Driving Innovation in Crisis Management for European Resilience

WHITE PAPER

STANDARDISATION POTENTIALS IDENTIFIED BY DRIVER+

This paper provides an explanation of how to identify new potentials for standardisation, and presents standardisation potentials, both generally and for three specific domains. The process to identify standardisation potentials is explained. This process has been followed during DRIVER+, leading to the initiation of three CEN Workshop Agreements.

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STANDARDISATION AND RESEARCH PROJECTS – HOW DO THEY FIT TOGETHER?

Standards reflect the state-of-the-art in their related fields. In Crisis Management, standards support the everyday work of practitioners. They are consensus-based documents which are approved by a recognised body i.e. a standardisation body, and provide rules, guidelines or characteristics for products, processes or services. They are based on consolidated results of science, technology and experience, and therefore promote knowledge and technology transfer. Especially in the field of security (i.e. Crisis Management and Disaster Risk Reduction), a high demand for standards has been identified within the framework of the execution of mandate M/487 to CEN, CENELEC and ETSI to establish security standards. One of the possibilities to initiate new standardisation activities is the exploitation and dissemination of outcomes of research and innovation projects.

There are different options and levels of engagement possible for the research projects:

- Project results can be used as input for ongoing standardisation activities, which are led by a standardisation committee, e. g. by giving input to draft standards. This method was followed to propose the DRIVER+ terminology towards EN 17173 (European CBRNE glossary).
- Project results can be used to initiate a new formal standard. Its development is led by a standardisation committee, i.e. by proposing to the relevant technical committee (TC) a New Work Item Proposal.
- Project results can also be standardised directly in form of a CEN Workshop Agreement (CWA), which is developed by a temporary Workshop consisting of DRIVER+ partners and anyone with an interest.
  The document has a limited validity of maximum 6 years and can be used as a basis for transferring to an EN or ISO standard. A similar process is possible through ETSI ISG (Industry Specification Group).

Many 'secure societies' projects include an explicit standardisation activity or focus entirely on measures to support the process of standardisation in security. Some examples include:

- SAYSO – Future situational awareness systems - https://www.sayso-project.eu/
- HEIMDALL – Multi-Hazard Cooperative Management Tool for Data Exchange, Response Planning and Scenario Building - http://heimdall-h2020.eu/
- SMR - Smart Mature Resilience - https://smr-project.eu/home/
- ResiStand - Increasing disaster Resilience by establishing a sustainable process to support Standardisation of technologies and services http://www.resistand.eu/
- Stair4Security - Standards Innovation and Research for Security http://cen-stair4security.eu/

WHAT IS A 'STANDARDISATION POTENTIAL'?

A 'standardisation potential' presents an initial 'idea' of a concept that should be standardised. This idea can then be developed to understand more of the motivation to standardise, interest from target groups and potential impact. Standardisation potentials may require entirely new standardisation activities, or where addition or modification to existing standards may be needed. This paper identifies the potentials resulting from DRIVER+. Further study is required to determine the route towards fulfilling those potentials.

HOW TO IDENTIFY STANDARDISATION POTENTIALS?

Those who would benefit from standards may not know their need, necessity or value of a standard to support their operational capability. An appreciation for standards and a level of education is needed before a practitioner can engage and consider standardisation potential. The main DRIVER+ activity towards standardisation was led by a distinct need to transfer results of the research into standardisation efforts. This was defined explicitly in the DRIVER+ workplan and resources were available to coordinate that transfer. Specific activities were initiated within DRIVER+ following a process led by standardisation experts- DIN, the German Institute for Standardisation, involving DRIVER+ experts.

The process that led to explicit standardisation activity involved a series of workshops and follow-up activities covering:

- Education of researchers regarding the benefits and need for standardisation in the context of future impact and sustainability of the research.
- Idea gathering workshops – researchers working in groups to identify key 'Ideas' for standardisation.
- Prioritisation of 'ideas' e.g. by using the RAF-ResiStand Assessment Framework.[1]
- Elaboration of prioritised ideas to understand 'background', 'scope', 'target group', 'proposers' and possible elements of the standard.

This process can be followed in large or small groups. DRIVER+ is a large group, so careful coordination was required and specific task groups were established. Subsequent investigation with these task groups involved a smaller number of experts. Facilitated discussion between experts in the presence of a standardisation expert led to the formation of a shortlist of standardisation potential 'ideas'.
Elaboration of a standardisation potential idea should include:

- Background of the proposal for a standard.
- Scope.
- Target group.
- Proposers of the standard.
- Possible elements of the standard.

The identification of the target group is essential. The process of forming standards requires investment in time, effort and expertise. There must be a clear motivation to provide this investment which could come from:

- Industry investing in a competitive marketplace of interoperable products

[1] http://resistand.eu/sites/default/files/resistand/public/content-files/deliverables/ResiStand_D1.3_Assessment-Framework_v10pw30012017_FINAL.pdf.

- Practitioners recognising the improvement that can be gained in their operational capability through agreed operational processes, especially considering
- Public sector recognising the societal and marketplace need for harmonised processes or technical solutions

The translation of an idea towards an explicit proposition to form a new standardisation activity, must incorporate assessment of the availability of existing standards first. The decision can then be made whether to join existing standardisation activity or initiate a new one.

OVERVIEW OF STANDARDISATION POTENTIALS IDENTIFIED VIA DRIVER+

DRIVER+ has carried out a comprehensive activity to identify standardisation potentials, not only derived from the direct outputs of the project, but also considering Crisis Management needs.

Three of those have been taken forward towards CEN Workshop Agreements:

- **Trial Guidance Methodology**
- **Semantic and syntactical interoperability for crisis and disaster management**
- **Crisis Management – Building a Common Simulation Space**

The following sections describe standardisation potentials (summarised in Table 1) identified both within DRIVER+ and within three specific task groups composed of Crisis Management experts in their three respective fields and being active in the Crisis Management Innovation Network Europe established by the project (CMINE).

POTENTIALS FOR FUTURE STANDARDS, WITH DEVELOPED CONCEPTS

Further standardisation potentials were identified via a project internal workshop, during the 3rd I4CM held in Warsaw on 3-4 September 2018 and via the CMINE task groups.

- **Societal Impact Assessment Framework (SIA)**
  Under which circumstances is it acceptable to use e.g. drones in Crisis Management (CM)? Answering this or similar questions related to the societal impact of a particular solution is crucial, complex and requires a common standardised process. Selecting a CM solution in a societal responsible way requires a systematic assessment approach that will allow an evaluation of the way the solution may impact the society. The SIA framework developed within the DRIVER+ project contains a structured methodology for assessing societal impact of CM solution.
- **Scenarios Description**
  If a Crisis Management professional plans to trial a particular solution, a crisis scenario providing the context in which the solution is intended to operate, is needed as basis for this trial. A standardised methodology of the scenario building is required to define common criteria to be included in a scenario description and steps to be followed in a systematic way to define the scenario.
- **Situational Awareness via Social Media**
  Social media is becoming more and more important in Crisis Management, not just as a tool to communicate with the public during a crisis, but also for tasking volunteers and for improving the situational awareness of the responders. A standardised guideline is required for handling social media information (individually and crowd sourced opinion) and preparing new content, taking into account the language used, potential impact of use and its handling in the context of data protection.

- **Symbols for the Common Operational Picture (COP)**
  COP tools present information on geographical views to assist with decision-making in Crisis Management. Standardisation is needed to define a common agreement on the symbols used to represent different assets, resources, threats, etc. Symbols should represent the same physical situation regardless of the COP tool used. The aim of this is to enhance a shared understanding and to increase the emergency responder (syntactical) interoperability between different organisation as well as different European Member States cooperating in the framework of the EUCPM (EU Civil Protection Mechanism).

MORE GENERAL IDEAS FOR POTENTIAL FUTURE STANDARDS

The following ideas are noted in addition to those given above in more detail:

- Crisis Management terminologies assisting coherence in, for example:
  - Evaluation Questionnaires
  - Scenario definitions to assist considering trials of solutions in realistic contexts
- Taxonomy and Ontology of Crisis Management
- Taxonomy and Ontology of solutions
- Common Information sharing procedures and methodologies
- Solution testing and generic practitioner evaluation KPIs
- Solution integration into existing systems

Topics such as Taxonomy of Crisis Management are already covered in part by activities such as CWA-17335 'Terminologies in crisis and disaster management'.

TASK GROUP SPECIFIC POTENTIALS

Short workshops and direct discussions with the following three domains brought a list of new standardisation potentials. Initial standardisation potential ideas are presented. Further elaboration is required to understand the scope and motivation towards formal standardisation activity.

a) Wildfires

A meeting was held on the 18 November 2019 with the Task Group Wildfires at Cardiff's main fire station. In summary, standardisation potential ideas were identified as follows:

- Wildfire field types and impact –
  - Types of landscape and associated fire potential - buildings have fire potential standardised, but not wildfires
  - Potential energy level of the land - towards fire intensity etc.
  - Energy release - smouldering - peat fires and impact of smoke on population
  - Classification - e.g. peat fires
- Firefighter Personal Protective Equipment (PPE) – guidelines of PPE to use in different wildfire types (potentially building upon existing standards such as EN 1486 (Protective clothing for fire-fighters - Test methods and requirements for reflective clothing for specialised fire-fighting)
- Wildfire specific risk management (extending the generic risk management standard ISO3100X)
- GIS presentation layers should be standardised across different GIS tools to aid common understanding. The same presentation regardless of GIS tool used (potentially building upon the work of ISO/TC211 'Geographic information/Geomatics', specifically to cover semantics, symbology and presentation layer definitions for management of Wildfires response)
- Community Resilience and Agility
- Competence – different competence standards are used in different countries. Harmonisation is needed for international cooperation

b) Flooding

A meeting was also held with the group in December 2019 in Germany and a specific standardisation discussion was organised. The following topics were identified.

- Floods-related terminology
- Protective devices classification by requirements and characteristics
- Flood risk and damage assessment aiming to determine comparable situations.

c) Volunteer Management

The Volunteer Management Task Group highlights many possible ways of improving the management of volunteers.

- Common Guidance for managing spontaneous volunteers:
  - Identifying coordination mechanism, resources, management structures, care and support systems for wellbeing and how to activate them quickly
- Common Guidance for managing spontaneous volunteers: with a consideration of their situation
  - Lack of training
  - Not being familiar with command structures
  - Not being part of an established team
  - Unclear expectations and roles
- Common Guidance for care and support mechanisms for spontaneous volunteers, including
  - Instructions to increase their effectiveness and reduce risks appropriate to the different types of incident
  - Support of self-efficacy in recovery after crisis
  - Long term care and support systems in recognition of the immediate and long-term effects on the wellbeing of spontaneous volunteers; including immediate and long term physical and mental health
  - Monitoring working hours with clear guidance of consideration for care and support, and assessing the impact of response on spontaneous volunteers.

In this specific area, it should be noted that there is the existing standard ISO 22319 (*Security and resilience - Community resilience - Guidelines for planning the involvement of spontaneous volunteers*) which should be amended to include these elements and to improve the condition of the spontaneous volunteers.

CONCLUSION

This paper provides an explanation of how to identify new potentials for standardisation, and presents standardisation potentials, both generally and for three specific domains. The process to identify standardisation potentials is explained. This process has been followed during DRIVER+, leading to the initiation of three CEN Workshop Agreements. However, this has included a prioritisation, leaving some topics not yet covered. As the DRIVER+ project draws to its conclusion, this paper records standardisation potentials that cannot be addressed within the DRIVER+ project.

It is recommended for other standardisation projects, standardisation activities within specific topic projects, standardisation development groups and technical committees should consider these standardisation potential ideas. These standardisation potentials are determined through working with disciplinary experts in their field, and across the diverse skillset of the DRIVER+ partnership.

Formal steps should be taken to initiate standardisation activity related to the standardisation potentials listed in this paper. This could be a starting point for other initiatives that could select the topics that would be the most relevant to their members and stakeholders. This could be also used as a reference for the preparation of new research project topics.

Standards are considered positively as a way to improve Crisis Management operations. Common guidance, common operational processes and interoperable technology all improve the possibilities of collaboration in Crisis Management. This is especially challenging where crisis managers work together internationally, where national standards do not align, or where different response disciplines work together with complementary skills but different operational procedures and languages.

The research community provides important skills and activity that seek to improve Crisis Management and response capabilities in the face of these difficulties. It is important that key outputs from research develop towards standardisation, to become more than just a demonstration and report. Standardisation is key to bring research outcomes to improve Crisis Management capability on a large scale, spanning nations and disciplines.

Table 1: List of Standardisation Potentials

Standardisation Potential	Title
CM_SP1	Societal Impact Assessment Framework (SIA)
CM_SP2	Scenarios Description
CM_SP3	Situational Awareness via Social Media
CM_SP4	Symbols for the Common Operational Picture (COP)
CM_SP5	Crisis Management Terminologies assisting Coherence
CM_SP6	Taxonomy of Crisis Management
CM_SP7	Taxonomy of Solutions
CM_SP8	Common Information Sharing procedures and methodologies
CM_SP9	Solution Testing and Generic Practitioner Evaluation KPIs
CM_SP10	Solution Integration into existing systems
WF_SP1	Wildfire field types and impact
WF_SP2	Firefighter Personal Protective Equipment (PPE) – guidelines of PPE to use in different wildfire types
WF_SP3	Wildfire specific risk management (extending the generic risk management standard ISO3100X)
WF_SP4	Standardised GIS presentation layers
WF_SP5	Community Resilience and Agility
WF_SP6	Harmonised Competence Levels for international cooperation
FL_SP1	Floods-related terminology
FL_SP2	Protective devices classification
FL_SP3	Flood risk and damage assessment aiming to determine comparable situations
SV_SP1	Common Guidance for managing spontaneous volunteers
SV_SP2	Common Guidance for care and support mechanisms for spontaneous volunteers

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