



Driving Innovation in Crisis Management  
for European Resilience



## **D913.31 – SOCIETAL IMPACT ASSESSMENT FRAMEWORK- VERSION 2**

**SP91 - PROJECT MANAGEMENT**

**JULY 2019 (M63)**



This project has received funding from the European Union's 7th Framework Programme for Research, Technological Development and Demonstration under Grant Agreement (GA) N° #607798

## Project information

<b>Project Acronym:</b>	DRIVER+
<b>Project Full Title:</b>	Driving Innovation in Crisis Management for European Resilience
<b>Grant Agreement:</b>	607798
<b>Project Duration:</b>	72 months (May 2014 - April 2020)
<b>Project Technical Coordinator:</b>	TNO
<b>Contact:</b>	<a href="mailto:coordination@projectdriver.eu">coordination@projectdriver.eu</a>

## Deliverable information

<b>Deliverable Status:</b>	Final
<b>Deliverable Title:</b>	D913.31 – SOCIETAL IMPACT ASSESSMENT FRAMEWORK- VERSION 2
<b>Deliverable Nature:</b>	Report (R)
<b>Dissemination Level:</b>	Public (PU)
<b>Due Date:</b>	July 2019 (M63)
<b>Submission Date:</b>	18/07/2019
<b>Subproject (SP):</b>	SP91 - Project Management
<b>Work Package (WP):</b>	WP913 – Research ethics & societal impact assessments
<b>Deliverable Leader:</b>	PRIO
<b>Reviewers:</b>	Tim Stelkens-Kobsch, DLR Marcel van Berlo, TNO Nicola Rupp, WWU
<b>File Name:</b>	DRIVER+_D913.31_Societal Impact Assessment Framework- version 2.docx
<b>Version of template used:</b>	V2.2 – February 2019

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## Revision Table

Issue	Date	Comment	Author
V0.1	03/05/2019	Initial draft	Stine Bergersen, PRIO, WP leader
V0.2	10/06/2019	Contribution to all sections	Stine Bergersen, Bruno O. Martins & Emilie Hermansen, PRIO, WP leader
V0.3	03/07/2019	Second full draft	Stine Bergersen, PRIO, WP leader
V0.3	08/07/2019	Peer review	Tim Stelkens-Kobsch, DLR
V0.4	12-14/07/2019	Peer review	Marcel van Berlo, TNO
V0.5	15/07/2019	Peer review	Nicola Rupp, WWU
V0.6	15-17/07/2019	Updated full draft	Stine Bergersen, PRIO, WP leader
V0.7	17/07/2019	Final check and approval for submission	Tim Stelkens-Kobsch, DLR, Quality Manager
V0.8	17/07/2019	Final check and approval for submission	Marijn Rijken, TNO, Project Director
V1.0	18/07/2019	Final check and submission to the EC	Francisco Gala, ATOS

## The DRIVER+ project

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

In order to achieve these objectives, five Subprojects (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 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 (FD). **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. Most important will be to build and structure a dedicated Community of Practice in Crisis Management, thereby connecting and fostering the exchange of lessons learnt and best practices between Crisis Management practitioners as well as technological solution providers.

## Executive summary

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A more connected society, driven by rapid technological change and an increasingly complex operational field, has positioned crisis managers to think more holistically about the societal impact of their activities and operations. For example, the advances of globalization and improved technologies do not necessarily directly correlate with the improvement of all people's lives but must be managed properly. This acknowledgement is driving an increasing focus on societal impact—ensuring crisis management activities and solutions are being developed and deployed with the broader society in mind. Societal impact is defined a dimension of crisis management that refers to its unintended positive or negative impacts on different societal groups or society as a whole, as well as on its core values and societal principles as captured for example in fundamental rights, constitutional laws, but also in public debate. Crisis Management (CM) organizations are increasingly broadening their strategic focuses on financial and nonfinancial measures of success; including societal impact.

This deliverable (**D913.31- *Societal Impact Assessment Framework - version 2***) presents the final version of the DRIVER+ Societal Impact Assessment (SIA) Framework. Delivered in parallel, another deliverable (**D913.41- *A guide on assessing unintended societal impacts of different CM functions - version 2***), presents ten examples of assessments conducted using the SIA Framework. A set of SIA training modules, which can be used to train individuals in applying the SIA Framework to carry out assessments, will be delivered in M66 (**D913.52 *Training Modules for Societal Impact Assessment***).

The current deliverable describes the methodology that is used for doing societal impact assessments and how to use the Framework in order to conduct these assessments. The SIA Framework has been developed in two steps. The first version of the Framework was submitted in M41 and was based on the structure and content of the DRIVER+ project at that time. Next, the Framework was refined and tested during the project (i.e. via SIA Trainings), it has been applied to the DRIVER+ Trials, and it has been significantly improved to better feed into other key outputs of the project, namely the Portfolio of Solutions (PoS) and the Trial Guidance Methodology (TGM). In addition, this final version of the Framework has been revised in such a way it is applicable and sustainable beyond the project duration: the SIA Framework can now be used to carry out societal impact assessments of any crisis management solution (full explanation can be found in **D913.41**). The Framework will live on beyond the project in two ways: as an integrated part of the TGM, and through the development of a CEN Workshop Agreement which aims to serve as input for formal standards on SIA in Crisis Management. Both outputs are explained in section 5.

The SIA Framework consists of two main components: the *CM functions*, which are the objects which will be assessed and a set of societal impact *criteria*, which are what these functions are assessed against. Applying the Framework follows five basic steps, each containing a set of guiding questions:

1. Identify stakeholder groups / communities.
2. Collect background information.
3. Get an overview of legislation and policies.
4. Identify and predict impacts.
5. Describe mitigating measures and follow up.

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## List of Acronyms

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Acronym	Definition
<b>CEN</b>	European Committee for Standardisation
<b>CM</b>	Crisis Management
<b>CORDIS</b>	Community Research and Development Information Service
<b>CWA</b>	CEN Workshop Agreement
<b>CXO</b>	Chief Experience Officer
<b>DOW</b>	Description of Work
<b>EELPS</b>	Ethical, Economic, Legal, Political and Societal
<b>IPIECA</b>	The global oil and gas industry association for advancing environmental and social performance
<b>PoS</b>	Portfolio of Solutions
<b>RCRC</b>	Red Cross Red Crescent
<b>SIA</b>	Societal Impact Assessment
<b>SOP</b>	Standard Operating Procedure
<b>SP</b>	Subproject
<b>TGM</b>	Trial Guidance Methodology
<b>TGT</b>	Trial Guidance Tool

## 1. Introduction to the updated DRIVER+ Societal Impact Assessment Framework

To develop a comprehensive system for taking potential societal impacts into account is a cornerstone in the vision of DRIVER+. One of the objectives of the project is to facilitate a shared understanding of Crisis Management (CM) across Europe, and to establish this shared understanding; many considerations relating to societal values are crucial. It is a key objective for DRIVER+ that the activities and outputs of the project are societally acceptable, and that potential negative impacts are mitigated and minimized, or eliminated if possible. The method chosen to reach this objective is the result of systematic and dedicated work throughout the project. A comprehensive Societal Impact Assessment (SIA) Framework had been designed,

### section summary

*Under which circumstances is it acceptable to use drones in crisis management? Answering this or similar questions related to the societal impact of a particular solution is crucial and complex. What societal impact does the technology itself – the drone – have? And what societal impact does its implementation have? Selecting a CM solution in a societal responsible way requires a systematic assessment approach that will allow for an evaluation of the way the solution may impact the society. Therefore, a Societal Impact Assessment Framework has been developed within the DRIVER+ project, which is presented in this deliverable.*

tailored to CM. The Framework allows for making assessments of the positive and negative impacts CM solutions can have on society. The aim of the Framework is to bring a practical and exploitable tool for conducting SIA's to solution providers, practitioner organizations/end-users and researchers working in CM, but also to raise awareness on the importance of societal impact assessment in CM.

The Framework facilitates “purpose in action”, and is a research-based, systematic and comprehensive assessment method, aimed at producing knowledge about the impacts CM can have on the general society<sup>1</sup>. By “impacts” we mean how a certain CM solution relates to, involves or affects the surrounding society. The Framework consists of a 5-step approach, with guiding questions that leads the assessor through the process. In short, the 5-step process looks as follows: after going through steps that include tasks like identifying stakeholder groups or relevant legislations, and collecting other kinds of background information, the actual assessment happens by linking the Framework's two main elements: functions and criteria (the latter being based upon six key categories of impact<sup>2</sup>). The assessment method is tailored to the CM context, because it takes the DRIVER+

taxonomy of CM functions as its starting point. However, since all solutions can be organized according to their functions, the Framework enable assessments of solutions outside the scope of the DRIVER+ project.

The SIA Framework, and its development, presented in the following sections, establishes a basis for addressing the potential societal impacts of CM solutions, in accordance with the most commonly acknowledged ethical, democratic and legal principles<sup>3</sup>. However, the Framework does not tell us exactly how to solve all potential emerging issues or tensions that exist within the CM field, neither does it resolve the issue of knowing which of the principles are normatively or morally most “valuable”. Yet, by

<sup>1</sup> According to the DRIVER+ terminology, societal impact means a dimension of crisis management that refers to its unintended positive or negative impacts on different societal groups or society as a whole, as well as on its core values and societal principles as captured for example in fundamental rights, constitutional laws, but also in public debate. Societal Impact assessment is defined as the process of identifying, analysing and managing intended and unintended (positive or negative) societal consequences.

<sup>2</sup> The impact criteria are divided into six broad categories: Secondary (in)securities, political & administrative principles, legitimacy, core societal & ethical principles, legal values, and fundamental rights.

<sup>3</sup> The principles, labelled “criteria”, were analysed and put together for the purpose of the SIA Framework, in **D91.3**.

manifesting the current international order summarized by these key principles, the Framework aims to move the field of CM in the direction of societal acceptability. Due to increasingly severe consequences of natural disasters and terrorist threats, among other risk factors, current and future challenges require the development and uptake of innovative solutions that address the operational needs of practitioners dealing with CM. Although such solutions can be effective in reducing risks or crisis impacts, how can we ensure that the solutions are not compromising core societal values? The challenge of answering this question lies in our basic understanding of what “risk” is and what “crisis” is, but also in our understanding of which values and societal principles are worth to be defended. The challenges that come with technology innovation in fields such as CM are not only relating to the technology itself but are also emerging from the meeting between the human values that make European life what it is, and the security technologies developed to secure it<sup>4</sup>.

It is currently not realistic that all novel CM solutions are being thoroughly assessed with regards to potential societal impact, but the DRIVER+ SIA Framework proposes a way of balancing the ethical and normative ideals and the reality of everyday CM operations. The Framework includes a combination of factual and reflective questions, where the overarching purpose is to encourage a critical reflection of CM solutions (as well as suggesting mitigating measures and follow up) rather than prescribing how they ideally should look like. This is a way of linking the somewhat abstract exercise of assessing future impact with real life CM operations in potentially very complex societal contexts.

The final version of the SIA Framework is a revised version of the first version of the Framework (1). This deliverable presents a structured methodology for conducting a SIA of CM solutions. The Framework and the step-by-step approach lead the various stakeholders in CM through the assessment process. This process results in a written assessment that can be used to steer the further development or implementation of CM solutions. The societal perspective is relevant in all phases of the CM cycle, whether that refers to solutions aimed at prevention, preparedness, mitigation or recovery. Within the DRIVER+ project, the assessments were most relevant to be carried out as part of the preparation of a Trial, but also deemed useful as part of the Trial evaluation phase. However, this final version of the SIA Framework can also be applied to solutions outside the context of a Trial, and to solutions that have not been part of the DRIVER+ project. The concrete application is further explained in section 4.

## 1.1 Structure of the deliverable

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Section 2 describes the relevance and importance of SIA, and discusses some benefits of taking society into account in such a way. Three recent real-life examples of societal impact of crisis management activities, underlining the importance of SIA also in realistic non-research contexts are included in Annex 5. Section 3 describes how the first version of the Framework was updated, it provides an updated state-of-the-art on the way SIA has been integrated into other EU-funded research projects and summarizes the key advantages of the final Framework. Section 4 presents, in more detail, the final version of the DRIVER+ SIA Framework. The different components are introduced and explained. It contains a practical hands-on guide (template) on how to use the SIA Framework to carry out societal impact assessments. This is structured as a 5-step approach. Finally, section 5 presents the way forward on the integration of the SIA Framework in the other DRIVER+ results and its application beyond the scope of the project. Seven Annexes are included, each referred to and explained where relevant throughout the deliverable. In particular, Annex 7 includes reflections on SIA for all DRIVER+ Trials, using the SIA Framework.

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<sup>4</sup> This argument is paraphrasing an argument made by P. Burgess (2011, p. 17) *The Ethical Subject of Security*. Routledge.

## 2. Assessing societal impact in crisis management: Relevance and importance

Crisis management largely depends on solutions that are accepted by society. If CM solutions create societal controversy or have negative societal impacts, their efficiency and effectiveness may be undermined. Societal resistance and unease may reduce the utility of the technology (active resistance) as

well as undermine the feeling of being secure that a certain CM solution is supposed to achieve, and thus have an unintended negative societal impact. A solution often produces a combination of positive and negative effects at the same time. Thus, developing and implementing new CM solutions is always a balancing act. In Annex 5, three examples of such balancing acts are illustrated. They each illustrate a situation where a CM solution did not work as intended but created significant negative societal impacts.

### section summary

*The International Principles for Social Impact Assessments define SIA as being “the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions”. In European research projects, SIA is increasingly becoming an integrated part of the project activities, and an overview of some of the most prominent efforts is presented here.*

In general, the process of carrying out a SIA happens via a Framework that allows for the evaluation of potential impacts on humans and on how people and communities interact with their socio-cultural, economic and environmental surroundings. SIA theory accepts that social, economic and biophysical impacts are interconnected and that a change in any of these domains will lead to changes in the others (2). Understood in this way, SIA has clear linkages to EIA (Environmental Impact Assessment) and other forms of ex-ante impact assessments, as well as with vulnerability and sustainable livelihoods analysis (ibid). While the

term “societal impact analysis” is most commonly applied, some anthropologists and a few countries use the term “human impact assessment” to describe the same process (3).

Section 3 will provide an overview of some of the different ways in which SIA is increasingly becoming an integrated part of research project activities funded by the EU. Understanding how SIA is being implemented in other projects helps clarify why the concept matters, and how we can understand the different ways it is currently materializing. In this context, SIA has a role both in the broader discussions on research ethics, but also has a function in the thinking behind new technologies. There are several ways of assessing this kind of impact, but also some commonalities. These have been considered when developing the DRIVER+ SIA Framework, with the aim of making the DRIVER+ approach more robust. While the success factors for doing thorough SIA’s are hard to define, for example because they depend on what happens *after* the assessment has been made, some elements are considered important. According to IPIECA, factors that might be important in assuring that societal impacts are addressed through the SIA process are for example<sup>5</sup>:

- Whilst a holistic view is essential, hazard and related risk issues should be kept in proportion, both with regards to their intrinsic significance and in relation to other social impacts.
- Impact assessment must feed back into project design, leading where necessary to development of avoidance or mitigation strategies.

<sup>5</sup> IPIECA is a non-profit organization which develops, shares and promotes good practice and knowledge to help the industry and improve its environmental and social performance. IPIECA is the industry channel into UN's International Panel on Climate Change (IPCC) and the UNFCCC, both concerned with climate change. In this context referred to, these are societal impacts associated with natural hazards, but the list is still relevant to consider also for CM.

- Communities' perceptions are important indicators of hazards and associated risks, and of their likely responses to project interventions.
- Affected communities should be fully involved in the assessment, not just as providers of information (i.e., public consultation), where their extensive knowledge of local hazards and risk management strategies will be valuable, but in negotiations with other stakeholders about avoidance or mitigation options as well.
- Positive benefits of projects in terms of reducing risk should be acknowledged.
- Findings should be communicated to decision-makers and acted upon by them – SIA is a tool to help make decisions (4).

As presented in section 3, the DRIVER+ 5-step approach to SIA (as described in section 4), largely relates to these success factors. For example, by underlining positive benefits of reducing risks to society, by recognising that perceptions in society matters and that impacts therefor cannot be objectively calculated, by taking features of the community into account, and by proposing a participatory assessment method, where critical reflection is encouraged rather than affirming “go/ no-go” conclusions.

## 2.1 Societal Impact: From “nice to consider” to “business imperative”<sup>6</sup>

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Whether driven by the desire to find new sources of revenue, or the need to respond to external pressures, businesses across all industries seem to be moving towards improving their societal impact (5). There are many ways of defining or describing societal impact, but in the context of the DRIVER+ project it implies a dimension of crisis management that refers to its unintended positive or negative impacts on different societal groups or society as a whole, as well as on its core values and societal principles as captured for example in fundamental rights, constitutional laws, but also in public debate. Doing a societal impact assessment would then generally facilitate an evaluation of impacts on humans and the ways in which people and communities interact with their socio-cultural, economic and biophysical surroundings (6). In the context of the DRIVER+ project, a SIA is defined as the process of identifying, analysing and managing intended and unintended (positive or negative) societal consequences.

As the SIA Framework established in this deliverable has been developed within the DRIVER+ project, it is relevant also to mention that the need for innovative solutions to deal with crisis situations stems from the fact that CM as such is taking place in complex and dynamic societies. This complexity is caused by several factors, such as increased digitalization and the growing movement of people across borders and countries. The emergence of new solutions to tackle new and complex challenges also means that the solutions we come up with can have consequences that are more complex than before. These consequences – or, in other words, this impact – can be positive and desired (such as increased efficiency), but there might also be impacts that are negative or unintended. When talking about societal impact in this context, we mean something different than how well the solutions *work*. A new solution to a challenge can be very efficient in producing the desired effects, but at the same time have tremendous negative impacts on the society in which it is deployed. So, the focus of a SIA is not on how well the solution does its intended job, but rather on how the specific function it has (e.g. surveillance in public spaces or data sharing among first responders) might have an impact on the broader society and on how those positive and negative impacts can be managed (i.e. stimulated or mitigated respectively). Examples of these kind of general impacts could e.g. be that engaging the population (defined as a CM function) can foster a positive and constructive culture of participation, but on the other hand engaging the population (too much) can be seen as a burden

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<sup>6</sup> This title is quoted from an article in Forbes magazine by David Cruickshank, describing how societal impact has been growing as an area of interest for businesses. The article can be accessed here: <https://www.forbes.com/sites/deloitte/2019/01/22/societal-impact-moving-from-nice-to-consider-to-business-imperative/>

for the individual (ref. common critics of resilience)<sup>7</sup>. The aim of a SIA is not to assess, for instance, whether a crowd-tasking solution would make response activities more time-efficient. It rather assesses how a crowd-tasking solution can be deployed to foster a culture of trust in society so that communities feel safe when they are in a crisis situation, in addition to assessing if and how unintended negative side-effects can be identified and mitigated.

A SIA can be carried out in many different contexts, and for many different purposes, which makes it difficult to give a universal definition of what it entails. The starting point for the SIA Framework developed in the DRIVER+ project is that an assessment of what a certain solution does to a society, means thinking about how it impacts the people in it. While some categories of impact are easier to identify and mitigate than others, there is no easy checklist to identify potential societal issues. For example, privacy-related impacts might be easier to recognize due to high public attention to the topic and to the emergence of European wide legislation. On the other hand, the impact of certain solutions on societal values addresses impacts that exceed calculability, not least because most of these impacts are long-term and often unintended.

In sum, the objective of doing a SIA is to ensure that the implementation of CM solutions maximises its benefits and minimises its burdens, especially those burdens borne by people. Burdens and benefits may not be directly measurable or quantifiable and are often hard to consider exactly for this reason. Nonetheless, they are important, and by identifying potential societal impacts in advance, in particular two advantages are evident:

- Better decisions can be made about which solutions should be employed, and how they should be employed.
- Mitigating actions can be implemented to minimise the harm and maximise the benefits from a specific solution.

In the larger societal context, by achieving these advantages, other benefits include positive impacts such as accountability and acceptability.

- **Accountability** means that CM participants are in various ways responsible for what they do and should be able to give a satisfactory justification for it.
- **Acceptability** of solutions, since crisis managers depend on the society accepting the CM solutions, especially if the solutions are participatory in the sense that they require interactions with the public.

Acceptability also relates to issues of *sustainability*, since solutions that are developed and implemented with the broader society in mind have a larger chance of avoiding controversy and being adopted, in addition to making the implementation more efficient and effective. In fact, according to Deloitte Global series of inclusive growth surveys, external pressure continues to be a major driver for why societal impact is gaining traction as well (7). According to this survey, some of this drive comes from public sentiment, which is increasingly influencing business leaders' decisions related to societal impact by encouraging them to re-evaluate their strategies. Specifically, 73% of the surveyed Chief Experience Officer (CXO) report to have changed or developed products or services in the past year to generate positive societal impact (8).

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<sup>7</sup> A body of literature exists which describes pitfalls and shortcomings of accepting resilience as a universal good. See for example: van Breda, Adrian D. (2018). A critical review of resilience theory and its relevance for social work. *Social Work*, 54(1), 1-18. <https://dx.doi.org/10.15270/54-1-611>

### 3. Updating the first version of the SIA Framework

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A description of the previous version of the Framework, as well as the work that led to it, can be found in **D840.11 Societal Impact Assessment- version 1** (1). The most prominent change from the first version is

#### section summary

*This section summarizes the basis of the updated SIA Framework. It places it in context of other EU funded research projects, explains how the update was made, and described the main advantages and features of the final version.*

that the final version is developed to be sustainable beyond the project duration, while the former version was specifically tailored to the DRIVER+ project and to the activities that took place within its scope. The final Framework has also been updated with a better-defined guiding assessment template, as well as new and relevant real-life examples and illustrations in the list of assessment criteria.

Since the delivery of the first version of the SIA Framework (**D840.11**) (1) in M41, several activities have taken place to update the Framework to its final version. These activities, and

the related results, are described in section 3. A brief historical background of SIA is presented, as well as an updated state-of-the-art for SIAs as part of research projects funded by the EU. Finally, reflections from the DRIVER+ Trials and feedback from SIA training sessions are presented. Thus, section 3 adds to the background and state-of-the-art provided in the first version of the SIA Framework, and forms the basis for the presentation of the final Framework in section 4.

#### 3.1 Historical background of SIA

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To understand the need for SIAs in the context of projects such as DRIVER+, it is useful to have a look at its historical perspective. Societal Impact Assessment (SIA) arose in the 1970s alongside Environmental Impact Assessment (EIA). The legal basis of SIA (and thereby increasing standing and public awareness) first emerged in 1969/1970 when e.g. the US National Environment Policy Act (NEPA) introduced a requirement to ensure that major federal actions significantly affecting the quality of the human environment were incorporated into a balanced and publicly available assessment of the likely impact of such actions (9). The inquiry into the proposed Mackenzie Valley gas pipeline from Yukon Territory to Alberta (1974-1978) was the first major EIA case which was overturned for social reasons, due to a failure to consider the impacts on a local tribe (10). Since then, SIA has been progressively introduced to many countries around the world, in real-life local contexts as well as for businesses and research projects. In the beginning, SIA was usually done as part of EIA, but over time the practice of SIA diverged from EIA. This was related to the growing realisation that social issues fundamentally differ from biophysical issues. This is also reflected in the *International Principles for Social Impact Assessment's* definition of SIA as being “the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions”<sup>8</sup>. This definition clarifies that SIA takes society as the vantage point for the assessments. With this ambition, the effectiveness of SIA in terms of achieving better outcomes for affected communities can be exploited by ensuring that they are relevant to the proponents (here, the CM

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<sup>8</sup> This definition is derived from Vanclay, F. 2003, *International Principles for Social Impact Assessment*. Impact Assessment & Project Appraisal 21(1), 5-11. The definition is largely reflected in the official DRIVER+ terminology, which defines SIA as the process of identifying, analysing and managing intended and unintended (positive or negative) societal consequences.

participants) who initiate and implement projects<sup>9</sup>. Thus, the DRIVER+ SIA Framework addresses the process of identifying and managing societal issues, including the active and effective inclusion of relevant stakeholders in the participatory processes that leads to identifying, assessing and managing the relevant societal impacts. This also means exploring how CM solutions can be used in a way that have greater benefits to individuals and communities. The need for SIA in CM research has not emerged in a vacuum, but rather as an integrated part of society. As well as the state of the art of SIA in security research, the SIA approach developed for DRIVER+ is designed based on a wide range of previously established practices, disciplines and research fields (11). It draws together academic disciplines and public and private organizations representing various stages of the CM cycle. This reflects the complexity and heterogeneity of the field of CM, and the innovative development and implementation of CM tools, solutions and technologies.

### 3.2 An updated state-of-the-art on SIA in EU projects

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There are few systematic approaches to assess the societal impact of CM activities known (11) (12) (13) and the development of the SIA Framework is therefore of particular relevance to DRIVER+. Since a SIA can be carried out in a variety of different contexts with different needs and requirements, the Framework is based upon qualitative methodology and principles, rather than an assessment of e.g. legal compliance or cost- effectiveness. In this way, it can be applied to different contexts within CM activities. Several other EU funded projects in the field of CM and security have investigated the issue of how to incorporate societal impact or ethical assessment methods into a project<sup>10</sup>. A search and an overview of such projects (using key word searches in CORDIS) to identify projects that involved societal or ethical impacts was conducted for **D840.11** (1). The deliverable provided a list of projects that were categorized in three levels of engagement with societal issues. The list has been updated for this document by the inclusion of additional projects. The new projects have been found by using the same approach of key word searches in CORDIS, in addition to regular Google-searches. Some projects have also been identified by using the web pages of the projects to see their affiliated projects. An overview of the projects that were analysed for this state-of-the-art can be found in Annex 4.

Based on the review in **D840.11** (1) and the updated review documented in Annex 4, the trend still seems to be that an increasing number of projects include ethics and societal impact as a specific work package, or as the main focus. However, there is one potential pitfall with having “research ethics” or “societal impact” as a separate activity within a research project. Specifically, insofar this allows for example project participants to dissociate ethics or SIA from their ‘normal’ activities, it may foster an attitude that someone else is responsible for ethics or societal impact, and that these considerations are something that can be applied or “ticked off” by following certain (often simplified) instructions. Based on experience from other projects, this makes the integration of a structured participatory SIA methodology, taking the actual hands-on work of the participants (in this case for example the crisis manager professionals) into account, important. Another potential pitfall is that the varied professional backgrounds of the project partners might lead to the experts talking past each other. There are often several ideas and understandings of societal impact and what it means, and having a common SIA Framework can be a tool to improve mutual

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<sup>9</sup> See page iv of the report “Societal Impact Assessment: Guidance for assessing and managing the social impacts of projects” by Vanclay et al. (2015). This report builds on International Association for Impact Assessment’s (IAIA) “International Principles for Societal Impact Assessment”.

<sup>10</sup> See section 3.1 of **D91.3** for a description of the interplay between research ethics and societal values. For example, acknowledging that it is important to respect human dignity in the research activity is not the same as carrying out the research in a way that (actively or passively) enforce or respect this value.

understanding, and the shared definition of tasks and problems<sup>11</sup>. This may also in turn have a spill-over effect and increase efficiency in other areas of the project. In this way, SIA becomes not just a box that simply needs to be ticked to show that the project has thought about this, but a real added value to the project. This added value complements the fact that doing a SIA is useful for helping crisis managers, decision-makers or solution developers with identifying actual weaknesses in their solutions. Thus, directly incorporating societal impact assessments across a project is very likely to strengthen the project and the success of its outputs.

### 3.3 Feedback following the SIA training activities

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The idea that a method for assessing societal impact should be a part of the output of the DRIVER+ project has been there since the very beginning of the project. However, it was not predefined how exactly this Framework should look like or what its purpose should be. After submitting the first version of the SIA Framework, it became clear that the final version needed to be more applicable, more intuitive and easier to use - also for individuals with no or little experience with doing similar exercises. After having conducted four societal impact-training sessions for the participants in the DRIVER+ project, this became even clearer. While the trainings were successful in raising awareness of the fact that there are several benefits in considering societal impact when developing and deploying crisis management solutions, and thus fostering a culture of crisis management, the approach was too complex and the participants in the trainings struggled with understanding the very methodology, leaving too little time for the actual self-assessment. Because of this, both the SIA Framework and the training approach were revised and simplified. With regards to the latter, the revised SIA training modules, including a description of the feedback received during the training sessions will be submitted as **D913.52** in M66.

The SIA Framework been taught to and tested by the DRIVER+ consortium members (approximately 43 participants, in sessions in Warsaw, Paris and Copenhagen<sup>12</sup>), as well as in a training with eight project internal participants and seven external participants during the I4CM conference in Copenhagen (June 2019). During the I4CM, the new and revised SIA Framework was presented to a mix of DRIVER+ internal and external participants who attended a SIA training session. The feedback from the session was collected via questionnaires which were handed out at the end of the sessions. There was not a clear difference between the feedback from the external and the internal participants, which suggests that the revised Framework is easier to understand also for people outside the project who have never heard of it before. Most of the feedback related to the format of the training session itself and was thus not directly relevant for the revision of the Framework. The feedback from all the training sessions will be presented in more detail in **D913.52**, but generally the feedback shows that the revised approach was more successful in conveying the overarching message that societal impact is a key part of crisis management, and that the Framework presented to carry out assessments was much clearer. Other main points already identified from the returned questionnaires were:

1. Training was too short. Longer could be spent on the group work and explanations. An introductory session would help.
2. Supporting materials were quite confusing – better labelling of the documents would help and clearer understanding of which area of the training they corresponded to.
3. In general, the SIA concept was well explained, and the use of examples helped.

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<sup>11</sup> This is discussed in the ASSERT-project.

<sup>12</sup> An introductory training session was already given at the General Assembly in Lund, Sweden (November 2015). A training session was also held in The Hague, the Netherlands (April 2016). Both of these took place before the relaunch of DRIVER+.

4. Group work was beneficial, but again, could have been longer.
5. There was a suggestion that ‘the presenters could engage with the group more, creating more of a dialogue so that it doesn’t have such a ‘classroom’ feel’, but don’t know if this really helps with a training session.

Most of these key points refer mainly to the training approach and will be addressed in the updated SIA training modules in **D913.52**. However, point 3 and 4 relate to the SIA methodology itself, and suggest that the revised SIA Framework has been improved to the point that it is logical, that the use of real-life examples help, and that there might be an additional advantage in carrying out the SIAs as a group work.

### 3.4 Updates following the DRIVER+ Trials

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As the SIA Framework has been included in the TGM its use within future Trials will be ensured. But also within the frame of the DRIVER+ Trials it is important to take the SIA Framework into account. This becomes apparent when looking at the scenarios and analysing the large societal interdependencies. A dedicated overview for each Trial can be found in Annex 7. Here only the main findings will be presented.

Even though the SIA was, especially in the beginning of the Trials, not completely known to all participants (especially the externals), since the SIA Framework had not been developed yet, it can be stated that everyone had a kind of natural tendency to raise their voice, if they felt that a solution had an impact. The most comments were given to the drone used in Trial 1 and during each solution selection meeting, when a drone was presented. With regards to this kind of solution not only the legal frameworks were discussed but also privacy issues. In the case of Trial 1 this was mitigated by flying the drone only in a private area and having each participant filling in a consent form. This example illustrates, that the SIA for a Trial is somewhat different than for the use in everyday Crisis Management: The mitigation possibilities in the frame of a Trial are much larger and easier to achieve, than in real life. Nevertheless, those were always considered during the solution selection.

All in all, it can be stated that the SIA should always be considered during the preparation phase of a Trial (i.e. solution selection). While some concerns come naturally to one’s mind, the SIA Framework helps to address every angle. Here it is important to consider the stakeholders and their background information. While something might be completely acceptable in country A, it might be unthinkable in country B. This dimension is especially relevant within collaborative European projects such as DRIVER+, and might be less obvious in future Trials, which most likely will concern only one country.

Still it became apparent during the course of the Trials that the impact must not only be seen with regards to citizens etc. but has to be considered also within the organization itself. Most obvious was this fact in Trial 2. Here the situation was, that the solution in fact changed the communication procedure that was trained and used as a standard operating procedure. This left the participants with huge problems. It is not in the human behaviour to just ignore something that was trained over years. Hence the solution provider really needed to remind the end-user to actually use the product.

This conclusion led to the idea of seeing the step three of the SIA “relevant legislation and policies” not only in the light of the state but also in a way that takes the organisations (stakeholders) very own standard operating procedures into account - especially within a Trial context.

This also holds true for cultural and language barriers. An innovative solution in a way intrudes in the Crisis Management practitioners’ daily practice. If it is also in a foreign language it was perceived as “discriminating” and “not cultural sensitive”. It was also useful to realise that for example different countries use different icons for the same resource. This was a topic of discussion especially in Trial 2 with the use of the Common Operational Picture. This touches upon the assessment criteria “international relations”.

Another important aspect is in fact the digital literacy within an organisation. As most solutions are software and hence require some IT skills, this can be seen as a huge impact on the organization respectively its members. Within the different Trials this became very clear.

All in all it can be stated that the SIA Framework is a powerful tool to be used in Trials and that its use is twofold: One the one hand to think about the wider community and all stakeholders, on the other hand to really focus on the organization itself and identify the impact here.

### 3.5 Summary of the key advantages of the SIA Framework

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Two guiding principles have directed all the activities that led to the final version of the Framework: *to simplify* and *to specify*. These two guiding principles were derived mainly lessons learned from the SIA trainings with the project consortium, but also from discussions with the DRIVER+ Ethical and Societal Advisory Board (ESAB)<sup>13</sup>. Although the previous version of the Framework (as described in **D840.11**) still forms the fundamental basis for this final version, it was a heavy document which included a lot of background information, and which proved to be less user-friendly than anticipated. Although much of the foundation is the same, the current version of the SIA Framework is less dense and less heavy, with a clear focus on serving as a user-friendly and accessible step-by-step guide for conducting societal impact assessments. Some background information and contexts are still included in this deliverable, since its aim is to serve as a stand-alone document. For the users of this Framework, the core of the deliverable is the practical guide to carry out an assessment. This guide is presented without any additional information, to make it more applicable, in section 4.

The development of the final version of the SIA Framework was guided by a set of requirements. First, it needed to be tailored to the CM context. Second, it needed to be sustainable beyond the project. Finally, it needed to be easy to use, but be supported by guidance rather than strict instructions<sup>14</sup>. Furthermore, the SIA Framework was developed with the aim of being applicable across organizations, relevant for all crisis management solutions, and has involved training for the project participants. This minimizes the risk that the SIA becomes a tokenistic exercise that is without value for the involved partners in the project; instead it becomes a learning exercise to better understand the societal aspects of their activities (9 p. 9). Based on the review of similar research projects documented in Annex 4, the DRIVER+ SIA Framework stands out because it provides not only a clearly defined assessment method, but also thorough definitions of the assessment criteria with real life examples, as well as a set of ten example assessments. Table 1.1 summarizes the advantages of the final Framework.

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<sup>13</sup> These discussions are documented in the set of deliverables documenting the minutes of the meetings. These are: D913.21, D913.22 (forthcoming M70).

<sup>14</sup> This is because there is often no right or wrong answer when it comes to making assessments, and thus the SIA Framework and recognize that societal impacts are hard to capture in simple go/ no go- assessments methods.

**Table 1.1- Advantages of the DRIVER+ SIA Framework**

<b>Advantages of the DRIVER+ SIA Framework:</b>
<ul style="list-style-type: none"> <li>• The final version of the SIA Framework can be used beyond the scope of the research project in which it was developed.</li> </ul>
<ul style="list-style-type: none"> <li>• It is a practical and applicable tool for doing SIAs, structured around five concrete steps with guiding questions.</li> </ul>
<ul style="list-style-type: none"> <li>• The implementation of the SIA Framework can be said to foster an attitude of awareness about societal impacts, because it relies on the concept of SIA being discussed by the people working in CM.</li> </ul>
<ul style="list-style-type: none"> <li>• The SIA Framework has been developed specifically for the crisis management context.</li> </ul>
<ul style="list-style-type: none"> <li>• Where most other projects only develop a Framework or a methodology, the SIA Framework is not only a stand-alone methodology, but it comes with a set of already made example assessments.</li> </ul>
<ul style="list-style-type: none"> <li>• Is based on a set of functions that will remain relevant in the CM of the future, as well as concretely defined assessment criteria, with real-life illustrations, that can be easily understood.</li> </ul>
<ul style="list-style-type: none"> <li>• The SIA Framework is participatory, meaning that the idea is that the users run their own assessments and contribute to the process.</li> </ul>

## 4. The (updated) DRIVER+ SIA Framework

This section will go into more detail on what the SIA Framework looks like, and what constitutes it. The overarching idea while developing and revising the Framework was that it should be applicable, scalable, flexible and easy to use. The Framework takes as its starting point that all CM solutions can be organized according to the functions that they have. This does not mean that the user of the Framework needs to

### section summary

*This section goes into more detail on what the SIA Framework looks like, and what its different components are. The Framework takes as its starting point that all CM solutions can be organized according to the functions that they have, and that these functions can be assessed against a set of impact criteria. This is done by following a 5-step approach. The result of following the five steps is a written assessment of what potential positive and negative societal impacts a certain CM solution has.*

have in-depth knowledge about the technical specifications of the solutions at stake, but that he or she needs to be able to define what the solution *does*. This approach is based on the DRIVER+ Portfolio of Solutions (PoS), which is an online database containing a collection of CM solutions, each organized according to their functions. The idea is that any CM solution can be categorized and broken down into functions. One solution can have several functions.

To create a SIA Framework, two important and related choices had to be made:

- What is the Framework going to assess?
- What will the CM solution be assessed *against*?

For the first question, the answer emerged through the SIA trainings, when it became clear that operating with two different taxonomies of CM functions (i.e. two ways of categorizing what different CM solutions *do*), was neither efficient nor effective in

applying the SIA Framework within the project. Realizing that it made little sense to work with two different taxonomies within the project, it was decided to adopt the taxonomy used to structure the PoS. This taxonomy was more elaborate and developed by crisis managers with a more hands-on experience with working with CM solutions. In this way the Framework can be used to assess all the specific solutions that are included in the PoS, but also other solutions not (yet) in the PoS. The latter is then possible by consulting the DRIVER+ taxonomy of functions, and then defining what functions Solution X has. For the second question, the answer was more or less defined already. The first version of the SIA Framework (1), describes in detail how a set of societal values and principles were selected as assessment criteria. The final list of criteria was implemented in the first version of the Framework and is still considered a valid and thorough reflection of the different ways in which society can be impacted by crisis management activities. This conclusion was also made based on consultations with every SP-leader in the project, as well as the ESAB and from feedback gathered during the SIA training sessions. However, the list of assessment criteria, as presented in Annex 3, has been updated in the sense that the definitions of all the criteria have been improved and updated with real-life illustrations to ease understanding. More detail on each of these two components (functions and criteria) of the SIA Framework is provided in the following.

### 4.1 Functions: What the SIA Framework is designed to assess

To make the SIA Framework sustainable beyond the project, it was not enough to develop it to assess specific solutions that existed within the DRIVER+ project. This would limit the applicability, and the usefulness of the methodology to the project context. Rather, the methodology needed to be flexible, so that the Framework could be applied to any solution, also beyond the project. To facilitate this, as already established in the first version of the Framework, the decision was to assess functions of CM solutions, instead of the solutions themselves. In doing so, any CM solution can be assessed using the Framework, since the solution is assessed based on what a solution does, rather than what it is.

In the first version of the SIA Framework (**D840.11**) it was described how the discussion about key CM functions was expected to continue over the next few years and that the way this was done in the first version of the Framework might change. However, the set of functions presented already in **D840.11** covered all the key solutions and functions in the project at that time, which was a rather good representation of the CM field in general. For this reason the first list of CM functions that the SIA Framework was based upon did serve as a solid starting point for the first round of example assessments (in **D840.21**) and for further discussions about CM functions and their societal impacts (1 p. 40). Despite the usefulness of the first list of CM functions at that time, updating the way the SIA Framework categorized “functions” was nonetheless considered necessary for the final version to better align the Framework with the rest of the project results, e.g. the PoS.

The DRIVER+ taxonomy of CM functions was developed to categorise the contents within the Portfolio of Solutions and the Trial Guidance Tool and encompasses ten “Functional Areas”<sup>15</sup>. The ten Functional Areas are: Mitigation; Capability Development; Strategic Adaptiveness; Protection; Response; Recovery; Crisis Communication and Information Management; Command, Control and Coordination (C3); Logistics; and Security Management. Each Functional Area is divided in 54 Functions, each of which is then further subdivided in Sub-functions. Annex 2 to this deliverable provides a table summarizing the DRIVER+ taxonomy, compiling the Functional Areas, the Functions, and the Sub-Functions. **D913.41 A guide on assessing unintended societal impacts of different CM functions- version 2** (14) describes in detail how a SIA can be done in one example in each of these ten Functional Areas.

## 4.2 Societal values and principles as assessment criteria

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The solutions, broken down into functions, are assessed against a set of societal impact criteria. The assessment criteria were chosen and validated based on several factors. Important for the DRIVER+ project was the fact that the number of assessment criteria chosen needed to strike the right balance between having enough criteria to cover a wide range of impacts, while at the same time restricting the numbers of criteria to make the SIA Framework logical and helpful. Some of the criteria, as for example unease, fear, insecurity and secondary risks were chosen because they were concretely asked for in the DoW. The DoW also asked for criteria that could be used to assess side-effects to societal values. Based on these suggestions, a first list of criteria was defined, relating to the main fields of core societal values, political values, administrative values, human rights and general unease.

The SP leaders of the project were consulted, and the policy- relevance of the criteria was confirmed through **D93.1 Identification of opportunities for positive societal impact of CM** (15), where the criteria were validated through a systematic screening of different UN, EU, and Red Cross Red Crescent (RCRC) CM policy documents. It was verified what are the core principles and values that UN, EU, RCRC and CM policies invoke to foster resilience. The revised set of criteria was presented to the second meeting of the DRIVER+ ESAB in October 2015. The criteria were discussed during the meeting and in follow-up communication. After additional refinement and revisions (i.e. sorting out criteria that were too similar), the list of criteria was settled, and has been the basis for the SIA trainings carried out in 2018 and 2019, as well as for this final version of the SIA Framework. Consequently, the final list of criteria has been revised to be as concise as possible with the focus on *societal* principles and core values in the CM context<sup>16</sup>.

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<sup>15</sup> This taxonomy is presented as an Annex of D934.10, and can also be found on the following webpage: <http://pos.driver-project.eu/en/knowledge/taxonomies>.

<sup>16</sup> For a detailed description of all relevant factors leading up to the final list of SIA criteria, seek information in **D840.11**.

### 4.2.1 Definitions of the assessment criteria

The list of criteria can be found in Annex 3. Since the first version of the Framework, the list has not changed substantially, but the definitions of the criteria have been shortened and simplified. The definitions are now also followed by a short real-life example of how this criterion has been impacted in actual crisis management situations. This example illustrates the criteria and serves as an additional explanation of what exactly it means. As explained, the purpose of the SIA Framework is to facilitate the assessment of the potential societal impact of CM activities. This happens by applying this set of assessment criteria to categories of CM activities, i.e. functions. The role of the list of criteria in Annex 3 is to be the focal point for the assessments of potential positive and negative societal impact. As part of the 5-step approach to societal impact assessments, the criteria are to be used to structure the thinking with regards to the most commonly discussed societal impacts.

To facilitate this structured thinking about societal impacts, the different criteria are organized according to several categories of impacts: 1) secondary in/securities, 2) societal and ethical principles, 3) sustainability, 4) political and administrative principles, 5) legitimacy, 6) legal values and particularly relevant 7) fundamental rights. In Annex 3, definitions of all the impact criteria are given, as well as illustrations to show how the different criteria are relevant to the field of CM and how they may be understood. As part of step 4 of the five-step approach to SIA (which is explained in the template in subsection 4.4), the illustration as well as the definition of the criteria, should serve as input as to if and how certain aspects of the CM activity at stake (i.e. what is being assessed) could produce similar impacts, and what could be done to stimulate or mitigate this impact.

## 4.3 A practical guide to the DRIVER+ SIA Framework

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This section will describe and demonstrate how to use the SIA Framework to carry out a societal impact assessment. In short, this happens in five steps, where the overarching ambition is to undertake a qualitative evaluation of unintended side-effects and impacts that the use of CM solutions can have on society at large. This will enable users of the Framework to better understand the potential impacts on society and how they can be prepared for these impacts.

As described in the section 3, the SIA Framework is based on an iterative style of eliciting and categorizing responses to questions. It allows for “open-ended” questions that may be adapted to the different participants or groups of participants. Both of these features facilitate for a more dynamic interaction with the Framework, since participants are free to respond to the questions and issues in the Framework in a free and creative way, although following the structured approach. The richness and depth in this textual data that the SIA Framework is designed to explore, makes it possible to assess better the various aspects of the societal impact of crisis management solutions and their functions. The rest of section 4 contains two different versions of a template that has been prepared to help the user carry out the assessment.

Two supporting documents are needed for carrying out the assessment: First, the DRIVER+ taxonomy of CM functions, which allows each solution to be broken down into functions that will then be object for the assessment, and second, the list of societal impact criteria which had been developed to structure the thinking with regards to societal impacts. These documents are included as Annex 2 and Annex 3. In addition, a third document might be useful, which is the set of ten example assessments. These assessments are made following the instructions in the template presented in subsection 4.4. The ten assessments are available in **D913.41** (14).

## 4.4 Guiding template for assessing the societal impact of CM solutions

In the template below, the guide for assessing the social impact of crisis management solutions is presented. For each step of the process, guiding questions and instructions are included. The suggested length of an assessment is hard to define as part of such a template, since the complexity and extent of the content will vary significantly depending on the solution at stake or the context in which it is being deployed. An example of a filled-out version of the template, i.e. an actual assessment, can be found in Annex 6. Annex 7 contains filled out templates for all DRIVER+ Trials, and Annex 8 contains an empty template without any instructions and can be used for applying the five-step approach in order to carry out an assessment.

 <p><b>A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS</b></p>
<p><b>Before you start:</b></p> <ul style="list-style-type: none"> <li>• Text in <i>italics</i> should be replaced by text.</li> <li>• For identifying the functions of the solution to be assessed, please consult Annex 2, which contains the taxonomy of CM functions.</li> <li>• For step 4: Please consult Annex 3, which contains a list of societal impact criteria, i.e. parts of society that might be affected by the CM function.</li> </ul>
<p><b>GENERAL DESCRIPTION OF SOLUTION:</b></p>
<p><b>Name of solution to assess:</b> <i>Write the name of the solution here</i></p> <p><b>By consulting the taxonomy of CM functions in Annex 2, which functions does the solution have?</b></p> <p><i>Write a general description of the crisis management function that you want to assess. What is the purpose of the function? What does it do? Which activities is it used in? You can for example give some detail about why the specific function is relevant and needed in crisis management, at what point in time the function is most relevant, or who are involved in using the function.</i></p>
<p><b>STEP 1 STAKEHOLDER GROUPS / COMMUNITIES</b></p>
<p><i>The first step is to identify the stakeholders and the community/ communities that could potentially be impacted by the implementation of the solution at stake. Here, relevant questions to ask would start with “how could this specific function that my CM solution have, have an impact on the stakeholder groups or communities?” Who are the stakeholder groups or communities that could potentially be affected by the solution? General society, practitioners, law enforcement agencies? The rest of the assessment should be made with these in mind.</i></p>
<p><b>STEP 2 BACKGROUND INFORMATION</b></p>
<p><i>The next step is to collect reference information covering key societal issues of the identified impacted communities such as community history, culture and key events that have shaped the development of the community. Are there known vulnerabilities in the community? Specific social challenges? Who are the major industrial actors? Relevant questions could be: Are there historical reasons to believe that the community where the solution will be deployed out could find it problematic? Have there been controversies regarding the use of similar solutions in this area/ region/country?</i></p>
<p><b>STEP 3 RELEVANT LEGISLATION AND POLICIES</b></p>
<p><i>The third step is to provide an overview of relevant national/ EU legislation and policies that are directly related to the CM function you are assessing. Which formal restrictions exist that will influence the use of the solution? What are the policy discussions in the field? Have new legislations been introduced to regulate crisis management efforts? Are you dealing with a situation where there are identified gaps in terms of legislation, e.g. when if you are dealing with new technologies? What are the rules that you need to follow?</i></p>
<p><b>STEP 4 IDENTIFY AND PREDICT IMPACTS</b></p>
<p><i>The fourth step is the main part of the SIA, where a structured assessment, based on the information acquired in the previous steps takes place. The aim is to identify potential social impacts and try to predict their significance, duration and extent. The SIA criteria</i></p>

*(which is a list of how we think society could be affected by CM activities) listed in Annex 3 should be used to structure this thinking, but the idea is not to say something about each criterion. In some cases, the impacts may be rather obvious, and isolated maybe to issues of privacy and data protection, in which case only that one criterion might be relevant; yet, in other cases the societal issues might be more complex. Read through the list of criteria and try to think about which impacts could be relevant for the CM function you are assessing. Are some of the real-life examples in the criteria list in Annex 3 related to the function? Can you foresee similar impacts?*

*Go through the collection of criteria below, highlight in **bold** the ones you think are relevant for your solution, and write a reflection on how these criteria can be influenced positively or negatively by what the solution you are assessing does. For inspiration or guidance, you can also consult the ten example assessments which are available in the supporting document D913.41 A guide on assessing unintended societal impacts of different CM functions - version 2).*

Unease – calmness	Suspicion – trust	Misuse – protection	New vulnerabilities – progress
Technology dependency – Flexible solutions	Function creep – specialized and controlled use	Sustainability	Accountability
Transparency	Integrity	Negative – positive standardisation	International relations
State-citizen-relationship	Political reputation	Social cohesion and solidarity	Participation
Diversity	Open – control society	Cultural and gender sensitivity	Suitability, necessity and proportionality
In/justice & in/equality	Dignity/autonomy	Non-discrimination	Privacy & data protection
Freedoms and protest			

**STEP 5 MITIGATING MEASURES**

*As a fifth and final step of making an assessment, in order to lower the risk of negative unintended impacts, and/ or to increase the possibility for positive impact, a list of measures should be made. The list should be based on the potential impacts identified in the previous step and could include actions such as providing extra follow ups for volunteers, establish rapport with local community leaders, engaging with the communities, and sharing more information about the CM solution at stake. The background information you wrote in Step 1-3 should be underpinning the mitigating measures. A basic plan should be made to describe how the mitigating measures will be followed up on.*

**Figure 4.1: SIA 5-step approach, template**

## 5. Further steps

Together with the ten example assessments provided in **D913.41 A guide on assessing unintended societal impacts of different CM functions- version 2** (14), the SIA Framework presented in this deliverable can be used to guide crisis management practitioners, solution developers, researchers etc. in investigating and potentially planning the use of CM solutions in a way that avoids negative societal impacts and utilizes opportunities to foster societal security. Templates and supporting documents have been prepared to facilitate this, and SIA Training Modules will be ready in M66. These Training Modules will support the user in learning how to use the SIA Framework, and will be one of several supporting tools for setting up a Trial. The Framework is linked to a major output of DRIVER+, namely the Portfolio of Solutions, in the sense that it uses the functions which the PoS contains. The SIA Framework is also linked to another major output of DRIVER+, the Trial Guidance Methodology, and the next step for the integration of the SIA Framework in the TGM is described in subsection 5.1.

### 5.1 Integration of the SIA Framework in the TGM Handbook

The SIA Framework is being integrated into the TGM Handbook. The Trial Guidance Methodology (TGM) is designed for crisis management (CM) practitioners who have identified one or more gaps or have in mind solutions that can address these gaps. The final update of the Trial Guidance Methodology will be delivered as **D922.42 Handbook for systematic designing of Trials** in M66. It will provide a final methodology in a form of the handbook for how to systematically design of a Trial. The idea is that before adopting new solutions and investing time and money to figure out what fits best, the TGM provides step-by-step guidelines on how to assess solutions in non-operational contexts (such as a Trial) through a structured approach. Doing a SIA is also part of this structured approach. A basic description of the five-step approach to SIA was integrated into the TGM handbook already in its version 6, where the application of the SIA Framework is described as part of the “preparation phase” of a Trial:

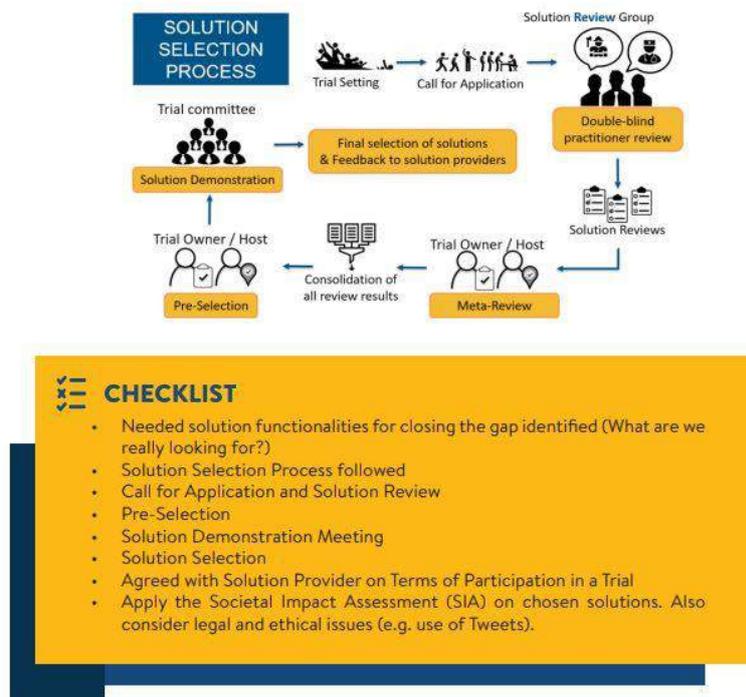


Figure 5.1: SIA as part of solution selection process

The SIA Framework is defined as a process tool. In Figure 5.2 below, a short abstract of how the SIA Framework is presented in the TGM handbook is presented.

## METHOD: SOCIETAL IMPACT ASSESSMENT

### SOCIETAL CONSEQUENCES OF CM INNOVATIONS



ASSESSING THE SOCIETAL IMPACT  
OF EACH SOLUTION.



TRIAL OWNER,  
SOLUTION COORDINATOR,  
SOLUTION PROVIDER,  
PRACTICIONER PARTICIPANT



**ABOUT**  
WHAT THIS TOOL IS FOR

The need for innovative solutions to deal with crisis situations stems from the fact that crisis management as such is taking place in complex and dynamic societies. This complexity is caused by several factors, such as increased digitalization and the growing movement of people across borders and countries. The emergence of new solutions to tackle new and complex challenges also means that the solutions we come up with can have consequences that are more complex than before. These consequences – or, in other words, this impact – can be positive and desired (such as increased efficiency), but there might also be impacts that are negative or unintended. When talking about societal impact in this context, we mean something different than how well the solutions work. A new solution to a challenge can be very efficient in producing the desired effects, but at the same time have tremendous negative impacts on the society in which it is part of. The aim of a SIA is not to assess whether a crowd-tasking solution would make response activities more time-efficient, but how a crowd-tasking solution can be deployed to foster a culture of trust in society so that communities feel safe when they are in a crisis situation.

Accountability and acceptability are two key words for understanding the importance of SIA assessments in the CM context. On the one hand, accountability means that CM participants are in various ways responsible for what they do and should be able to give a satisfactory reason for it. On the other hand, crisis managers depend on the society accepting the CM solutions, especially if the solutions are participatory in the sense that they require the public to actively engage in them. This also relates to issues of sustainability, since solutions that are developed and implemented with the broader society in mind have a larger chance of avoiding controversy and being adopted, in addition to making the implementation more efficient and effective.

A SIA can be carried out in many different contexts, and for many different purposes, which makes it difficult to give a definite definition of what it entails. Whatever the definition, though, “societal”

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**Figure 5.2: Introduction to SIA as part of TGM Handbook**

The integration of the SIA Framework in the TGM is ongoing at the time of delivery of this deliverable. In the final version of the TGM handbook, the final version of the SIA Framework will be integrated. By integrating the Framework into the TGM, SIA becomes a natural part of setting up a Trial. Furthermore, in connection with the TGM, several training modules are currently being prepared, as part of **T913.5 Societal Impact Training modules & Training sessions**. The main purpose of the training modules is to train users in how to apply the different parts of the TGM, and these will be delivered as **D924.12 Materials for the training module II** in M66. As part of the set of training modules, a specific module is being prepared in order to offer training in how to use the SIA Framework. The method for doing so is a combination of an e-lecture and a workshop. The SIA training modules will be delivered as **D913.52 Training modules for societal impact assessment** in M66.

As with the final version of the SIA Framework, the SIA training module will also be designed to be sustainable and applicable beyond the project. The final version of the SIA Framework as it is submitted in July 2019 is ready for application in Trial 3, which takes place in Eisenertz, Austria between 11-14/09/2019. It will also be applied to the Final Demo, which takes place in Ispra, Italy and Warsaw, Poland in November 2019.

## 5.2 CEN Workshop Agreement for the Societal Impact Assessment Framework

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A new developed method (such as the Trial Guidance Methodology), an innovative product or the advancement of a process (such as the SIA Framework) can be the outcomes and results of a research project. But what happens with these results after the conclusion of the project? How does the market or the industry get to know about these results? One possible answer is: via standards. This can happen in several ways, but for the SIA Framework, it has been decided to pursue the development of a CEN (European Committee for Standardisation) Workshop Agreement. A CEN Workshop Agreement (CWA) is a document developed by experts, who do not have to be member of a technical committee, which is published by CEN with a maximum lifetime of six years. It is open to everyone interested in participating in the development of the document and needs to be approved only by the workshop members. It is a pre-standard and aims to be used as input for formal standards. The CWA is developed and approved in a CEN Workshop; the latter is open to the direct participation of anyone with an interest in the development of the agreement. There is no geographical limit on participation; hence, participants may be from outside Europe. The development of a CWA is fast and flexible, on average between 10-12 months.<sup>17</sup> More information regarding the development process can be found on the CEN website<sup>18</sup>. A CWA developed in a project funded by the EU can be publicly available and free of charge. This makes a CWA a good tool for dissemination and exploitation<sup>19</sup>.

The background for the initiation of the process with regards to the SIA Framework as described above, is to contribute to a more harmonised view on societal impact. Public procurements typically look primarily at economic sustainability. When expensive technologies are being procured, there are several considerations to make. The technology must be fit for purpose, sustainable and importantly: accepted by practitioners and society. If the technology is not accepted, the investment will not be successful. To some extent, CM solution procurement primarily considers the crisis managers and responder practitioners, and not the society around them. Therefore, a harmonised approach to SIA seems important. In addition, a more structured approach to SIA in CM and research projects can lead to a cultural change, where social impact becomes a natural part of daily activities. To contribute to such a mindset change, so to focus not only on the economic impact and practitioners' impact of new solutions, but also on the societal impact, it was decided that a CEN Workshop Agreement will be pursued for the DRIVER+ SIA Framework. This will be collaboration between DIN, PRIO, PSCE and the University of Lancaster, and it will be kicked off in September 2019. An initial teleconference with all four members was organized on 16/07/2019, and the formal kick-off meeting is planned for September 2019. An ultimate goal for this process is that our CWA is within the interest of the CEN Technical body - CEN/TC391 - Societal and Citizen Security, and that they may take it forward to consider for full normative standardisation later.

Pursuing the CWA track is possible because the SIA Framework can also be detached from the Trial context and used on its own to assess and thus adapt or improve existing CM solutions. For solution owners and developers, being able to document that a SIA has taken place provides an added value and can realistically improve the solutions. By using the final version of the SIA Framework, supported by the set of ten example assessments published in **D913.41 A guide on assessing unintended societal impacts of different CM functions- version 2** (14) as well as the training modules delivered in **D913.52 Training modules for Societal**

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17 More information about the procedure can be found here: <https://www.cen.eu/work/products/CWA/Pages/default.aspx>.

18 The website can be accessed on this address: <https://boss.cen.eu/developingdeliverables/CWA/Pages/default.aspx>.

19 Information in this paragraph is derived from the DRIVER+ project website, and can be accessed here: <https://www.driver-project.eu/discover-our-results/standardisation-in-driver/>.

**Impact Assessment** (16), any user should be able to understand the SIA Framework and carry out an assessment on their own. All deliverables are published as open access on the DRIVER+ website.

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## 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 updated<sup>20</sup>. 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	Source
Crisis	Unstable condition involving an impending abrupt or significant change that requires urgent attention and action to protect life, assets, property or the environment.	ISO 22300:2018(en), Security and resilience — Vocabulary. Link: <a href="https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.59">https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.59</a>
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.	ISO 22300:2018(en) Security and resilience — Vocabulary. Link: <a href="https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.60">https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.60</a>
Mitigation	Limitation of any negative consequence of a particular incident.	ISO 22300:2018(en) Security and resilience — Vocabulary. Link: <a href="https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.146">https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.146</a>

<sup>20</sup> The Portfolio of Solutions and the terminology of the DRIVER+ project are accessible on the DRIVER+ public website (<https://www.driver-project.eu/>). Further information can be received by contacting [coordination@projectdriver.eu](mailto:coordination@projectdriver.eu).

Terminology	Definition	Source
Portfolio of Solutions (PoS)	A database driven web site that documents the available Crisis Management solutions. The PoS includes information on the experiences with a solution (i.e. results and outcomes of Trials), the needs it addresses, the type of practitioner organisations that have used it, the regulatory conditions that apply, societal impact consideration, a glossary, and the design of the Trials.	Initial DRIVER definition
Societal impact	Dimension of crisis management that refers to its unintended positive or negative impacts on different societal groups or society as a whole, as well as on its core values and societal principles as captured for example in fundamental rights, constitutional laws, but also in public debate.	Initial DRIVER definition
Societal Impact Assessment	The process of identifying, analysing and managing intended and unintended (positive or negative) societal consequences.	Initial DRIVER definition
Training	Activities designed to facilitate the learning and development of knowledge, skills, and abilities, and to improve the performance of specific tasks or roles.	ISO 22300:2018(en) Security and resilience — Vocabulary. Link: <a href="https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.265">https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.265</a>
Trial	An event for systematically assessing solutions for current and emerging needs in such a way that practitioners can do this following a pragmatic and systematic approach.	Initial DRIVER+ definition
Trial Guidance Methodology (TGM)	A structured approach from designing a Trial to evaluating the outcomes and identifying lessons learned	Initial DRIVER definition
Trial Guidance Tool (TGT)	A software tool that guides Trial design, execution and evaluation in a step-by-step way (according to the Trial Guidance Methodology) including as much of the necessary information as possible in form of data or references to the Portfolio of Solutions.	Initial DRIVER definition

## Annex 2 – What to assess: the taxonomy of functions from the PoS

Functional Area	Functions	Sub-functions
<b>MITIGATION</b>	Organise for mitigation	<ul style="list-style-type: none"> <li>- Define national mitigation Framework</li> <li>- Provide expertise for hazards mapping, vulnerabilities and risk assessment</li> </ul>
	Assess the risks	<ul style="list-style-type: none"> <li>- Conduct all-hazards tracking</li> <li>- Assess vulnerabilities to hazards</li> <li>- Estimate the risks</li> <li>- Estimate collateral damage</li> <li>- Estimate cascading effects</li> <li>- Estimate cross-border impact</li> </ul>
	Elaborate mitigation policy and strategy	<ul style="list-style-type: none"> <li>- Provide policy guidance</li> <li>- Formulate the mitigation strategy</li> <li>- Establish planning and coordination</li> <li>- Conduct a mitigation communication campaign</li> </ul>
	Implement mitigation measures	<ul style="list-style-type: none"> <li>- Build-in safety, security and resilience into design and operations</li> <li>- Consider risks when locating new infrastructure</li> <li>- Promote PPPs to reduce vulnerabilities and hazards' impact</li> <li>- Control access to critical systems</li> <li>- Enhance awareness on vulnerabilities and mitigation measures</li> <li>- Enhance hazards education</li> </ul>
	Keep the mitigation strategy relevant	<ul style="list-style-type: none"> <li>- Establish a reporting mechanism</li> <li>- Assess mitigation strategy's implementation</li> <li>- Amend and update the mitigation strategy</li> </ul>
<b>CAPABILITY DEVELOPMENT</b>	Plan for CM capabilities	<ul style="list-style-type: none"> <li>- Establish a CM policy Framework</li> <li>- Determine future crises' scenarios and key characteristics</li> <li>- Define required CM capabilities</li> <li>- Assess current capabilities</li> <li>- Identify gaps and redundancies</li> <li>- Define capability options</li> <li>- Test the capability options</li> <li>- Coordinate and approve capability development plans</li> </ul>
	Manage CM system of systems development	<ul style="list-style-type: none"> <li>- Develop integrated warning and alerting</li> <li>- Develop the C3 system</li> <li>- Develop the communications and information management system</li> <li>- Develop decision support systems</li> <li>- Establish resource management and mutual aid system</li> <li>- Establish crisis logistics management system</li> </ul>

Functional Area	Functions	Sub-functions
		<ul style="list-style-type: none"> <li>- Establish a solid waste collection system</li> <li>- Manage equipment and infrastructure acquisition</li> <li>- Manage the system of reserves</li> </ul>
	Manage human resources	<ul style="list-style-type: none"> <li>- Manage professional responders</li> <li>- Manage volunteers</li> </ul>
	Organise for crisis management	<ul style="list-style-type: none"> <li>- Establish an integrated CM organisation</li> <li>- Define minimum activation requirements</li> <li>- Identify and analyse bottlenecks</li> <li>- Establish CM rules and standard operating procedures</li> <li>- Establish protocols for cross-border emergencies</li> </ul>
	Establish CM doctrine and train organisations and people	<ul style="list-style-type: none"> <li>- Develop doctrine</li> <li>- Coordinate and conduct research and education</li> <li>- Train individuals, teams and organisations</li> <li>- Certify personnel, training and education</li> <li>- Train resilient communities</li> </ul>
	Establish a CM lessons learning system	<ul style="list-style-type: none"> <li>- Develop after-action and lessons learned reporting</li> <li>- Provide cross-border learning</li> </ul>
<b>STRATEGIC ADAPTIVENESS</b>	Promote CM organisational agility	<ul style="list-style-type: none"> <li>- Establish continuous monitoring</li> <li>- Promote knowledge centricity</li> <li>- Maintain diverse and evolving competencies</li> <li>- Facilitate networking and cooperation</li> <li>- Exchange foresight experience and findings</li> <li>- Establish international exchange on adaptiveness</li> </ul>
	Conduct civil security foresight	<ul style="list-style-type: none"> <li>- Identify key drivers and trends</li> <li>- Identify plausible futures</li> <li>- Explore the implications of alternative futures</li> </ul>
	Develop capacity to adapt	<ul style="list-style-type: none"> <li>- Develop options and estimate required resources</li> <li>- Create and maintain materiel reserves</li> <li>- Establish hazards and CM research capacity and agenda</li> </ul>
	Build and measure community resilience	<ul style="list-style-type: none"> <li>- Strengthen community assets for resilience</li> <li>- Provide for bonding and linking communities' assets across borders</li> <li>- Improve communities' preparedness, responsiveness, learning, self-organisation, and innovation</li> <li>- Strengthen the community's capacity for collective actions</li> <li>- Establish measures and measurement of resilience</li> </ul>
<b>PROTECTION</b>	Conduct systematic monitoring and data collection	<ul style="list-style-type: none"> <li>- Conduct monitoring and anticipation</li> <li>- Raise awareness and anticipate</li> </ul>

Functional Area	Functions	Sub-functions
	Conduct operational planning	<ul style="list-style-type: none"> <li>- Establish an operational planning Framework</li> <li>- Plan across ranges and level of activities</li> <li>- Coordinate planning with support providers</li> </ul>
	Conduct incident/ emergency response (below the level of "crisis")	<ul style="list-style-type: none"> <li>- Detect pending emergencies and provide early warning</li> <li>- Coordinate and conduct incident SAR operations</li> <li>- Conduct emergency fire-fighting</li> <li>- Conduct emergency CBRN protection operations</li> <li>- Conduct ammunition and counter-IED operations</li> <li>- Conduct limited emergency evacuation operations</li> </ul>
	Coordinate and provide public protection	<ul style="list-style-type: none"> <li>- Safeguard public health</li> <li>- Assess safety, integrity and security of buildings</li> <li>- Provide safety during mass public events</li> </ul>
	Protect critical infrastructures	<ul style="list-style-type: none"> <li>- Maintain list of national and EU critical infrastructures</li> <li>- Establish Operator security plan</li> <li>- Introduce Security Liaison Officer</li> <li>- Develop training courses for CI vulnerability assessment</li> <li>- Apply case-specific protection measures</li> <li>- Establish CI reporting mechanism</li> </ul>
	Coordinate and provide CII protection	<ul style="list-style-type: none"> <li>- Protect physical and cyber assets, networks, applications, and systems</li> <li>- Secure networks and CI based on risk assessment</li> <li>- Protect personal data</li> <li>- Share cyber threat information and analysis</li> <li>- Implement standards for security, reliability, integrity, and availability of critical information</li> <li>- Identify, track, investigate, disrupt, and prosecute malicious actors</li> <li>- Back-up information and processes</li> </ul>
<b>RESPONSE</b>	Orient and decide	<ul style="list-style-type: none"> <li>- Determine the nature of the crisis</li> <li>- Conduct damage and needs assessment</li> <li>- Provide decision support</li> <li>- Manage warnings</li> <li>- Decide on the introduction of crisis legislation</li> <li>- Review and adjust the response plan</li> </ul>
	Respond to the hazard	<ul style="list-style-type: none"> <li>- Activate crisis management bodies</li> <li>- Maintain shared situational awareness</li> <li>- Conduct coordinated tasking and resource management</li> <li>- Deploy responders</li> <li>- Manage international support</li> <li>- Safeguard emergency/crisis responders</li> </ul>

Functional Area	Functions	Sub-functions
	Limit the impact of the crisis	<ul style="list-style-type: none"> <li>- Contain hazardous causes of the crisis</li> <li>- Minimize threats of potential HAZMAT release</li> <li>- Take immediate law enforcement measures</li> <li>- Protect CI from secondary damage</li> </ul>
	Support affected people	<ul style="list-style-type: none"> <li>- Conduct SAR operations</li> <li>- Provide on-site first aid</li> <li>- Provide evacuation and shelter</li> <li>- Decontaminate persons</li> <li>- Provide off-site health and MHPSS services</li> <li>- Provide essential services to the affected community</li> <li>- Provide MHPSS</li> <li>- Establish emergency mobile phone</li> <li>- Provide care for animals</li> </ul>
	Build the ground for relief and recovery	<ul style="list-style-type: none"> <li>- Restore the delivery of basic services</li> <li>- Decontaminate assets and infrastructure</li> <li>- Initiate disaster area cleaning</li> <li>- Manage the transition from response to recovery</li> </ul>
<b>RECOVERY</b>	Adjust the recovery planning	<ul style="list-style-type: none"> <li>- Establish and share detailed COP</li> <li>- Modify recovery plans and policies</li> <li>- Amend norms and legislation</li> <li>- Provide for evidence-based decision-making</li> </ul>
	Provide immediate relief support	<ul style="list-style-type: none"> <li>- Expand the immediate health care</li> <li>- Upgrade the temporary sheltering</li> <li>- Provide psychosocial support</li> <li>- Provide electricity</li> <li>- Open critical transportation lines</li> </ul>
	Engage the population	<ul style="list-style-type: none"> <li>- Maintain population's operational awareness</li> <li>- Organise volunteers and communities for recovery</li> <li>- Identify communities' priorities and perceived benefits</li> </ul>
	Manage humanitarian recovery	<ul style="list-style-type: none"> <li>- Restore critical medical and MHPSS services</li> <li>- Provide reliable temporary sheltering</li> <li>- Establish temporary school organisation</li> <li>- Provide food, water, and energy for the population</li> <li>- Support families' reunification</li> <li>- Address the needs of vulnerable populations</li> <li>- Manage volunteers providing social services</li> </ul>

Functional Area	Functions	Sub-functions
	Recover public lifelines	<ul style="list-style-type: none"> <li>- Restore sustainable delivery of electricity</li> <li>- Restore delivery of potable water</li> <li>- Re-establish food supply chains</li> <li>- Restore mass transportation</li> <li>- Restore delivery of fuels</li> <li>- Restore local public services</li> <li>- Restore mass communications and Internet</li> <li>- Restore banking and commercial services</li> <li>- Restore postal services</li> <li>- Restore the solid waste collection system</li> </ul>
	Manage economic recovery	<ul style="list-style-type: none"> <li>- Assess economic reconstruction needs</li> <li>- Plan long-term economic recovery</li> <li>- Provide jobs incentives or unemployment assistance</li> </ul>
	Manage infrastructure recovery	
	Manage environmental recovery	<ul style="list-style-type: none"> <li>- Conduct environmental decontamination</li> <li>- Clean up the affected area</li> <li>- Develop policy for sustain-able rehabilitation</li> <li>- Remove damaged structures and debris</li> </ul>
<b>CRISIS COMMUNICATION AND INFORMATION MANAGEMENT</b>	Establish CCIM <sup>21</sup> organisation	<ul style="list-style-type: none"> <li>- Set-up an integrated CCIM network</li> <li>- Establish a concept of CCIM operations</li> <li>- Regulate access to CM communications and information</li> <li>- Provide secure storing and exchange of content</li> </ul>
	Conduct and coordinate communications and information planning	<ul style="list-style-type: none"> <li>- Activate an inter-agency CCIM team</li> <li>- Develop communications policy, plans and procedures</li> <li>- Establish relationships between CM authorities and media</li> <li>- Manage the frequency spectrum in a crisis</li> <li>- Manage visibility in media</li> <li>- Maintain a record of planning and decisions</li> </ul>
	Create CCIM networks	<ul style="list-style-type: none"> <li>- Build CCIM components and functionalities</li> <li>- Establish crisis communications capabilities</li> <li>- Establish emergency call services</li> <li>- Establish information management capabilities</li> <li>- Provide CCIM technology support</li> </ul>

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<sup>21</sup> CCIM – Crisis Communications and Information Management.

Functional Area	Functions	Sub-functions
	Continuously improve CCIM	<ul style="list-style-type: none"> <li>- Establish equipment and training standards</li> <li>- Implement training programmes for CCIM</li> </ul>
	Exploit CCIM for protection, response, and recovery	<ul style="list-style-type: none"> <li>- Secure warning and alerting</li> <li>- Provide communications and information support to C3</li> <li>- Support C3 decision making</li> <li>- Provide information to media and the public</li> <li>- Monitor media coverage</li> <li>- Detect and debunk deception and rumours in social media</li> </ul>
<b>COMMAND, CONTROL AND COORDINATION (C3)</b>	Build and maintain the C3 system	<ul style="list-style-type: none"> <li>- Design, test, and validate the C3 system</li> <li>- Prepare C3 personnel</li> <li>- Establish C3 information systems</li> <li>- Establish C3 procedures</li> <li>- Provide equipment, software, codes</li> <li>- Provide fixed and mobile command facilities</li> <li>- Maintain system's integrity</li> </ul>
	Establish the command component	<ul style="list-style-type: none"> <li>- Define the CM chain of command</li> <li>- Establish decision-making environment and resources</li> </ul>
	Establish the control component	<ul style="list-style-type: none"> <li>- Design a control system</li> <li>- Establish control capability at each command level</li> <li>- Determine the principles of information exchange</li> <li>- Establish all-hazards data-base</li> <li>- Provide scientific and technical advice</li> <li>- Establish rules for reporting</li> </ul>
	Establish the coordination component	<ul style="list-style-type: none"> <li>- Establish internal coordination</li> <li>- Establish coordination with societal, private and international organisations</li> <li>- Establish professional co-ordination</li> <li>- Establish transborder co-ordination</li> <li>- Establish coordination in transition from response to recovery</li> <li>- Establish coordination with media</li> </ul>

Functional Area	Functions	Sub-functions
	Exploit the C3 system	<ul style="list-style-type: none"> <li>- Monitor the affected area</li> <li>- Provide situational awareness, share COP</li> <li>- Provide orientation of decision-makers</li> <li>- Take and disseminate decisions</li> <li>- Task responders</li> <li>- C3 SAR and first responders operations</li> <li>- C3 volunteers operations</li> <li>- Manage and support International responders</li> <li>- Provide continuous deliberate planning</li> <li>- C3 delivery of critical support assets</li> <li>- Establish ad-hoc task groups</li> <li>- Maintain science and technology advisory capacity</li> <li>- Manage resources to cope with priority tasks</li> <li>- Provide warning and alerts for secondary hazards</li> <li>- Deliver public information and advice</li> </ul>
<b>LOGISTICS</b>	Establish crisis logistics management system	<ul style="list-style-type: none"> <li>- Identify the components of crisis logistics support</li> <li>- Establish supply chains</li> <li>- Provide end-to-end visibility of resources</li> <li>- Develop logistics policy, plans, and programmes</li> <li>- Establish logistics C3</li> <li>- Provide norms for procurement in crises</li> </ul>
	Manage materiel logistics	<ul style="list-style-type: none"> <li>- Determine materiel requirements</li> <li>- Perform production logistics within "Preparedness"</li> <li>- Perform consumer logistics</li> <li>- Perform supply logistics</li> <li>- Perform maintenance and repair logistics</li> <li>- Create common operational Framework for prioritisation</li> </ul>
	Conduct transportation logistics	<ul style="list-style-type: none"> <li>- Plan, organise, and resource transportation logistics</li> <li>- Provide transportation of responders and supplies</li> <li>- Provide transportation equipment and procedures for its use</li> <li>- Provide transportation support to other stakeholders</li> <li>- Transport debris and waste</li> </ul>
	Provide medical logistics	<ul style="list-style-type: none"> <li>- Plan medical logistics</li> <li>- Provide medical supplies</li> <li>- Direct additional national and international medical support</li> </ul>
	Manage facilities	<ul style="list-style-type: none"> <li>- Select storage and distribution facilities</li> <li>- Operate facilities and manage related services</li> <li>- Manage evacuation camps and related services</li> <li>- Manage acquired property</li> <li>- Operate waste and debris management facilities</li> </ul>

Functional Area	Functions	Sub-functions
	Provide logistics services	
<b>SECURITY MANAGEMENT</b>	Conduct security orientation and planning	<ul style="list-style-type: none"> <li>- Develop security component in CM plans and systems</li> <li>- Establish programmes for acquisition of security capabilities</li> <li>- Establish preliminary coordination</li> <li>- Develop preparedness security guidance</li> <li>- Provide performance guidelines</li> <li>- Introduce security specific norms</li> </ul>
	Establish security management organisation	<ul style="list-style-type: none"> <li>- Establish security coordination and control organisations</li> <li>- Establish a crisis security clearance system</li> <li>- Introduce chief security officer</li> <li>- Establish security information exchange</li> <li>- Provide expertise and co-ordination for security planning</li> </ul>
	Provide key security capabilities	<ul style="list-style-type: none"> <li>- Staff with qualified personnel</li> <li>- Develop and conduct security management training</li> <li>- Supply security control equipment</li> </ul>
	Exercise on-site security control	<ul style="list-style-type: none"> <li>- Test critical infrastructure security plans</li> <li>- Ensure safe and secure CM environment</li> <li>- Perform access, traffic, and crowd control</li> <li>- Coordinate security measures with other operations</li> </ul>

## Annex 3 - List of societal impact assessment criteria

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### SECONDARY IN/SECURITIES

#### Unease - Calmness

Whilst **unease** refers to anxiety or discontent<sup>22</sup>, **calmness** refers to the state or quality of being free from agitation or strong emotion, disturbance or violent activity<sup>23</sup>. To create calmness, research indicates that the distributed information in CM needs to be experienced as being real and trustworthy (cf. *trust*), and that it doesn't feed rumours<sup>24</sup> and misconceptions during the crisis<sup>25</sup>.

*Illustration: The CEO of German Wings has been celebrated for his communication strategy after one of their pilots, who were later known to suffer from depression, crashed a passenger airplane into the Alps. Many believed that he communicated information concerning the incident in a manner that had the right balance between truthfulness and at the same time only giving the necessary amount of information about the incident to the public<sup>26</sup>. In contrary, Malaysia Airlines were accused of creating more unease than calmness after experiencing one of their airplanes going missing in 2014. By not using the proper communication tools as well as failing in providing information based on well-established facts about the incident, this led to false rumours about the missing plane being an act of terrorism.<sup>27</sup>*

#### Suspicion - Trust

**Suspicion** refers to the feeling of suspecting something or being suspected of something dangerous or malicious<sup>28</sup>. In contrast, **trust** is tied to the firm belief that someone or something is reliable, good and honest. It also refers to the reliance on the integrity, strength, and ability of a person, a state, an

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22 <https://en.oxforddictionaries.com/definition/unease>

23 <https://en.oxforddictionaries.com/definition/calmness>

24 To control rumours and misconceptions spreading in the population during the hurricane Irma, the Federal Emergency Management Agency (FEMA), created a web page that listed the most common rumours and then confirmed them as correct/incorrect as well as giving additional information. See: <https://www.fema.gov/hurricane-irma-rumor-control>

25 Schnackenberg, A.K., Tomlinson, E.C. (2014), Organizational Transparency. A New Perspective on Managing Trust in Organization-Stakeholder Relationships. *Journal of Management*. doi:10.1177/0149206314525202

26 <https://www.thedrum.com/news/2015/03/28/pr-experts-applaud-lufthansas-crisis-communications-approach-germanwings-disaster>

27 <https://www.missionmode.com/disaster-recovery-lessons-learned-malaysia-airlines/>

28 <http://dictionary.reference.com/browse/function%20creep?s=t>

institution, a system, or an organization<sup>29</sup>. High levels of trust are believed to have “virtues and tangible benefits for a society”<sup>30</sup>.

*Illustration: The information shared during a crisis is trustworthy if it derives from sources that the general public finds reliable. A general trend in Europe and North-America, is that Police Departments use social media like Twitter to build relations with the public and to spread information concerning actual events in their geographical area<sup>31</sup>. For this to be a productive measure, the public’s trust in the police needs to be at a certain level, and can in the long run lead to enforcement of the public’s co-operation and collective action during a crisis<sup>32</sup>. The Boston PD used Twitter as their main communication tool in the aftermath of the Boston marathon bombing in 2013 to provide accurate and updated information. The use of Twitter led to a two-way communication with the public creating calmness (cf. calmness) and perhaps also a more cohesive (cf. social cohesion) community<sup>33</sup>.*

## Misuse - Protection

**Protection** means to preserve or protect the population or infrastructure from harm and protection can also refer to protecting non-material assets, such as central societal values<sup>34</sup>. **Misuse** refers to the wrong or inappropriate use of materials, methods, knowledge or technology, and/or to the use for the wrong purpose<sup>35</sup> (cf. *function creep*). When a CM tool or solution is misused, it can undermine its protection value.

*Illustration: Protection of human lives is one of the most important tasks in the event of a crisis and that means that rescue operations must be conducted quickly and effectively. In the case of natural*

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29 <http://dictionary.reference.com/browse/trust>

30 Thomassen, G. (2013). Corruption and trust in the police: A cross-country study. *European Journal of Policing Studies*, 1(2), 152-168. Link:  
<https://brage.bibsys.no/xmlui/bitstream/handle/11250/174706/corruption%20and%20trust.pdf?sequence=3&isAllowed=y>

31 Kudla, D., & Parnaby, P. (2018). To Serve and to Tweet: An Examination of Police-Related Twitter Activity in Toronto. *Social Media + Society*, 4(3), pp. 1-13.  
<https://journals.sagepub.com/doi/abs/10.1177/2056305118787520#articleCitationDownloadContainer>

32 Thomassen, G. (2013). Corruption and trust in the police: A cross-country study. *European Journal of Policing Studies*, 1(2), 152-168. Link:  
<https://brage.bibsys.no/xmlui/bitstream/handle/11250/174706/corruption%20and%20trust.pdf?sequence=3&isAllowed=y>

33 [http://apps.prsa.org/intelligence/Tactics/Articles/view/10197/1078/How\\_the\\_Boston\\_Police\\_used\\_Twitter\\_during\\_a\\_time\\_o#.XlorVvZFybg](http://apps.prsa.org/intelligence/Tactics/Articles/view/10197/1078/How_the_Boston_Police_used_Twitter_during_a_time_o#.XlorVvZFybg)

34 <https://en.oxforddictionaries.com/definition/protect>

35 <http://www.oxforddictionaries.com/definition/english/misuse>

*disasters, Unmanned Aerial Vehicles (UAVs), can be used to gather information during the crisis, to see how the crisis population move in the affected area and to perform a damage assessment<sup>36</sup>. The use of UAVs to make an assessment of the area can therefore be a tool that protects both the affected crisis population and aid workers from harm. UAVs have been used in CM activities such as forest fires<sup>37</sup> to better direct the firefighting activities and detect hotspots. However, UAVs can also be misused to the extent that they propose a threat to the safety of emergency workers<sup>38</sup>. In the context of forest fires, unauthorized use of UAVs by civilians have forced fire fighters to ground their aircrafts due to aerial safety and therefore not been able to continue their work<sup>39</sup>.*

## New Vulnerabilities - Progress

**Progress** indicates that something is developing to an improved or more advanced condition<sup>40</sup> which is often the case in the field of CM. When new tools and solutions are developed and implemented they face the risk of creating additional (new) vulnerabilities. Such **vulnerability** refers to the risk of being exposed to the possibility of being attacked or harmed, either physically or mentally<sup>41</sup>.

*Illustration: A new vulnerability in relation to CM can be technology dependency (cf. technology dependency). The Norwegian Public Safety Network (Nødnett)<sup>42</sup> is a digital radio connection implemented in 2015 for the emergency services to provide secure and robust communication during crisis and emergencies. It has although been shown in several cases with bad weather, that the Nødnett has collapsed, and that emergency services in small towns and villages have not been able to communicate for several hours<sup>43</sup><sup>44</sup>. The consequence is that the emergency services do not get information about incidences that requires them to respond, putting*

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36 Erdelj, M. & Natalizio, E. (2016) UAV-assisted Disaster Management: Applications and Open Issues. Link: [https://www.researchgate.net/publication/301710340\\_UAV-assisted\\_disaster\\_management\\_Applications\\_and\\_open\\_issues](https://www.researchgate.net/publication/301710340_UAV-assisted_disaster_management_Applications_and_open_issues)

37 See for example: <https://www.uasvision.com/2017/07/24/forest-fire-control-using-drones/>

38 <https://www.thejournal.ie/drones-wildfires-hot-weather-4112336-Jul2018/>

39 <https://www.theatlantic.com/science/archive/2018/06/dont-fly-drones-into-disasters/562997/>

40 <https://en.oxforddictionaries.com/definition/progress>

41 [http://www.oxforddictionaries.com/definition/english/vulnerable?q=vulnerabilities+#vulnerable\\_\\_7](http://www.oxforddictionaries.com/definition/english/vulnerable?q=vulnerabilities+#vulnerable__7)

42 <https://www.nodnett.no/en/>

43 See for example: [https://www.nrk.no/norge/\\_knud\\_-slo-ut-nodnett-\\_det-er-en-skandale-1.14219126](https://www.nrk.no/norge/_knud_-slo-ut-nodnett-_det-er-en-skandale-1.14219126)

44 See for example: [https://www.nrk.no/sognogfjordane/rapport\\_-\\_det-nye-naudnett-er-sarbart-og-lite-robust-under-ekstremver-1.12984984](https://www.nrk.no/sognogfjordane/rapport_-_det-nye-naudnett-er-sarbart-og-lite-robust-under-ekstremver-1.12984984)

*both the public and their workers in danger and therefore representing a new vulnerability that makes it more difficult to protect (cf. protection) the public from harm.*

## Technology Dependency - Flexible Solutions

**Flexibility**<sup>45</sup> is important when responding to the needs of a country struck by crisis, as this means that the crisis management efforts can be easily modified to respond to the altered circumstances and situational needs. When a society becomes dependent on a certain technology, making the society vulnerable in case that technology falls out or becomes temporarily unavailable, we talk about **technology dependency**.

*Illustration: Ensuring flexible CM capability in an organization can make it easier to maintain effective lines of communication, e.g. because several solutions to communicating exist at the same time. This can create a CM operation that is able to not only better communicate relevant and true information to the public, but further, have positive spill over-effects on such factors as transparency (cf. transparency) and calmness (cf. calmness) in the population. During the Boston Marathon Bombing, the Boston Police District, had to shut down the cell phone service in the affected area as there was a belief that cell phones were used to detonate bombs<sup>46</sup>. The PD decided to use Twitter as their main communication tool to reach out to the public, and thus showing flexibility in times of crisis.*

## Function Creep - Specialized and Controlled Use

**Function creep** can be defined as the gradual widening the use of a technology, function or system beyond the purpose for which it was originally intended.<sup>47</sup> A **specialized and controlled** CM solution however is tailored to special conditions or restricted to special functions and is less easy to misuse (cf. misuse) and minimises the risk of function creep.

*Illustration: Function creep is often discussed in relation to surveillance technology and information systems. Information*

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45 <https://en.oxforddictionaries.com/definition/flexible>

46 See for example: [http://apps.prsa.org/intelligence/Tactics/Articles/view/10197/1078/How\\_the\\_Boston\\_Police\\_used\\_Twitter\\_during\\_a\\_time\\_o#.XlorVvZFybg](http://apps.prsa.org/intelligence/Tactics/Articles/view/10197/1078/How_the_Boston_Police_used_Twitter_during_a_time_o#.XlorVvZFybg)

47 Dahl, J. Y. & Sætnan, A. R. (2009). "It all happened so slowly": On controlling function creep in forensic DNA databases. *International Journal of Law, Crime and Justice*, 37(3), 83-103. Link: <https://brage.bibsys.no/xmlui/bitstream/handle/11250/174624/it%20all%20happened%20so%20slowly.pdf?sequence=5&isAllowed=y>

*systems, i.e. forensic DNA-databases, are one of the most flexible solutions because both their material assets (computers, servers, etc.) and the information content can be used in many ways<sup>48</sup>. Due to progress (cf. progress) in DNA-technology, in the UK, it is now possible to perform familial searching in the forensic DNA-database. This means that when a DNA-profile is retrieved from a crime scene but does not have a clear match in the database, it is possible to search for similar profiles. Because relatives are more likely to have similar DNA-profiles than non-relatives, it is possible to find matches that are close to the profile of a registered offender and then may point to someone in the close family of that person. This opens for further surveillance not only of registered offenders, but also their relatives, and this can be defined as function creep.*

## SUSTAINABILITY

### Sustainability

In the context of CM, this refers to the **sustainability** of an organization or a community (e.g. in terms of fostering and balancing resilience) and the endurance of certain values. This includes that something can be maintained at a certain level or rate, or that it can be upheld or defended<sup>49</sup>.

*Illustration: A sustainable society, DRR is described as a good practice, and essential to strengthening resilience as it enables communities to anticipate, absorb and bounce back from shocks.*

## POLITICAL & ADMINISTRATIVE PRINCIPLES

### Accountability

**Accountability** is the obligation of an individual or organization to account for its activities, accept responsibility for them, and to disclose the results in a transparent (cf. *transparency*) manner<sup>50</sup>. In the context of CM, accountability should be primarily directed in a responsible manner to those who are directly affected and vulnerable to crisis.

*Illustration: Typically, during CM situations, many different*

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48 Dahl, J. Y. & Sætnan, A. R. (2009). "It all happened so slowly": On controlling function creep in forensic DNA databases. *International Journal of Law, Crime and Justice*, 37(3), 83-103. Link: <https://brage.bibsys.no/xmlui/bitstream/handle/11250/174624/it%20all%20happened%20so%20slowly.pdf?sequence=5&isAllowed=y>

49 [http://www.oxforddictionaries.com/definition/english/sustainable?q=sustainability#sustainable\\_\\_6](http://www.oxforddictionaries.com/definition/english/sustainable?q=sustainability#sustainable__6)

50 World Bank (2015), *Accountability in Governance*, <http://siteresources.worldbank.org/PUBLICSECTORANDGOVERNANCE/Resources/AccountabilityGovernance.pdf>

*organizations and actors implement a variety of measures. If the accountability for conducting these measures or using CM tools is not clearly set out beforehand, potential negative side-effects and damages cannot be regulated effectively in the aftermath. Failure to decide who was accountable in the prediction of hurricanes led to conflicts in the aftermath of the hurricane Katrina. The consequence became that the local, state and federal actors target of great criticism<sup>51</sup>. It is thus crucial to determine accountability beforehand as a part of planning measures and tools, in order to reach the most positive societal effects.*

## Transparency

**Transparency** means information disclosure, clarity and accuracy to enhance "the perceived quality of intentionally shared information from a sender"<sup>52</sup>.

Not all actions under CM are visible to the crisis population, but they may nonetheless have consequences for the population's rights, actions and reactions. It is therefore important to communicate about and make such actions visible as this can make the societal acceptance of such measures higher (*cf. trust*).

*Illustration: Automatic Number Plate Recognition (ANPR) is an advanced police surveillance technology that may be used to track a citizen's movements, but the storing of such data raises privacy (*cf. privacy and personal data protection*) and safety concerns. In the UK, a study that examined the population's perception of ANPR has showed that the population calls for more transparency from the police in regards to the objectives, purposes and exact use of the information collected with ANPR<sup>53</sup>. There is also a need for the police to communicate more transparently about the advantages and consequences the population might expect of such technology. This is also closely related to the levels of trust (*cf. trust*) in the police and the respondents believed that the level of trust in the police would incline if the technology is used in a fair and effective*

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51 Brändström, A. (2016) Crisis, Accountability and Blame Management: Strategies and Survival of Political Office-Holders. Crismart volume 44. <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A896367&dswid=-1103>

52 Schnackenberg, A.K., Tomlinson, E.C. (2014), Organizational Transparency. A New Perspective on Managing Trust in Organization-Stakeholder Relationships. Journal of Management. doi:10.1177/0149206314525202

53 Haines, Alina (2009) The role of automatic number plate recognition surveillance within policing

and public reassurance. Doctoral thesis, University of Huddersfield. Link: <https://core.ac.uk/reader/54165>

*manner that protect people's rights<sup>54</sup>.*

## Integrity

**Integrity** means to adhere to ethical principles<sup>55</sup> when planning and implementing CM measures and tools, but it also means “standing for something” and showing this through truthful, accurate and consistent actions, values and principles<sup>56 57</sup>. This also means to be predictable and following a certain set of rules.

*Illustration: A CM measure/organization has a high level of integrity when it respects widely accepted ethical codes and rights, such as the European Charter for Fundamental Rights. Integrity is also an important aspect of network security and resilience, which means that the operators' obligation to meet risks in an appropriate way and to report security breaches must be strong<sup>58</sup>.*

## Negative - Positive Standardisation

Standardisation generally describes the process of developing a specific level of quality or attainment<sup>59</sup> for materials, products and services to ensure that they are “safe, reliable and of good quality”<sup>60</sup>. In relation to SIA it refers to a qualitative and social process. **Positive standardisation** refers to the process of implementing standards that have positive societal effects. **Negative standardisation** refers to the overarching social process of establishing a procedure as normal although it has detrimental effects.

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54 Haines, Alina (2009) The role of automatic number plate recognition surveillance within policing

and public reassurance. Doctoral thesis, University of Huddersfield. Link: <https://core.ac.uk/reader/54165>

55 Merriam-Webster Dictionary (2015b), Integrity, <http://www.merriam-webster.com/dictionary/integrity> retrieved November 20, 2015.

56 Lucaites, J.L., Condit, C.M., (1999), Contemporary rhetorical theory: A reader, New York, Guilford Press.

57 Merriam-Webster Dictionary (2015b), Integrity, <http://www.merriam-webster.com/dictionary/integrity> retrieved November 20, 2015

58 European Commission (2009), Protecting Europe from large scale cyber-attacks and disruptions: enhancing preparedness, security and resilience, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0149:FIN:EN:PDF>

59 <http://www.oxforddictionaries.com/definition/english/standard>

60 International Organization for Standardization <https://www.iso.org/standard/23390.html>

*Illustration: CM tools and principles that are ethically acceptable, suitable, necessary and proportional (cf. acceptability, suitability, necessity & proportionality) can be considered for standardisation, as they are likely to contribute to a positive societal impact. This could e.g. be to promote the standardisation of a common international terminology to ease international cooperation in CM<sup>61</sup>.*

## International Relations

**International relations** describe the relations and collaboration across borders. International relations are often organized and officially regulated in international treaties. Emergencies can easily become a matter of international concern and therefore necessitate international cooperation, but such cooperation also involves the risk of causing (unwanted) spill over effects in other domains of international relations if not properly managed.

*Illustration: Working together in global and local partnerships (e.g. through research cooperation) is central to strengthen resilience. For countries facing recurrent crises, working with regional and international organizations to create platforms at country level for facilitating the exchange of information can be important to strengthen resilience<sup>62</sup>. The European Forest Fire Information System (EFFIS) is a collaboration between 40 countries in Europe and plays an important role in the prevention of forest fires by the sharing of information and expertise. In the summer of 2018 there were severe forest fires in multiple European countries and cooperation and emergency assistance between countries were important. In Sweden, the national fire fighters were assisted with fire-fighting aircrafts from Norway and Italy<sup>63</sup>.*

## LEGITIMACY

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61 The DRIVER+ deliverable D955.11 offers an overview of relevant standardized terminology in CM at both international and European level.

62 European Commission (2013), Action Plan for Resilience in Crisis Prone Countries 2013-2020, [http://ec.europa.eu/echo/files/policies/resilience/com\\_2013\\_227\\_ap\\_crisis\\_prone\\_countries\\_en.pdf](http://ec.europa.eu/echo/files/policies/resilience/com_2013_227_ap_crisis_prone_countries_en.pdf) retrieved November 20, 2015

63 <https://www.theguardian.com/world/2018/jul/18/sweden-calls-for-help-as-arctic-circle-hit-by-wildfires>

## State-Citizen-Relationship

The state derives its legitimacy from its interaction with citizens<sup>64</sup>. States are legitimate when elites and the public accept the rules regulating the exercise of power as proper and binding<sup>65</sup>. **The state-citizen relationship** is thus a relationship marked by the legitimate exercise of power.

*Illustration: The Fukushima Daiichi nuclear disaster in March 2011 is an example of how a state can undermine its legitimacy by not communicating transparently (cf. transparency), fact-based and not being accountable (cf. accountability) for its actions and responsibilities towards the population during a crisis<sup>66</sup>. The state was unaware of an already existing system that can predict the geographical spreading of radioactive material. The evacuation zone was therefore set in an arbitrary way which led it to being expanded three times in under 24 hours making the population move several times. A short time after, radioactivity was shown far outside the last evacuation zone. This led to unease (cf. unease) in the evacuated population and eventually distrust (cf. trust) in the government. The state-citizen relationship was further weakened as recommendations came from the U.S. government to its citizens in Japan to move even further away from the last evacuation zone.*

## Political Reputation

**Political reputation** refers to the social opinion<sup>67</sup> and evaluation of a political entity. Bad political reputation is often accompanied with a low acceptance of policy measures. If the crisis population does not trust (cf. *trust*) the administrative- or governmental actors that are implementing the crisis effort, it is less likely to be successful. The reputation of a political entity is therefore strongly influenced by public discourses<sup>68</sup>.

*Illustration: In crisis situations, it is important to follow principles of transparency and integrity to foster political and societal acceptability of measures (cf. integrity; transparency).*

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64 Papagianni, K. (2008), Participation and State Legitimation, in: Call, C.T., Wyeth, V. (eds), Building States to Build Peace, Boulder, Lynne Rienner Publishers.

65 Papagianni, K. (2008), Participation and State Legitimation, in: Call, C.T., Wyeth, V. (eds), Building States to Build Peace, Boulder, Lynne Rienner Publishers.

66 Kim, Y. (2018) Analyzing Accountability Relationships in a Crisis: Lessons From the Fukushima Disaster. American Review of Public Administration, 48 (7), pp. 743-760. Link: <https://journals-sagepub-com.ezproxy.uio.no/doi/pdf/10.1177/0275074017724224>

67 <http://www.oxforddictionaries.com/definition/english/reputation>

68 Bennett, C. J. (2011), Review: In Defence of Privacy: The concept and the regime. Surveillance & Society 8(4): 485-496.

*During the CM of the Fukushima Daiichi nuclear disaster, Prime Minister Kan's handling of the situation gave him a bad political reputation, which forced him to retire after a short period. This was related to the fact that he did not take any responsibility or held himself and the government accountable for preventing the situation at the nuclear plant from escalating into a man-made disaster<sup>69</sup>. Instead he blamed the situation on the tsunami as being bigger than what could be imagined in advance. In addition, he decided to make an official visit to the nuclear plant to show his support, but the consequence of this visit was that the emergency work were upheld for two hours. A case study on floods in Sri Lanka has shown that officials who arrive in disaster areas just to observe might create negative and uncomfortable feelings amongst the affected crisis population<sup>70</sup>. The prime minister's visit to the nuclear plant might therefore have worsened his political reputation in the time of crisis.*

## SOCIETAL & ETHICAL PRINCIPLES

### Social Cohesion & Solidarity

**Social cohesion** is the capacity of a society to ensure the wellbeing of all its members, minimising disparities and avoiding marginalisation<sup>71</sup>. Cohesive societies manage differences and divisions and ensures the means of achieving welfare for all members<sup>72</sup>. Social cohesion thus refers to the reduction of disparities, inequalities (cf. *in/equality*) and social exclusion within or between societal groups, as well as the strengthening of social relations, interactions and trust (cf. *trust*)<sup>73</sup>. **Solidarity** refers to the feeling or action that produces a community of interests, objectives and standards. It is a common way to show mutual support within a group. The fundamental principle of solidarity of the EU is based on sharing both the advantages, i.e. prosperity, and the burdens equally and justly among all group members. Also, the

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69 Kim, Y. (2018) Analyzing Accountability Relationships in a Crisis: Lessons From the Fukushima Disaster. *American Review of Public Administration*, 48 (7), pp. 743-760. Link: <https://journals-sagepub-com.ezproxy.uio.no/doi/pdf/10.1177/0275074017724224>

70 Samarakoon, U. & Abeykoon, W. (2018) Emergence of Social Cohesion after a disaster: (With reference to two affected locations in Colombo District-Sri Lanka). *Procedia Engineering*, 212, pp. 887-893. Link: <https://doi.org/10.1016/j.proeng.2018.01.114>

71 Council of Europe (2008), *Towards an Active, Fair and Socially Cohesive Europe*. Report of High-Level Task Force on Social Cohesion, <http://www.coe.int/t/dg3/> retrieved November 20, 2015.

72 Council of Europe (2008), *Towards an Active, Fair and Socially Cohesive Europe*. Report of High-Level Task Force on Social Cohesion, <http://www.coe.int/t/dg3/> retrieved November 20, 2015.

73 <http://dictionary.reference.com/browse/trust>

solidarity clause in the Treaty on the Functioning of the EU (TFEU- Lisbon Treaty) introduces a legal obligation on the EU and its member States to assist each other when an EU State suffers a terrorist attack or a natural or man-made disaster<sup>74</sup>.

*Illustration: CM measures have the potential to positively affect social cohesion if they are applied equally and not in a discriminatory or unequal manner against a specific social group. Creating a societally cohesive community of volunteers and responders can positively influence the resilience and flexibility of the CM organization. An equal and non-discriminatory (cf. non-discrimination) distribution of emergency help, taking the needs of different societal groups into account, can also foster trust (cf. trust).*

## Participation

**Participation** is both the action of taking part in something, and the state of being (actively) related to a community, region, or nation<sup>75</sup>. As a core societal value, participation is understood as public participation - the belief that those who are affected by a decision have a right to and an interest in being involved in the decision making-process. Participation is also an opportunity for the population to hold decision makers accountable (cf. accountability)<sup>76</sup>.

*Illustration: Public participation during the decision-making processes is thought to increase its acceptance among the affected population once it is implemented. In Denmark, developers planned to build a bridge that would cross over a small, populated island. The island residents were left out of the decision-making process, and they feared that the bridge would ruin the island atmosphere and inflict social aspects of their daily life. When it was discovered that a certain endangered newt lived on the island, the residents started to protest using arguments of the environmental impact of the bridge as they felt that the societal aspects were not considered important enough to stop the developers from building it<sup>77</sup>. This example underlines the importance of*

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74 European Union (2007), Official European Union, C 306, 17 December 2007, <http://www.treaty.org/wcm/the-lisbon-treaty/treaty-on-the-functioning-of-the-european-union-and-comments/part-5-external-action-by-the-union/title-7-solidarity-clause/510-article-222.html> & [http://europa.eu/lisbon\\_treaty/full\\_text/index\\_en.htm](http://europa.eu/lisbon_treaty/full_text/index_en.htm) retrieved November 20, 2015.

75 <http://www.oxforddictionaries.com/definition/english/participation>

76 UNDP report, p. 58. Link: <http://www.undp.org/content/dam/undp/library/crisis%20prevention/disaster/Strengthening%20Disaster%20Risk%20Governance-Full-Report.pdf>

77 Larsen, S. V., Hansen, A. M., Lyhne, I., Aaen, S. B., Ritter, E. & Nielsen, H. (2016) Social Impact Assessment in Europe: A Study of Social Impacts in Three Danish Cases. Journal of Environmental Assessment Policy and Management, 17 (4). Link: [http://vbn.aau.dk/files/262085253/Larsen\\_et\\_al\\_2015\\_VBN\\_version.pdf](http://vbn.aau.dk/files/262085253/Larsen_et_al_2015_VBN_version.pdf)

*implementing SIAs into all kinds of developments that affects the society.*

## Diversity

**Diversity**<sup>78</sup> refers to the condition of having or being composed of differing elements, especially, the inclusion of different types of people in a group, organization or country. It involves the wide range of racial, cultural, ethnic, linguistic, and religious variation that exists within and across societies. Cultural, religious and linguistic diversity is recognized and protected by the European Charter of Fundamental Rights (art. 22) (Cf. *dignity; non-discrimination; cultural & gender sensitivity*).

*Illustration: In the CM context, recognizing the diversity in the affected crisis population is important. According to research, minority communities recover slower after a crisis because they are more likely to experience cultural barriers. This is first and foremost linked to the fact that these communities often receive inaccurate or incomplete information because of cultural differences and language barriers<sup>79</sup>. Failing to give accurate information in the right language can in the worst case make the crisis bigger. As shown during the Ebola crisis, just a small percentage of the population at risk where given information about how to avoid infection in a language that they understood. The people that was not informed properly had to lean on rumours on how to avoid infection. These rumours were often completely wrong, and the consequence was that the disease spread quickly and came out of control. Further, it created unease (cf. *unease*) in the population and suspicion (cf. *suspicion*) to all sorts of sources that spread information about infection dangers<sup>80</sup>.*

## Open - Control Society

An **open society** is characterized by a flexible structure, freedom of belief, a wide dissemination of information<sup>81</sup> and a respect for core societal values. This creates a feeling of trust

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78 <http://www.merriam-webster.com/dictionary/diversity>

79 Davidson, TM, Price M, McCauley JL, Ruggiero KJ, Disaster Impact Across Cultural Groups: Comparison of Whites, African Americans, and Latinos. *American Journal of Community Psychology*. 2013;52(1-2):97-105.

80 <https://odihpn.org/magazine/ebola-a-crisis-of-language/>

81 <http://www.oxforddictionaries.com/definition/english/open-society?q=open+society>

and security in society (cf. *trust*)<sup>82</sup>. **Societies of control**, however, might use control technologies to establish security, which may also apply to CM tools. Societies of control create a feeling of security that is based on distrust (cf. *trust*).

*Illustration: The use of technologies to single out potential troublemakers during a large event may contribute to the preparedness and responsiveness of CM, but they are also based on the idea of establishing or achieving security through control. To ensure that this kind of control is perceived as proportional, it is important to ensure the acceptability of the use of such technologies, which can streamline and improve CM.*

## Cultural & Gender Sensitivity

CM decisions, communication, tools and measures can have different effects on men and women and groups with different cultural backgrounds. It is therefore important that they show **sensitivity to gender and cultural background** throughout all phases of the CM cycle. Research indicates that racial and ethnic minorities are disproportionately vulnerable to, and impacted by, a crisis. In the same manner, differences are correlated to gender in terms of exposure to and perceptions of risk, preparedness, response, and physical and psychological impact, as well as capacity to recover<sup>83</sup>.

*Illustration: Women's role as breastfeeding mothers should be taken particular care of during a crisis<sup>84 85</sup>. However, at the same time, a single father with the responsibility for feeding a new-born needs equally good care. There is also research that shows that women often face issues related to increased violence and sexual harassment in evacuation centres as well as lack of privacy<sup>86</sup>. A solution might be the availability of female crisis managers to female aid recipients and male managers for male aid recipients as this may contribute*

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82 Studies suggest that when there is trust in the government, there is also trust in the police which is important in the CM. See for example:

<https://brage.bibsys.no/xmlui/bitstream/handle/11250/174706/corruption%20and%20trust.pdf?sequence=3&isAllowed=y>

83 <https://www.phe.gov/Preparedness/planning/abc/Documents/gender-2017.pdf>

84 European Commission (2013), Disaster Risk Reduction. Increasing Resilience by Reducing Disaster Risk in Humanitarian Action, [http://ec.europa.eu/echo/files/policies/prevention\\_preparedness/DRR\\_thematic\\_policy\\_doc.pdf](http://ec.europa.eu/echo/files/policies/prevention_preparedness/DRR_thematic_policy_doc.pdf) retrieved November 20, 2015.

85 European Commission (2014), AGIR – Building Resilience to food and nutrition crisis in the Sahel & West-Africa, [http://ec.europa.eu/echo/files/aid/countries/factsheets/sahel\\_agir\\_en.pdf](http://ec.europa.eu/echo/files/aid/countries/factsheets/sahel_agir_en.pdf) retrieved November 20, 2015.

86 Saito, F. (2012) Women and the 2011 East Japan Disaster. *Gender & Development*, 20 (2), pp. 265-279. Link: <https://www-tandfonline-com.ezproxy.uio.no/doi/pdf/10.1080/13552074.2012.687225?needAccess=true>

*positively towards gender sensitivity.*

## LEGAL VALUES

### Suitability, Necessity & Proportionality

The «**proportionality** test» is an instrument in EU law<sup>87</sup> to determine fairness and justice. It examines a measure/tool in terms of its **suitability**, asking whether the appropriate means are being used to pursue the given objective. In a second step, the test examines the **necessity** of a measure/tool, asking whether there is an alternative measure that is less restrictive than the measure in question and that is equally effective in achieving the pursued objective<sup>88</sup>. Finally, the test examines the proportionality in strict sense, namely whether the effects of the measure “are disproportionate or excessive in relation to the interests affected. At this stage the true weighing and balancing takes place.”<sup>89</sup>

*Illustration: Airborne sensors in unmanned aerial vehicles (UAVs) can be a suitable means to get an overview of an emergency. Alternative measures, for example manned helicopters (for non-automated data collection), do exist to fulfil this task as well. Helicopters may, however, be more expensive, so there is potentially a financial necessity to use airborne sensors; or sensors might have an added value as compared to human surveillance. The key question is then whether an airborne sensor, by collecting vast amounts of data that is not relevant for the situational analysis, is proportional to the objective in the narrow sense. This must be balanced vis-à-vis the benefits of the airborne sensor. If CM measures are not proportional, they will cause several secondary effects, for example a low level of acceptability of negative standardisation (cf. negative standardisation), which could contradict the effect/ aim of CM.*

### In/justice & In/equality

**Just and equal** CM means that the activity is exercised according to certain principles (e.g. human rights) and that it is equitable, fair, non-partial and proper. Further, it means that it is rightful and lawful, and facilitates the treatment of all

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87 Craig, P., & de Búrca, G., (2011), EU Law: Text, Cases, and Materials, Oxford : Oxford University Press.

88 Dzabirova, L., (2009), European Proportionality in Macedonia’s Political and Judicial Systems, [http://www.europarl.europa.eu/meetdocs/2009\\_2014/documents/d-mk/dv/0120\\_09/0120\\_09en.pdf](http://www.europarl.europa.eu/meetdocs/2009_2014/documents/d-mk/dv/0120_09/0120_09en.pdf)

89 Dzabirova, L., (2009), European Proportionality in Macedonia’s Political and Judicial Systems, [http://www.europarl.europa.eu/meetdocs/2009\\_2014/documents/d-mk/dv/0120\\_09/0120\\_09en.pdf](http://www.europarl.europa.eu/meetdocs/2009_2014/documents/d-mk/dv/0120_09/0120_09en.pdf)

individuals in the same way. While it is a standard to provide support for the most affected and the most vulnerable first, the fair, just and equal distribution of help and resources during crises needs to be assured. Equal treatment cannot always be a given, since time and resources are often limited and sometimes seemingly unfair decisions have to be taken and priorities set. The idea is anyhow to avoid unfair, unequal or disproportionate treatment of two social groups or between two individuals wherever possible (cf. *non-discrimination; gender- and culture sensitivity*).

*Illustration: The absence of women in the decision-making process (cf. participation) has been shown to create issues during the response and recovery phase in CM<sup>90</sup>. This is especially related to the fact that women play a significant role at the household level. In the evacuation shelters in Japan after the 2011 tsunami and nuclear plant incident, women were expected to cook meals for the shelters for free, but men were given the opportunity to do paid work within the shelter<sup>91</sup>. This was especially problematic for single mothers who then struggled to take care of their children in the recovery phase. Thus, by taking efforts to promote the inclusion of and influence by, women in CM and decision-making about CM in all levels of the CM organization (locally, regionally and internationally) could result in a more equal CM organization.*

## FUNDAMENTAL RIGHTS

### Dignity /Autonomy

**Dignity** is considered to be a universal value of the European Union. It means that a human being has an innate value and the right to be treated with respect. This right is inviolable and must be protected in accordance with Article 1 of the European Charter of Fundamental Rights<sup>92</sup>. Dignity is very closely related to **autonomy**, that can either mean independence of freedom or the condition of being autonomous<sup>93</sup>.

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90 Hemachandra, K., Amaratunga, D. & Haigh, R. (2017) Role of women in disaster risk governance. *Procedia Engineering*, 212 (2018), pp. 1187-1194. Link: <https://www-sciencedirect-com.ezproxy.uio.no/science/article/pii/S1877705818301796>

91 Saito, F. (2012) Women and the 2011 East Japan Disaster. *Gender & Development*, 20 (2), pp. 265-279. Link: <https://www-tandfonline-com.ezproxy.uio.no/doi/pdf/10.1080/13552074.2012.687225?needAccess=true>

92 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf) retrieved November 20, 2015.

93 <http://dictionary.reference.com/browse/autonomy?s=t>

*Illustration: It is not a given that residents wish to be evacuated during crisis<sup>94</sup>. The choice to evacuate regardless can be said to affect the autonomy of the residents. Leaving the choice to inhabitants to act against authorities' advice while clarifying the consequences of staying and leaving their homes, including all related responsibilities, will respect the autonomy of the individuals. However, such a guideline of informing aid recipients about consequences of taking their own choice is highly contextual. In some situations there is little time to inform aid recipients. These considerations thus need to be weighed against the responsibilities that a state has towards their citizens to evacuate effectively in case of an acute emergency.*

## Non-Discrimination

Dignity (cf. *dignity*) is closely related to Article 21 of the European Charter of Fundamental Rights<sup>95</sup>, the right to **non-discrimination**, which forbids any discrimination “based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation”<sup>96</sup> (cf. *diversity; cultural & gender sensitivity*). A consequence of discrimination in CM is that it can increase the vulnerability of certain groups during a crisis.<sup>97 98</sup>

*Illustration: The Federal Emergency Management Agency (FEMA) issued a set of guidelines<sup>99</sup> to use under the Hurricane Harvey in Texas and Louisiana to effectively communicate with all parts of the affected population in a non-discriminatory way. The guidelines included for example the provision of sign language interpreters, crisis information translated in all major*

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94 Associated Press (2008), Even after Hurricane Katrina, many won't leave. [http://www.nbcnews.com/id/25819569/ns/us\\_news-life/t/even-after-hurricane-katrina-many-wont-leave/#.Vijr034rKJA](http://www.nbcnews.com/id/25819569/ns/us_news-life/t/even-after-hurricane-katrina-many-wont-leave/#.Vijr034rKJA)

95 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf) retrieved November 20, 2015.

96 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

97 Bethel, JW, Burke, SC, Britt, AF. Disparity in disaster preparedness between racial/ethnic groups. *Disaster Health*. 2013;1(2):110-16. Link: <https://www.tandfonline.com/doi/abs/10.4161/dish.27085>

98 See for example a video on how the Red Cross prioritize aid to elderly and disabled persons in the time after the flood in the Tabasco region, Mexico, in 2007: <http://www.rccr-resilience-southeastasia.org/document/non-discrimination-in-disaster-response-2007-tabasco-floods/>

99 <https://www.dhs.gov/publication/tips-effectively-communicating-protected-populations-during-preparedness-response-and>

*languages used in the affected areas, reaching out to local ethnic media services and making information websites accessible for disabled persons.*

## Privacy & Data Protection

Article 7 of the European Charter for Fundamental Rights<sup>100</sup> protects **the right to privacy** as the right for private and family life. But privacy is no longer “the right to be let alone”<sup>101</sup>. It has become a concept, a regime, a set of policy instruments and a way to frame civil society activism. A working definition is “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others”. As such, it is closely related to **the protection of personal data** (Article 8). Protection also means that data has to be processed fairly, with the consent of the concerned person, who also has the right to access this data. The General Data Protection Regulation (GDPR)<sup>102</sup> governs the processing of personal data within the EU and includes collection, storage, alteration, consultation, transmission, or erasure of personal data<sup>103</sup>.

*Illustration: To gather situation-sensitive information through social media during a crisis represents progress (cf. progress) in CM as it gives the crisis managers the opportunity to gather information from eyewitnesses in the affected area. The Crisis Centre in Belgium especially asked citizens to communicate situational information through social media during the terrorist attack in Brussels the 22 March 2016<sup>104</sup>. It can result in a more effective response, but it also involves concerns for privacy and protection of personal data (cf. privacy and data protection)<sup>105</sup> (cf. function creep, misuse). It is therefore necessary to reflect upon what kind of keywords (or hash tags)*

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100 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

101 Warren, S., & Brandeis, L. (1890), The Right to Privacy. Harvard Law Review 4:193-220.

102 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

103 <http://www.isitethical.eu/portfolio-item/privacy-and-personal-data-protection/>

104 Mirbabaie, Milad and Zapatka, Elisa, (2017). "Sensemaking in social media crisis communication – a case study on the Brussels bombings in 2016". In Proceedings of the 25th European Conference on Information Systems (ECIS), Guimarães, Portugal, June 5-10, 2017 (pp. 2169-2186).

105 Imran, M., Meier, P. & Boersma, K. (2018) The use of social media for crisis management. In: Big Data, Surveillance and Crisis Management. Edited by: Boersma, K. & Fonio, C. Routledge.

*that are used in the data processing, so that data that are not necessary for the purpose of the needed analyses are not collected. CM measures that respects, and even advances best practice solutions in the area, have the opportunity to foster trust in the population and improve the (political) reputation of the CM actor(s). This opportunity is closely linked to the notion of transparency and legality (cf. transparency; legality)<sup>106</sup>.*

## Frederies & Protest

The European Charter for Fundamental Rights addresses a range of freedoms<sup>107</sup>. The most relevant for the CM context are the **freedom of thought, conscience and religion** (Article 10), which means that it is possible to “change religion or belief and freedom, either alone or in community with others and in public or in private, to manifest religion or belief, in worship, teaching, practice and observance”<sup>108</sup>. Second is the **freedom of expression and information** (Article 11), which states that everyone can hold and express their opinion and has the right “to receive and impart information and ideas without interference by public authority”<sup>109</sup>. A third important article is the **freedom of assembly and of association**<sup>110</sup>, which includes the freedom to form peaceful associations. According to the “Hyogo Framework for action 2005-2015”, in order to foster positive societal impact, the media should be engaged in stimulating a culture and climate of resilience and community engagement<sup>111</sup>. This includes allowing for protest, and people having the freedom to voice their opinion. In general, protecting societal values like freedom can make the population more resilient against shocks.

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106 <http://www.oxforddictionaries.com/definition/english/legality>

107 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf) retrieved November 20, 2015.

108 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

109 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

110 Official Journal of the European Communities (2000), Charter of Fundamental Rights of the European Union C 364/1, [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

111 UNISDR (2014), A catalyst for change: How the Hyogo Framework for Action has promoted disaster risk reduction in South East Europe, <http://www.unisdr.org/we/inform/publications/39269>

*Illustration: The so-called “chilling effect”<sup>112</sup> (that people change their behaviour because of the awareness of surveillance measures) be a negative consequence of a lack of freedom and the right to protest, because the surveillance happens covertly and thus does not allow for protest. Data collection can also positively influence the right to freedom and protest, e.g. by allowing participants in focus groups or interviews to speak their mind about something that they care about relating to CM, to someone that actually has the possibility of making it better.*

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112 Cohn, C. (2014), NSA Surveillance Chilling Effects: HRW and ACLU Gather More Evidence. The Electronic Frontier Foundation. Available at: <https://www.eff.org/deeplinks/2014/07/nsa-surveillance-chilling-effects>

## Annex 4 Review of EU projects according to three levels of engagement with SIA

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The next paragraphs describe how some approaches to SIA in EU funded research projects look like, and what some key challenges are when seeking to integrate SIA (or ethical assessments) in research projects.

The projects reviewed are divided into three categories depending on their level of engagement with societal issues:

### 1. **NO SIA**

*Projects that do not deal with the societal aspects of their application area at all.*

### 2. **SIA AS TASK/ WORKPACKAGE**

*Projects that have dedicated tasks or work packages on societal aspects in the area of the project's activity, i.e. projects that try to add societal knowledge around the areas and solutions addressed.*

- **Example 1:** The FP7 SLANDAIL (Empowering Emergency Response Systems Using Social Media) (17) project contained an analysis of the ethical concerns surrounding the use of social media information for improving communication and coordination during a crisis. Some of the project's findings elaborate on how to build a relationship of trust with the public using three principles: simplicity, relevance and goal-focus. Trust vis-à-vis social media solutions are thus the main focus. DRIVER+ expands this focus to develop a Framework to assess a multitude of functions using a set of 25 assessment criteria.
- **Example 2:** The FP7 iSAR+ (Online and Mobile Communications for Crisis Response and Search and Rescue)<sup>113</sup>. The overall goal is to enable European citizens to use social media platforms (e.g. Facebook, Twitter, YouTube, etc.) in emergencies, crisis and search and rescue operations and to develop guidelines and a technological platform that considers the human and ethical dimensions to the development of such technologies. The SIA assessment in the project has provided a valuable contribution to the inclusion of people with special needs, e.g. people with hearing difficulties towards the right to an autonomous use of the emergency service.
- **Example 3:** The FP7 Sec-InCoRe (Secure Dynamic Cloud for Information, Communication and Resource Interoperability based on Pan-European Disaster Inventory)<sup>114</sup> project discusses how IT-supported emergency responses need to balance security and privacy. It is noteworthy that the project frames ethics not as just a challenge to the project, but that addressing ethical issues can have a beneficial impact. In this case: how societal resilience can be strengthened by the use of IT-enabled communication with the public and dissemination of response strategies.

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<sup>113</sup> Online and Mobile Communications for Crisis Response and Search and Rescue (iSAR+)

<sup>114</sup> Secure Dynamic Cloud for Information, Communication and Resource Interoperability based on Pan-European Disaster Inventory (SecInCoRe) <http://www.secincore.eu/project/> 9 November 2015.

- **Example 4:** FP7 PULSE (Platform for European Medical Support During Major Emergencies)<sup>115</sup> project has invented a methodology to analyse the result of Trials testing similar PULSE-like systems. The methodology is called EELPS (Ethical, Economic, Legal, Political and Societal) and consists of five sets of criteria to evaluate the effects of a PULSE-like system on society in general. There are 15 criteria that assess the societal impacts of the project Trial and most of the criteria are adopted from the FP7 ValueSec (Mastering the Value Function of Security Measures)<sup>116</sup> project. The methodology is although somewhat limited by the fact that the EELPS is only to be carried out after the Trial and thus not take into consideration the other steps in the CM cycle.
- **Example 5:** H2020 RESCCUE (Resilience to Cope with Climate Change in Urban Areas)<sup>117</sup> is a project that provides a methodology to urban areas in Europe to anticipate, prepare for, respond to and recover from different kinds of natural disasters that stems from climate change, i.e. heat-waves, sea-level rise and floods. A SIA report will be delivered at two stages during the project, and it will consider the societal impacts of the adaption measures and technologies to reduce climate change effects. The result will constitute a portfolio of validated and prioritized strategies based on a multi-criteria analysis, integrating technological and non-technological alternatives, to better cope with challenges raised by climate change<sup>118</sup>.

### 3. SIA “BY DESIGN”

*Projects that try to follow a “society-friendly-by-design” approach and try to really integrate societal aspects into their solutions. These are projects that are also interested in the project’s indirect effects, e.g., via the ‘solutions’ they help to develop. Some additional examples are described in **D840.11 Societal Impact Assessment Framework- version 1** (1 p. 22) as well.*

- **Example 1:** FP7 PACT project (*Public perception of security and privacy: Assessing knowledge, Collecting evidence, Translating research into action*)<sup>119</sup> developed a web-based decision support system, which provides a context dependent assessment of privacy, social and ethical impact of security measures to decision makers. This support system involves a six-step process, which uses a qualitative approach, i.e. provides text-based output. As in DRIVER+, this approach is rational, given the wide variety of societal implications that could arise from the use of a technology, development of a policy or an operational decision, and the subsequent need for a method which allows for a deeper assessment of impacts.

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115 Platform for European Medical Support During Major Emergencies (PULSE) <http://www.pulse-fp7.com/>

116 Mastering the Value Function of Security Measures (ValueSec) <http://valuesec.eu/content/valuesec-project>

117 Resilience to Cope with Climate Change in Urban Areas (RESCCUE) <http://www.resccue.eu> retrieved February 3, 2019

118 Velasco, M., Russo, B., Montserrat, M., Malgrat, P., Minjo, R., Djordjevic, S., Fontanals, I., Vela, S., Cardoso, M. A. and Buskute, A. (2018) Resilience to Cope with Climate Change in Urban Areas – A Multisectorial Approach Focusing on Water – The RESCCUE Project. *Water* 10(1356), 1-11.

119 PACT, <http://projectpact.eu/> retrieved November 21, 2016.

- **Example 2:** the ‘Bridging resources and agencies in large-scale emergency management’ (BRIDGE) project discusses the pros and cons of the use of ICT in emergency management<sup>120</sup>. While in appearance similar to the DRIVER+’s method, there are important differences in the user-friendliness and applicability to other technologies and solutions<sup>121</sup>. Similarly, DESSI project (Decision Support on Security Investment)<sup>122</sup> has developed a method for assisting decision-makers in societal impact assessment. The approach defines a universal set of criteria for seven domains that can be applied to any security decision-making problem as well as a method to conduct such assessments. While this method and criteria are useful and progressive, DESSI<sup>123</sup> neither provides targeted feedback or assessments for CM-specific problems, nor does it provide example assessments beyond three case studies<sup>124</sup>. In a similar fashion the project ValueSec (Mastering the Value Function of Security Measures)<sup>125</sup> provides for an impressive set of SIA criteria that can be applied in a ranking-style procedure for security measures. However, neither does the project provide for in-depth criteria definitions or analyses, nor concrete recommendations for the problem at stake. As such, the method is good for decision-makers to conduct a ranking of societal impacts, but it does not provide for in-depth assessments or recommendations.
- **Example 3:** The ASSERT project (Assessing security research: tools and methodologies to measure social impact) strongly suggests that the societal impact of security research should be considered on all stages in the research process<sup>126</sup>. One of the main goals in the project is to develop new perspectives and options to mainstream and better integrate SIA in security research. Societal impacts in the project is understood as both benefits, unintended consequences and harm that a project might have on individuals, households, enterprises and the communities on all levels of the society. The project focuses on how the societal impacts of security research might be spread unevenly across society and that the SIA must take extra consideration to vulnerable groups in society who might be excluded from decision-making processes. These groups may also be excluded by the technological development and solutions provided by the research if their needs are not

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120 Bridging resources and agencies in large-scale emergency management (BRIDGE) <http://bridgeproject.eu/en> last accessed: 9 November 2015.

121 The BRIDGE assessment starts with a list of positive and negative aspects of using ICT and then identifies which relevant principle is involved as well as what specific technology of BRIDGE is in use. Finally, it briefly outlines an ‘augmentation opportunity’ to strengthen or weaken the identified positive or negative effects of the technology. While the BRIDGE approach is useful in directly describing negative and positive effects, it is less useful as a tool for helping solution providers in identifying them.

122 Decision Support on Security Investments (DESSI) <http://securitydecisions.org/about-dessi>

123 Decision Support on Security Investments (DESSI) <http://securitydecisions.org/about-dessi>

124 As such, it is a broader method that can be used in many contexts, but it does not (yet) provide CM relevant guidance or recommendations.

125 Mastering the Value Function of Security Measures (ValueSec) <http://valuesec.eu/content/valuesec-project>

126 Assessing security research: tools and methodologies to measure social impact (ASSERT) <http://assert-project.eu>

taken into consideration during the different stages of the development process. The ASSERT project then argues that the solution is to increase the utility of SIA for groups that are normally marginalized as they might be particularly vulnerable to security research<sup>127</sup>. The SIA Framework in the ASSERT project is presented through a case-study on security issues in relation to public transport, from aggressive misbehaviour by passengers to terrorist attacks, and it is an example of a broad Framework that is applicable to different contexts and levels. The SIA Framework in the project is made in such a way that it avoids limiting the scope of the SIA to those people that are directly and obviously affected by a project, but to also include those who may be affected indirectly. The SIA guideline provided in the ASSERT project has been influential to the RANGER (RADars for loNG distance maritime surveillancE and SaR opeRations)<sup>128</sup> that is an on-going project about maritime surveillance systems that considers the societal impacts in all stages of the project process.

- **NB:** The SIA Framework developed for DRIVER+ largely falls under this third category, as societal impacts are paid attention to throughout the project, and systematically based upon and integrated in the project activities.

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127 For example, the ASSERT-project discusses how security research in border management to strengthen national security might have negative societal impacts on e.g. asylum seekers and migrants. These security processes might have the potential to negatively impact the fundamental rights of these groups.

128 Radars for Long Distance Maritime Surveillance and Sar Operations (RANGER) <http://www.ranger-project.eu>

## Annex 5 Three recent examples of societal impact of crisis management

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### Technology failure in forest fires

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In June 2017, the emergency services in Portugal were battling the deadliest forest fires in the country's history with 66 dead and 254 injured. Forest fires are a recurring crisis in Portuguese summers, but the year of 2017 had by far the highest death toll. In October, additional 50 people died in a number of fires in the central region of the country.

Several reports have demonstrated that, in the June 2017 fire, there were severe communication problems and the emergency network did not work. The emergency communications network (Sistema Integrado de Redes de Emergência e Segurança de Portugal, SIRESP), has been put to blame, as multiple emergency calls from the population did not reach the fire fighters. The system was a public-private partnership officially created in 2006 to provide a system of communication for crisis management. Its adjudication process, that started in 2003, was surrounded by polemic and the system had revealed weaknesses before the disaster of 2017. Failures in the maintenance of the system created new vulnerabilities, as the technology dependency prevented other possible solutions to be deployed. This has affected political reputation of key ministers in the country, impacted societal trust, and challenged the state – citizen relationship.

### Language barrier in crisis communication<sup>129</sup>

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Crisis communication is an important part of CM activities in the different phases of the CM cycle and it is crucial that the information communicated reaches out to all parts of the affected society. In July 2018, a deluge hit western Japan and the Hiroshima municipal government sent out an e-mail that contained an evacuation order written in advanced Japanese. As many other countries in the world, the Japanese population contains a large proportion of foreign nationals. During the deluge, a group of Indonesian nationals in the Hiroshima region received the evacuation e-mail from the municipal government, but the language was too complicated for them to understand and they did not evacuate. As soon as the water level dropped, they went to sleep but were soon awakened by a landslide that hit the house and filled it up with debris and mud. They were then trapped inside the house with severe injuries and had to wait for the emergency services to help them escape.

Although the Hiroshima prefectural and municipal governments has some information about disaster preparation translated into e.g. English and Chinese, this is only accessible through their web pages and when there is an acute crisis as in this example this may lead to severe consequences and even deaths because the affected population does not understand the information provided. This is also relevant in the European context, especially in countries with large proportions of migrants that do not speak or understand the country's language or basic English. Translators Without Borders has conducted research on the European refugee response and has found that there is a great lack of knowledge of the language of people crossing the European borders<sup>130</sup>. The origin country of the migrant is often registered, but for example in Nigeria there is about 500 different languages spread throughout the country. Without knowing what language the migrant understands, it can leave him/her in dangerous situations during a crisis as it will be difficult, and maybe even impossible, to communicate crisis information through a channel, format

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129 <http://www.asahi.com/ajw/articles/AJ201807310053.html>

130 <https://translatorswithoutborders.org/wp-content/uploads/2017/04/Putting-language-on-the-map.pdf>

and language that the migrant understands. This can leave the migrant to take uninformed decisions based on word-of-mouth and rumours in social media.

### When alert systems fail<sup>131</sup>

On 13/01/2018, a ballistic missile alert was issued via the Emergency Alert System and Commercial Mobile Alert System over television, radio, and cell phones in the U.S. state of Hawaii. The alert stated that there was an incoming ballistic missile threat to Hawaii, advised residents to seek shelter, and concluded "This is not a drill". The alert was sent at 8:07 a.m. Hawaii–Aleutian Standard Time. People in Hawaii reported seeing the alert on their smartphones. Many screenshots of the push alert were shared on social media platforms, such as Twitter. Twitter posts and screenshots of text messages shared on social media in the immediate wake of the first alert conveyed confusion, alarm, and fear among those who received the warning. The alert read, in all capital letters: BALLISTIC MISSILE THREAT INBOUND TO HAWAII. SEEK IMMEDIATE SHELTER. THIS IS NOT A DRILL. However, no civil defence outdoor warning sirens were authorized or sounded by the state. One man suffered a heart attack minutes after saying what he thought were his last goodbyes to his children following the initial alert. Many Hawaii residents and visitors sought shelter or rushed through emergency preparations where they were. Some discounted the alarm when they realized that they heard no sirens, and that they personally saw no immediate coverage on television or local radio. Others were in areas where sirens did actually go off; in addition, some television stations did broadcast the alert.

The incident also created a strain on Hawaii's telephone system. Civil Defense offices in Hawaii were inundated with calls from frightened residents asking for advice or more information, the New Zealand Herald reported. Many calls to 9-1-1 would not go through. Many wireless data services were likewise initially jammed, leaving many unable to access the Internet to confirm whether the alarm was real. Some residents called friends or family members to say goodbye. 38 minutes later, the alert was called off via a second message. State officials blamed a miscommunication during a drill at the Hawaii Emergency Management Agency for the first message. Later, Governor David Ige publicly apologized for the false alert. The Federal Communications Commission and the Hawaii House of Representatives launched investigations into the incident, leading to the resignation of the state's emergency management administrator.

While the above three examples demonstrate the relevance of taking societal dimensions of CM into account, they furthermore show how the effectiveness and societal acceptability of a CM solution cannot necessarily be quantified and calculated. As an innovation parallel to assessing economic benefits and testing efficiency via cost-benefit analyses, the focus on societal impacts and opportunities is the focus of the DRIVER+ SIA Framework. To avoid that unintended societal impacts are side-lined with those values that can be calculated and assessed more easily, the aim of SIA component in DRIVER+ is thus to strengthen awareness about societal impacts assessments in CM research, but also to practically offer a methodology, a dedicated SIA Framework, that can be implemented and used by crisis managers to assess the more incalculable side-effects of CM. It aims to support a form of crisis management that regards the creation of positive societal effects as equal to calculated efficiency.

<sup>131</sup> This section is based on the compilation of news articles that can be accessed here: [https://en.wikipedia.org/wiki/2018\\_Hawaii\\_false\\_missile\\_alert](https://en.wikipedia.org/wiki/2018_Hawaii_false_missile_alert)

## Annex 6 Example of SIA using the 5- step approach template



### A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS

#### GENERAL DESCRIPTION OF SOLUTION:

**Name of solution to assess:** Crisis communication system.

**By consulting the taxonomy of CM functions in Annex 1, which functions does the solution have?**

The solution is a crisis communication system that is to be implemented in Portugal. The solution would provide the community with a communication channel with the law enforcement in crisis situations. The solution will also be used to communicate between different bodies of the crisis management, i.e. law enforcement agencies and fire brigades. The solution makes it possible with a reverse 112, meaning that official authorities can communicate information of threats and evolving crisis to the public. The main purpose of the communication system is the early detection of crisis situations and then to limit the impact of the crisis with a quick response. When a person is reporting for example rural fires or a terrorist attack, the system automatically detects the position of the caller and makes it easier to find the exact location of the event.

#### STEP 1 STAKEHOLDER GROUPS / COMMUNITIES

- The crisis affected community
- Law enforcement agencies
- Fire brigades
- Emergency services
- Government
- Civil defence corps (Autoridade Nacional de Proteção Civil) and volunteer organisations
- International cooperation partners in crisis management

#### STEP 2 BACKGROUND INFORMATION

Portugal has challenges related to the increase in rural fires during the warmest summer months. Portugal is seen to be prone to rural fires because of climate changes making the summer periods longer, warmer and extremely dry. In addition, major changes in the land use as for example agricultural abandonment have led to big areas with woody vegetation in abandoned farmlands. The increase of rural fires also leads to the production of landscapes with vegetation that has higher flammability. Portugal is situated in an earthquake zone and has experienced several major earthquakes. In 1755, an earthquake with epicentre close to the capital, Lisbon, is known to be one of the deadliest earthquakes throughout world history. 90 per cent of all buildings in the city were damaged during the earthquake, in the following tsunami and fires in the days following. There have also been two major earthquakes in 1909 and 1969 and latest on January 18th, 2018 with a magnitude of 4,9 leading experts to indicate that a bigger earthquake might come in the close future. Earthquakes can also lead to tsunamis in the coastal area of Portugal. The risk of crisis situations in Portugal is therefore closely related to natural disasters and rural fires. In June 2017, the emergency services in Portugal were battling the deadliest rural fires in the country's history with 64 dead and 254 injured. The emergency communication network, SIRESP (Sistema Integrado de Redes de Emergência e Segurança de Portugal), has been put to blame, as multiple emergency calls from the population did not reach the law enforcement agencies and fire brigades. One of the main issues with the existing emergency communication system is that it relies on aerial cables and these cables are vulnerable when there is a rural fire due to the risk of them burning down<sup>12</sup>. The existing crisis communication system is therefore not satisfying the demand to protect the safety of the population as it might break down in times of crisis. Due to the increase in rural fires and mortal consequences, the Portuguese government has put through different measures to make the community more resilient to the fires. A website has been created to display on-going and completed forest fires where the population is informed through a map indicating the severity of the fire, location, etc. The Government has also worked on engaging the population in the prevention of rural fires through a ruling issued in February 2018 that demands landowners to clear fire-prone vegetation around their homes and villages. The ruling has been celebrated because the population generally have been more attentive to their role in the prevention of rural fires, but the critique has also been overwhelming. Land owners complain because they have been given too much of a burden in the clean-up process. In addition, the Government used the Tax Authority's database for a big email campaign that gave landowners three weeks to clean up fire-prone vegetation or pay fees up to €5,000.

**STEP 3 RELEVANT LEGISLATION AND POLICIES**

- The Sendai Framework for Disaster Risk Reduction recognises the strong role that science can play in improving the understanding of risk and communicating on new knowledge and innovation.
- Directive of the European Parliament and of the Council establishing the European Electronic Communications Code<sup>16</sup> defines the way emergencies is to be handled across EU countries. It includes establishing a reverse 112 that will warn the public about potential threats, locating the caller’s location, accessibility for people with disabilities and access to 112 through online platforms.
- The General Data Protection Regulation (GDPR)<sup>17</sup> Regulation (EU) 2016/679 regulates aspects regarding data protection and privacy of all citizens in the EU and the EEA.
- The Convention for the Protection of Human Rights and Fundamental Freedoms with a special weight on Article 8 that involve the right to privacy and Article 14 that regulate the right to not be discriminated.

**STEP 4 IDENTIFY AND PREDICT IMPACTS**

<b>Unease – calmness</b>	<b>Suspicion – trust</b>	Misuse – protection	<b>New vulnerabilities – progress</b>
<b>Technology dependency – Flexible solutions</b>	<b>Function creep – specialized and controlled use</b>	Sustainability	Accountability
Transparency	Integrity	Negative – positive standardisation	International relations
<b>State-citizen-relationship</b>	<b>Political reputation</b>	<b>Social cohesion and solidarity</b>	Participation
Diversity	Open – control society	<b>Cultural and gender sensitivity</b>	Suitability, necessity and proportionality
In/justice & in/equality	Dignity/autonomy	<b>Non-discrimination</b>	<b>Privacy &amp; data protection</b>
Freedoms and protest			

**Unease – Calmness, Suspicion – Trust**  
 Given the history of the existing crisis communication system failing at the most critical moment during a crisis situation, the population could be finding it hard to trust a new similar system. To create calmness, the new solution must foster trust in the population through showing that it is stable and functioning in similar crisis situations. If the trust is established, the system could help to create calmness in the population because the population would know that they would be able to contact the law enforcement agencies in the event of a crisis.

**Political reputation, State-citizen-relationship, Social Cohesion and Solidarity**  
 The Government faced great critique after the rural fires in 2017 and it made undoubtedly damage to their political reputation, and it is important to keep this in mind when implementing the new solution. The reputation has been further damaged as farmers and landowners feel that they have been given too much of a burden in the prevention of rural fires, and also risking heavy fines. This has also been enforced by the fact that the Government used e-mail addresses stored in the Tax Authority archive to reach out to the landowners. This meaning that the Government used the addresses for other purposes than which it was intended. With this background, the Government must take actions in a way that does not further damage the state-citizen-relationship. The solution could create positive outcomes regarding solidarity and social cohesion. The Government’s plan to make the prevention of rural fires a national project where everybody participates could be enforced by the reliability of a new emergency communication system. When the system is trusted, the population would hopefully use it at an early stage in the evolvement of a potential crisis and therefore participate in the national project. The solidarity would be enforced through sharing the burden equally in protecting human life and nature from damage.

**Technology dependency – Flexible Solutions, New Vulnerabilities – Progress**  
 As history has shown, being dependent on one single crisis communication system has produced fatal consequences. The new

solution must therefore come with a plan on how to deal with a similar failure in times of crisis. The reverse 112 is an example of progress in crisis communication and management, making it possible to issue warnings at early stages during a crisis. A new vulnerability can be created through the fact that the population can go into panic after such a warning, and that it would be difficult to manage for the law enforcement agencies. This could especially be the case if the threat does not materialize. The question is if the reverse 112 would create more unease than calmness.

***Privacy and data protection, Function Creep***

The data collected from the caller reporting an incident to the law enforcement agencies must be stored safe and may not be used for other purposes for which it was first intended. The intention of collecting the caller's location is to easier locate the incident and to act quicker and more efficient to the right area. The data collected could therefore not be used to other purposes as this could lead to a function creep.

***Non-discrimination, Cultural and Gender Sensitivity***

These criteria are especially relevant in the function of the reverse 112. The notifications sent out to the population with information of threats and evolving crisis must take extra measures so that all members of society are able to understand the distributed information. For example, people with different disabilities connected to hearing and sight might need information in a different format. The solution should therefore make it possible to issue information vi SMS, video, conversation, etc. The information distributed should also be given in a multiple choice of languages so that the information will reach out to all citizens in the society. The solution must also take into account that different genders, cultures and people with disabilities can have different perceptions of risk and the information distributed must be sensitive to this.

## STEP 5 MITIGATING MEASURES

A crisis communication system as described in the assessment has both potential positive and negative impacts on societal aspects, but the negative outcomes might be mitigated once they are detected and through taking the right measures to minimise them.

Because the previous emergency communication system in Portugal have failed during a rural fire, it is very important that the implementation of a new system is done in a way that is transparent. To enforce the population's trust in the system the Government implementing it should provide information about its functionalities, what kind of safeguards it has, who is providing the solution, experiences from other countries (if there are any) and show how the system has been tested through different scenarios. This could for example be done through an informative website which can include both texts, interviews with professionals, videos showing the system in use, etc. A website could enhance the public engagement to the system and can also be used to increase the public participation in transforming the system to the Portuguese context and making it useful for the population.

The most important step is anyhow to make sure that the system is reliable and functioning through all different crisis scenarios. This would over time increase the public trust in the system and also strengthen the relationship between the population and the law enforcement agencies. This could in the end lead to a more sustainable and resilient community.

## Annex 7 – SIA in Trials

### SIA for Trial “Poland” - Toxic mud spill



#### A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS

##### GENERAL DESCRIPTION:

Trial “Poland” is the first DRIVER+ Trial. It is concerned with a toxic mud-spill. The solutions used there were a drone plus software for enhancing situational awareness, a common operational picture tool (COP) for sharing information and a flood simulation to support decision making in the command and control room.

##### By consulting the taxonomy of CM functions in Annex 2, which functions does the solution have?

Concerning the **CM functions**, we have:

- **Drone + software:** conduct damage and needs assessment, monitor the affected area
- **Common operational picture:** maintain shared situational awareness, conduct coordinated tasking and resource management, support C3 decision making
- **Flood simulation:** provide decision support, orient and decide, provide information on the crisis impact, review and adjust the response plan, combine status with consequences analysis, consider risk when locating new infrastructure, control floods, assess vulnerabilities to hazards, integrate decision support, provide predictive analysis and situational awareness

##### STEP 1 STAKEHOLDER GROUPS / COMMUNITIES

Though the main stakeholder of all solutions is the Trial Owner – the main school of fire service, the implications on the civil society as well as other services have to be considered. While the civil society has the strongest relation to the drone plus software, the other services are mostly involved in the use of the COP. The flood simulation is mainly used within the command and control room but still its use has strong implications on the civil society, if the decisions on evacuation is based on this data.

##### STEP 2 BACKGROUND INFORMATION

For Trial 1 it was important to be aware of the fact, that there is a commonly known procedure for flooding situations. The population will put up sheets of different colour according to their needs: a white sheet for evacuation, a blue sheet for water/food and a red sheet for medical attention. Only because this kind of knowledge is available in the community the drone + software solution can be used for a needs assessment. This might not work in other communities or other states in the same way. Important to notice is the fact, that the Trial was set-up at the imaginary border between Landpol and Manyger but still it was considered, that all people are aware of the coloured sheets.

##### STEP 3 RELEVANT LEGISLATION AND POLICIES

As a drone is part of one solution all legislation and policies concerning flying a drone and capturing video data had to be taken into account. Otherwise of course the informed consent of all participants was needed. Due to the fact that Trial 1 was in parallel with the practical exercise Phoenix, also their participants needed to fill in that form.

##### STEP 4 IDENTIFY AND PREDICT IMPACTS

This of course is different for each solution, so here only the most critical ones will be reflected. (A specific assessment of a drone can be found in D913.41, hence this will not be focused here.)

**Transparency:** Each solution that uses an algorithm will have to be checked for its transparency. In Trial 1 the flood prediction was seen as critical, because it was programmed for water while the physical behaviour of toxic mud can be different. Furthermore, the program cannot take into account the kind of buildings, nature etc. in the flooded area but only looks at the elevation. This was perceived as so critical that the CM professionals stated, that they would never base their decision only on a

prediction model.			
<p><b>International relations:</b> For the Trial 1 set-up the Common Operation Picture should be used to foster cross border communication. Hence the international relations can be seen as most impacted. Here one has to take language and cultural barriers into account. The main aim of the COP was to ease the resource pulling from the neighbouring country by displaying the moving vehicles on a map. This led to a lot of discussion on whether or not states would be willing to share this kind of information and it was trialled how it influences the communication between the countries.</p>			
Unease – calmness	Suspicion – trust	Misuse – protection	New vulnerabilities – progress
Technology dependency – Flexible solutions	Function creep – specialized and controlled use	Sustainability	Accountability
<b>Transparency</b>	Integrity	Negative – positive standardisation	<b>International relations</b>
State-citizen-relationship	Political reputation	Social cohesion and solidarity	Participation
Diversity	Open – control society	Cultural and gender sensitivity	Suitability, necessity and proportionality
In/justice & in/equality	Dignity/autonomy	Non-discrimination	Privacy & data protection
Freedoms and protest			
<b>STEP 5 MITIGATING MEASURES</b>			
<p>The topic of drones was largely discussed in the preparation phase of the Trial, as they come with a lot of things to consider. There is a strong need for clear legislation and its uptake in the standard operating procedures of any fire brigade. For the Trial itself the needed permits were given and as the drone was only flown over a private area and every person within that area had signed the informed consent, there were no other measures needed for the Trial itself. With regards to the flooding simulation, the end-users were informed that the model was only programmed for water, so they could take this into account for their decision. As the Trial really focused on the innovation aspect of a shared common operational picture, there were no mitigation measures here.</p>			

## SIA for Trial “France” – wildfire &amp; MasCal &amp; threatened chemical plant



## A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS

### GENERAL DESCRIPTION OF SOLUTION:

Trial “France” is the second DRIVER+ Trial. It is concerned with a wildfire and cascading effects: A mass casualty incident at a camping site and a chemical plant of the type SEVESO that is threatened by the wildfire. The solutions used there were an online tool for sharing information between different hierarchies and sharing a common logbook, a call-taking and dispatching software, a social media analysis tool and a common operational picture (COP).

### By consulting the taxonomy of CM functions in Annex 2, which functions does the solution have?

Concerning the **CM functions**, we have:

- **Sharing info & logbook tool:** maintain shared situational awareness, orient and decide, determine the principles of information exchange, task volunteers, collect information from deployed source
- **Call taking & dispatch:** response, collect information from deployed sources, establish emergency call services, develop and sustain COP, response, orient and decide, manage deployment and delivery of first aid, conduct incident or emergency response, deploy first responders, develop and sustain COP, provide on-site first aid
- **Social media analysis:** detect and debunk deception and rumours in social media, conduct systematic monitoring and data collection, provide for crowd sourcing, set-up data analysis, conduct systematic monitoring and data collection
- **Common operational picture:** maintain shared situational awareness, detect pending emergencies and provide early warning, orient and decide, provide decision support, map the hazards per geographic area, conduct damage and needs assessment, maintain shared situational awareness, maintain shared situational awareness, disseminate COP and assessments, determine the principles of information exchange

### STEP 1 STAKEHOLDER GROUPS / COMMUNITIES

Though the main stakeholder of all solutions is the Trial Owner – Valabre, the implications on the civil society as well as other services have to be considered. In this Trial the public had to especially be considered due to the call taking & dispatch as well as the social media analysis. While the first one concerns only dedicated citizens, who want to get in touch with emergency services the second one will gather all kinds of public data that was not necessarily published with the emergency services in mind. For the other services especially, the cross-border aspect of the Trial (Italy / France) needed to be considered. Here the fact that icons can be used in a different way in different professions was raised with regards to the depiction of resources in the COP.

### STEP 2 BACKGROUND INFORMATION

In Trial 2 the aim was to create a large scenario with different cascading effects. Hence the wildfire causes a SEVESO plant to be endangered and a MasCal situation at a camping site. This of course concerns citizens in a large amount. However due to the fact that it is a Trial, no public was directly involved. Still there are two solutions that need a deeper look into societal impact: The call taking & dispatch – because it allows for sending ones GPS location and pictures, as well as the social media analysis tool – because it gathers data from Twitter and analysis it. Furthermore, in this Trial it became very apparent that it needs to be considered to see SIA not only for the public but also for the socio-dynamic structures within an organization. Here culture, language and standard operating procedures play a vital role and have to be considered on their own. Also, the cross border aspect as well as the upscale to the EUCP mechanism were designed carefully, keeping cultural practices and SOPs in mind.

### STEP 3 RELEVANT LEGISLATION AND POLICIES

As for the cross boarder and upscale part of the Trial, there were specific rules concerning the EUCP to consider. Most relevant for this Trial was some legal consultation concerning the use of Twitter data. The aim was to use real data for the baseline and innovation line as a Trial always aims to be as realistic as possible. But it turned out that social media data is still a very complex topic as social media had and has a huge impact on society.

### STEP 4 IDENTIFY AND PREDICT IMPACTS

Of course, each solution had their own criteria. The two most interesting ones were the call taking and dispatch as well as the social media analysis tool. Hence, they will be most reflected here:

**Suspicion/trust:** One of the key questions with data that is perceived as somewhat private/personal even if it is broadcasted voluntarily (GPS location, pictures, Tweets) is always: How will they be used? Who will see them? This leads eventually to the question: Do I trust the receiver of the data to use them wisely – to help and not to harm.

**Misuse/protection & Accountability & transparency / state-citizen relationship:** This revolves around the same question as mentioned above.

**Participation:** With regards to the use of social media data for emergencies the topic or participation has to be addressed very carefully. In the past it has happened that citizens felt like having a mandate, a kind of authority to walk into an emergency situation to take picture and tweet about it – supposedly “helping”, because the data would be used by officials (lessons learnt from a workshop done during the EU project EmerGent).

**Dignity & privacy/data protection & cultural and gender sensitivity:** This was especially interesting with regards to the call taking and dispatch software, as it has the functionality to get GPS localization and receive pictures from the emergency situation. As this kind of pictures can contain injured people, people who have maybe lost some part of clothing etc. dignity, cultural & gender sensitivity and data protection must be considered.

Unease – calmness	<b>Suspicion – trust</b>	<b>Misuse – protection</b>	New vulnerabilities – progress
Technology dependency – Flexible solutions	Function creep – specialized and controlled use	Sustainability	<b>Accountability</b>
<b>Transparency</b>	<b>Integrity</b>	Negative – positive standardisation	International relations
<b>State-citizen-relationship</b>	Political reputation	Social cohesion and solidarity	<b>Participation</b>
Diversity	Open – control society	<b>Cultural and gender sensitivity</b>	Suitability, necessity and proportionality
In/justice & in/equality	<b>Dignity/autonomy</b>	Non-discrimination	<b>Privacy &amp; data protection</b>
Freedoms and protest			

**STEP 5 MITIGATING MEASURES**

It was decided not to take any risks and hence create own social media content instead of using actual Tweets. The datasets were prepared carefully to ensure realism but at the same time avoid any legal issues. For a functionality test, like this Trial, this was the best way to mitigate any risk. But it puts constraints on the usability of the solution itself.

For the pictures send through the call taking and dispatch software, the people on the pictures were all older than 18 years and have signed a letter of confirmation that the use of their pictures in this Trial is fine with them. The GPS localization was artificial to fit to the Trial context. Again, this mitigation was necessary and did not put constraints on the functionality testing within the Trial. But legislation will need to be considered if the solution should be used in Europe (currently it is a product developed and used in Israel).

**SIA for Trial “The Netherlands” – evacuation of a big city in a flooding**



**A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS**

**GENERAL DESCRIPTION OF SOLUTION:**

Trial “The Netherlands” is the third DRIVER+ Trial. It is concerned with a huge flooding of the city of The Hague and especially the evacuation. The solutions used there were a flood simulation, a simulation for cascading effect with regards to critical infrastructure, a tool to share information between different hierarchy levels and write a logbook, a situational awareness tool including a traffic simulation and a tool for evacuation simulation.

**By consulting the taxonomy of CM functions in Annex 2, which functions does the solution have?**

Concerning the **CM functions**, we have:

- **Flood simulation:** provide decision support, orient and decide, provide information on the crisis impact, review and adjust the response plan, combine status with consequences analysis, consider risk when locating new infrastructure, control floods, assess vulnerabilities to hazards, integrate decision support, provide predictive analysis and situational awareness
- **Sharing info & logbook tool:** maintain shared situational awareness, orient and decide, determine the principles of information exchange, task volunteers, collect information from deployed source
- **Situational awareness tool:** Provide decision support; conduct SAR operations; plan, organise, and resource transportation logistics, conduct flights to collect information, maintain shared situational awareness, conduct damage and needs assessment, conduct damage and needs assessment, determine the nature of the crisis, maintain shared situational awareness, maintain shared situational awareness, conduct monitoring and anticipation
- **Evacuation simulation:** Evacuate and shelter outside the affected area, provide decision support, plan for CM capabilities, assess current capabilities, manage equipment and infrastructure acquisition, identify and analyse bottlenecks, provide for evacuees, respond to the hazard, evacuate and shelter within the affected area, review and adjust the response plan.

**STEP 1 STAKEHOLDER GROUPS / COMMUNITIES**

This Trial was heavily concerned with inter-organizational work. There were the safety regions (Fire Department, Emergency Services, Police), the Water Authority, the military etc. But due to the nature of the Trial context – an evacuation of the flooded The Hague – the population had to be considered as well.

**STEP 2 BACKGROUND INFORMATION**

Most interesting in this Trial was the fact, that we had to apply the SIA not only to the solution but to the Trial itself: It was not ok to publish any kind of information that could scare the public. As flooding is a huge issue in the Netherlands, the citizens are very sensitive when it comes to this topic. If they read something about a big “exercise” concerning the evacuation of The Hague, they will be confused and maybe scared and ask “Why are you training for this? Is there a concrete danger?”

Furthermore, the inter-organizational work was something to be considered. It turned out that some of the communications and actions listed in official plans, were not completely in line with the reality of the different services. In addition to this every service comes with their inherited culture. In fact the military is used to be treated very different by public authorities than the water authority – which is reflected in the use of the Netherlands internal communication solution called LCMS. Here the military got an account in no time, while the water authority is still not included. It was interesting to see how different the organizations re-acted on different solutions, due to their very unique experiences in the past.

**STEP 3 RELEVANT LEGISLATION AND POLICIES**

As this Trial was very focused on the inter-organizational communication and work, the main things to consider were the SOPs, plans and organizational cultures.

**STEP 4 IDENTIFY AND PREDICT IMPACTS**

Focusing on the Trial context – evacuation – of course the fairness is the one criterion the public will be most concerned with. How is the decision taken whom to evacuate first and last? This is connected to **transparency, cultural and gender sensitivity &**

<b>non-discrimination.</b> Especially the software for evacuation simulation had to consider topics like age and mobility differences within the population etc.			
Unease – calmness	Suspicion – trust	Misuse – protection	New vulnerabilities – progress
Technology dependency – Flexible solutions	Function creep – specialized and controlled use	Sustainability	Accountability
<b>Transparency</b>	Integrity	Negative – positive standardisation	International relations
State-citizen-relationship	Political reputation	Social cohesion and solidarity	Participation
Diversity	Open – control society	<b>Cultural and gender sensitivity</b>	Suitability, necessity and proportionality
In/justice & in/equality	Dignity/autonomy	<b>Non-discrimination</b>	Privacy & data protection
Freedoms and protest			
<b>STEP 5 MITIGATING MEASURES</b>			
<p>From the solution point of view there was not much mitigation necessary within the frame of the Trial, as it is concerned with functionality assessment. But it turned out that the functionalities will need to be improved if future use in real events is planned. For example the accuracy of flood prediction models needs to be very high, if an organization wants to make decisions based on this. Furthermore, specific needs within communities are not yet reflected in the tools for situational assessment or evacuation simulation.</p>			

## SIA for Trial “Austria” – volunteers in an earthquake situation



### A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS

#### GENERAL DESCRIPTION OF SOLUTION:

Trial “Austria” is the fourth DRIVER+ Trial (forthcoming 2019). It is concerned with volunteer management in an earthquake scenario. Here the earthquake scenario will be simulated by the EUCPX “Ironore”, which the Trial can use as an inject. The solutions used there are a tool for tasking volunteers, situational awareness tool, training on psychosocial first aid, a 2D&3D visualization tool and an assessment tool.

#### By consulting the taxonomy of CM functions in Annex 2, which functions does the solution have?

Concerning the **CM functions**, we have:

- **Tasking volunteers:** Manage visibility in media, task volunteers, monitor the affected area, establish organisation for spontaneous volunteers, communicate hazard information to the public, establish organisation for spontaneous volunteers, survey or/and investigate the affected area, enhance awareness on vulnerabilities and mitigation measures, provide warning and alerts for secondary hazards, organise volunteers and communities for recovery, establish organisation for spontaneous volunteers, conduct damage and needs assessment; select, organise, train, and motivate the volunteers; develop integrated warning and alerting, collect information from deployed sources, maintain registers of volunteers, train resilient communities, maintain population's operational awareness, manage spontaneous volunteers during recovery, provide communications with volunteers, train individuals, teams and organisations, deliver public information and advice, manage spontaneous volunteers, prepare for crowd tasking, provide for crowd sourcing
- **Situational awareness tool:** Provide decision support; conduct SAR operations; plan, organise, and resource transportation logistics, conduct flights to collect information, maintain shared situational awareness, conduct damage and needs assessment, determine the nature of the crisis, maintain shared situational awareness, maintain shared situational awareness, conduct monitoring and anticipation
- **Training on psychosocial first aid:** Provide off-site health and MHPSS services, provide MHPSS, train individuals, teams and organisations, provide MHPSS; select, organise, train, and motivate the volunteers; train resilient communities, strengthen community assets for resilience
- **2D&3D visualization tool:** Manage evacuation camps and related services, take and disseminate decisions, command response operations, provide decision support, provide logistics services, maintain shared situational awareness, raise awareness and anticipate, determine the area of operations, provide situational awareness, share COP, ensure safe and secure CM environment, response, maintain shared situational awareness, provide decision support, maintain shared situational awareness, determine the area of operations, orient and decide, provide predictive analysis and situational awareness, develop decision support systems, orient and decide, conduct coordinated tasking and resource management, provide decision support, support C3 decision making, conduct first onsite hazard and consequence assessment, develop and sustain COP, maintain a record of planning and decisions, determine the area of operations, orient and decide
- **Assessment tool:** Establish information management infrastructure, establish security coordination and control organisations, provide communications and information support to C3, ensure the functioning of critical communications

#### STEP 1 STAKEHOLDER GROUPS / COMMUNITIES

In this Trial the main stakeholder is the Austrian Red Cross. Here the paid staff is involved as well as the volunteers. It is still under discussion to include also “emerging volunteers” by including the catholic parish of Eisenerz.

Apart from this the relation to the EUCPX “Ironore” is very interesting for the Trial. As there will be modules from different member-states, this needs to be considered. But at this stage the whole scope of interlocking between Trial and Exercise it not yet clear.

#### STEP 2 BACKGROUND INFORMATION

The highest impact of all solutions trialled within DRIVER+ has to be considered for the psycho-social first aid – at least when it comes to impact for individuals. As this solution requires a certain amount of stress that the participants have to deal with, it is of the utmost importance to plan this very carefully, which is done by the experts of the Danish Red Cross.

**STEP 3 RELEVANT LEGISLATION AND POLICIES**

Not yet indicated. Most relevant is to consider the psycho-social impact and be aware to give any kind of needed support to our participants, which we are prepared to give. Here the trained specialists of the Danish Red Cross are in charge and planning this in the safest possible way.

**STEP 4 IDENTIFY AND PREDICT IMPACTS**

The one solution most interesting for the SIA is the psycho-social first aid (PFA). As the Trial is still under preparation, this is just a preliminary assessment:

**Unease – calmness:** Volunteers in an earthquake situation will most likely face situations in which they feel uneasy and that can put some kind of burden on them. Even though they will be kept away from the incident scene, they will most likely meet victims.

**Misuse – protection & new vulnerabilities – progress:** It is very important for the PFA to bring protection and progress to the people. In the current situation volunteers are too often left alone with their experiences, feeling used and hurt. This is where PFA will make a difference.

<b>Unease – calmness</b>	Suspicion – trust	<b>Misuse – protection</b>	<b>New vulnerabilities – progress</b>
Technology dependency – Flexible solutions	Function creep – specialized and controlled use	Sustainability	Accountability
Transparency	Integrity	Negative – positive standardisation	International relations
State-citizen-relationship	Political reputation	Social cohesion and solidarity	Participation
Diversity	Open – control society	Cultural and gender sensitivity	Suitability, necessity and proportionality
In/justice & in/equality	Dignity/autonomy	Non-discrimination	Privacy & data protection
Freedoms and protest			

**STEP 5 MITIGATING MEASURES**

As the human psyche is a very sensitive topic it has to be considered carefully. This is ensured by the fact that experienced professionals from the Danish and also the Austrian Red Cross are setting up this part of the Trial. Furthermore, there will be follow-up calls to all participants to ensure their well-being.

## Annex 8 Five-step approach template (ready to be filled out)

 <p style="text-align: center;"><b>A GUIDE FOR ASSESSING THE SOCIETAL IMPACT OF CRISIS MANAGEMENT SOLUTIONS</b></p>			
<b>GENERAL DESCRIPTION OF SOLUTION:</b>			
<p><b>Name of solution to assess:</b></p> <p><b>By consulting the taxonomy of CM functions in Annex 1, which functions does the solution have?</b></p>			
<b>STEP 1 STAKEHOLDER GROUPS / COMMUNITIES</b>			
<b>STEP 2 BACKGROUND INFORMATION</b>			
<b>STEP 3 RELEVANT LEGISLATION AND POLICIES</b>			
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