-7 is not detailed enough to enable the reader to execute comparable risk analyses for building structures. (source: ELASSTIC D 4.6)	01 - Mitigation	Risk assessment	Risk analysis		Process standard	ELASSTIC
MT - 21	Common procedures	Cyberattack vulnerability metrics	Cyberattack vulnerability metrics are not defined as standard	01 - Mitigation	Risk assessment	Risk analysis		Basic standard	DOGANA
MT - 22	Common procedures	sets of meta-data for risk descriptions including co-ordinates, probability, severity, nature of the risk and possible triggers	To define standardised sets of meta-data for risk descriptions including co-ordinates, probability, severity, nature of the risk and possible triggers.	01 - Mitigation	Risk assessment	Risk analysis		Product standard	ELITE
PR - 44	Common procedures	a) list of goods b) format of shipments and orders	Logistic There should be prior formulation of a list of goods and a standard format for shipments and orders for smooth and seamless activation of the disaster response	02 - Preparedness	Capacity development	Response and recovery planning		Process standard	IMPRESS
PR - 47	Common procedures	Emergency Action Plan focused on mass gatherings and/or riots	Need for Emergency Action Plan to identify emergencies and describing measures to minimize impacts and ensure public security – specifically focused on mass gatherings and/or riots	02 - Preparedness	Capacity development	Response and recovery planning		Service standard	DARIUS
MT - 23	Common procedures	classifications related to hazards and meteorological conditions	Many classifications related to hazards and meteorological conditions are available throughout the community of practitioners, but none of them is internationally	01 - Mitigation	Risk assessment	Risk analysis		Terminology standard	EPISECC

			adopted. Nevertheless, they show the real need for a comprehensive taxonomy, making the efforts of the EPISECC project relevant and interesting for the above-mentioned Standardisation Organisations: a taxonomy that would expand the coverage in depth (detail of classification) and width (number of classified concept) would definitely represent a valid proposal for an improvement to existing standards and a robust basis for a number of new tools for information exchange between IT multilingual system making use of the Common Information Space. EPISECC plans therefore to establish links to ISO, ETSI and OASIS aiming at presenting the developed taxonomy and initiating a process for improving the quality of the current standards for structuring the information for an effective situational awareness.						
MT - 24	Common procedures	methods for characterizing and testing particles and manufactured components on the nanoscale	The existence of various (different, non-standardized) methods for characterizing and testing particles and manufactured components on the nanoscale. Both Terminology and Testing (or Methods of Measuring in this case) are seen as most relevant.	01 - Mitigation	Risk assessment	Risk analysis		Testing standard	nanoSTAIR
MT - 25	Common procedures	national risk assessment	Standardisation might make benchmarking the National Risk Assessment easier.	01 - Mitigation	Risk assessment	Risk analysis		Process standard*	Questionnaire
MT - 26	Common procedures	Methodology of cost-benefit quantification to Security	Methodology standardisation of cost-benefit quantification to Security measures. Terminology of categories for cost is	01 - Mitigation	Risk assessment	Risk evaluation		Process standard	VALUESEC

		measures.	also needed (information comes from end-user, Local Police body)						
MT - 27	Common procedures	security standard of IoT (Internet of Things) networks	there is not a widely-adopted security standard in the IoT world (such as the ISO 27000 for the traditional IT network)	01 - Mitigation	Risk assessment	Risk identification		Basic standard	DOGANA
PR - 48	Common procedures	search and rescue standards and guidelines should be reviewed and updated to incorporate use of unmanned vehicles (e.g. drones).	Operational standards and doctrines for use in search and rescue should be reviewed by relevant authorities and updated to incorporate use of unmanned vehicles (e.g. drones).	02 - Preparedness	Capacity development	Response and recovery planning		Service standard	PRACTICE
PR - 49	Common procedures	Next Generation 112 (NG112) implementation	"The EC should, at earliest opportunity, mandate the Standardisation Development Organisations to provide an approved standard for NG112 implementation."	02 - Preparedness	Capacity development	Response and recovery planning		Service standard	ESENET
MT - 28	Common procedures	data bases containing relevant (scientific) information wrt flooding to enable risk identification	Flooding - Communication Regarding scientific details concerning the floods one should standardize data bases containing relevant information which can be available for the internal and external network for the scientific community and the crisis management community.	01 - Mitigation	Risk assessment	Risk identification		Product standard	ELITE
PR - 51	Common procedures	a) capability mapping (incl. all organisations, tasks, roles and responsibilities)	In the Netherlands, we have sheets containing all the information, tasks, responsibilities of all kind of organisations with - possible - tasks and duties in emergency	02 - Preparedness	Capacity development	Response and recovery planning		Process standard*	Questionn aire

		b) procedures/forms for contacting (other authorities point of contacts)	management. It seems us that it would be useful to have something like this international on standardized forms						
PR - 54	Common procedures	guidelines and instructions handling situations related to high risk pathogens in surface mass transport and at airports	How to handle situations involving high risk pathogens in surface mass transport and at airports. This includes several aspects like protection of staff and passengers, guidelines, operational procedures, and cleaning and decontamination, and training	02 - Preparedness	Capacity development	Response and recovery planning		Process standard	Questionnaire
PR - 55	Common procedures	monitoring of (EU) research results to ensure interoperability (of results)	Results of comparable research projects must be monitored to ensure standardized interoperability of projects' results	02 - Preparedness	Capacity development	Response and recovery planning		Process standard	RECONASS
PR - 57	Common procedures	electronic triage system (process of determining the priority of patients' treatments based on the severity of their condition)	Develop a standardized electronic triage system to improve the logistics and the situation awareness.	02 - Preparedness	Capacity development	Response and recovery planning		Product standard	M/487
PR - 59	Common procedures	a) hazard/damage/risk assessment standards for CBRNe b) Decontamination "how clean is clean" (CBRNE	How clean is clean" standards, including: - common hazard/damage/risk assessment standards for CBRNe, - Decontamination – to us the main issue is that at the moment there are no agreed "how clean is clean" standards (especially for WMD agents). We will need to set them up	02 - Preparedness	Capacity development	Response and recovery planning		Terminology standard	EDEN

ID	Category	Title	Description	Phase	Area	Sub-area	Years	Standard type	Source
		related)	in the project (using experts). Only after we have the standard we can go to the technological partners and ask for the tests and devices to verify that we are below the threshold.						
PR - 61	Common procedures	use of social media in emergency situations	Need for standardisation to train the use of social media in emergency situations (p.136)	02 - Preparedness	Capacity development	Training		Basic standard	ATHENA
PR - 62	Common procedures	object modelation (digital re-usable assets) for simulations	Standardisation of objects models (digital re-usable assets) for modelling and simulation environment (application for cross-boundary training).	02 - Preparedness	Capacity development	Training		Product standard	M/487
MT - 30	Common procedures	identification and categorization of risks	We need a common approach to identify risks in order to compare the different risk levels cross borders	01 - Mitigation	Risk assessment	Risk identification		Process standard*	Questionnaire
MT - 01	Common terminology	Standard definition of mitigation concept	a standard definition of mitigation concept is needed	01 - Mitigation	Exposure reduction	Public education and awareness raising	3 years	Terminology standard	Brussels Workshop
PR - 04	Common terminology	Standard definition of crisis management team composition	Terminology, including the titles of main authorities and organisations dealing with CM and DR: A standard defining a proper crisis management team composition, already in preparedness phase, is needed	02 - Preparedness	Personnel management		5 years	Terminology standard	Brussels Workshop
PR - 10	Common terminology	Common terminology including terms and definitions for all disaster management phases	These should be discussed and agreement should be found (e.g., what is resilience, on different services). Need to make sure there is less confusion and a common meaning. With projects, always starting again with the definitions/work. Need to focus on different groups (e.g., stakeholders). Define the structure of using the	02 - Preparedness	(International) Cooperation establishment		5 years	Terminology standard	Berlin Workshop

			terminology - it might be that they are used differently. De facto standards could be also used. It is important that the standard works . the current situation would optimise in terms of losing less time and less victims. CBRNE standardisation project on CBRNE terminology constitute examples. it Would mean that every incident commander would speak the same language						
RSP - 11	Common terminology	Standard emergency signs	Standardisation of smaller signs (not just for larger organisations). One sign used everywhere will mean that languages differences will not matter. Also applies with the workflow.	03 Response	Operations support		5 years	Basic standard	Berlin Workshop
RSP - 39	Common terminology	Semantic interoperability wrt mapping (of objects)	Semantic interoperability is needed to make communication possible between users of different Emergency Management Systems, by providing mapping among different classifications at both national and international levels for some commonly used map objects (icons and terms)	03 - Response	Command, control and coordination			Terminology standard	M/487
RSP - 40	Common terminology	Semantic interoperability wrt basic concepts	Semantic interoperability is needed for basic concepts (e.g. risk manager, crisis, resilience). The objective is not so much to make new definitions, but to match existing ones to make sure people understand each other, even if they are using different languages.	03 - Response	Command, control and coordination			Terminology standard	M/487
RSP - 41	Common terminology	semantic interpretation of the exchanged data	semantic interpretation of the exchanged data	03 - Response	Command, control and coordination			Terminology standard	DISASTER

RSP - 46	Common terminology	a) terminology during command and control of an operation b) process how to organise cc	common terminology during command and control of an operation	03 - Response	Command, control and coordination			Process standard	Questionn aire
PR - 31	Common terminology	Crisis management teams	standard definition of the profiles involved in disaster management. Abilities and capabilities and roles. A standard is needed also to coordinate the intervention of multiple teams from different countries in crisis area	02 - Preparedness	Personnel management		5 years	Basic standard	Rome Workshop
PR - 32	Common terminology	Crisis Management terminology	Crisis management terminology at the international (EU) level is not standardized and there is no "dictionary" that could explain possible differences. Often some words or phrases can have different meaning (e.g. term "crisis management" in Czech Republic means the same as "emergency management", while in other countries it means "emergency management on top/political level") which can be a cause of confusion or misunderstanding during exercises, preparations, presentations and meetings or other international events. It would be beneficial to make a dictionary/list of basic CM terms including critical infrastructure, population protection, and others, possibly with "warning" that a specific term is used differently in certain member states and update it	02 - Preparedness	(International) Cooperation establishment			Terminology standard*	Questionn aire

			on a regular basis.						
PR - 33	Common terminology	Crisis Management terminology	As far as I am aware, each country in Europe has its own approach to the Crisis Management and disaster resilience. To understand each other correctly, even though using the same language, there is a need for definition of basic terms.	02 - Preparedness	(International) Cooperation establishment			Terminology standard	Questionn aire
PR - 41	Common terminology	self-rescue advice (such as exit-signs, illuminated trails, ...) in traffic infrastructure	self-rescue advice (such as exit-signs, illuminated trails, ...) in traffic infrastructure	02 - Preparedness	Capacity development	Response and recovery planning		Basic standard	SAVE ME
PR - 42	Common terminology	how indoor maps of critical traffic infrastructure are constructed/ma de > preferably meeting the technological requirements to be implemented in the SAVE ME (or similar) system	"From a perspective of the SAVE ME system [detects disaster events in public transport terminals/vehicles and critical infrastructures], I imagine that we would need a European standard on how indoor maps of critical traffic infrastructure are made, so they could easily be imported into the SAVE ME" system (or similar commercial systems based on this technology).	02 - Preparedness	Capacity development	Response and recovery planning		Basic standard	SAVE ME
PR - 46	Common terminology	a) graphical representation of objects and concepts b) quality and quantity of base maps	"Although several products exist and all the basic functionalities of a GIS system are available in CRs, still shortcomings have been identified in the graphical representation of objects and concepts, potentially leading to misunderstandings or slow reactions. Moreover, there are	02 - Preparedness	Capacity development	Response and recovery planning		Product standard	ESENET

			significant discrepancies in the available base maps, in terms of quality, details and richness: the quality and quantity of information are defined locally and there is no standard available across Europe"						
PR - 50	Common terminology	CBRN symbology	Common CBRN symbology standard needed. PRACTICE points on the iconography and the possibility to establish a common approach in designing codes and symbols easy to understand by both security specialists and by the public. Despite the challenges to carry out such exercise, more needs to be done to easily communicate during crisis. Several research initiatives are taking place to harmonize the symbols: INDIGO- FP 7 research project D-BOX and IFREACT. Apart from those, NATO, UN agencies developed some guidance documents on this topic. Standardisation might be the platform for coordination among these initiatives, towards the development and adoption of common symbols adapted to different categories of public and to security specialists. (Source: PRACTICE D9-9)	02 - Preparedness	Capacity development	Response and recovery planning		Terminology standard	PRACTICE
MT - 29	Common terminology	definition of CI/resilience/risk /extreme weather etc.	Common understanding/definition of (what is) Critical Infrastructure, (what is) Resilience, (what is) Risk, and (what is) Extreme Weather;	01 - Mitigation	Risk assessment	Risk identification		Terminology standard	INTACT
PR - 52	Common terminology	Defining the most important (CM) concepts (related to	Defining the most important concepts. Different terms are used in different member states and even within a member state.	02 - Preparedness	Capacity development	Response and recovery planning		Terminology standard*	Questionn aire

		response and recovery planning)	International co-operation shapes the terms and not always to the best possible result.						
PR - 53	Common terminology	Concept of planning	Concept of planning should be same to all participants	02 - Preparedness	Capacity development	Response and recovery planning		Process standard	Questionnaire
PR - 58	Common terminology	terminology / communication between professional and civilian authorities/organisations	Exchange of information concerning needs, resources, capacities and activities is difficult within and between professional and civilian communities because of different terms and interpretations of terms. This is an important cause of collaboration gaps between communities.	02 - Preparedness	Capacity development	Response and recovery planning		Terminology standard	COBACORE
PR - 64	Common terminology	a) CM terminology incl. concept of resilience (comment evaluating partner: more likely than resistance) b) guidelines for further risk management	- organise of terms of crisis management and collaboration services - develop guidelines for further risk management (in his opinion) - how to understand resistance (elements of resistance)	02 - Preparedness	Capacity development	Training		Terminology standard	Questionnaire
PR - 69	Common terminology	Common terminology and taxonomy	A common terminology and taxonomy, understandable and shared by practitioners, is needed	02 - Preparedness	(International) Cooperation establishment			Terminology standard	Helsinki Workshop
PR - 30	Communication equipment	Optimised communication	networks enlarging communication between device to device to network. Standardisation that allows the first responders to communicate during crisis management. Standardised technologies to optimise the communication.	02 - Preparedness	Asset management		5 years	Service standard	Rome Workshop

RSP - 05	Communication equipment	Emergency communication channel	Telecommunication / Radio Frequencies: A concrete need of a standardised emergency communication channel is needed. E.g., currently, different radio frequencies are used for crisis management communication. This approach heavily slows down first disaster management organisation invalidating the whole process and the cooperation among the emergency actors from the beginning	03 Response	Operations support		immediately	Basic standard	Brussels Workshop
RSP - 08	Communication equipment	Emergency communication channel	Roaming of different communications - frequency of channels (e.g., TETRA). No standard way to communicate across different channels across different countries. Lose time trying to find appropriate channel	03 Response	Operations support		5 years	Basic standard	Berlin Workshop
RSP - 12	Communication equipment	Interoperability across languages	Interoperability across languages. Difficult in coordinating people from different countries due to language. Could have technology that automatically does the translation meaning that google translate won't be needed - means language differences won't matter. Will increase optimisation and increase operational planning	03 Response	Command, control and coordination		immediately	Terminology standard	Berlin Workshop
RSP - 26	Communication equipment	Optimised communication	Interconnection of tools and protocols to enable communication between organisations and between countries.	03 Response	Command, control and coordination		immediately	Product standard	Rome Workshop
RSP - 33	Communication equipment	communication interoperability between command and control (C&C)	Reinforce communication interoperability between command and control (C&C) systems. Communication interoperability could be improved by a better	03 - Response	Command, control and coordination			Product standard	M/487

		systems/ terminology	definition of needs and the use of minimum common terms/formats, information objects and minimum set of requirements.						
RSP - 35	Communica tion equipment	technologies used for Public Protection and Disaster Relief (PPDR) communications	The European Council has been stressing the need for interoperability among technologies used for Public Protection and Disaster Relief (PPDR) communications across Europe for a long time. Nevertheless, while the introduction of TETRA and TETRAPOL technologies in the last two decades has increased the possibility to talk cross agency internally in a country, cross border communication for the public safety forces is not well solved as of today.	03 - Response	Command, control and coordination			Process standard	ISITEP
RSP - 36	Communica tion equipment	IP communication solutions (like "Voice over IP" - VoIP) for Emergency Services	"To prevent IP communication solutions for Emergency Services being unevenly available across Member States, there is a need for a harmonised strategy and standardisation at EC level."	03 - Response	Command, control and coordination			Product standard	ESENET
RSP - 38	Communica tion equipment	(cross-border) communication systems - to support the shift from Public Switched Telephone Network (PSTN) to next generation All-IP networks + extension to other communication	The PEACE project will investigate the provisioning of day-to-day emergency communication in next generation All-IP networks. Due to the different structure of IP and PSTN networks it is not possible to simply reuse current standards and solutions for realizing such communication in IP networks. This involves location management and identification solutions as well as providing reliable VoIP service infrastructure. To be able to support emergency services over an all-IP	03 - Response	Command, control and coordination			Service standard	PEACE

		standards	infrastructure further work is required in the area of highly reliable IP.						
RSP - 44	Communication equipment	radio communications	There can be a problem of radio communications. Every emergency service is using digital, analogue systems that cannot connect each other.	03 - Response	Command, control and coordination			Basic standard	Questionn aire
RSP - 59	Communication equipment	TETRA- and TETRAPOL-terminals (hand-held and mobile)	"TETRA- and TETRAPOL-terminals (hand-held and mobile) are not interoperable (cross-border). An Inter System Interface (ISI) is still missing even when the same technology solution is used in neighbour countries. There are some projects dealing with the interoperability of TETRA and TETRAPOL trying to solve these issues. It is discussed whether Gateways or Inter System Interfaces (ISI) will be the most cost-effective solution. Standardisation on EC level is required to define various interoperable levels of talk-groups based on the results of ongoing projects, e.g. the Norwegian-Swedish ISI project"	03 - Response	Information management			Product standard	ESENET
RSP - 60	Communication equipment	Real time text + interoperability between (text) services	"Real time text is a communication method that uses "full duplex" communication, thus implementing a flow of two-way communication. Although various text services are available, most of them rely on a smartphone environment or a PC base. With these "services" being separated from standard phone functionality as CLI, Location etc. it is difficult to get this kind of service compliant with all emergency	03 - Response	Information management			Product standard	ESENET

			service-related legislation. There are standards available in Europe but despite this, there are still different solutions which are offered for people that need text as a way of communication. In this situation, interoperability between the services, but especially with the emergency services, is not arranged for."							
PR - 11	Community role and communication	Standardisation of how the public should respond to different incidents	Training and Exercising: Standardisation of how the public should respond to different incidents. How should people behave in response to an incident. Currently, there are different ways to respond to an incident. Also different ways of educating people. There should be a common way to support first responders and help others (preparedness and response)	02 - Preparedness	Capacity development	Preparedness communication	immediately	Basic standard	Berlin Workshop
PR - 12	Community role and communication	The role of community	Training and Exercising (including CSOs): The role of community: societal organisations CSOs (e.g., faith groups) can play a role. This means that responding organisations will have less to do in response when a community plays a role in the response. CSOs should be involved in training and become subject matter experts.	02 - Preparedness	Personnel management		5 years	Basic standard	Berlin Workshop
MT - 16	Community role and communication	informing/educating the public incl. advice/instructions for appropriate actions	Reinforce citizen and local territorial community awareness and involvement, with increased knowledge of risks and available channels for information and advice for appropriate actions (before, during and after the incident)	01 - Mitigation	Exposure reduction	Public education and awareness raising		Service standard	M/487

MT - 17	Community role and communication	learning framework for improving community preparedness	long-term learning framework for improving community preparedness to a wide range of hazards	01 - Mitigation	Exposure reduction	Public education and awareness raising		Service standard	TACTIC
MT - 18	Community role and communication	Instructions on public behaviour during an emergency	Instructions on public behaviour during an emergency (especially an Earthquake) are not standardized	01 - Mitigation	Exposure reduction	Public education and awareness raising		Process standard	Questionn aire
PR - 15	Community role and communication	Community Policing - PEELER Police.	Community Policing - PEELER Police. Involve all players in policing - include all community, tourists, volunteers, companies/NGOs. They cooperate virtually over the cyber space. Taking advantage of local knowledge.	02 - Preparedness	Capacity development	Preparedness communicatio n	3 years	Basic standard	Berlin Workshop
MT - 19	Community role and communication	Public education on mitigation and preparedness procedures	Mitigation and preparedness procedures	01 - Mitigation	Exposure reduction	Public education and awareness raising		Service standard	Questionn aire
RSP - 85	Community role and communication	Warning (alert and notification) dissemination and understanding	Warning (alert and notification) dissemination understanding. Develop alert libraries that are applicable in all European countries. Define common European messages schemes for fire and evacuation systems. Capitalize on existing ISO/DIS 22322 on public warning process and ISO/DIS 22324 on colour coded alert.	03 - Response	Warning/crisis communicatio n			Process standard	M/487
RSP - 86	Community role and communication	(Develop a common language for warning (alert and notification):) b) communication	Develop a common language for warning (alert and notification): b. Develop a communication protocol that allows lightweight transmission of alert messages and supports light encoding of the alert libraries; with possible use of	03 - Response	Warning/crisis communicatio n			Process standard	M/487

		protocol that allows lightweight transmission of alert messages and supports light encoding of the alert libraries	wireless media (suggest more specific use of the Common Alerting Protocol (CAP), based on alert libraries, to allow interoperability).						
RSP - 87	Community role and communication	How to communicate with the public in transnational emergencies?	How to communicate with the public in transnational emergencies?	03 - Response	Warning/crisis communication			Process standard	DRIVER
RSP - 88	Community role and communication	procedure to involve the public	Develop a common and standardized procedure in order to let citizens actively bring in their resources into the relieve effort (e.g. a 'resource ticket' available on mobile phones and the web).	03 - Response	Warning/crisis communication			Process standard	M/487
RSP - 89	Community role and communication	providing dynamic information during an emergency	Standardisation for providing dynamic information during an emergency (i.e. evacuation information in real time, location, infrastructure availability, exit routes availability).	03 - Response	Warning/crisis communication			Process standard	M/487
RSP - 91	Community role and communication	messaging to assist digital volunteers	Need for standard messaging to assist digital volunteers (p.120)	03 - Response	Warning/crisis communication			Process standard	ATHENA
RSP - 93	Community role and communication	Clear and effective communication with the population	Clear and effective communication with the population with all means, including pre-developed standard messages (preferably agent/scenario specific communication strategies)	03 - Response	Warning/crisis communication			Process standard	EDEN

RSP - 94	Community role and communication	(Develop a common language for warning (alert and notification):) a) alert libraries (going beyond ISO/DIS 22324 on colour coded alert and ISO/DIS 22322 on public warning systems).	Develop a common language for warning (alert and notification): a. Develop alert libraries that are applicable in all European countries (going beyond ISO/DIS 22324 on colour coded alert and ISO/DIS 22322 on public warning systems).	03 - Response	Warning/crisis communication			Product standard	M/487
RSP - 95	Community role and communication	requirement for informing the public (through social media) depending on the level of detail	"While discussing the use of social media for informing citizens during an emergency, the experts found the following topic as in need for careful consideration: Depending on the amount of details the alert will include requirements standardisation has to be set and agreed."	03 - Response	Warning/crisis communication			Service standard	ESENET
RSP - 97	Community role and communication	Public warning for citizens	Multilingual standardised Public warning for citizens	03 - Response	Warning/Crisis Communication			Process standard*	Questionnaire
RCV - 04	Community role and communication	Standard plans for citizens resilience	standard plans for citizens resilience: authorities should develop at least basic service against disaster	04 recovery	Determination and implementation of recovery programme		5 years	Basic standard	Berlin Workshop
PR - 70	Community role and communication	Communication with the public	Standard messages for communication in crisis situation are needed Psychological support is required; no standard exist, especially for little or medium crisis	02 - Preparedness + 03 Response	Capacity development	Preparedness communication		Basic standard	Helsinki Workshop

PR - 01	Data sharing	Common and standardised template for casualties' registration	A standard methodology to register casualties during mass casualty incidents is needed. Currently, each country and each organisation has its own procedure to register casualties (collected data, data format, type of database - paper/computer- etc.). Such approach complicates cooperation and makes it less effective. A common and standardised template for casualties' registration could overcome these obstacles	02 - Preparedness	Asset management		immediat ely	Basic standard	Brussels Workshop
PR - 14	Data sharing	Operational side of crisis management	Operational side of crisis management - how is the data visualised? Some use papers, some use modern technology. Are there any national standards? What should be standardised on the operational, tactical and strategic level? Approach disaster management in a core way - what is a good practice amongst various countries? Data visualisation - what information should be displayed? (Preparedness and response)	02 - Preparedness	Asset management		3 years	Basic standard	Berlin Workshop
MT - 04	Data sharing	Lack of a common data sharing	Data sharing procedure: different operators of the same service (e.g. Italian highway network) with different way to manage their services. They do not learn from each other, there's a lack of a common data sharing.	01 - Mitigation	Risk assessment		3 years	Basic standard	Rome Workshop
MT - 05	Data sharing	Standardised hazards and risks GIS	standardised hazards and risks GIS. standardisation to MAP hazards and risks. How to map the situation. It's an issue of data sharing. It could support also the communication of Hazards towards the population.	01 - Mitigation	Risk assessment	Risk identification	immediat ely	Service standard	Rome Workshop

PR - 24	Data sharing	Standardised data and information sharing	During a crisis data come from different types of media (radio data, meteo data, satellite data, …). Need to receive data in a standardised way (standard protocol) to enable to use them in decision support systems?	02 - Preparedness	Asset management		immediately	Basic standard	Rome Workshop
PR - 45	Data sharing	geospatial basic information system (including for underground facilities and buildings)	Establish a common geospatial basic information system (including for underground facilities and buildings), based on Geographic Information Systems (GIS) standards, to be used by organisations before and during crisis situations	02 - Preparedness	Capacity development	Response and recovery planning		Product standard	M/487
RSP - 03	Data sharing	Registration of refugees supporting tool	A standardised tool for the registration of refugees in emergency shelters is needed. Currently, each country and each organisation has its own registration procedure (collected data, data format, type of database - paper/computer- etc.). Such approach complicates cooperation and makes it less effective. A common and standardised template for refugees registration could overcome these obstacles	03 Response	Information management, Monitoring/data collection		5 years	Product standard	Brussels Workshop
RSP - 10	Data sharing	Interoperability of information systems	Data collection and data transfer for injured/victims: Interoperability of information systems (e.g., data from incident to hospital). Collection of data is currently free. Standardisation of data collected from the field to the hospital - would improve the response and also hospital efficiency. Standardisation for exchange of different information between	03 Response	Information management, Monitoring/data collection		5 years	Basic standard	Berlin Workshop

			different services responding - more structure of the information would create a smoother flow. Needs data protocols and standardisation of the data sets collected. At present data sets are different. Data sets are different according to the country. Lack of ICT technology for sharing data. Standard template for collecting data (e.g., on victims). this would optimise collaboration						
RSP - 15	Data sharing	Standardisation of interfaces	There is a problem with communication aspects among First responders. To promote data interoperability to get the same picture of the disaster (a common language). For instance, standardisation of interfaces.	03 Response	Command, control and coordination		3 years	Terminology standard	Berlin Workshop
RSP - 18	Data sharing	Data visualization for COP	Data visualization for COP: define a standard monitoring system to communicate info to create early actions	03 Response	Command, control and coordination		5 years	Service standard	Berlin Workshop
RSP - 24	Data sharing	Data and information exchange	Standardisation in devices, data to exchange information. There should be a common protocol (who to reach, what type of data). Within organisations, across organisations and with the public.	03 Response	Information management, Monitoring/data collection		5 years	Basic standard	Rome Workshop
RSP - 28	Data sharing	Optimised communication	lack of communication in fragmented organisation that manage critical events. A standard is needed to support the communication between different organisations responding to a critical event. Not simple communication may create bottlenecks which may dramatically affect the emergency response	03 Response	Command, control and coordination		immediately	Basic standard	Rome Workshop

RSP - 29	Data sharing	Open data protocols	Open data protocols for use in disaster (involving "spontaneous citizens initiatives) standards to use the information coming from the public (e.g. private pictures of the damaged infrastructure)	03 Response	Information management, Monitoring/data collection		more than 5 years	Basic standard	Rome Workshop
RSP - 30	Data sharing	Standardised situation report	standardised situation report: the organisations have different ways to report the critical situation. It's a matter of data collection, loss of time in the data homogenization process	03 Response	Information management, Monitoring/data collection		immediately	Basic standard	Rome Workshop
RSP - 32	Data sharing	Data and information exchange	standards to communicate during the crisis and after the crisis. Standard templates to gather information and to share the information (radio frequencies, standard channels of communication). Standards KPI are needed also to communicate the seriousness of the crisis. Short message understandable from everyone (both citizens and end-users)	03 response	Information management, Monitoring/data collection		immediately	Basic standard	Rome Workshop
RSP - 43	Data sharing	IT-based support for command & control and data sharing	Topic is related to Information Management. It would be helpful to get standards for IT-based support for command & control. It Begins with the command & control centre of a city/region and ends with the local command & control unit on location. All systems should work electronically hand in hand. The on-scene commander should have an actual overview about all units on location without having to type everything in an own C&C system. All date should be transmitted automatically. In the	03 - Response	Command, control and coordination			Process standard	Questionnaire

			end the units should get orders electronically on e.g. a tablet computer in the car/unit.							
RSP - 48	Data sharing	inter-connectivity between dispatch centres	Minimum standards for inter-connectivity between dispatch centres across borders From WHO (Regional office in Europe): inadequacies at Emergency Medical Services in Europe due to a lack of standardisation; minimal standards are required.	03 - Response	Emergency health care				Product standard	CRISYS
RSP - 54	Data sharing	formats and protocols for more efficient information sharing	A standard is needed on formats and protocols for more efficient information sharing (Reachback after radiological/nuclear incident).	03 - Response	Information management				Basic standard	IMPROVER
RSP - 55	Data sharing	automatic registration of location, availability, status and type of emergency response units	"Standardisation on EC level is required in order to come to an agreement about automatic registration of location, availability, status and type of emergency response units entering the emergency services' communication network of another country."	03 - Response	Information management				Process standard	ESENET
RSP - 56	Data sharing	information that is needed regarding the geo-location of an individual, a post, or a tweet	Development of standards on information needed regarding the geo-location of an individual, a post, or a tweet (e.g., how the location is represented, location of topic versus location of individual, how to manage retweets) (p.236)	03 - Response	Information management				Process standard	ATHENA
RSP - 57	Data sharing	interfaces for communication and data exchange with actual common data exchange platforms	Standardized interfaces for communication and data exchange with actual common data exchange platforms such as GDACS and VirtualOSOCC	03 - Response	Information management				Product standard	RECONASS

RSP - 58	Data sharing	interfaces for communication and data exchange with local damage assessment systems	Standardized interfaces for communication and data exchange with local damage assessment systems such as HAZUS	03 - Response	Information management			Product standard	RECONASS
RSP - 61	Data sharing	definition and implementation of video streams	"Technology-wise, video streams require the definition and implementation of common standards in all Member States, because the service should be carrier and device-independent."	03 - Response	Information management			Product standard	ESENET
RSP - 62	Data sharing	Automatic sharing of data and information	Automatic sharing of data and information across borders	03 - Response	Information management			Product standard	DRIVER
RSP - 63	Data sharing	social media data	A need for interoperability of social media data, including data standards and content categories to support information sharing among multiple stakeholders (p.235)	03 - Response	Information management			Product standard	ATHENA
RSP - 64	Data sharing	definition of user interfaces (e.g. graphical functions, icons, colours etc.)	"The European Commission should launch Research and Development projects aimed at defining user interfaces (e.g. graphical functions, icons, colours etc.) standardised across member states and regions, thus improving the understanding of the emergency situations. The example of the current geographic information system used by border control (EUROSUR) and its evaluation could lead to the next steps. This must be accompanied with the definition of common cartographic projections, descriptive tags and icons, labelling, others. Moreover, since many different proprietary systems exist, the	03 - Response	Information management			Service standard	ESENET

			sharing of information requires the definition of data models."							
RSP - 65	Data sharing	(Ontology acquisition for) Social media information	Improve standardisation in Ontology acquisition for Social media information	03 - Response	Information management			Terminology standard	SLANDAIL
RSP - 66	Data sharing	nomenclature for data sharing wrt big data	With respect to big data standardisation of nomenclature for data sharing is needed (p.136)	03 - Response	Information management			Terminology standard	ATHENA
RSP - 74	Data sharing	(GIS) standards for use in buildings and underground systems	Geo-localization (GIS) standards for use in buildings and underground systems to facilitate First Responders intervention. It concerns two standards (how to implement technology, such as the use of radio wireless communication protocols, and how to acquire the geo-localization information).	03 - Response	Rescue operations			Product standard	M/487
RSP - 75	Data sharing	big data and geo data (used in cc)	How can we support the incident command through "big data" and geo data?	03 - Response	Rescue operations			Basic standard*	Questionn aire
RSP - 77	Data sharing	a) Exchange of information between law enforcement authorities b) Registers, their content and availability	- Exchange of information between law enforcement authorities - Registers, their content and availability	03 - Response	Security/ law enforcement			Process standard	Questionn aire
RSP - 99	Data sharing	Sharing of data	Primarily two kinds of data: assessment data, such as risk assessment (preparedness), which could be provided to the public, and tactical data during the event (response). Both could be really helpful. Trust and security are relevant issues in data sharing. Need of standard and secure protocols for	03 Response	Command, control and coordination			Basic standard	Helsinki Workshop

			data sharing (what data, where to find, how to receive; the formats are less relevant). IT technicians have to be involved as main actor (e.g. with reference to metadata). The new standards have to be in line with existing ones						
PR - 02	Equipment	Standard disaster management equipment	Standardisation of the components of disaster preparedness means is needed in case of natural and technological disasters	02 - Preparedness	Asset management		3 years	Product standard	Brussels Workshop
PR - 36	Equipment	first responder work-suits (CBRNE related)	Tested and reliable first responder work-suits that provide sufficient protection to escape the contaminated area, and that are standardized to the greatest extent possible (to simplify cross-sector and cross-border efforts (CBRNE related)	02 - Preparedness	Asset management			Product standard	FASTPASS
PR - 38	Equipment	identity and borders systems (mainly ABC detection related)	common technical and interoperability standards for identity and borders systems, as well as standards for biometric identifiers	02 - Preparedness	Monitoring / detection			Product standard	FASTPASS
PR - 39	Equipment	sampling kits, accompanied by set guidelines (CBRNE detection/sampling)	Air, water and ground sampling kits, accompanied by set guidelines and EU-standards for content, application and approaches for use. - Strategies for safe and efficient sampling while keeping an adequate "chain of custody"	02 - Preparedness	Monitoring / detection			Process standard	EDEN
RSP - 07	Equipment	Common equipment specifications	Establishing the characteristics of different equipment for a specific crisis. Having the same standard specification for the same equipment - that the specification of the equipment is recorded in the same way	03 Response	Operations support		5 years	Product standard	Berlin Workshop

RSP - 09	Equipment	Connectivity of Hydraulic Equipment	Connectivity of Hydraulic Equipment: Standard Connectivity of fire pumps	03 Response	Operations support		5 years	Product standard	Berlin Workshop
RSP - 17	Equipment	Equipment interoperability	standards to promote the interoperability of equipment (e.g. field hospital) and the deployment process between organisation is needed. A common way to establish a camp in an efficient and quick manner.	03 Response	Operations support		5 years	Product standard	Berlin Workshop
RSP - 20	Equipment	Smart equipment for crisis management	smart equipment. Smoke detector, smart watches and car drive collision detection are new technologies that need to be standardized. These devices provide a high-value data for crisis management.	03 Response	Operations support		3 years	Product standard	Berlin Workshop
RSP - 47	Equipment	Equipment for in-hospital and out-of-hospital emergency services	Minimum standards Equipment for in-hospital and out-of-hospital emergency services From WHO (Regional office in Europe): inadequacies at Emergency Medical Services in Europe due to a lack of standardisation; minimal standards are required.	03 - Response	Emergency health care			Product standard	CRISYS
RSP - 70	Equipment	types of unmanned assets and their data output	Increased use of various types of unmanned assets outputting various types of data creates problems for multi-national deployments due to the integration of these tools in the standard operating procedures of international teams and for data sharing	03 - Response	Rescue operations			Process standard	ICARUS
RSP - 72	Equipment	detection equipment for search and rescue	Standardisation of detection equipment for search and rescue (to facilitate international missions).	03 - Response	Rescue operations			Product standard	M/487

RSP - 73	Equipment	interoperability of unmanned search and rescue equipment.	Facilitate interoperability of unmanned search and rescue equipment.	03 - Response	Rescue operations			Product standard	M/487
RSP - 84	Equipment	Use of unmanned aerial systems and their data collection	Use of unmanned aerial systems for supporting situational awareness operations. Standardised data collection from these new tools would enable sharing of the collected data across crisis managers.	03 - Response	Situation assessment			Process standard	Questionnaire
MT - 02	Legal / Social issues	Socio-technical gap between research and real operational environment	A standard is needed to solve Socio-technical issues to implement R&D projects (i.e. FRONTEX) Border control in migration crisis. Applicability and feasibility of the proposed solution (as result of R&D project) in real-world scenarios is low. There is a gap between research and real operational environment.	01 - Mitigation	Monitoring and review		immediately	Process standard	Berlin Workshop
RSP - 19	Legal / Social issues	Citizen privacy framework	define a legal citizen privacy framework during disaster crisis. It's useful to extract information (personnel data like geolocation, pulse rate) of citizens that suffer a disaster. Promoting a privacy-by-design solution to deal with this issue.	03 Response	Information management, Monitoring/data collection		3 years	No idea	Berlin Workshop
RSP - 31	Legal / Social issues	Humanitarian assistance	standards for humanitarian assistance for accommodations in shelters. Standards to evaluate the real needs from the people	03 response	Situation assessment		more than 5 years	Basic standard	Rome Workshop
RCV - 02	Legal / Social issues	Insurance regulations	Insurance regulations (insurance standards) are needed to optimise the public funding in case of a disaster. If private insurances are used then the state doesn't have to	04 recovery	Determination and implementation of recovery programme		5 years	Basic standard	Berlin Workshop

			store money and don't have to reserve money. Public budget will be used more effectively						
PR - 03	Training and education	Standard exercises evaluation	A standard evaluation of exercises is needed. Currently, trainings are regularly executed by first responders but there's a relevant lack of evaluation methods that clearly state the success and failure rates of their exercises.	02 - Preparedness	Capacity development	Training	3 years	Basic standard	Brussels Workshop
PR - 13	Training and education	Training and exercises for security and crisis management	Approach to training and exercises for security and crisis management. How national level are understanding training? What exercises should be held - field, table top? There should be a standard for the training - on the tool or by the tool. Serious gaming and virtual reality are emerging. Standardise training before exercise. ISO 223 standards family already exists on this area (preparedness and mitigation)	02 - Preparedness	Capacity development	Training	5 years	Basic standard	Berlin Workshop
PR - 17	Training and education	Training for first responders and citizen	Content and format of training for first responders and citizen. Standardisation needs for civil protection agencies. There are multiple layers about civil protection like community, regional, national… Organisations with large expertise (event a long history) have strict rules to harmonize how to do the work.	02 - Preparedness	Capacity development	Training	5 years	Basic standard	Berlin Workshop
PR - 20	Training and education	Standard training	Standards on education. To assure that responders have the same standard/basic knowledge and skills. Inside countries as well as across countries.	02 - Preparedness	Capacity development	Training	3 years	Basic standard	Rome Workshop

PR - 29	Training and education	Disaster manager	disaster manager: we need a standard to come out with the profile (competences, abilities and knowledge) of a DISASTER MANAGER at local and national level. To coordinate the situation during critical events. Also, to coordinate multinational events.	02 - Preparedness	Personnel management			5 years	No idea	Rome Workshop
PR - 60	Training and education	training for first responders	Standard training for first responders would ensure right response and would enable and ease coordination between different responders, even in case more than 1 country is involved	02 - Preparedness	Capacity development	Training			Process standard	Questionn aire
PR - 63	Training and education	a) certification systems for training in crisis management (generally) and protection against CBRN (specifically) b) categorisation/l evels of preparedness	There is an absence of common certification systems for training in crisis management (generally) and protection against CBRN (specifically). Beside this, there is no mechanism of mutual recognition of certificates across the EU countries. As a first step, to overcome this gap, Standards for different level of preparedness should be developed.	02 - Preparedness	Capacity development	Training			Basic standard	Questionn aire
PR - 65	Training and education	training for first responders/ CM operations	In my personal perception, there is a strong need to standardize a truly European approach in field of training for crisis management operations. Namely for such activities as Virtual/ Table-Top-Exercise or with small field component. Is should include issues like using modern ICT for early warning and data assessment for contingency planning.	02 - Preparedness	Capacity development	Training			Service standard	Questionn aire

RSP - 51	Training and education	Education of EMS professionals	Minimum standards for Education of EMS professionals From WHO (Regional office in Europe): inadequacies at Emergency Medical Services in Europe due to a lack of standardisation; minimal standards are required.	03 - Response	Emergency health care			Basic standard	CRISYS
RSP - 78	Training and education	a) CBRN-E training for law enforcement first responders b) CBRN-E related terminology	In my opinion CBRN-E training for law enforcement first responders should be harmonized on EU level. LEA's of the member states have different levels of training and the response procedures are not consistent either. That makes cross-border cooperation on CBRN-E challenging A lexicon on CBRN-E related definitions would also be required to facilitate communication between law enforcement, scientific support and legislative authorities.	03 - Response	Security/ law enforcement			Basic standard	Questionn aire
PR - 66	Training and education	training for first responders/ to overcome heterogeneous levels of skills	issue: heterogeneous levels of education, training and skills evaluation at the European level	02 - Preparedness	Capacity development	Training		Basic standard	Questionn aire
PR - 67	Training and education	European exercises (incl. elements and requirements and the procedures how to plan, implement and evaluate them)	Cross-border exercises have a long history and a common understanding has been developed how international exercises shall be carried out. There are several guiding documents and manuals for exercises and a large volume of lessons learned documents has been produced. ISO has published a standard for exercises and testing.	02 - Preparedness	Capacity development	Training		Process standard	Questionn aire

			Nevertheless, there is no common European standard for European exercises like those exercises which are carried out under the EU civil protection mechanism. A European exercise standard which describes the elements and requirements of large scale cross-border exercises and the procedures how to plan, implement and evaluate them could facilitate the tendering of exercises as well as exercises planning, implementation and evaluation.						
PR - 68	Training and education	training in general to simplify it	Standards to make training simpler	02 - Preparedness	Capacity development	Training		Process standard	Questionnaire
PR - 71	Training and education	International trainings	Necessity of international trainings. It's difficult to learn to work together during a crisis situation. Different training make the mixed team less effective. Exercises and trainings are important. Need to have scenario based trainings and trainings with support of "Red teams" (also them require training/education). Standards for large scale cross-border exercises and the procedures how to plan, implement and evaluate them are lacking	02 - Preparedness	Capacity development	Training		Basic standard	Helsinki Workshop