



Driving Innovation in Crisis Management
for European Resilience



**D955.11 – REPORT ON EXISTING
STANDARDS AND STANDARDIZATION
ACTIVITIES IN CRISIS MANAGEMENT**
SP95 - IMPACT, ENGAGEMENT AND SUSTAINABILITY
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The DRIVER+ project

Current and future challenges due to increasingly severe consequences of natural disasters and terrorist threats require the development and uptake of innovative solutions that are addressing the operational needs of practitioners dealing with Crisis Management. DRIVER+ (Driving Innovation in Crisis Management for European Resilience) is a FP7 Crisis Management demonstration project aiming at improving the way capability development and innovation management is tackled. DRIVER+ has three main objectives:

1. Develop a pan-European Test-bed for Crisis Management capability development:
 - Develop a common guidance methodology and tool (supporting Trials and the gathering of lessons learnt).
 - Develop an infrastructure to create relevant environments, for enabling the trialling of new solutions and to explore and share Crisis Management capabilities.
 - Run Trials in order to assess the value of solutions addressing specific needs using guidance and infrastructure.
 - Ensure the sustainability of the pan-European Test-bed.
2. Develop a well-balanced comprehensive Portfolio of Crisis Management Solutions:
 - Facilitate the usage of the Portfolio of Solutions.
 - Ensure the sustainability of the Portfolio of Solutions.
3. Facilitate a shared understanding of Crisis Management across Europe:
 - Establish a common background.
 - Cooperate with external partners in joint Trials.
 - Disseminate project results.

In order to achieve these objectives, five sub-projects (SPs) have been established. **SP91 Project Management** is devoted to consortium level project management, and it is also in charge of the alignment of DRIVER+ with external initiatives on Crisis Management for the benefit of DRIVER+ and its stakeholders. In DRIVER+, all activities related to Societal Impact Assessment (from the former SP8 and SP9) are part of SP91 as well. **SP92 Test-bed** will deliver a guidance methodology and guidance tool supporting the design, conduct and analysis of Trials and will develop a reference implementation of the Test-bed. It will also create the scenario simulation capability to support execution of the Trials. **SP93 Solutions** will deliver the Portfolio of Solutions which is a database driven web site that documents all the available DRIVER+ solutions, as well as solutions from external organisations. Adapting solutions to fit the needs addressed in Trials will be done in SP93. **SP94 Trials** will organize four series of Trials as well as the final demo. **SP95 Impact, Engagement and Sustainability**, is in charge of communication and dissemination, and also addresses issues related to improving sustainability, market aspects of solutions, and standardisation.

The DRIVER+ Trials and the Final Demonstration will benefit from the DRIVER+ Test-bed, providing the technological infrastructure, the necessary supporting methodology and adequate support tools to prepare, conduct and evaluate the Trials. All results from the Trials will be stored and made available in the Portfolio of Solutions, being a central platform to present innovative solutions from consortium partners and third parties and to share experiences and best practices with respect to their application. In order to enhance the current European cooperation framework within the Crisis Management domain and to facilitate a shared understanding of Crisis Management across Europe, DRIVER+ will carry out a wide range of activities, whose most important will be to build and structure a dedicated Community of Practice in Crisis Management, thereby connecting and fostering the exchange on lessons learnt and best practices between Crisis Management practitioners as well as technological solution providers.

Executive summary

This deliverable reports on the research and analysis of standardisation activities in the field of crisis management. It belongs to **SP95 Impact, Engagement and Sustainability** and shows the results of task 955.1 updating the analysis of existing standards and standardisation activities within WP955 Standardisation activities.

Standards are one way to make the results of DRIVER+ useable after the project ends. But they are also an input for the work of every subproject because standards present a state-of-the-art and the outcomes of DRIVER+ should be compatible with the current state-of-the-art in the field of crisis and disaster management. To get an overview of what standardisation is how standards are developed, and how DRIVER+ results can contribute and/or use standardisation, the international, European and national standardisation landscape is presented in section 2.

The main goal of this task is to give an overview of the state-of-the-art in the field of crisis management by researching standardisation documents, which represent it. About 1000 documents were identified as possibly relevant for the field and decreased by an assessment of the WP955 members on 70 documents that are relevant for the DRIVER+ project. The methodology of this research and analysis of standardisation documents is presented in section 3.

The results of this assessment are presented in section 4. The 70 as relevant identified standardisation documents are separated regarding to their relevance for every subproject within DRIVER+. The most relevant ones are:

- For SP91 Project Management, especially the terminology standards are important for the development of the DRIVER+ terminology e.g. ISO Guide 73 Risk management – Vocabulary, as well as ISO 22300 Societal security – Terminology, in which more than 270 terms are included.
- For SP92 Test-bed, the standards series of ISO 223xx on Societal security (Guidelines for exercises, Emergency management – Requirements for incident response, Organizational resilience – Principles and attributes) is of relevance for the Guidance Methodology, Guidance Tool, and Test-bed infrastructure.
- For SP93 Solutions, the standards series of ISO 223xx on Societal security is relevant. Additionally, the list of identified standards can support the selection of the solutions to be included in the Portfolio of Solutions as there might be standards related to specific solutions.
- For SP94 Trials, the ISO 22398 standard on Societal security -- Guidelines for exercises, is relevant to support the preparation, conduction and follow up of the trials. Also the terminology standards are of relevance within this subproject because it is important to have a common understanding on the most important terms within the trials.
- For SP95 Impact, Engagement, and Sustainability: only a few standards are related directly to the work of the subproject but the complete list of standards will be used to raise awareness at project level on existing standards and ongoing standardization activities and will support the initiation of new standardization activities.

Some of the 70 documents are relevant for more than one subproject. A more detailed interpretation of the results is given in section 5.

Based on the identified standardisation documents, gaps regarding to standardisation in the field of crisis and disaster management will be identified and, if possible they will be filled in by DRIVER+ results. The identification of gaps and the belonging standardisation potentials within DRIVER+ will be the next step within WP955. It will be followed by the initiation of standardisation activities.

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List of Acronyms

Acronym	Definition
AC	French standard
ANSI	American National Standards Institute
ASME	American Society of Mechanical engineers
ASTM	American Society for Testing and Materials
BS	British Standard
CCMC	CEN-CENELEC Management Centre
CEN	European Committee on Standardisation
CENELEC	European Committee on Electrotechnical Standardisation
CWA	CEN Workshop Agreement
DIN	German standard
EFTA	European Free Trade Association
EN	European Standard (European Norm)
GOST	Russian standard
IEC	International Electrotechnical Commission
ISO	International Organization for standardisation
ITU	International Telecommunication Union
NEN	Nederlandse Norm
NF	French standard
NFPA	National Fire Protection Association
OENORM	Austrian Standard
prEN	Draft European Standard
SAE	Society of Automotive Engineers
SANS	South African National Standards
SDO	Standards Developing Organizations
UL	Underwriter Laboratories

1. Introduction

This deliverable reports on the research and analysis of standardisation activities in the field of crisis management. It belongs to **SP95 Impact, Engagement and Sustainability** and shows the results of the first task within WP955 Standardisation activities. Standards are one way to make the results of DRIVER+ useable after the project ends. But they are also an input for the work of every subproject.

A standard specifies requirements for products, services and/or processes, laying down their required characteristics. This helps to ensure the free movement of goods and encourages exports. Standardisation promotes efficiency and quality assurance in industry, technology, science and the public sector. It serves to safeguard people and goods and to improve quality in all areas of life. Standards are developed in a consensus-based process organised by a recognised standardization body.

Anybody can submit a proposal for a new standard through a standardisation body. All those interested in a specific standards topic can participate and contribute with their expertise. Before a standard is officially adopted, a draft version is published so that the public can make comments. Experts working on a standard must come to an agreement on its content, otherwise the standard will not be established. To ensure that they reflect the state-of-the-art, standards are regularly reviewed by experts at least every five years.

The objectives of the WP955 are:

- to update the overview of relevant existing standards and standardisation activities; and thus to share with the consortium the status quo of standardisation within the field of crisis management;
- Crosslink with the respective SPs in order to identify the potential implications of DRIVER+ results for standardisation; and thus to identify the need for standards as well as to summarize and prioritize proposals for new standardisation activities;
- Support future standardisation activities on existing standards and standards under development with

This deliverable addresses the first objective. It provides an introduction to the standardisation landscape and an overview on standardisation activities in the field of crisis and disaster management, with specific emphasis on DRIVER+ activities.

1.1 Background

The standardisation work package (WP955) is part of Subproject **SP95 Impact, Engagement, and Sustainability**. This work package takes care of all standardisation related issues of the project. It aims to support the dissemination and exploitation of DRIVER+ results through standardisation activities and aims towards the improvement of the EU crisis management.

The activities in WP955 are targeted to raise awareness within the DRIVER+ project about existing standards and standardisation activities in the field of crisis management. Therefore, the gaps in the existing standardisation landscape compared with project related standardisation needs are analysed, and DRIVER+ results are transferred into new standardisation activities. Hence, three tasks are planned:

1. Updating the analysis of existing standards and standardisation activities in the field of crisis management.
2. Analysis of standardisation potential within DRIVER+ project.
3. Initiation of, and/or contribution to standardisation activities with the aim to achieve sustainable usage of the results of the DRIVER+ project.

This deliverable will show the methodology and results of the first task: The analysis of existing standards and standardisation activities.

1.2 Objectives and Scope of Task 955.1 Updating the analysis of existing standards and standardisation activities

This task includes the identification and assessment of existing standards, standards under development, and other standardisation activities in the field of crisis management. This task specifically addresses those relevant for the thematic focuses in every subproject. The focus will be on the analysis of standardisation activities within the EU, but relevant activities outside Europe (e.g. US) are also considered.

The work is based on available compilations of existing standards in crisis management, especially considering the work already performed between M03-M27 and other EU-funded projects (e.g. ResiStand, BroadMap).

The outcome of this task is a list of standards and standardisation activities within the thematic field of crisis management, and the objective to give an overview regarding these activities. Additionally, the lists of standards are assessed on the relevance to each subproject of DRIVER+, with the aim to inform the subproject members of relevant standards in their field of action.

1.3 Document structure

This deliverable contains six sections. The introduction presents the background and objectives of the task 955.1 and its outcomes. This is followed by a view on the standardisation landscape regarding to the questions:

- What kind of work happens regarding to global, European and national standards in the field of crisis management?
- How are standards developed generally?

In the third section, the methodology of the research and assessment of standardisation activities is explained. The results of this are presented in the fourth section and interpreted in the fifth. The conclusion is presented in the last sixth section.

2. Standardisation landscape

Standardisation is a widely accepted tool to lower trade barriers due to an agreement on field specific terminologies, methodologies, construction methods and a wide range of other possibilities. There are several ways for standardisation on international, national and European level. In this section, a brief overview of these opportunities is given in the context of the field of crisis management.

A standard is a consensus based document that is approved by a recognized body. It provides rules, guidelines or characteristics for activities or their results, reflecting the state-of-the-art. It should be based in the consolidated results of science, technology and experience, aiming at the promotion of the optimum community benefits (1).

There are three official standardisation organizations at international level: International Organization for standardisation (ISO), International Electrotechnical Commission (IEC), and International Telecommunication Union (ITU). They work on international standardisation issues, which can be directly addressed to them or via the European or national standardisation bodies. On the European level, the European Committee on Standardisation (CEN), European Committee on Electrotechnical Standardisation (CENELEC) and the European Telecommunication Standards Institute (ETSI) are in charge of standardisation work. On a national level there are a lot of standardisation organizations. Some countries have more than one organization, some of them are financed by the government, and some are independent of them. They are all working together under the roof of the European and international standardisation bodies.

Considering the international standardisation landscape, the Vienna and Dresden Agreements need to be explained. Those agreements between CEN and ISO (Vienna), CENELEC and IEC (Dresden) have the objective to carry out specialist work at one level of standardisation (where possible), and use parallel voting procedures to achieve simultaneous adoption as ISO/IEC and EN standards.

With the aim to provide an overview of standardisation work, as well as standardisation activities, the current activities on international, European and national standardisation level are considered in the next sections. The focus lies on the European standardisation work, due to DRIVER+ project being a European funded project.

2.1 International Standardisation Work

The International Organization for Standardisation (ISO) together with the International Electrotechnical Commission (IEC) are the responsible standardisation organisations on the global level. The International Telecommunications Union (ITU) is the United Nations specialised agency in terms of information and telecommunication technologies. ISO, IEC and ITU established the World Standards Cooperation (WSC) in 2001, in order to strengthen and advance their voluntary consensus-based international standards systems (2) (3) (4).

Many of ISO's members also belong to regional standardisation organizations. ISO has recognised regional standards organizations representing Africa, the Arab countries, the area covered by the Commonwealth of Independent States, Europe, Latin America, the Pacific area, and the South-East Asia nations. The regional bodies commit themselves to adopt ISO standards, unchanged, as the national standards of their members and to develop deviating standards only when there are no suitable ISO Standards that can be adopted nationally. In the case of IEC, similar agreements apply (5).

2.1.1 Development of an ISO standard

International Standards are developed by ISO (or IEC, for electrotechnical standards) according to the national delegation principle, with each country sending a delegation of experts to represent the national standpoint. This standpoint is developed in national committees that "mirror" the international committees. These mirror committees decide whether or not an International Standard should be adopted

as a national standard; this is voluntary, in contrast to the European Standards, which must be adopted nationally.

As at national level, international standards work begins with a "new work item proposal". Such proposals can be submitted by:

- A member of the International Organization for Standardisation (ISO), or – in electrotechnical standardisation – by a member of the International Electrotechnical Commission (IEC).
- A working body of ISO or IEC.
- An international organization that has liaison status.
- The Technical Management Board of ISO or IEC.
- The ISO or IEC Secretary General.

A simple majority of national standards organizations with an interest in the subject matter is required for the proposal to be approved. In addition, a sufficient number of these must also agree to participate in the work. Only then will the proposal be accepted and work on the standard can begin. Within two months a "committee draft" is circulated among the members of the responsible Technical Committee for voting. A draft is drawn up taking any comments received into consideration.

The draft standard is then made available to all ISO (or IEC) members, who have three months to submit their national position and comments. Within a two-month period, anyone may comment on this draft. The national mirror committee discusses all comments received and submits the consolidated national viewpoint to ISO.

If the criteria for approval are fulfilled during the voting procedure, the draft is then published as an International Standard. If they are not fulfilled, or if the responsible working group so decides, a Final Draft is published. The ISO or IEC members then have two months to decide whether to accept this as an International Standard. No comments are submitted during this voting period. Acceptance of the Final Draft requires a two-thirds majority of all active members participating, and not more than a quarter of all votes may be negative. Ratification of an International Standard takes place following positive voting. There is no obligation for national standardisation bodies as part of ISO or IEC to adopt International Standards as national standards.

In addition, a standard that has been developed at European level can be simultaneously adopted as an International Standard by means of parallel voting procedures in accordance with the Vienna Agreement. Such standards are to be automatically adopted by the national standards organizations.

2.1.2 Relevant ISO/TCs regarding to the field of crisis management

At the international level, the relevant Technical Committee (TC) (6) in the context of crisis management is ISO/TC 292 security and resilience with its six working groups. Their scope is to enhance the safety and resilience of society. The working groups are specified regarding to the topics they are working on:

- ISO/TC 292/WG 01 Terminology.
- ISO/TC 292/WG 02 Continuity and organizational resilience.
- ISO/TC 292/WG 03 Emergency management.
- ISO/TC 292/WG 04 Authenticity, integrity and trust for products and documents.
- ISO/TC 292/WG 05 Community resilience.
- ISO/TC 292/WG 06 Protective security.

Not included in their working field are sector specific security projects from other areas, like e.g. ISO/TC 262 Risk management.

2.2 European Standardisation Work

At the European level, following EC information directive, standards work is carried out by the European Committee for Standardisation (CEN), the European Committee for Electrotechnical Standardisation (CENELEC) and the European Telecommunication Standards Institute (ETSI) (7).

European standardisation provides harmonised standards that are a reliable indicator of conformity with relevant EU legislation. In this context the New Approach, as an EU Council resolution to technical harmonisation and standardisation has to be mentioned. This approach was introduced in 1985 and changed the European standardisation landscape. Nowadays about 80 % of the published standards are European or international in origin.

The European standardisation organisations are associations of national standardisation bodies according to Belgian (CEN, CENELEC) or French (ETSI) law. Members of CEN and CENELEC are first and foremost the national standards organizations of EU and EFTA member states, and the national standards organisations of other countries intending to become members of the EU or EFTA; members of ETSI are direct members such as companies, institutes and services throughout Europe. With their August 1982 cooperation agreement, CEN and CENELEC declared themselves to be joint European standardisation organisations. Their responsibility is the harmonisation of existing national standards (8).

CEN/CENELEC has working groups including the General Assembly, Administrative and Technical Boards and Technical Committees that are open to all members, and include national delegations presenting agreed positions. European organisations which represent a particular sector may have observer status. In addition to the full members, there are also affiliated standards bodies and associate organizations.

In 1987, ETSI developed from the standardisation activities of the European Conference of Postal and Telecommunications Administrations. It does not involve national delegates, its members being stakeholders from industry, organizations and government.

2.2.1 European Standardisation Documents

At European level, different standardisation documents are available. Each of these represents a different level of consensus.

The European Standard (EN) aims at developing a normative specification reflecting the current state of technology and knowledge. While developed, the standstill policy comes into force. This means that during work on a European standard and after its publication, CEN/CENELEC Members agree not to publish national standards which are not in line with it. This is done to prevent any situation occurring during the preparation or after publication of a standard which could impair or undermine harmonisation. National standards which are in conflict or duplicate EN standards should be withdrawn.

One special type of EN is the mandated European standard (harmonised EN), which is applied in the context of the New Legislative Framework (a.k.a. New Approach (7)) and developed on the basis of a mandate from the European Commission to set out the essential requirements for the product or service that are specified in an EC Directive. These Essential Requirements deal in particular with the health and safety of users and other fundamental matters. It has no special designation, except from a note in the foreword of the standard.

Other products of European standardisation include European Technical Specifications (CEN/TS) which aim to aid market development and growth for products or methods that are still in the development and/or trial phase, and European Technical Reports (CEN/TR) which provide specifications of a recommendatory and explanatory nature. Special specifications, which are developed with the rapid consensus of expert stakeholders (no full consensus needed), can be found in CEN Workshop Agreements (CWA). All document types differ in their development procedures and binding forces.

In EN 45020 some common types of standards are defined as shown in Table 2.1.

Table 2.1: Types of standards as defined in EN 45020

Type of standard	Definition
Basic standard	Wide-ranging coverage or contains general provisions for one particular field
Terminology standard	Concerned with terms, accompanied by their definitions etc.
Testing standard	Concerned with test methods, sometimes supplemented with other provisions related to testing
Product standard	Specifies requirements to be fulfilled by product or group of products, to establish its fitness of purpose
Process standard	Specifies requirements to be fulfilled by a process, to establish its fitness of purpose
Service standard	Specifies requirements to be fulfilled by a service, to establish its fitness of purpose
Interface standard	Specifies requirements concerned with the compatibility of products and systems at their point of connection
Standard on data to be provided	Contains a list of characteristics for which values or other data are to be stated for specifying the product, process or service

2.2.2 Development of a European Standard (EN)

European Standards are developed by CEN, CENELEC (for electrotechnical standards) or ETSI (for standards in telecommunications). Work at CEN and CENELEC is based, as on international level, on the national delegation principle: each country sends a delegation of experts to represent the national standpoint in the European committees. This standpoint is developed in national committees that "mirror" the European committees. By taking on the secretariat of a European committee, national members can play a leading role in the committee's work. It is often decisive for national interests to be effectively represented at an early stage of the development of a European standard.

European standardisation work begins with a proposal for a standard, which might come from a member of the European standards organisations (CEN/CENELEC/ETSI), the European Commission, or another European or international organisation. At least a simple majority and 71 % of the weighted majority among all national standardisation bodies voting are needed for the proposal to be accepted. In addition, a sufficient number of national standardisation bodies must agree to participate, after having checked with their stakeholders that there is sufficient need - and sufficient financing - for carrying out the necessary work in the national mirror committees. Only then will the proposal be accepted and work on the standard can begin.

If there is an existing International standard on the subject, it will be adopted, unchanged, as the European standard. If this is not the case, the responsible working body will draw up a manuscript for the draft standard (prEN).

The draft standard is distributed to the national standards organisations for commenting in what is called the "public enquiry" stage. National comments are to be submitted within three months. The national mirror committee discusses all comments received and submits the consolidated national standpoint.

On the basis of the comments received, the responsible working group can either decide to publish the standard or to draw up and issue a final draft. In a formal vote over a two month period, the members then decide whether to accept this final draft as a European Standard. There is no public enquiry for the final draft. Approval of the final draft requires at least 71 % of the weighted votes of CEN members.

Ratification of a European standard takes place following positive voting. After ratification, the European standard must be adopted, unchanged, as a national standard, and any conflicting national standards withdrawn.

In addition, a standard that has been developed at international level can be simultaneously adopted as a European Standard by means of parallel voting procedures in accordance with the Vienna Agreement. Such standards are also to be automatically adopted by the national standards organisations. (9)

2.2.3 Development of CEN Workshop Agreement (CWA)

“A CEN Workshop Agreement (CWA) is a document published by CEN, which is an agreement developed and approved in a CEN Workshop. The workshop is open to the direct participation of anyone with an interest in the development of this agreement. The out coming document has not the formal status of a European Standard (EN) as it involves no obligation at national level” (7).

There is a multiple step process described by CEN to develop and produce a CWA. It starts with the request of an interested party to a CEN member. Therefore, the proposer needs to prepare a draft project plan, which describes what the objective of the CEN Workshop is. Afterwards, the CEN-CENELEC Management Centre (CCMC) announces the proposal for a new CEN Workshop on the CEN Website for at least 30 days. This is for information and transparency reasons. Comments on the draft project plan can be made and shall be considered in the further development of the document.

The next step is the kick-off meeting, where the proposed project plan is approved and the Chairperson on the CEN Workshop is elected. Also, the formal launch of the Workshop happens at the kick-off meeting and the formal registration of the participants, who want to work on the CWA takes place. The workshop participants develop draft CWA(s) according to the specifications laid down in the Project Plan. The draft CWA is made available for comments to the registered workshop participants.

Finally, the Chairperson decides when agreement is reached amongst the participants of the workshop on the final text of the CWA. Then, the optional commenting phase starts. It is open to everyone and lasts at least 60 days. The comments are considered by the workshop members. After that the Workshop secretariat submits the approved CWA to CCMC. A CWA is valid for three years, after which the former Workshop Secretariat shall consult the former Workshop participants and the relevant CEN/CENELEC technical bodies to determine whether the CWA shall be confirmed for another three years, revised, transformed into another deliverable (such as an European or international standard), or withdrawn.

CWAs maximum lifetime is six years. After six years from initial publication, the CWA shall be submitted to the CEN/CENELEC BT(s) for decision regarding its transformation into another deliverable or its withdrawal (10).

2.2.4 Relevant CEN/TCs in crisis management

At European level, the Technical committee CEN/TC 391 – Societal citizen security is the most relevant one to be considered in context of crisis and disaster management. Its scope is *“to elaborate a family of European standards, standard-like documents (e.g. procedures, guidelines, best practices, minimal codes of practice and similar recommendations) in the Societal and Citizen Security sector including aspects of prevention, response, mitigation, continuity and recovery before, during and after a destabilising or disruptive event” (11).* The working group CEN/TC 391/WG 3 – Crisis management/civil protection is the one most relating to DRIVER+. Regarding to the selected solutions within the DRIVER+ project also other CEN/TCs might become relevant, such as e.g. CEN/TC 127 Fire safety in buildings.

2.3 National standardisation work

On national level different national standardisation organizations exist, as e. g. British Standards Institute (BSI), German Institute for Standardisation (DIN), Nederlandse Norm (NEN). In case of Europe each Member State is represented by a national standardisation body within CEN (12). Besides that each

national standardisation body is able to develop national standards as far as there is no EN standard existing on a particular scope. There are situations in which it is possible to complement EN standards with additional national standards in order to, for instance, set more detailed requirements suiting to specific needs of the member state.

An important country outside of Europe, which has to be taken into account in the context of standardisation in the field of security, is the US. The US standardisation landscape differs somehow from the European approach.

The American National Standards Institute (ANSI) is a private, non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States. The organization also coordinates U.S. standards with international standards. ANSI accredits standards that are developed by representatives of other standards organisations, government agencies, consumer groups, companies, and others. It works as kind of umbrella organization by coordinating 270 Standards Developing Organizations (SDOs), such as Underwriter Laboratories (UL), American Society of Mechanical engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE). Many of them develop standards for the US-market and provide as well certification or accreditation services, e. g. UL. The American Society for Testing and Material (ASTM), which is an ANSI-accredited standards developer (13), is another important national standardisation body in the US. Some standards are implemented in the federal laws; others are viewed more as guidelines for industry. This is the case for many of the standards developed by US-SDOs.

National standards are developed basically in the same way in every country. National standardisation begins with a proposal for standards work that anyone can submit to a standardisation body. Once a proposal has been received, the responsible committee discusses with the relevant experts the need for a standard on that subject and whether the work is to be carried out at national, European or international level. If the proposal is accepted, this is publicly announced. If a decision has been made to develop a national standard, and the responsible steering body has approved this, then a draft standard is developed, which is published. All comments received are discussed by experts in the standards committee, who come to consensus on the content of the standard, which is the final step in the process.

2.4 Standardisation work as part of research projects

Standardisation work is part of research projects due to its possibility to transfer project results, which can be included in an already existing standard or as basis for its own standard, into the industry (as explained in the previous sections), regarding to national, European or international standards. Therefore, it supports the dissemination and exploitation of DRIVER+ results.

Especially the European-funded ResiStand project points at new ways to improve the crisis management and disaster resilience capabilities of the European Union and individual Member States through standardisation (14). ResiStand makes an analysis of diverse research projects, regarding to standardisation potential of their results in the field of crisis management. This work gives a good overview on standardisation work and its possibilities in European research projects. The ResiStand results should be taken into account for the next step in this work package – identification of standardisation potential. Hence, the ResiStand Roadmap on standardisation potentials should be mentioned as harmonized input from other European funded projects to DRIVER+, because it already summarizes needs in standardisation from crisis management projects.

Another way to build cooperation between research projects and standardisation is to establish a Liaison between a CEN and/or CENELEC Technical Bodies and a consortium of a funded European research project. This can be done with the aim to get input from research projects into the standardisation work. Therefore, the Liaison Organization has the opportunity to participate in CEN and/or CENELEC Technical Committees, which means that they have the possibility:

- To propose technical documents with a view of their possible conversion into CEN or CENELEC, deliverables, through the regular consensus and approval process.
- To introduce preparatory work as a support to ongoing standardization activities.
- To submit technical contributions to the body's meetings.
- To formulate advice on current and future standards programmes (9).

DRIVER+ has built a Liaison with CEN/TC 391 – Societal citizen security to be updated and give input into standardisation activities in the field of crisis and disaster management. Every standardisation activity which is initiated in the field of crisis and disaster management on European level is considered in the CEN/TC 391. Therefore, DRIVER+ as Liaison Organisation will be informed on current standardisation work. The CEN/TC members are experts from national standardisation bodies, which enable DRIVER+ to extend its network via the Liaison.

3. Methodology for the research and analysis of existing standards

The objective of the research and analysis of existing standards is to give an overview of the current standardisation activities in the field of crisis management. This shall be used as input for the different subprojects as well as support for the identification of standardisation gaps.

The task can be divided in five steps as shown in Figure 1. Steps one and two belong to the research on existing standards. The analysis of existing standards starts with step three.

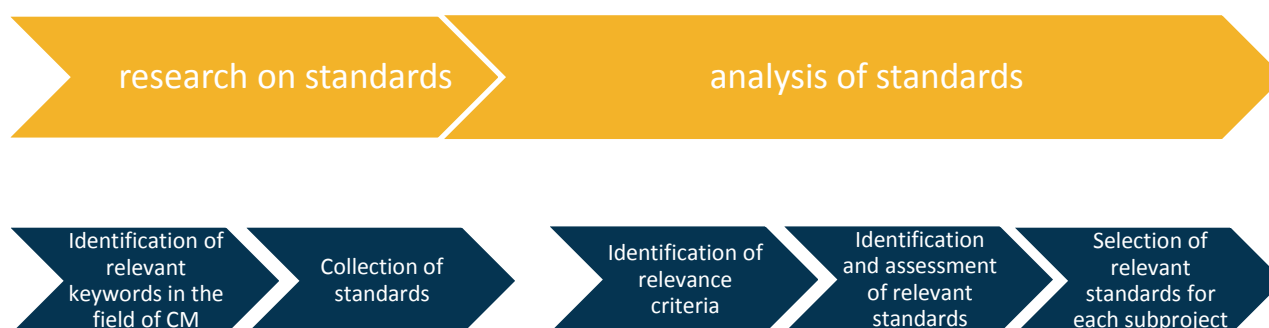


Figure 3.1: Process of the methodology which is used to identify relevant standards for the Subprojects of DRIVER+

3.1 Research of existing standards

The research of existing standards started with the identification of relevant keywords in the field of crisis management. This was done by the members of this task, who are experts in the field of crisis management. They agreed on the keywords shown in Table 3.1. These keywords were then used as basis on the research on standards.

Table 3.1: keywords as basis for the research on standardisation document

Category	Keywords provided by the project partners and DIN
Fundamental terms	Disaster management, crisis management, emergency management incident management
Directly related to crisis, disaster, emergency and incident management	Integrated disaster management, disaster prevention methods (crisis, disaster, emergency, incident), International (crisis, disaster, emergency, incident), planning (crisis, disaster, emergency, incident), information provision (crisis, disaster, emergency, incident), firefighting (crisis, disaster, emergency, incident), resilience (crisis, disaster, emergency, incident), response (crisis, disaster, emergency, incident), interoperability, selection and verification criteria for persons appointed for crisis management, costing methods for CM solutions, basis for decision in a disaster, experimentation / experiments (crisis, disaster, emergency, incident), innovation (crisis, disaster, emergency, incident), coordination (crisis, disaster, emergency, incident), communication (crisis, disaster, emergency, incident), CM policies, CM organization, CM procedures, CM capabilities, CM Laboratories crisis communications, incidents (transportation-related events) emergency management centres, exchange of data about public safety and emergency management, common incident management message sets - Abstract Syntax Notation One ("ASN.1" or "ASN"), Social networks information, Ground and aerial resources for anticipation and firefighting, Communication networks, Cooperation, Interoperability, Information exchange, Regulations

Category	Keywords provided by the project partners and DIN
Training & learning	Training (crisis, disaster, security), lessons learned, Evolved Learning Experimentation Campaigns, Simulation models (Virtual learning- Serious Games), Test bed, Integration & Transverse experiment, Geo Data used for training, virtual environment, Evaluation
Societal issues	Volunteer management, Community Resilience, societal /society resilience, preparedness, early warning, civil protection, Secure society, citizen alert system, prevention regulations, anticipation
Others	Situation assessment (COP and CIS), Operationalization, Sustainability, Performance and Effectiveness Metrics, risk perception, Access control, Authentication and Identity management, Assurance, compliance and information security management, Privacy and data protection, Cost reduction, Cross Border Events, Digital exchange of geographic data, floods, decontamination, contingency plan, evacuation, command and control system, critical infrastructure, vulnerability, security innovation, victims, Wildland-Urban interface, confinement, evacuation, smoke, intoxication, erosion, refuge, clearing, dam, advanced medical post, decision support tool, modelling, critical communications, location (indoor/outdoor), triage, Interoperability, Semantic interoperability, Syntactic interoperability, Object level interoperability, Information Management, Informational interoperability

For the standards search, the search engine PERINORM was used. Beside the standards of European national organizations like DIN, NEN or BSI, and Non-European national organizations (e. g. from Brazil, USA or South Africa), the database also includes standards from the European organizations CEN, CENELEC, ETSI and international organizations such as ISO, IEC and ITU. Regulations, technical documents and reports on these levels were considered for the analysis. In case of national standards, it had to be stated that due to language barriers mostly those providing at least an English title are considered.

As a second step the results of this research were merged into one list. The collected standards give an overview of already existing standards in the field of crisis management. Therefore, they can be used as input for the work in the subprojects, or as basis for upcoming standardisation ideas within the project.

After the research phase, the analysis of the standards followed.

3.2 Analysis of existing standards

The analysis of existing standards and standardisation activities started with the identification of relevance criteria. To make the list of initially collected standards usable, the standards had to be prioritised. To do this in a transparent way, relevance criteria were identified. They were used to select, which standard is relevant for the project and which are not. Hence, again keywords were given by the experts within the working group. Was one of these keywords found in the title or scope of the standard, it may be relevant. Therefore, six keywords were identified for each Subproject (except SP91, due to its general nature). They are shown in Table 3.2.

Table 3.2: Keywords, used as relevance criteria for each Subproject of DRIVER+

SP 92	SP 93	SP 94	SP 95
Test-bed	Solutions	Trial	Sustainability
Evaluation method	Crisis management functions	Testing	Press relations and media
Methodology	Technical requirements	Operational benefit	Harmonization
Guidance tool	Adaptation of solutions	Demonstration	Shared understanding
Lessons learnt	Integration of solutions	Evaluation of solutions	Community of practice
Simulation	Solutions training	Platform	Policy support

This identification is made by using excel, in the fourth step of this five-step-methodology. Additionally to this also the experts do an assessment of the standards and identify their relevance for every subproject. Therefore, they use a "1" for less important standards up to a "5" for very important standards. The following definitions were used:

- 0 – The standard is not necessary for DRIVER+.
- 1 – The SP should be aware of the standard.
- 2 – A member of the SP should briefly assess whether the standard should be investigated for further applicability to the SP, and escalate to 3, 4 or 5 as needed.
- 3 – It is highly likely that this standard is relevant to the SP so must be further assessed by a member of the SP, and escalated to 4 or 5 as needed.
- 4 – The standard should be read in detail and taken account of, during the work of the SP.
- 5 – The work for the SP must aim to comply with and/or plan to contribute to this standard.

The list is divided between the organisations involved in the work package: PSCE, VALABRE, TSC, DIN, AIT, WWU. Therefore, every partner has to assess about 200 standards regarding to their relevance for the DRIVER+ project. This assessment took place two times, therefore, every standard was assessed by two organisations.

Afterwards, in the fifth step, the list is reduced to standards addressed by an average assessment of "3" or higher or a single assessment number of 4 and higher. Additionally they are divided in separate lists regarding to their relevance for every subproject. They are shown in Table 4.1 - Table 4.5.

While collecting the standards, which are important for crisis and disaster management, other relevant documents such as secondary publications to standards and related books from standardisation organisations have been found. These documents should be further taken into account. They are signed in italic in Table 4.1 - Table 4.5.

The results of the analysis follow in the next section.

4. Results of the research and analysis of existing standards

As explained in the methodology chapter, first the research on existing standards and standardisation activities is made and then, in a second step, the researched standards are assessed. During the research work about 1000 standardisation documents were identified as possibly relevant for the DRIVER+ project. The reason for such a long list lies in the wide range of possible solutions, which might be selected for the upcoming trials. Therefore, a wide range of standardisation possibilities have to be considered. For this reason, the list remains on the COW as a research tool, supporting the decision of upcoming standardisation opportunities. In the Annex 2 a version of the assessed list of standards can be found.

To provide a support for every subproject within DRIVER+, the experts assessed this long list regarding to their impression, what could be of use for the subproject's work. As a result, there are five lists, one for every subproject, with the as most important identified standardisation documents. In the next sections these lists are presented. To ensure readability, only the document number and the title of this document are listed. Further information about the scope or abstract, a link to the document, author, and the date of publication is given in the Annex 2.

4.1 Results regarding to SP91 Project Management

Table 4.1 presents an overview (in order of average assessment) of the standardisation documents, which are assessed by an average number of 3 or higher or a single assessment number of 4 and higher. All together the list includes 10 standardisation documents, five international standards (ISO), one European (EN), three national standards (BS, GB/T, OENORM) and one standardisation document of the national fire protection association (NFPA).

Table 4.1: recommended standardisation documents for SP91 Project Management

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO Guide 73	Risk management – Vocabulary	4.5	5	4
BS 11200	Crisis management. Guidance and good practice	2.5	5	0
ISO 22398	Societal security – Guidelines for exercises	2.5	5	0
GB/T 26376	Basic terms on natural disaster management	2	0	4
EN 15602	Security service providers – Terminology	2	0	4
ISO/DIS 22300:2016	Security and resilience – Terminology	2	0	4
ISO 22300	Societal security – Terminology	2	0	4
OENORM S 2308	Integrated disaster management – Tactical graphics	2	4	0
ISO 22319	Security and resilience - Community resilience – Guidelines for planning the involvement of spontaneous volunteers	2	4	0
NFPA 1561	Standard on Emergency Services Incident Management System and Command Safety	2	4	0

4.2 Results regarding to SP92 Test-bed

Table 4.2 presents an overview of the standardisation documents, which are assessed by an average number of 3 or higher or a single assessment number of 4 and higher (in order of average assessment). All together the list includes 17 standardisation documents: three national standardisation documents (AC, BS, GOST-R), 13 international standards (ISO, ITU) and another document relating to standardisation work published by AFNOR, the French standardisation institution (marked in italic).

Table 4.2: recommended standardisation documents for SP92 Test-bed

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO 22398	Societal security – Guidelines for exercises	5	5	5
ISO 22320	Societal security – Emergency management – Requirements for incident response	4.5	5	4
ISO Guide 73	Risk management – Vocabulary	4	4	4
BS 11200	Crisis management. Guidance and good practice	3.5	4	3
ITU-T X.1303	Common alerting protocol (CAP 1.1)	3.5	3	4
ISO/IEC 27035-2	Information technology – Security techniques – Information security incident management – Part 2: Guidelines to plan and prepare for incident response	3.5	4	3
ISO 22316	Security and resilience – Organizational resilience – Principles and attributes	3	3	3
ISO/IEC 27002	Information technology – Security techniques – Code of practice for information security controls	3	4	2
ISO/IEC TR 27008	Information technology – Security techniques – Guidelines for auditors on information security controls	3	4	2
GOST R 56045	Information technology. Security techniques. Guidelines for auditors on information security controls	3	4	2
EN ISO/IEC 27002	Information technology – Security techniques – Code of practice for information security controls (ISO/IEC 27002:2013 including Cor 1:2014 and Cor 2:2015)	3	4	2
ISO/IEC 14598-2	Software engineering – Product evaluation – Part 2: Planning and management	3	2	4
<i>ISBN: 2-12-475534-X Réf. : 3475534</i>	<i>Crisis management</i>	3	3	3
AC X50-200	Integrated management systems — Good practices and experience feedback	3	3	3
ISO/TR 22351	Societal security – Emergency management – Message structure for exchange of information	2.5	5	0

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO/IEC 20016-1	Information technology for learning, education and training -- Language accessibility and human interface equivalencies (HIEs) in e-learning applications -- Part 1: Framework and reference model for semantic interoperability	2.5	5	0
ISO/DIS 22320	Security and resilience – Emergency management – Guidelines for incident management	2.5	5	0

4.3 Results regarding to SP93 Solutions

Table 4.3 presents an overview of the standardisation documents, which are assessed by an average number of 3 or higher or a single assessment number of 4 and higher (in order of average assessment). All together the list includes 42 standardisation documents, 25 international standards (ISO, ITU, IEEE), 3 European (EN, CWA), 4 national standards (ASTM, OENORM, SANS) and some other documents relating to standardisation work as (marked in italic) e.g. one book published by AFNOR or one standardisation document of the national fire protection association (NFPA).

Table 4.3: recommended standardisation documents for SP93 Solutions

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO Guide 73	Risk management - Vocabulary	4	4	4
ISO 22319	Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers	4	5	3
ISO/TR 22351	Societal security - Emergency management - Message structure for exchange of information	4	5	3
ITU-T X.1303	Common alerting protocol (CAP 1.1)	4	4	4
ASTM F 1221	Standard Guide for Interagency Information Exchange	4	3	5
	VISOV: Social media in emergency situation #MSGU	4	5	3
ISO 22319	Security and resilience -- Community resilience -- Guidelines for planning the involvement of spontaneous volunteers	4	5	3
ISO/DIS 22320	Security and resilience -- Emergency management -- Guidelines for incident management	4	5	3
OENORM S 2308	Integrated disaster management - Tactical graphics	3.5	4	3
NFPA 1561	Standard on Emergency Services Incident Management System and Command Safety	3.5	4	3
ISO/IEC 27002	Information technology - Security techniques - Code of practice for information security controls	3.5	4	3

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
EN ISO/IEC 27002	Information technology - Security techniques - Code of practice for information security controls (ISO/IEC 27002:2013 including Cor 1:2014 and Cor 2:2015)	3.5	4	3
SANS 23026	Software Engineering - Recommended Practice for the Internet - Web Site Engineering, Web Site Management, and Web Site Life Cycle	3.5	3	4
EN ISO 12052	Health informatics - Digital imaging and communication in medicine (DICOM) including workflow and data management (ISO 12052:2006)	3.5	4	3
DIN EN 13200-8	Spectator facilities - Part 8: Safety Management; German version EN 13200-8:2017	3.5	4	3
EN ISO 9241-303	Ergonomics of human-system interaction — Part 303: Requirements for electronic visual displays	3.5	4	3
EN ISO 7731	Ergonomics: danger alerts	3.5	4	3
EN ISO 19112	Geographic information- spatial references by geographic identifier	3.5	4	3
EN ISO 19111	Geographic information — Spatial referencing by geographic identifiers	3.5	4	3
EN ISO 19118	Geographic information - Spatial referencing by coordinates	3.5	4	3
ISO/IEC 19501	Information technology -- Open Distributed Processing -- Unified Modeling Language (UML) Version 1.4.2	3.5	4	3
EN ISO 22311	Societal security — Video-surveillance — Export interoperability	3.5	4	3
ISO/DIS 22300:2016	Security and resilience - Terminology	3	2	4
ISO 22300	Societal security - Terminology	3	2	4
OENORM S 2304	Integrated disaster management - Terms and definitions	3	2	4
EN ISO 7010/A5	Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010:2011/Amd 5:2014); German version EN ISO 7010:2012/A5:2015	3	3	3
ISO 22311	Societal security - Video-surveillance - Export interoperability	3	3	3
CWA 15931-1	Disaster and emergency management - Shared situation awareness - Part 1 : message structure	3	3	3
CWA 15931-2	Disaster and emergency management - Shared situation awareness - Part 2 : codes for the message structure	3	3	3
ITU-T Y.4102	Requirements for Internet of things devices and operation of Internet of things applications during disasters	3	3	3

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
IEEE 1512	Common incident management message sets for use by emergency management centers	3	3	3
IEEE 1512.1	Common traffic incident management message sets for use by emergency management centers	3	3	3
ISBN: 978-2-12-239111-2 Ref. : 3239111CD	Electronic signature	3	4	2
ISO 22398	Societal security -- Guidelines for exercises	3	5	1
	ORSEC measures – methodologies for managing crisis: <ul style="list-style-type: none"> • S3 (Floods) • G1 (General crisis management) • G2 (population support during crisis) • G3 (public information cell) • G4 (population information and alert) • G5 (restoring networks providing critical services like water, electricity, etc) 	2.5	5	0
	PORTAIL ORSEC MODE D’EMPLOI SY.N.E.R.G.I (Numerical system for data exchange, relaying and management of information)	2.5	5	0
ISO/IEC 20016-1	Information technology for learning, education and training -- Language accessibility and human interface equivalencies (HIEs) in e-learning applications -- Part 1: Framework and reference model for semantic interoperability	2.5	5	0

4.4 Results regarding to SP 94 Trials

Table 4.4 presents an overview of the standardisation documents, which are assessed by an average number of 3 or higher or a single assessment number of 4 and higher (in order of average assessment). All together the list includes 37 standardisation documents, 13 international standards (ISO), one European (CWA), 3 national standards (DIN, OENORM, SAE) and some other documents relating to standardisation work as e.g. one book published by AFNOR (marked in italic).

Table 4.4: recommended standardisation documents for SP94 Trails

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO Guide 73	Risk management – Vocabulary	4	4	4
ITU-T X.1303	Common alerting protocol (CAP 1.1)	4	4	4
ISO 22398	Societal security -- Guidelines for exercises	4	5	3
ISO/DIS 22300:2016	Security and resilience - Terminology	3.5	3	4

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO 22300	Societal security – Terminology	3.5	3	4
	<p><i>ORSEC – methodologies for managing crisis:</i></p> <ul style="list-style-type: none"> • <i>Guide for earthquake seism</i> • <i>Guide methodological for field test</i> • <i>Thematic guide on PPI exercises</i> • <i>Thematic guide for exercises on the national railway network and train station</i> • <i>Handbook on the Civil Safety Exercises</i> • <i>Lessons learns synthesis</i> 	3.5	4	3
FD X50-253	AFNOR: Management des risques - Processus de management des risques - Lignes directrices pour la communication	3.5	4	3
	<i>PORTAIL ORSEC MODE D'EMPLOI SY.N.E.R.G.I (Numerical system for data exchange, relaying and management of information)</i>	3.5	5	2
DIN 13050	Terms and definitions for medical rescue services	3	3	3
OENORM S 2304	Integrated disaster management - Terms and definitions	3	3	3
ISO 22319	Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers	3	5	1
ISO/TR 22351	Societal security - Emergency management - Message structure for exchange of information	3	5	1
CWA 15263	Analysis of privacy protection technologies, privacy-enhancing technologies (PET), privacy management systems (PMS) and identity management systems (IMS), the drivers thereof and the need for standardisation	3	3	3
ISO/IEC 14598-2	Software engineering -- Product evaluation -- Part 2: Planning and management	3	2	4
SAE AIR 5925A	Measurement Uncertainty Applied to Cost-Effective Testing	3	2	4
ISO/IEC TR 18121	Information technology — Learning, education and training — Virtual experiment framework	3	4	2
ISBN: 978-2-12-465310-2 Réf. : 3465310	<i>EFQM - Evaluation guide book</i>	3	4	2
ISO 22319	Security and resilience -- Community resilience -- Guidelines for planning the involvement of spontaneous volunteers	3	5	1
ISO/DIS 22320	Security and resilience -- Emergency management -- Guidelines for incident management	3	5	1

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO 22320	Societal security - Emergency management - Requirements for incident response	2.5	5	0
	<i>ORSEC measures – methodologies for managing crisis:</i> <ul style="list-style-type: none"> • S3 (Floods) • G1 (General crisis management) • G2 (population support during crisis) • G3 (public information cell) • G4 (population information and alert) • G5 (restoring networks providing critical services like water, electricity, etc.) 	2.5	5	0
ISBN: 2-12-475534-X Réf. : 3475534	<i>Crisis management</i>	2.5	5	0
ISO/TR 18317	Intelligent systems for transport - Communication network pre-emption for the rescue in case of disaster and emergency communication. Use cases scenario.	2.5	5	0
ISO/IEC 20016-1	Information technology for learning, education and training -- Language accessibility and human interface equivalencies (HIEs) in e-learning applications -- Part 1: Framework and reference model for semantic interoperability	2.5	5	0
	<i>White book on the defense and the national security</i>	2.5	5	0
L562-1	<i>Plan for predictable natural risks prevention (PPRN)- Environment Code</i>	2.5	5	0

4.5 Results regarding to SP95 Impact, Engagement, and Sustainability

Table 4.5 presents an overview of the standardisation documents, which are assessed by an average number of 3 or higher or a single assessment number of 4 and higher (in order of average assessment). All together the list includes 12 standardisation documents, 6 international standards (ISO), 1 European (EN), and 5 national standards (ANSI, GB/T, OENORM, DIN).

Table 4.5: recommended standardisation documents for SP95 Impact, Engagement, and Sustainability

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ANSI/APCO 1.112.1	Best Practices for the Use of Social Media by Public Safety Communications	4	5	3
ISO 22319	Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers	3	5	1
ISO/TR 22351	Societal security - Emergency management - Message structure for exchange of information	3	5	1
GB/T 26376	Basic terms on natural disaster management	2.5	0	5

Document No.	Title of the Document	Average number	Assessment 1	Assessment 2
ISO Guide 73	Risk management - Vocabulary	2.5	0	5
EN 15602	Security service providers - Terminology	2.5	0	5
ISO/DIS 22300:2016	Security and resilience - Terminology	2.5	0	5
ISO 22300	Societal security - Terminology	2.5	0	5
DIN 13050	Terms and definitions for medical rescue services	2.5	0	5
ANSI/APCO 2.103.1	Public Safety Communications Common Incident Types for Data Exchange	2.5	0	5
OENORM S 2304	Integrated disaster management - Terms and definitions	2.5	0	5
ISO 22320	Societal security - Emergency management - Requirements for incident response	2.5	5	0

5. Significance of the results for DRIVER+ project

Most of the standards are relevant for more than one subproject. That might be the case because they are relevant to crisis management in general or not possible to sort them directly to one subproject. If they are merged together in one list without duplication there are about 70 standardisation documents, which are relevant for the project assessed by an average value of three or higher and those, which are assessed by 5 during at least one assessment.

It has to be mentioned that the assessment was done only by a limited number of partners from the project, thus the results obtained are based on a quite subjective rating. For not devaluing any of the initially collected 1000 assessed items, the complete list of standards will be available for the whole consortia internally on the COW..

In order to support the consideration and usage of the standards identified the significance of this analysis of existing standards and ongoing standardization activities for DRIVER+ concentrates directly to each subproject. Therefore, the assessment of the standards was done by referring to the content of each subproject. By reviewing the lists of standardization documents for each subproject as illustrated in the section four, the following important recommendations to each subproject can be provided.

SP91 Project Management: especially the terminology standards that are important for the development of the DRIVER+ terminology need to be highlighted. Further work on establishing a common terminology in the project and beyond should take advantage of the terms already defined in the e.g. ISO Guide 73 *Risk management – Vocabulary*, in which about 50 terms are listed, as well as ISO 22300 *Societal security – Terminology*, in which more than 270 terms are included.

SP92 Test-bed: the standards series of ISO 223xx on Societal security (Guidelines for exercises, Emergency management – Requirements for incident response, Organizational resilience – Principles and attributes) need to be considered for the gathering of different requirements in the activities of WP922 Guidance Methodology and Guidance Tool and WP923 Test-bed infrastructure.

SP93 Solutions: the standards series of ISO 223xx on Societal security need to be taken into account. Two standards that are only assessed for being relevant for SP93 are 1) ISO 22319 *Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers*, which results that it is import to involve externals such as volunteers in any solution important for crisis and disaster management, and 2) ASTM F 1221 *Standard Guide for Interagency Information Exchange*, that emphasizes the relevance of interoperability among existing and new solutions. Additionally, the list of identified standards can support the selection of the solutions to be included in the Portfolio of Solutions as there might be standards related to specific solutions.

SP94 Trials: the ISO 22398 standard on *Societal security -- Guidelines for exercises*, that can support the preparation, conduction and follow up of the trials, as well as the terminology standards are of relevance and to be considered within this subproject. For the latter, it is important to have a common understanding on the most important terms within the trials. If not all participants speak the same language and use the terms in the same way the envisaged outcomes of these trials might not be reached.

SP95 Impact, Engagement, and Sustainability: only a few standards are related directly to the work of the subproject. To mention is the standard from ANSI/APCO 1.112.1 *Best Practices for the Use of Social Media by Public Safety Communications*, which can give valuable support to the activities of WP952 *Dissemination and Communication* as well as to WP953 *Enhancing the shared understanding of CM*. Moreover the complete list of standards will be used to raise awareness at project level on existing standards and ongoing standardization activities and will support the initiation of new standardization activities, as it gives important information of potential gaps in standardization within the field of crisis and disaster management. Thus this information will also seek into the further activities of WP955 *Standardization activities*. Especially it will serve as an input for the I4CM event scheduled for September 2018 in which the needs for standardization activities based on the DRIVER+ results and the existing standards and ongoing standardization activities will be identified and potentials for new standardization activities assessed.

6. Conclusion

This deliverable reports on the research and analysis of standardisation activities in the field of crisis management. It belongs to SP95 *Impact, Engagement and Sustainability* and shows the results of the first task within WP955 Standardisation activities. Standards are one way to make the results of DRIVER+ useable after the project ends. But they are also an input for the work of every subproject.

There are quite a lot of standardization activities on national, European and international level that are related to crisis and disaster management. These activities and the fact that DIN, as a standardisation body, is part of these activities will allow an easier transfer of project results into standards developed or to give input to already existing standards to the respective technical standardization committees. On European level the CEN/TC 391 and the WG3 on Crisis Management will be the main exchange point. This exchange point provides DRIVER+ with all ongoing standardisation activities in the field of crisis and disaster management on European level – including standardisation activities from other European funded projects. Therefore, a Liaison is built between DRIVER+ and CEN/TC 391. Afterwards, DRIVER+ can give input to the work of the CEN/TC and can comment on their standardisation activities.

Outputs from the DRIVER+ project should be compatible with state-of-the-art in the field of crisis management. This state-of-the-art is presented by standards and standardisation documents. Therefore, the relevant documents were searched and assessed during this task. All together 1000 standards were found during the research process. The assessment by the WP members decreased this to about 70 standardization documents, which are relevant as input for the project's work. As the assessment was done by only the partners that are involved in this Work Package, it has a nature of individuality and subjectivity. For this reason not only the as important for the SPs identified documents, but also the complete list of 1000 assessed standards will be shared within the project consortium. Therefore, the lists will be created in a useable way and distributed to the subprojects. These lists will be updated at least mid-2019 to guarantee a current state-of-the-art. Already existing and new standardisation activities with regard to the gaps and selected solutions for the Trails will be researched in an ongoing process and the findings will be shared with the project partners.

Nevertheless the list of standardization documents that is provided and recommended to be considered for each subproject is already giving indications that several standards are of relevance for the work of the subprojects and the project in general. It can be concluded that this list builds the basis for the upcoming activities in WP955 Standardization Activities as well as can support the conduction of the activities of the other subprojects. As it shows the current state-of-the-art it will be the basis to identify standardisation gaps that might be filled in by DRIVER+ results. The identification of gaps and the standardisation potentials within DRIVER+ will be the next task within WP955. The third task, where results of DRIVER+ contribute to standardisation activities, has already started with the first CEN Workshop Terminologies in Crisis and Disaster Management, and will continue with more contributions as soon as standardisation potentials are identified. The research and assessment of standardisation documents will stay as basis for the next tasks within WP955.

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Annexes

Annex 1 – DRIVER+ Terminology

In order to have a common understanding within the DRIVER+ project and beyond and to ensure the use of a common language in all project deliverables and communications, a terminology is developed by making reference to main sources, such as ISO standards and UNISDR. This terminology is presented online as part of the Portfolio of Solutions and it will be continuously reviewed and updated¹. The terminology is applied throughout the documents produced by DRIVER+. Each deliverable includes an annex as provided hereunder, which holds an extract from the comprehensive terminology containing the relevant DRIVER+ terms for this respective document.

Table A1: DRIVER+ Terminology

Terminology	Definition	Comment
CEN Workshop Agreement	CEN-CENELEC Workshop Agreement (CWA) is a CEN-CENELEC agreement, developed by a Workshop, which reflects the consensus of identified individuals and organisations responsible for its contents.	Source: DIN 820-2
Crisis Management	Holistic management process that identifies potential impacts that threaten an organization and provides a framework for building resilience, with the capability for an effective response that safeguards the interests of the organization's key interested parties, reputation, brand and value creating activities, as well as effectively restoring operational capabilities.	Note 1 to entry: Crisis management also involves the management of preparedness, mitigation, response, and continuity or recovery in the event of an incident, as well as management of the overall programme through training, rehearsals and reviews to ensure the preparedness, response and continuity plans stay current and up-to-date. Source: ISO 28002
European Standard	A European standard is a standard adopted by CEN-CENELEC and carrying with it an obligation of implementation as an identical national standard and withdrawal of conflicting national standards.	Source: DIN 820-2
International standard	An international standard is standard that is adopted by an international standardizing/standards organization and made available to the public	Source: ISO 28803
National standard	A national standard is a standard that is adopted by a national standards body and made available to the public.	Source: EN 45020
Societal security	Protection of society from, and response to, incidents, emergencies and disasters caused by	Source: ISO 22300

¹ Until the Portfolio of Solutions is operational, the terminology is presented in the DRIVER+ Project Handbook and access can be requested by third parties by contacting coordination@projectdriver.eu.

Terminology	Definition	Comment
	intentional and unintentional human acts, natural hazards, and technical failures	
Standard	A standards is a document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.	Source: ISO 28803
Standardisation body	A standardisation body is the same as a standardizing body, which is a body or organization that carries out recognized activities in the area of standardization such as the development, adoption and publication of standards (2.1) and whose membership may be composed of national, regional or other standardizing bodies, or of organizations such as companies, governmental, academic or other institutions and individuals.	Source: ISO 10241-2
Standardisation document	A standardisation document is document published by an international, European or national standardisation body.	This definition is still under construction and can be found online shortly
Terminology	Set of terms representing a system of concepts within a specified domain	ISO/TS 17117:2002(en), 3.1

Annex 2 – List of standards and standardisation activities within the thematic field of crisis management²

Table A2: List of standards and standardisation activities

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
3	GB/T 26376	Basic terms on natural disaster management	-	2010-00-00	SAC/TC 307	
4	ISO Guide 73	Risk management - Vocabulary	ISO Guide 73:2009 provides the definitions of generic terms related to risk management. It aims to encourage a mutual and consistent understanding of, and a coherent approach to, the description of activities relating to the management of risk, and the use of uniform risk management terminology in processes and frameworks dealing with the management of risk.	2009-11-00	ISO	
5	EN 15602	Security service providers - Terminology	This standard applies to providers of security services.	2008-01-00	CEN	
6	ISO/DIS 22300	Security and resilience - Terminology (ISO/DIS 22300:2016); German and English version prEN ISO 22300:2016	Terms and definitions applicable to societal security to establish common understanding so that consistent terms are used.	2017-02-00	ISO	

² Sorted by the ID – in total about 1000 standards had the initial list of standards that was assessed. Link only provided if not a standardization document from an official standardization body.



ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
7	ISO 22300	Societal security - Terminology	ISO 22300:2018 defines terms used in security and resilience standards.	2018-02-00	ISO/TC 292	
10	DIN 13050	Terms and definitions for medical rescue services	The document contains important definitions for emergency services.	2015-04-00	DIN	
11	ANSI/APCO 2.103.1	Public Safety Communications Common Incident Types for Data Exchange	To provide a comprehensive list of terms and associated acronyms that can be used to classify the situation (incident) that Public Safety Answering Points (PSAPs) and emergency responders are engaged in. The list of terms, (Incident Type Codes) will encompass situations that involve a multi discipline combination of resources. The standardized Incident Types will be used whenever a PSAP shares incident information externally with other PSAPS, emergency service responders or other authorized agencies.	2012-00-00	ANSI	
12	OENORM S 2304	Integrated disaster management - Terms and definitions	The present ÖNORM defines terms for use in all areas of disaster management, but also the management of crises, large-scale incidents, emergencies and other damaging events in Austria, and also outside Austria to ensure the necessary interoperability. The target group are all authorities, emergency organizations and institutions appointed to work in disaster management - especially those from research, teaching and business.	2011-07-15	ASI/Komitee 246 Societal Security	
18	EN ISO 7010/A5	Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010:2011/Amd	In addition to DIN EN ISO 7010, this Amendment prescribes 10 safety signs for the purposes of accident prevention, fire protection, health hazard information and emergency evacuation.	2015-04-00	DIN	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		5:2014); German version EN ISO 7010:2012/A5:2 015				
22	OENORM S 2308	Integrated disaster management - Tactical graphics	This ÖNORM specifies uniform signs for the location of damage events of different magnitudes, in particular for use in integrated bars in case of disaster.	2015-11-15	ASI/Komitee 246 Societal Security	
90	BS 11200	Crisis management. Guidance and good practice	BS 11200 is the British Standards Institution Guidance on Crisis Management and superseded PAS 200:2011 in 2014. BS 11200 is aimed primarily at senior managers and the development of the strategic crisis management capability within an organisation.	2014-05-31	SSM/1	
103	ISO 22319	Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers	ISO 22319:2017 provides guidelines for planning the involvement of spontaneous volunteers (SVs) in incident response and recovery. It is intended to help organizations to establish a plan to consider whether, how and when SVs can provide relief to a coordinated response and recovery for all identified hazards. It helps identify issues to ensure the plan is risk-based and can be shown to prioritize the safety of SVs, the public they seek to assist and incident response staff.	2017-04-00	ISO/TC 292 Security	
105	ISO 22316	Security and resilience - Organizational resilience - Principles and	ISO 22316:2017 provides guidance to enhance organizational resilience for any size or type of organization. It is not specific to any industry or sector. ISO 22316:2017 can be applied throughout the life of an organization.	2017-03-00	ISO/TC 292 Security	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		attributes	ISO 22316:2017 does not promote uniformity in approach across all organizations, as specific objectives and initiatives are tailored to suit an individual organization's needs.			
107	ISO/TR 22351	Societal security - Emergency management - Message structure for exchange of information	<p>ISO/TR 22351:2015 describes a message structure for the exchange of information between organizations involved in emergency management. An organization can ingest the received information, based on the message structure, in its own operational picture.</p> <p>The structured message is called Emergency Management Shared Information (EMSI).</p> <p>ISO/TR 22351:2015 describes the message structure built in order to facilitate interoperability between existing and new information systems.</p> <p>The intended audience of ISO/TR 22351:2015 is control room engineers, information systems designers and decision makers in emergency management.</p>	2015-09-00	ISO/TC 292 Security	
110	ISO 22398	Societal security - Guidelines for exercises	<p>ISO 22398:2013 recommends good practice and guidelines for an organization to plan, conduct, and improve its exercise projects which may be organized within an exercise programme.</p> <p>It is applicable to all organizations regardless of type, size or nature, whether private or public. The guidance can be adapted to the needs, objectives, resources, and constraints of the organization.</p> <p>It is intended for use by anyone with responsibility for ensuring the competence of the organization's personnel, particularly the leadership of the organization, and those responsible for managing exercise</p>	2013-09-00	ISO/TC 292 Security	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
			programmes and exercise projects.			
133	ISO 22320	Societal security - Emergency management - Requirements for incident response	-	2011-11-00	ISO/TC 292 Security	
136	ISO 22311	Societal security - Video-surveillance - Export interoperability	ISO 22311:2012 is mainly for societal security purposes and specifies a common output file format that can be extracted from the video-surveillance contents collection systems (stand alone machines or large scale systems) by an exchangeable data storage media or through a network to allow end-users to access digital video-surveillance contents and perform their necessary processing.	2012-11-00	ISO/TC 292 Security	
166	NFPA 1561	Standard on Emergency Services Incident Management System and Command Safety		2014-00-00	National Fire Protection Association	
171	CWA 15263	Analysis of privacy protection technologies, privacy-enhancing		2005-04-01	CEN	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		technologies (PET), privacy management systems (PMS) and identity management systems (IMS), the drivers thereof and the need for standardization				
172	ISO/IEC 27002	Information technology - Security techniques - Code of practice for information security controls	ISO/IEC 27002:2013 gives guidelines for organizational information security standards and information security management practices including the selection, implementation and management of controls taking into consideration the organization's information security risk environment(s).	2014-01-18	ISO/IEC	
173	ISO/IEC TR 27008	Information technology - Security techniques - Guidelines for auditors on information security controls	ISO/IEC TR 27008:2011 provides guidance on reviewing the implementation and operation of controls, including technical compliance checking of information system controls, in compliance with an organization's established information security standards. ISO/IEC TR 27008:2011 is applicable to all types and sizes of organizations, including public and private companies, government entities, and not-for-profit organizations conducting information security reviews and technical compliance checks. It is not intended for management systems audits.	2011-10-00	ISO/IEC JTC 1/SC 27 IT	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
175	GOST R 56045	Information technology. Security techniques. Guidelines for auditors on information security controls		2014-00-00	Federal Agency on Technical Regulating and Metrology (GOST R)	
177	EN ISO/IEC 27002	Information technology - Security techniques - Code of practice for information security controls (ISO/IEC 27002:2013 including Cor 1:2014 and Cor 2:2015)	<p>ISO/IEC 27002:2013 gives guidelines for organizational information security standards and information security management practices including the selection, implementation and management of controls taking into consideration the organization's information security risk environment(s).</p> <p>It is designed to be used by organizations that intend to:</p> <ol style="list-style-type: none"> 1.select controls within the process of implementing an Information Security Management System based on ISO/IEC 27001; 2.implement commonly accepted information security controls; 3.develop their own information security management guidelines. 	2017-05-24	ISO/IEC	
317	CWA 15931-1	Disaster and emergency management - Shared situation awareness - Part 1 : message		2009-02-01	CEN	https://www.oasis-open.org/committees/download.php/42411/CWA_15931-

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		structure				1.pdf
318	CWA 15931-2	Disaster and emergency management - Shared situation awareness - Part 2 : codes for the message structure		2009-02-01	CEN	https://www.oasis-open.org/committees/download.php/42412/CWA_15931-2.pdf
624	ITU-T X.1303	Common alerting protocol (CAP 1.1)		2007-09-00	ITU	
664	ISO/IEC 27035-2	Information technology - Security techniques - Information security incident management - Part 2: Guidelines to plan and prepare for incident response	ISO/IEC 27035-2:2016 provides the guidelines to plan and prepare for incident response. The guidelines are based on the "Plan and Prepare" phase and the "Lessons Learned" phase of the "Information security incident management phases" model presented in ISO/IEC 27035-1.	2016-11-00	ISO/IEC JTC 1/SC 27 IT	
692	SANS	Software	Defines recommended practices for World Wide Web page engineering	2010-11-17	SANS	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
	23026	Engineering - Recommended Practice for the Internet - Web Site Engineering, Web Site Management, and Web Site Life Cycle	for Intranet and Extranet environments, based on World Wide Web Consortium and related industry guidelines. Does not address stylistic considerations or human-factors considerations in Web page design beyond limitations that reflect good engineering practice.			
694	ISO/IEC 14598-2	Software engineering -- Product evaluation -- Part 2: Planning and management	-	2004-12-17	ISO/IEC	
732	ITU-T Y.4102	Requirements for Internet of things devices and operation of Internet of things applications during disasters		2015-01-00	ITU	
733	ASTM F 1221	Standard Guide for Interagency Information Exchange	1.1 This guide covers the planning, operations, and evaluation phases of interagency communications as part of a comprehensive EMS system. 1.2 This is a guide for interagency communications within an EMS system. Interagency communications involves the EMS responder	1989-00-00	ASTM	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
			<p>and support agencies whose primary mission is not to deliver prehospital emergency medical care. 1.3 The primary focus of this guide is to address interagency communications necessary for ongoing EMS responses. 1.4 The guide also addresses interagency communications in any major EMS incident, including man-made or natural disasters. 1.5 The recommendations for drills/exercises for the evaluation of interagency communications during an EMS event are also incorporated into this guide. 1.6 Additional information can be found in Guide F 1220 and Refs 1-5. 1.7 The sections in this guide appear in the following sequence: 1.8 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.</p>			
738	IEEE 1512	Common incident management message sets for use by emergency management centers	<p>Revision Standard - Active. This standard addresses the exchange of vital data about public safety and emergency management issues involved in transportation-related events, through common incident management message sets. The message sets specified are consistent with the National Intelligent Transportation Systems Architecture and are described using Abstract Syntax Notation One (ASN.1 or ASN) syntax. This standard comprises the basic volume of the family of incident management standards, a multi-volume set of documents centered around this Base Standard. Other members of that family include three other companion volumes, specifying incident management message sets for transportation-management-related data exchange and hazardous-material- and cargo-related data exchange, etc. Collectively, that family of standards shall be referred to as the 1512 Family of Standards. The goal of that family of standards is to support efficient communication for the real-time, interagency management of transportation-related events. Those events include</p>	2006-00-00	IEEE Standards Coordinating Committee 5	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
			<p>incidents, emergencies, accidents, planned roadway closures, special events, and disasters caused by humans or natural events. Those events include any such event that impacts transportation systems or that causes a report to be received by an emergency management system, whether or not the event actually affects a transportation system and whether or not a response is required.</p>			
739	IEEE 1512.1	Common traffic incident management message sets for use by emergency management centers	<p>Revision Standard - Active. Revision of IEEE Std 1512.1-2003 This standard addresses the exchange of vital data about public safety and emergency management issues involved in transportation-related events, through common incident management message sets. The message sets specified are consistent with the National Intelligent Transportation Systems Architecture and are described using Abstract Syntax Notation One (ASN.1 or ASN) syntax. This standard comprises the basic volume of the family of incident management standards, a multi-volume set of documents centered around this Base Standard. Other members of that family include three other companion volumes, specifying incident management message sets for transportation-management-related data exchange and hazardous-material- and cargo-related data exchange, etc. Collectively, that family of standards shall be referred to as the 1512 Family of Standards. The goal of that family of standards is to support efficient communication for the real-time, interagency management of transportation related events. Those events include incidents, emergencies, accidents, planned roadway closures, special events, and disasters caused by humans or natural events. Those events include any such event that impacts transportation systems or that causes a report to be received by an emergency management system, whether or not the event actually affects a transportation system and whether or not a response is required.</p>	2006-00-00	IEEE Standards Coordinating Committee 5	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
757	EN ISO 12052	Health informatics - Digital imaging and communication in medicine (DICOM) including workflow and data management (ISO 12052:2006)	ISO 12052:2017, within the field of health informatics, addresses the exchange of digital images and information related to the production and management of those images, between both medical imaging equipment and systems concerned with the management and communication of that information.	2011-05-15	ISO	
787	SAE AIR 5925A	Measurement Uncertainty Applied to Cost-Effective Testing	The report shows how the methodology of measurement uncertainty can usefully be applied to test programs in order to optimize resources and save money. In doing so, it stresses the importance of integrating the generation of the Defined Measurement Process into more conventional project management techniques to create a Test Plan that allows accurate estimation of resources and trouble-free execution of the actual test. Finally, the report describes the need for post-test review and the importance of recycling lessons learned for the next project.	2013-07-09	SAE	
801	EN 13200-8	Spectator facilities - Part 8: Safety Management; German version EN 13200-8:2017	This European Standard specifies general characteristics of safety management in spectator facilities. It specifies the layout and the planning of the management, the criteria to maintain this planning before, during and after any event. It covers the following: the safety personnel, safety policy, safety procedures. This European Standard does not apply to the roles and responsibilities of those who are part of the security system (police and security companies).	2017-07-00	DIN	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
831		ORSEC measures	<i>The ORSEC (Organisation of the Civil Safety response) measures are an organization framework of the rescue means at the departmental level, in case of major event. Guides exist for different Civil safety actions: S3:flooding; G: networks; G4: population alert and information; G1: general method; G2: population support; G3: public information cell; PCS: Communal Plan of safeguarding.</i>	2004-2013	-	https://www.interieur.gouv.fr/Le-ministere/Securite-civile/Documentation-technique/Planification-et-exercices-de-Securite-civile
845		Lessons learns synthesis	<i>Six documents about exercises and lessons learned: 1 - Guide for earthquake seisme; 2- Guide methodological for field test; 3- Thematic guide on PPI exercises; 4- Thematic guide for exercises on the national railway network and train station; 5- Handbook on the Civil Safety Exercises; 6- Lessons learns synthesis.</i>	-	ORSEC	https://www.interieur.gouv.fr/Le-ministere/Securite-civile/Documentation-technique/Planification-et-exercices-de-Securite-civile
847	FD X50-253	AFNOR: Management des risques - Processus de management des risques - Lignes	AFNOR document that explains why the communication is important and how to deploy it efficiently for risk management. Main lines are given for the case of crisis.	2011-05	-	https://norminf.o.afnor.org/norme/fd-x50-253/management-des-risques-processus-de-management-

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		directrices pour la communication				des-risques-lignes-directrices-pour-la-communication/83036
852		PORTAIL ORSEC MODE D'EMPLOI SY.N.E.R.G.I (Numerical system for data exchange, relaying and management of information)	<i>The SYNERGI (Numerical system for data exchange, relaying and management of information) is a tool for crisis management that is included in the ORSEC measures. Its main feature is to facilitate the data exchange between players and authorities during a crisis.</i>	-	-	http://www.mayenne.gouv.fr/content/download/9239/59739/file/
854		VISOV: Social media in emergency situation #MSGU	<i>Social media activated during emergency situation. Works with local authorities.</i>	-	=	http://www.visov.org/ http://crd.ensosp.fr/doc_num.php?explnum_id=8211
857	ISBN: 2-12-475534-X Réf. : 3475534	Crisis management	<i>Reference book about good practices and lessons learned in crisis management.</i>	octobre 2006	J.-J. Roulmann, L. Goulvestre, J. Segonds, F. Rouault	https://www.boutique.afnor.org/livre/gestion-de-crise/article/631606/fa092103

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
859	ISO/TR 18317	Intelligent systems for transport-Communication network preemption for the rescue in case of disaster and emergency communication. Use cases scenario.	ISO/TR 18317:2017 provides the outcome of discussions on use case scenarios and assumed requirements for using ad-hoc wireless networks under disaster and emergency conditions including related priority, security and urgency aspects of communication requirements.	2017-08	-	
860	AC X50-200	Integrated management systems — Good practices and experience feedback	An integrated management system is a process that takes into account the requirements of different domains: quality, safety, environment.... This standard book from AFANOR presents recommendation about the setting up of a integrated management system in enterprises.	2003-01	-	https://www.boutique.afnor.org/norme/ac-x50-200/systemes-de-management-integre-bonnes-pratiques-et-retours-d-experiences/article/710799/fa124557
864	ISO/IEC TR 18121	Information technology — Learning, education and training —	ISO/IEC TR 18121:2015 defines the framework for IT standards and specifications on virtual experiments supporting IT-enhanced learning, education and training. It is based on implementations of standards and specifications that are used to support virtual experiment, development, evaluation and management that rely on ITLET.	2015-12	-	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		Virtual experiment framework				
870	EN ISO 9241-303	Ergonomics of human-system interaction — Part 303: Requirements for electronic visual displays	ISO 9241-303:2011 establishes image-quality requirements, as well as providing guidelines, for electronic visual displays. These are given in the form of generic (independent of technology, task and environment) performance specifications and recommendations that will ensure effective and comfortable viewing conditions for users with normal or adjusted-to-normal eyesight.	2011-11	-	
871	ISBN: 978-2-12-465310-2 Réf. : 3465310	EFQM - Evaluation guide book	Guide book for EFQM: quality performance assessment.	2011-06	<u>P. Iribarne,</u> <u>S. Verdoux</u>	https://www.boutique.afnor.org/livre/efqm-le-guide-de-l-evaluation/article/634819/fa091660
875	EN ISO 7731	Ergonomics: danger alerts	ISO 7731:2003 specifies the physical principles of design, ergonomic requirements and the corresponding test methods for danger signals for public and work areas in the signal reception area and gives guidelines for the design of the signals. It may also be applied to other appropriate situations. ISO 7731:2003 does not apply to verbal danger warnings (e.g. shouts, loudspeaker announcements). ISO 9921 covers verbal danger signals. Special regulations such as those for a public disaster and public transport are not affected by this International Standard.	2003-11	-	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
885	ISBN: 978-2-12-239111-2 Ref. : 3239111CD	Electronic signature	Standards for alert systems and access control.	2001-01	-	https://www.boutique.afnor.org/norme/nf-en-50133-2-1/systemes-d-alarme-systemes-de-controle-d-acces-a-usage-dans-les-applications-de-securite-partie-2-1-exigences-generales-co/article/780104/fa048030
892	EN ISO 19112	Geographic information-spatial references by geographic identifiant	<p>ISO 19112:2003 defines the conceptual schema for spatial references based on geographic identifiers. It establishes a general model for spatial referencing using geographic identifiers, defines the components of a spatial reference system and defines the essential components of a gazetteer. Spatial referencing by coordinates is not addressed in this document; however, a mechanism for recording complementary coordinate references is included.</p> <p>ISO 19112:2003 assists users in understanding the spatial references used in datasets. It enables gazetteers to be constructed in a consistent manner and supports the development of other standards in the field of geographic information. It is applicable to digital geographic data, and its principles may be extended to other forms of geographic data such as maps, charts and textual documents.</p>	2003-10	-	

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893	EN ISO 19111	Geographic information — Spatial referencing by geographic identifiers	<p>ISO 19111-2:2009 specifies the conceptual schema for the description of spatial referencing using parametric values or functions. It applies the schema of ISO 19111 to combine a position referenced by coordinates with a parametric value to form a spatio-parametric coordinate reference system (CRS). The spatio-parametric CRS can optionally be extended to include time.</p> <p>The intended users of ISO 19111-2:2009 are producers and users of environmental information.</p> <p>Parameters which are attributes of spatial locations or features, but which are not involved in their spatial referencing, are not addressed by ISO 19111-2:2009.</p>	2009-08	-	
894	EN ISO 19118	Geographic information - Spatial referencing by coordinates	<p>ISO 19118:2011 specifies the requirements for defining encoding rules for use for the interchange of data that conform to the geographic information in the set of International Standards known as the "ISO 19100 series".</p> <p>ISO 19118:2011 specifies requirements for creating encoding rules based on UML schemas, requirements for creating encoding services, and requirements for XML-based encoding rules for neutral interchange of data.</p> <p>ISO 19118:2011 does not specify any digital media, does not define any transfer services or transfer protocols, nor does it specify how to encode inline large images.</p>	2011-10	-	
895	ISO/IEC	Information	Language ISO/IEC 19501:2004 describes the Unified Modeling Language	2005-04	-	

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	19501	technology -- Open Distributed Processing -- Unified Modeling Language (UML) Version 1.4.2	(UML), a graphical language for visualizing, specifying, constructing and documenting the artifacts of a software-intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions, as well as concrete things such as programming language statements, database schemas, and reusable software components.			
924	ISO/IEC 20016-1	Information technology for learning, education and training -- Language accessibility and human interface equivalencies (HIEs) in e-learning applications -- Part 1: Framework and reference model for semantic interoperability	ISO/IEC 20016-1:2014 states the principles, rules and metadata elements for specifying language accessibility and Human Interface Equivalents (HIEs) in e-learning environments. It is structured to be able to support the requirements of applicable jurisdictional domains and in particular that of the UN Convention on the Rights of Persons with Disabilities.	2014-02	-	
925	EN ISO 22311	Societal security — Video-	ISO 22311:2012 is mainly for societal security purposes and specifies a common output file format that can be extracted from the video-	2012-11	-	

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
		surveillance — Export interoperability	surveillance contents collection systems (stand-alone machines or large scale systems) by an exchangeable data storage media or through a network to allow end-users to access digital video-surveillance contents and perform their necessary processing.			
936	ISO 22319	Security and resilience -- Community resilience -- Guidelines for planning the involvement of spontaneous volunteers	ISO 22319:2017 provides guidelines for planning the involvement of spontaneous volunteers (SVs) in incident response and recovery. It is intended to help organizations to establish a plan to consider whether, how and when SVs can provide relief to a coordinated response and recovery for all identified hazards. It helps identify issues to ensure the plan is risk-based and can be shown to prioritize the safety of SVs, the public they seek to assist and incident response staff.	2017-04	<u>ISO/TC 292</u>	-
937	ISO/DIS 22320	Security and resilience -- Emergency management -- Guidelines for incident management	This document provides guidance for organizations to improve their handling of all types of incidents (for example, emergencies, crisis, disruptions and disasters). The multiple incident management activities are often shared between organizations and agencies, with the private sector, regional organizations, and governments, have different levels of jurisdiction. Thus there is a need to guide all involved parties in how to prepare and implement incident management.	[Under development]	<u>TC292</u>	-
939		<i>White book on the defense and the national security</i>	<i>This white book sets up the French strategy in defense and national security, and clarifies its link with the common security and defense politic of the European Union and the Atlantic Alliance, as well as the needed capabilities to implement it in the next fifteen to twenty years.</i>	2013	<u>Président de la république</u>	http://www.livreblancdefenseetsecurite.gouv.fr/ http://www.livreblancdefenseetsecurite.gouv.fr/pdf/le_livre_blanc_de_la_defe

ID	Document No.	Title	Abstract/Scope	Date of publication	Author	Link
						nse_2013.pdf
940	L562-1	<i>Plan for predictable natural risks prevention (PPRN)- Environment Code</i>	<i>The Plan for predictable natural risks prevention (PPRN) is one of the essential tools for the French State actions regarding natural risks prevention, in order to reduce the vulnerability of the people and the goods.</i>	2013-01	<i>Law/ French Authorities / République Française</i>	https://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006074220&idArticle=LEGIARTI000026849100
941	ANSI/APCO 1.112.1	Best Practices for the Use of Social Media by Public Safety Communications	Social media is a common form of communication used by agencies and agency employees. This standard provides guidance on the use of social media for developing specific local procedures (ex: Facebook, Twitter, Instagram, Google+, etc).	2014-00-00	-	-