



Driving Innovation in Crisis Management for **European Resilience**

D91.21 – Roadmapping Report

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List of Acronyms

Abbreviation / acronym	Description
ABC4EU	Automated Border Control Gates for Europe
AMELI	Advanced Methodology for European Laeken Indicators
CORDIS	Community Research and Development Information Service
CCTV	Closed-circuit Television
DRIVER	Driving Innovation in Crisis Management for European Resilience
ESRAB	European Security Research Advisory
EUR-OPA	European and Mediterranean Major Hazards Agreement's
EvoCS	Evolving Concept of Security
FP 7	Framework Programme 7
GIS	Geographic Information System
H 2020	Horizon 2020
HAP	Humanitarian Accountability Partnership
MS	Member States
NEST	Network enabled surveillance and tracking
POINT	Policy Influence of Indicators
SE	Sub-project experiments
SECILE	Securing Europe through Counter-Terrorism: Impact, Legitimacy, and Effectiveness
Sec-InCoRe	Secure Dynamic Cloud for Information, Communication and Resource Interoperability
SOP	Standard Operational Procedures
SOPs	Standard Operational Procedure
SoS	System of Systems
SP	Sub-project
WP	Work Package

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Project Description

DRIVER evaluates solutions in three key areas: civil society resilience, responder coordination as well as training and learning.

These solutions are evaluated using the DRIVER test-bed. Besides cost-effectiveness, DRIVER also considers societal impact and related regulatory frameworks and procedures. Evaluation results will be summarised in a roadmap for innovation in crisis management and societal resilience.

Finally, looking forward beyond the lifetime of the project, the benefits of DRIVER will materialize in enhanced crisis management practices, efficiency and through the DRIVER-promoted connection of existing networks.

DRIVER Step #1: Evaluation Framework

- Developing test-bed infrastructure and methodology to test and evaluate novel solutions, during the project and beyond. It provides guidelines on how to plan and perform experiments, as well as a framework for evaluation.
- Analysing regulatory frameworks and procedures relevant for the implementation of DRIVER-tested solutions including standardisation.
- Developing methodology for fostering societal values and avoiding negative side-effects to society as a whole from crisis management and societal resilience solutions.

DRIVER Step #2: Compiling and evaluating solutions

- Strengthening crisis communication and facilitating community engagement and self-organisation.
- Evaluating solutions for professional responders with a focus on improving the coordination of the response effort.
- Benefiting professionals across borders by sharing learning solutions, lessons learned and competencies.

DRIVER Step #3: Large scale experiments and demonstration

- Execution of large-scale experiments to integrate and evaluate crisis management solutions.
- Demonstrating improvements in enhanced crisis management practices and resilience through the DRIVER experiments.

DRIVER is a 54 month duration project co-funded by the European Commission Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 607798.

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Executive Summary

This Roadmapping Report (D91.21) documents on the activities and outcomes dedicated to develop a common understanding of the scope and work plan of Subproject 9. The particular focus lies in a summary of the technical progress in relation to societal challenges, i.e. how societal aspects are, and are planned to be, integrated into the project. The report aligns the updated DRIVER concept, as outlined in D13.2, with the work of SP9. It also provides (in Annex) a summary of the current state of the art on the inclusion of societal impact aspects within EU projects.

To this end, the document starts with describing the ongoing (and potential future) activities of SP9, and structures those along the three DRIVER dimensions

- The Solutions dimension;
- The Methodology and infrastructure dimension, and
- The User dimension.

All three dimensions are interpreted from an SP9 perspective, i.e. from the point of view of incorporating societal aspects into the DRIVER objectives. Based on this structure, short- and long-term objectives for the work in SP9 are derived. During the lifetime of the project, the short-term objectives are to be achieved. These include recommendations for more societal-friendly crisis management solutions, via the development of a Societal Impact Assessment framework, tailored for the crisis management context. Furthermore, e.g. by making this framework sustainable for use beyond DRIVER, a short-term goal is to contribute to a structured debate between the crisis management supply and demand side, acknowledging the significance societal impacts have, for both successful operational crisis management, and for the crisis management capability development process. The long-term objectives, which the short-term objectives will support, but that are not necessarily achievable within the scope of the project, include aspects such as the sustainable incorporation of societal aspects into the crisis management innovation eco-system (i.e. the capability development structures and related processes).

The Annex includes an overview of the relevant state of the art on the role of societal impact aspects in EU projects. This overview is meant to contextualise the DRIVER SIA approach. The analysis deals with capability development on the one hand, and operational crisis management on the other.

In terms of capability development, the following areas have been analysed:

- Societal aspects in crisis management and security solutions: stand-alone societal solutions (ethical decision making), and integration of societal and ethical aspects into crisis management solutions (society-friendly-by-design);
- Societal aspects for methodology and infrastructure: State of the art in societal indicator development;
- Societal research related to the user dimension: State of the art in fostering dialogue between demand and supply;

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- State of the art of involving ethical aspects into operational crisis management (national and international organisations).

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1 Introduction

DRIVER is about improving crisis management and crisis management innovation mechanisms. The project acutely recognises that the current capability development process, that is intended to provide solutions that help societies to prepare, respond and recover from crises, is no longer sufficient to meet the ever increasing and complex disasters that face societies today [5]. Part of this, also means recognising the increasingly complex relationship that is developing between society and activities carried out under the broad spectrum of security, which includes crisis management solutions for all phases of the crisis management lifecycle. Thus, as the solutions and responses to crises and disasters progress and evolve, so too must our ways of understanding and evaluating their impact on society. To ignore this impact is to invite two types of costs: either security is ensured at the expense of other societal goods (e.g. social cohesion or privacy), which may be detrimental to our society in the long run, or security solutions are just not accepted and are not accepted by society, which directly undermines their utility. One example of the latter is security technologies introduced to strengthen and ease airport security, but that has also entailed significant resistance from the users, with accusations of the technologies, such as the “body scanner”, being privacy-intruding [52].

Seen from the societal perspective, i.e. from the SP9 perspective, successful crisis management can be described as being dependent on four pillars:

- 1) The performance of the professional response forces including their ability to engage the civil population (DRIVER SP4, SP5);
- 2) The resilience of the civil population and its different groups (DRIVER SP3);
- 3) The level of trust and accountability that the civil population associates with their government and the professional response forces (DRIVER SP9), since it has a direct impact on how the two groups effectively work together;
- 4) The effect crisis management has on longer-term societal aspects, such as technology dependency and other potentials of creating new vulnerabilities, which – in the long run – have an impact on successful crisis management operations and the likelihood of the occurrence of crises [6].

All activities in SP9 (and after the restructuring processes: in WP840 and later, WP104), whether aimed at operational crisis management solutions or innovation mechanisms, are directed toward the third and the fourth pillar.

1.1 Purpose of the document

The present report is intended to document the work carried out in WP91, to describe the role and progress of SP9 in achieving the three main DRIVER objectives (see 1.1.1 for an explanation of how the tasks of the original SP9 has later been incorporated into other parts of the project). This is done by

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taking societal aspects into account, i.e. by describing the progress in developing a framework for including the societal dimension of the development of novel crisis management functions and capability development in crisis management research. It must be noted that the primary duty of WP91 was to coordinate the efforts within SP9. The description of Task T91.2 in the DoW reads: “Preparation and organisation of an SP9 internal workshop to develop a common understanding of the scope and Work Plan of SP9 (where possible back to back with other SPs). Incorporation of updates from other SPs into the SP9 content (MS1, MS2).” As such, the majority of the reported work effort was directed towards these activities, although some effort was reported to the concrete production of this deliverable.

In order to do this, the report will conceptually align the different strands of activities conducted in SP9 so far (and which has since the last submission of this report, been transferred to other parts on the project), to the updated DRIVER concept [7], and describe the necessary adaptations of the work done in order to reflect the overall concepts and objectives. Further, the short- and long-term objectives of the work done in SP9 are described in more detail. Additionally, the deliverable also contains an overview of the current work on incorporating societal impact assessment as well as ethical considerations into projects at an EU level. These projects work primarily on security, business research as well as operational crisis management. This overview is supposed to assist WP92 and WP93 (later merged into WP840, but the main goal remained the same), which specifically deal with the mitigation of negative societal impact and with the implementation of societal values into crisis management, respectively.

To this end, the document is structured as follows:

- Alignment of SP9 activities to the updated DRIVER concept [7]
- Objectives of SP9 and of the work in the next project-phase;

All sections will contain contributions to the three DRIVER dimensions:

- The DRIVER Solutions dimension
- The DRIVER Methodology & infrastructure (Test-bed) dimension and,
- The DRIVER User dimension.

Although SP9 has two main responsibilities: research ethics and societal impact aspects, this report will only marginally deal with research ethics (cf. WP95 deliverables, [8]) and with the “monitoring function” of SP9 (overseeing compliance with GA Special Clause 15), but rather put its focus on the societal dimension of the crisis management innovation process and, consequently, to operational crisis management. However, research ethics as well as complying with EU data protection and research legislation, of course, can be regarded as being an integral part of the methodology & infrastructure dimension, and both theoretical and practical aspects of research ethics (as well as procedures and guidelines for DRIVER) is discussed and addressed in e.g. D91.3 “Ethical procedures, risks and safeguards”, and in deliverables from WP95.

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1.1.1 Implications of the 2016/ 2017 DRIVER restructuring processes, on WP91

The restructuring of DRIVER following the Year 1 review resulted in the dissolving of SP9 as a stand-alone subproject. However, the two key roles of the subproject were restructured and transferred to other subprojects in the new project structure. All tasks relating to research ethics (from WP91 and WP95), were gathered in the new WP130, with the result that the management of the work on procedural ethics, as well as the responsibilities relating to these procedures, became clearer and more manageable. In addition, the new WP130 include the task on IPR, as well as the task on legal issues. This centralization and integration of all tasks relating to scientific support, in particular strengthens the role of research ethics, by making it an integrated part of the management process instead of a procedure applied by an "external" subproject. The process also allowed for the process to be carried out with a clearer backing of the Project Coordinator in SP1, facilitating a more coherent and strengthened take on this important aspect of project management. Consequently, with regards to WP91, given its task of coordination of activities within SP9, the work package was dissolved and its future deliverables – Roadmapping Report D91.22 and D91.23 – deleted. The remaining efforts were largely transferred to SP8, which is where the other half of the original SP9 responsibilities were transferred. In the new SP8 “Assessment & Innovation”, the work on societal impact aspects were gathered. Concretely, the effort and approach to include societal impact aspects in DRIVER, as discussed in this Roadmapping report, was carried out via a three-step approach. This three-step approach is called the Societal Impact Assessment (SIA) Component, and each of the three steps adhere to three tasks in work package 840 in the current DoW. In simple terms, this means that the societal impact- parts of the original SP9 (later WP840) has been implemented in DRIVER via the following three steps:

1. The development of a Societal Impact Assessment Framework (T840.1)
 - a. The framework (D840.11 *Societal Impact Assessment Framework- version 1*) has been developed and conceptualized, to assess the different functions (not only technical functionalities) which the crisis management solutions in DRIVER have. The assessments are facilitated by linking a taxonomy of *functions*, to a set of societal impact assessment *criteria*, selected and defined to cover a broad range of impacts (both positive and negative) that these functions may have on the general society.
2. Societal Impact Assessments, using the framework (T840.2)
 - a. By using the framework, functions are linked to criteria (as described above) and concrete written assessments of the different positive and negative impacts that the DRIVER solutions’ function may have on society, are provided (D840.21 *A guide on assessing unintended societal impacts of different CM functions- version 1*).
3. SIA Training modules and a training sessions (T840.3 & T840.4)
 - a. Based on the framework, and the assessments (as described above), SIA training modules are developed (D94.1 *Training and Educational Modules- version 1*), and training sessions are given to the consortium (the training sessions will start up in 2017, but one session were already held in 2016. A report will be submitted to document the experience). The aim of the trainings is 1) to present the framework and the assessments, and to train the consortium in how to conduct such

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assessments themselves, and 2) to gather feedback on all three steps of the SIA component, feedback which will be used to revise all three components.

The Societal Impact Assessment component will thus be revised and updated by the end of the project, capitalizing on the feedback from the training sessions and the integration of the framework in the project, and the final three parts of the component will be general enough to be available for use beyond the project (i.e. as a procedure/ methodology tailored to the crisis management context, for integrating qualitative assessments of societal impacts into the domain.

The remainder of this deliverable is thus a description of the general progress in the tasks (i.e. on research ethics, but mainly on societal impact aspects and challenges) that were part of the original SP9. The latter, the societal impact aspects, is described mainly via how SP9 task contribute to the different goals of DRIVER.

1.2 Activities on the Technical Progress in Relation to Societal Challenges in SP9

The scope and utility of the deliverable for the work of SP9 as a whole was developed in a workshop, early in the project. A two-day long workshop took place in Barcelona from 17th to 18th of June 2014 (see Annex II – Agenda of the initial DRIVER task T91.2 meeting). The participants from Fraunhofer INT, PRIO, and CIES dedicated the first day to discuss the potential societal implications of DRIVER solutions regarding the (i) insecurities, societal costs, positive impact, (ii) collection of issues and research needs, and (iii) first thoughts on the Joint Experiments. At the end of the first day, the training aspects for the DRIVER development team were discussed. During the second day, the identified tasks were distributed regarding the workshare and scheduling.

It was concluded that the current deliverable, and the subsequent work of Task T91.2, should focus on aligning the activities within SP9 with the overall DRIVER tasks, i.e. how to integrate the societal and ethical discussions within the experimental setups and their assessments.

The task of finding ways to systematically integrate SP9 in the rest of the project was challenging. The deliverable D91.21 thus presents a common understanding of the best way to achieve the uptake of the societal and ethical discussions at the time. Consecutive iterations were designed to track the progress of this synthesis, and to provide updates on how to go forward. It has to be mentioned that the starting point of this task was to reflect and consider the state of the art on relevant crisis management or security research/capability development. These results can be found in the Annex of this deliverable, and the main part of the remainder of the deliverable is dedicated to the decisions made towards the SP9 tasks to be addressed during the lifetime of the DRIVER project.

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1.3 Alignment of SP9 activities to the updated DRIVER concept

The DRIVER Milestone 1 Report [7] (D13.2, pp. 9) provides an update of the DRIVER overall concept as well as the design of the DRIVER subproject experiments (SE) 2. This section refers to the updated concept and aligns the SP9 activities according to the three DRIVER dimensions as listed above.

At this point, it is important to emphasize that DRIVER’s mission is two-fold

- 1) Improving operational crisis management by testing and assessing next generation crisis management solutions, and
- 2) Improving capability development and market-uptake of novel solutions by improving the crisis management innovation eco-system.

Consequently, activities in the solutions dimension support the first mission, activities in the Methodology & Infrastructure, and in the User dimension support the second mission. However, since an improved innovation eco-system is intended to lead to a continuous European test & assessment capacity, it ultimately also supports future operational crisis management.

1.3.1 SP9 contributions to the Solutions dimension [7]

D13.2 based its considerations for the update of the DRIVER concept – as already the original DRIVER concept did - on the European Security Research Advisory Board (ESRAB) report [9]. When talking about System-of-systems (SoS), the report refers to “building blocks” that can be technological systems, but also doctrines, training courses, and information programmes that contribute to the SoS on a modular basis [5]. The Solutions dimension in DRIVER is mainly represented by the “thematic SPs”, i.e. SP345, but also SP8 and SP9 contribute.

The relevant building blocks for the crisis management SoS from the SP9 perspective are those concerned with societal and ethical aspects¹. While ‘societal’ and ‘ethical’ are frequently used synonymously, they describe two different components in the analysis of technologies: an analysis of the societal implications of a technology will try to assess what sort of impacts the technology will have on society – the analysis is thus descriptive. An ethical analysis is the follow-up to a societal analysis as it takes the societal implications and then uses ethical theories (e.g. utilitarianism or deontology) to understand which of these effects are positive or negative – the analysis is normative. A final step then involves identifying how to promote positive and how to reduce negative effects. In general, any discussion of a societal impact assessment will also involve the ethical and the practical elements as well. It is generally not enough to simply show that there are societal effects, yet not discuss their value any further or what to do about them. In DRIVER, this has been tackled by the creation and use of the SIA framework (as described in 1.1.1), which both provides a way of doing societal impact assessments, but that has also already been tested, and a full set of example assessments given. In these assessments, qualitative descriptions of both the positive and negative

¹ Note that „ethical“ refers to moral principles that govern a person’s behaviour or the conducting of an activity (Oxford Dictionary); “societal” refers to something relating to society or social relations, for example to the interplay of solutions and society where ethical behaviour can play a major role.

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potential impacts and side-effects are described, and the assessment is followed by a concrete recommendation for how to avoid negative, and enforce positive impact of the concrete CM function. The first set of example assessments can be found in D840.21. For the present document, social and ethical aspects will involve all three components unless they are specifically discussed independently, e.g. when talking about ‘virtue ethics’.

However, from a societal impact perspective, the solutions dimensions must be addressed in two ways

- a) By adding SP9 specific building blocks like the SIA training described above, aimed at taking societal impact into account when choosing or working with different CM solutions, but also the SIA methodology itself, into the DRIVER Portfolio of Solutions (PoS);
- b) By ensuring that the solutions included in DRIVER take into account, or, (more rarely) integrate societal aspects (society-friendly-by-design DRIVER solutions).

The first phase of the project already progressed on the latter, the society-friendly-by-design solutions, by starting the development of the very first version of the SIA framework. As described, this includes a criteria system for assessing societal impact, that is used to provide assessments, operational examples and associated specific recommendations aiming to improve the different DRIVER solutions at a societal level [11]. The first version of the complete framework has been completed (D840.11).

In this regard, for WP92 and WP93 (later WP840), the **overarching vision is to add societal considerations to the DRIVER Portfolio of Solutions**. Thereby, avoiding potential negative societal impacts of the DRIVER solutions will be the focus of WP92; WP93 seeks to leverage potential positive societal impact that DRIVER Solutions might carry. A criteria system/ framework has been developed that answers to both kinds of potential impacts, positive and negative, and this takes place in WP840.

Both activities are based on the development of a set of criteria, and are directly linked to the Methodology & infrastructure dimension and were originally envisaged to be included into the work of DRIVER WP23 (cf. below). As per January 2017, alternate ways of integrating the framework into the project methodology are under discussion.

Stand-alone SP9 societal solutions have so far not been developed. Potential lines of action here could be integration of ethics training into high level decisions making to be developed by the original SP5 (cf. also section 2) on mid- and long-term objectives and respective activities). The target group for the latter consequently, would be crisis management or political decision makers. However, since this aspect has not been planned to be covered by SP9 so far, activities in this regard can only be limited and mainly based on cooperation with other DRIVER SPs, where the SP9-view then must be incorporated to some extent (cf. below).

1.3.2 SP9 contributions to the Methodological and infrastructure (Test-bed) dimension [7]

The Milestone 1 Report states that *“DRIVER develops the ESRAB DP concept by performing experimentation campaigns that allow the risk-taking necessary to create genuinely new knowledge*

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at system-of-system level [...]”[7]. The Methodology & Infrastructure dimension in DRIVER is mainly represented by what was the original SP2, i.e. the DRIVER Test-bed. From the SP9 perspective, this dimension translates into the development of methods and criteria that help to understand the societal dimension of crisis management at SoS level (i.e. the interplay between the DRIVER Solutions and society) and create awareness among crisis management professionals. The ultimate goal is to make societal aspects an integral part of the crisis management capability development process. By developing a first set of criteria to assess the potential unintended negative, but also positive effects of DRIVER Solutions (and crisis management activities in general) on society, WP92 and WP93 already started to work on this dimension [11] in the early stages of the project. During the next phases of the project however, work was done to refine the criteria and the assessment framework, and to deliver the full SIA component in a first version. Later, the component will be further developed and prepared for eventual integration into the DRIVER methodology, Test-bed, and the experiments (cf. also section 2) on mid- and long-term objectives and respective activities). However, in order to do this, a certain degree of generalisation will be necessary, as SP9 cannot assess every solution and function in DRIVER. This has been tackled so far, by creating a three-level taxonomy of CM functions, that covers a broad range of functions that the different solutions in DRIVER have, and that was discussed with all the different subproject leaders via workshops in the summer of 2015 (for details, see D840.11). The target group for this activity are organisations that can hopefully support the dialogue between supply and demand side by integrating societal aspects, i.e. societal security experts (or societal crisis management experts, for that matter). It is expected that a better understanding of societal aspects in operational crisis management (i.e. the effect crisis management has on societies it seeks to assist) leads to end-users progressively more demanding the acknowledgement of societal and ethical aspects for crisis management solutions and doctrine. Contact with WP23 has already been established, but potential for more specific cooperation will be investigated in the next phase of the project.

Theoretically, compliance with research ethics and Grant Agreement Special Clause 15 also belong to the DRIVER Methodology & infrastructure dimension. However, this area is covered by WP95 (later WP130) and will not be addressed in the present document.

1.3.3 SP contributions to the DRIVER User dimension [7]

According to D13.2 *“DRIVER’s goal is (i) to develop sustainable structures to inform, enable and engage regional first responder networks, (ii) to better connect existing networks at different levels, and (iii) to foster a better understanding of requirements formulation and research and procurement activities needed to transfer these requirements into actual crisis management capabilities across all stakeholders.”* The User dimension is represented by DRIVER SP7, but will require activities from all parts of the project. From an SP9 perspective it translates into the long-term goal of enabling a structured dialogue between demand and supply side that involves taking account of ethical/societal aspects during product development. More concretely, it means to support the end-user in formulating societally friendly requirements and support developers in matching these requirements. This is obviously nothing that can be fully achieved within the lifetime of DRIVER; SP9 can only lay some sort of foundation for these developments. In the work of SP9 this aspect is already covered by

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WP94 and later WP840 (by starting to circulate respective knowledge on societal issues, via the SIA trainings, among DRIVER partners). Target groups for this work strand are researchers & developers and end- users, respectively. The outcome could not only be DRIVER partners being better informed and enabled, but also a methodology (by using the SIA framework) for future application in crisis management innovation debates and research projects.

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2 SP9 objectives and coordination with SP3456

2.1 Long-term objectives for societal and ethical aspects in operational crisis management and related innovation processes

As indicated above, the long-term objective for SP9 (and later, WP840) is the acknowledgement of negative and positive societal impact of crisis management operations on society. One of the purposes for this is to achieve and maintain trust between governments/professional crisis management and the civil society, and to avoid the creation of unwanted secondary effects such as new vulnerabilities [11]. This objective is based on the notion that security measures of any kind can have negative and positive, intended and unintended consequences on society, its values and the well-being of its members. Hence, the security actors should take societal impacts into account in order to not create more damage than good, and potentially to create maximal positive impact of the security measures.

For the DRIVER **Solutions dimension** this means

- a) uptake of solutions that directly tackle these questions (e.g. ethical decision making in disaster situations, societal elements of crisis management SOP/doctrine² etc.) into operational crisis management, and/or
- b) the integration of societal aspects as far as possible into crisis management solutions of any kind (e.g. configurable sensors for face recognition that can be switched on and off, depending on the operational need or crisis management solutions accounting for diversity in the crisis population).

In order to arrive at this point it is necessary to create understanding among end-users about the potential effects that crisis management operations might bear. Only, if end-users understood that the usage of solutions that e.g. bear the risk of losing the populations trust through disproportionate privacy infringements might have a negative impact on the overall success of an operation, demand for these kinds of solutions will arise. This is why implementing societal aspects also into the other two dimensions is critical (cf. below). The SIA trainings in the new WP840 is thus aimed at raising this awareness, as well as providing a concrete method for end-users (and others working with CM solutions) for doing Societal Impact Assessments for the CM context.

The DRIVER **Methodology & infrastructure dimension** (SP2) aims at assessing novel crisis management solutions with regard to their potential contribution in delivering a certain crisis management function (e.g. better engagement of the public, harmonised operational picture) and assessing their technological maturity. The potential contribution of a function is its overall added

² This would mean the inclusion of societal aspects in the crisis management policy and thus, into the way of conducting operations. Cf. also section 3.2 on the State of the Art of involving ethical and societal aspects into operational crisis management.

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value on the success of the crisis management operation. Success in this regard is far from easy to define or measure and can only be determined in a multi-criteria-decision analysis with criteria often being conflicting. An example might be again airborne face recognition during an ongoing operation: From a law enforcement and forensics perspective it can be very useful to be able to tell who was present at a given site. However, civil society might look at it from a wider angle and argue that the gain in effective forensics does not outweigh the infringement of privacy, which is in turn the loss of trust of the population in the response forces that recorded personal data without consent.

Consequently, the long-term perspective of the work in SP9 is a better understanding and the integration of societal aspects into the assessment of the overall added value of crisis management solutions, i.e. into crisis management capability development. Societal criteria for the effect of crisis management on society and its values should be taken into account by end-users as well as research industry as much as any technical key performance indicator.

For SP9 to achieve its goals in both dimensions described above, it is necessary to make the end-user acknowledge the importance of societal aspects in crisis management operations. Additionally, they should not only understand, but be able to engage in a structured debate with research and industry and formulate their demand in this regard. The vision for SP9 is – during the lifetime of the project – creating the basis for this, i.e. for the uptake of societal aspects into the DRIVER **User dimension** and thus, into the structured debate between supply and demand side and into the formulation of operational requirements.

In terms of cooperation with other fields of expertise (the real world equivalent of cooperation with the original SP3456 in DRIVER) this of course means that training and awareness rising of end-users is a priority, but also research and industry representatives should be enabled to engage in a dialogue. However, in the long-run, these ambitious long-term goals will also require sociological scholars that specialise in the field of crisis management (or even security) innovation management (applied ethics) and that are better able to mediate a respective debate between demand and supply side.

2.2 SP9 tasks to be addressed during the lifetime of the project and consequences for the next phase

2.2.1 Solutions dimension

With regards to the development of societal building blocks for operational crisis management (stand-alone SP9 solutions; cf. above; e.g. training for operational ethical decision making, inclusion of societal aspects into crisis management doctrine etc.), it must be stated that such an activity has not been foreseen when planning the project. However, during the first phase of DRIVER it became (not least through DRIVER-internal debates of the matter) obvious that most societal aspects and the moral justification of acknowledging them are highly context dependent. E.g. data collection without consent of the population cannot be regarded as ethically right or wrong on a general basis, instead it must be seen against the background of the severity of a crisis or disaster. While mass storage of data seems to be questionable when it is done to avoid terrorist attacks, it can be acceptable after a

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major earthquake in order to be able to manage refugees and the provision of medical help and shelter to victims. The decision on whether or not something is acceptable will always have to be made on a case by case basis and depending on the individual crisis situation. This means that the responsibility for the acknowledgement of societal aspects will always lie with the operational decision makers that consequently, have to be trained and guided in this regard. Another important aspect here, however, is that crisis management operations – mostly being seen as benevolent governmental activities – can serve as a negative standard for the lack of acknowledgement of fundamental rights, like e.g. data protection. Once it has been accepted as a legitimate measure in a crisis management context, it can be easily transferred to an illegitimate context, like law enforcement practices (e.g. predictive policing).

On the basis of this consideration, SP9 partners are currently discussing possibilities to include these aspects into e.g. SP5 (WP52, *Competence framework for crisis management*; WP54, *High level decision making*). Also, the development of recommendations for crisis management doctrine is considered. Since effort for these activities has not been foreseen, cooperation activities can only be limited. However, options for cooperating closer with SP5 will be explored during the next phase of the work in SP9, including potential responsibilities within SP9³. An option for cooperation with SP5 could be facilitated via the planned training sessions in WP94. Recommendations for SOP/doctrine development – i.e. on the way operational crisis management should include societal aspects - are expected to more or less naturally develop from the work in WP92 and WP93 (later: WP840).

As discussed, most societal aspects are highly context dependent. Not only the type of crisis, but also the local societal conditions are of importance when an assessment is to be made. This is exactly the reason why integrating societal aspects into SP3456 solutions (society-friendly-by-design SP3456 solutions, cf. above) and being able to improve the societal footprint of SP3456 solutions will be a major challenge for SP9, specifically for the work in WP92 and WP93 (later in WP840). The next step, at the time of writing this report, will be to refine and further develop the assessment framework and the criteria system, in order to make the approach more operational and more suited to the concrete development and activity in DRIVER and the DRIVER experiments. In this work, a necessary precondition is a certain degree of generalization through the grouping or categorization of the subject of assessment (e.g. the typology of the DRIVER functions [7]), as individual assessments of every solution apparent in the project is impossible. Starting already in WP92 and WP92 of the original DoW, this exercise was started, and the result submitted as D92.11 and D92.21. The resubmissions of those deliverables were revised, restructured, and updated, and was integrated into the new deliverable D840.11, which contains the current (as of January 2017) version of the framework and implied taxonomy/ categorisation of solutions and their functions.

For SP9, the ultimate goal of this activity – as for all activities in the Solutions dimension - is to improve the overall performance of the different DRIVER solutions, with regards to the impact they have on society. Furthermore, this means improving the societal footprint of a given solution, so that it does not do unintended harm or fails to leverage positive effects. The societal footprint and its relation to other, technical performance indicators of a given solution are highly context dependent.

³ In the restructured DRIVER, WP840 did include a separate assessment category tailored to the solutions in SP5.

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As described above, it is not practical or possible in the context of DRIVER to assess the different solutions against any possible societal background in Europe. Rather, as described above, WP92 and WP93 already provided a first list of societal impact criteria and assessments that was foreseen integrated in the DRIVER Portfolio of Solutions (PoS). This was originally foreseen happening through a sort of “tagging system”, where the different societal effects are flagged and matched with the abovementioned revised groupings of DRIVER solutions. In the revised deliverables, mentioned above, from the new WP840, this was carried out, and the framework (D840.11, linking CM functions to societal impact criteria) was put to use and assessments of the positive and negative impacts of the different functions were given (in D840.21). In this way, the original purpose of WP92 and WP93 is still valid, since the SIA approach facilitates that the end-user interested in using or further developing or using a given solution will be made aware of its potential positive/negative impacts and therefore enabled to make an informed decision, taking the operational background into account. A version of such a “tagging- system” was – according to the original understanding of the realistic and potential final output of SP9 and the technical structure of the DRIVER PoS - be the SP9 contribution to the PoS. It is foreseen that for the “tagging” it will be important that they enable the end-user (supported by societal experts) to make an assessment of the overall added value of a given solution and its societal performance and to come to an as good as possible society-friendly decision. At the same time, it will be avoided that SP9 criteria trigger any form of over interpretation or false trust into societal criteria that neglects the systemic complexity of the matter.

It is (still) very likely that most of these assessments will eventually lead to recommendations for inclusion of societal aspects into SOP or doctrine, into required competencies and in appropriately training people and operational or political decision makers, since almost the entire assessment will be based on context. In rarer cases, it might be possible to give concrete proposal for action to improve the societal footprint (e.g. configurable technology or alternative solutions that exhibit a better societal footprint).

Another contribution from SP9 should be recommendations for further questions to be tackled when a Solution is further researched and developed. This has, since the previous submission of this report, been provided as part of the full set of assessments delivered in D840.21.

It is important to also underline that one of the most important contributions that SP9 will be delivering will be enhanced contextual knowledge about societal aspects in crisis management.

For the next phase of the work in SP9, the following work on the solutions side is envisaged:

- Update and revise the assessment framework through interaction with the different SP’s and through parts of the DRIVER SE2 Experimentation activity (later: the DRIVER experiments);
- Revise and refine the list(s) of criteria for societal impact through interaction with SP’s and through parts of the DRIVER SE2 Experimentation activity (later: the DRIVER experiments).

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2.2.2 Methodology & Infrastructure dimension

Moral principles are mostly “too general in character to deduce right courses of action in a particular real life situation. Knowing what is ‘right’ and ‘wrong’ at a general level is not what is useful in solving concrete ethical dilemmas.”[12] Among other issues with moral decision making, real-life moral problems are, in contrast to technical problems, often related to strong emotions leading to difficulties in Multi-Criteria-Decision-Analyses. So, it cannot be treated as other decisions for functions and solutions assessment, as dealt with in the DRIVER SP2 context. The context-dependency has already been mentioned: for example, data protection becomes less important the more lives are at stake.

Consequently, societal criteria for the assessment of crisis management solutions have to be of a different nature than performance criteria as developed by SP2. However, the challenge is to nevertheless make them usable and applicable - if possible *pari passu*.

The basis for the SP9 contribution to the Methodology & infrastructure dimension is the societal criteria as described in section 2.2 of D92.21 (and later, these are updated and refined in D840.11). On the one hand and specifically applied to the DRIVER SP3456 solutions, they will be part of the PoS; on the other hand and in a more generic form, they will be part of the Test-bed methodology.

The next phase of the project will rather be characterised by working on the contributions to the Solutions dimension. Towards the end of the project (originally D92.23 and D93.22, both due in M47, later the second and final versions of the Societal Impact Assessment Framework and the Societal Impacts Assessments, both delivered as part of SP1), SP9 will have developed a better understanding of generic criteria and the extent to which they can be applied to crisis management capability development.

2.2.3 User dimension

The ultimate goal of the SP9 contribution to the DRIVER User dimension is enabling better crisis management through the acknowledgement of societal aspects in enforcing and improving relationship between authorities and civil population and through avoiding the creation of new vulnerabilities. This is also to be achieved by improving the capability building process through inclusion of societal aspects into the capability requirements articulation. A basis for this is (i) awareness rising among the user- and supplier side, (ii) enablement of supply and demand side to enter a structured debate on innovation, and (iii) experts in applying societal aspects to real-life crisis management that can moderate this debate and translate between the two actors.

For the work in SP9 this potentially implies the following lines of action:

Awareness rising among end-user and supplier side: This work has been started by developing proto-criteria in WP92 and WP93 (which were later refined in D840.11) and by the initial development of training modules for DRIVER partners in WP94 (which were later refined in the resubmitted D94.1). In order to effectively connect this activity with the debate on innovation that the DRIVER User dimension on the whole wants to achieve, the application of the modules should be brought into an innovation context and not be applied isolated from this. As of January 2017, five

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training modules have been developed, tailored to the various solutions relevant for the different subprojects of DRIVER. Also, more generic modules have been developed, which introduces the SIA approach as such, and provides an understanding of the importance of taking societal impact into account. The generic modules are relevant for any CM organization, and not tailored to concrete solutions. All the modules were (re)submitted as D94.1.

One option to take the innovation aspect into account during the lifetime of the project is to make the trainings an integral part of DRIVER events and events organized by DRIVER platforms on innovation (local innovation communities)[16]. In this way, societal aspects are being set into the right context and made graspable, but also an audience beyond the consortium can be reached. Such activities would be a contribution to **enabling supply and demand side to enter a structured debate on innovation**, and to hopefully create interest and demand for this also after the project has ended.

Participation in these events will require to (i) develop a methodology to help supply and demand side to carry out a structured debate, and (ii) societal experts to specialize in crisis management innovation. Both aspects will help to continue these activities in post-project sustainability. In addition, it will give SP9 valuable feedback and input during the project, with regards to the revision of the framework and our methodology.

For the next phase the achievement of these objectives through the work in WP94 (later WP840) could require:

- Improving and finalizing the training modules;
- identification of suitable events to apply the modules in a crisis management innovation context;
- development of a suitable methodology to engage with users and suppliers at these events;
- by reporting on the success of these interventions, increasing the knowledge base about societal aspects in operational crisis management and their role in capability development.

The latter two points, however, have not been foreseen to be required when the project was planned. However, it should be explored, if synergies can be found with SP7.

Another option could be a closer cooperation with the SOURCE Centre of Excellence. The CoE's work is centred on better communication and understanding of different stakeholder groups when it comes to the development and implementation of security measures of any kind. Possibilities in this regard will be explored during the next phase of the project.

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3 Conclusion

This deliverable identifies both long-term objectives that go beyond the immediate scope of DRIVER, as well as relevant short-term objectives within the DRIVER project duration. Long-term objectives include raising awareness among end-users about the risks of failing to take into account public acceptance of solutions, which may then negatively impact the effectiveness of these solutions. While DRIVER may contribute towards this goal, the task goes beyond the DRIVER timeframe and scope. The identified short-term objectives were structured along the Solutions dimension, the Methodology and infrastructure dimension, as well as the User dimension. Immediate efforts entail the development of a methodology- a Societal Impact Assessment Component and approach - that must be used to incorporate societal impact assessments within the suitable DRIVER subprojects, as well as to provide training on societal impact assessments to project partners. The information contained within this deliverable will be used to inform other work packages within SP9 and to align their work with the overall perspective of including societal impact assessments within the entire DRIVER project.

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⁴ Please note that the reference section refers also to the Annex I - Relevant state of the art

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Annex I - Relevant state of the art

The relevant state of the art for DRIVER SP9 can as well be structured along the DRIVER mission and the three DRIVER dimensions.

The DRIVER mission is

- to improve operational crisis management by testing and assessing next generation solutions, and
- to improve the operational uptake of novel crisis management solution, i.e. the crisis management innovation eco-system for capability development.

The three dimensions are (i) Solutions, (ii) Methodology & Infrastructure, and (iii) Users.

In order to describe the state of the art as regards societal aspects in capability development, we describe the application of societal aspects in today's crisis management capability development (i.e. security/crisis management research activities).

In order to describe the state of the art as regards societal aspects in operational crisis management, we have a look at the application of ethical and societal principles in today's crisis management. This analysis will specifically focus on EU funded projects. Relevant projects were identified using the EU Community Research and Development Information Service (CORDIS) web portal. A workshop with all members of the work package was held to discuss the inclusion of other projects. After this initial identification, projects were assigned to partners to review. While the scope is therefore limited, e.g. it does not engage with all of the academic literature on societal impact assessment, it is useful as these projects will have to have shown how to operationalize any impact assessment and subsequent feedback. This deliverable will also not attempt to synthesise best practices from these projects. Its purpose is to provide a basis for the analysis and development of tools in WP92 and 93.

Consequently, the present chapter deals (i) with ongoing research/capability development activities

- Societal research relating to the DRIVER Solutions dimension (stand-alone societal research including business research and society-friendly-by-design research);
- Societal research relating to the DRIVER Methodology & infrastructure dimension (security and socio-economic sciences and humanities research); and
- Societal research on the DRIVER User dimension.

Further (ii) it addresses the State of the Art in incorporating ethical and societal aspects into operational crisis management.

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3.1 Relevant crisis management or security research/capability development

This section deals with relevant research on (i) solution development, (ii) indicator development, and (iii) involvement of end-users into societal aspects of capability building.

The analysis focuses on crisis management research. However, if no relevant crisis management could be found, related fields of research (e.g. other security application areas or business research) have been analysed, when relevant aspects could be identified.

3.1.1 Societal research relating to the DRIVER Solutions dimension

This section deals with the state of the art in

- a) research on societal or ethical solutions for crisis management, i.e. stand-alone SP9 solutions, and
- b) improving all kinds of other crisis management solution by integrating societal aspects into their design or operational application (society-friendly by design crisis management solutions).

3.1.1.1 Stand-alone societal solutions for crisis management: ethical decision making

When it comes to stand-alone societal solutions that acknowledge the context dependency of ethical and societal aspects in crisis management, it is mostly about ethical operational decision making (under circumstances when Standard Operational Procedures (SOP) do not apply) and about inclusion of societal aspects into doctrine (under circumstances when SOP do apply). The latter is rather an operational than a research topic and therefore dealt with in section 3.2.

An important example for research on ethical decision making and for a discussion on different philosophical approaches is the FP7 BRIDGE (Bridging resources and agencies in large-scale emergency management) project [14] and its work on ethical, legal and social issues of multi-agency emergency collaboration [15]. Besides dealing with societal consequences of next generation crisis management solutions (mostly ICT-based, see 3.1.1.2), it discusses “virtue ethics”, i.e. the ability of actors to maintain a moral rule even in extreme [16]. Also, it discusses the different philosophical schools used to approach moral acting in disaster situations. It is argued that besides preparedness for hazards other virtues of decision makers are also relevant: e.g. courage, impartiality, creativity and loyalty. It is argued that virtue ethics – in contrast to consequentialism or deontology - is the most practical or pragmatic approach [17].

The following table 1 – describing relevant virtues for moral acting in crisis situations - is taken from the BRIDGE project¹⁹ [15]:

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Ethical Principle	Components of Service	Virtues needed most
Humanity	<ul style="list-style-type: none"> • Prevent and alleviate suffering • Respect for and active protection of dignity • Particular attention to the vulnerable • Safeguard and restore environment and social ties 	Compassion, charity, hope, empathy, resilience respect, effective communication
Impartiality	<ul style="list-style-type: none"> • Non-discriminating • Based on need • With neutrality, that is, without ideological debate 	Non-judgement, tolerance, justice
Solidarity	<ul style="list-style-type: none"> • Responsibilities and benefits shared equitably • Regardless of political, cultural, economic differences • Respect for sovereignty 	Integrity, trustworthiness, respect
Cooperation	<ul style="list-style-type: none"> • Integration – e.g. with information sharing agreements • Inform & enable participation from all relevant parties • Direction – clarity of purpose • Subsidiarity 	Prudence, improvisation, effective communication, respect, intersubjectivity, resilience
Information Sharing	<ul style="list-style-type: none"> • Appropriate accuracy, precision, depth of detail • Consider effects of not sharing • Collect, process and share lawfully • Data minimization and sharing of aggregated data • Accountability & transparency • Evaluate effects on data subjects and informants • Avoid duplication 	Prudence, integrity, trustworthiness, respect, empathy, effective communication
Human Rights	<ul style="list-style-type: none"> • Rights to privacy, freedom of movement, association, • expression is actively protected • Compulsory evacuation is explained 	Prudence, respect, empathy, non-judgement, justice
Preparedness	<ul style="list-style-type: none"> • Reduce vulnerabilities • Anticipation – e.g. through risk analysis & training • Continuity – grounded in familiar ways 	Attitude of wisdom, prudence, respect, diligence, effective communication

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Ethical Principle	Components of Service	Virtues needed most
	of working <ul style="list-style-type: none"> • Prepare for interoperability 	
Social contract	<ul style="list-style-type: none"> • Accountability to those in need, funders and society • Training and support for emergency responders 	Prudence, respect, effective communication

Table 1: Ethical Principles and Virtues (BRIDGE project)

Another examples for crisis management research work on ethical decision making is the FP7 CATO (CBRN Crisis Management: Architecture, Technologies, and Operational Procedures) project. A paper originating from the work of this project deals with on the spot ethical decision making and discusses different moral philosophies that can be applied in extremely difficult situations (here with an emphasis on consequentialism), e.g. as in a Weapons of Mass Destruction scenario and proposes potential ways out of moral dilemmas [18].

However, other research based on “Kohlberg's cognitive moral development theory” [19] shows that a lot more can be done to understand ethical decision making in the field [20]. For example, a study undertaken sought to explore the moral decision-making process of emergency planners in the US could show that “in males’ higher education is positively associated with higher levels of cognitive moral development”. Females, however, showed higher scores than males, independent of education [21].

Un-ethical behaviour in the corporate world often is the origin of a corporate public relation crisis (e.g. working conditions in the garment industry accepted by many clothing companies) or tends to further trigger ongoing crises of other nature (e.g. lack of empathy by the CEO during the BP Deep Water Horizon crisis. Quote of the BP CEO during the crisis that was interpreted as a severe lack of empathy towards the affected population: “I want my life back” [22]). Public perception of the ethical standards of most companies, for obvious reasons, directly relates to economic success and survival. These might be the reasons why ethical decision making has a much longer academic tradition in corporate crises than in societal (DRIVER-like) crisis management. The same way unethical behaviour in companies often eventually leads to a crisis, unethical behaviour by authorities leads to societal vulnerabilities that responsible government should seek to avoid. This is why much of the work done in the corporate area is – by market pressure – quite well developed and can be adapted to societal crisis management.

For example, the Ethics Resource Centre (ERC) is America’s oldest non-profit organization devoted to independent research and the advancement of high ethical standards and practices in public and private institutions. The ERC’s Corporate Guide [23] in times of crisis discusses the impact of ethical behaviour on the survivability of companies. In order to give guidance for companies in the preparation of an ethical response to a crisis, it asks a set of questions:

1. **“The crisis team: Is there somebody in the room who will uphold company values?**
Crisis situations add a level of stress and public pressure that is often unmatched by other challenges. Team members also must be prepared to apply the company’s core

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value and act as ethicists in a pressure cooker environment. Ethics and values may fall to the wayside unless members of the crisis team have the mind-set, personal character and training to bring ethics into the discussion (for a discussion on the leadership skills required to handle a crisis situation cf. below).

2. **Do we have the right values to guide us in crisis?** When responding to a crisis, companies will face many difficult decision points. Guided by an honest set of values that are consistent with an organization’s culture, leaders will be better able to respond with the decisiveness and speed that crisis requires.
3. **What values will our stakeholders expect us to honour in a crisis?** A company in crisis will want to live up to its stakeholders’ expectations and honour their interests. These groups have tied their own future to the company; they have a “stake” and the way the crisis plays out has implications for them. Many also have their own views about the standards that should be central to a company’s response. Recognizing that stakeholders may have competing interests and conflicting views about the values that should guide company decisions, boards and senior executives can set the stage for crisis management by considering stakeholder expectations.
4. **How will our people and culture react to crisis?** In a crisis, confident employees can be a company’s best advocates; dissatisfied or distrustful employees, however, can be the worst enemy. The growing power of social media, which provides a platform for employees to share their perspective with a wide audience, greatly amplifies employees’ impact, and creates both opportunity and risk. In preparing for crisis, therefore, boards and senior executives should ask how the company’s people will respond.
5. **How will we know when we’ve recovered from crisis?** Recovering from crisis is a lengthy process, and there is a good chance that the bottom line will be strong before a company’s reputation returns to full health. Determining when reputational recovery is complete is as much an art as science, but there are some important signs. From an ethics perspective, these can include:
 - Employee trust in leadership;
 - Strong ethical culture;
 - Supplier & vendor confidence in the company’s integrity;
 - Consumer trust in company brand;
 - Respect from industry peers for the crisis response.
6. **Have we established trust with external audiences?** While a company cannot expect third parties to act as apologists, building a reputation for ethical performance may earn an organization the benefit of the doubt. An organization with a reservoir of good will is likely to be accorded a bit more time to correct the problem in a crisis. When a company lacks that foundation, key audiences are more likely to view it with scepticism and even assume it has acted improperly.”

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Accordingly, the recommended action steps for companies to prepare for a crisis are given (for details please refer to the ERC guide [23]):

- Review corporate values;
- Conduct periodic ethics training for employees identified to serve on a crisis team;
- Conduct a comprehensive stakeholder review;
- Review crisis communications plans and outline ethics-related messages;
- Conduct a culture assessment;
- Make systematic “deposits in the credibility bank”;
- Plan to be a thought leader if crisis occurs;
- Have additional resources “on the ready.”

Corporate leaders’ improvisation skills for ethical decision making are discussed e.g. by Chris MacDonald - Director of the Jim Pattison Ethical Leadership Education & Research Program, University of Toronto (Business Ethics) [24]. According to him, ethical response to a crisis must (as for improvised “jamming” among musicians)

- 1) **be creative:** no pre-established script; requires an ability to adapt to the situation, and to exercise some moral imagination.
- 2) **grounded in structure:** for a musician, improvisation (typically) means deviating from the melody while continuing to follow an underlying structure. Similarly, an organization is going to want to draw upon the relevant ethical principles, as well as its own basic ethical structure, consisting of things like its Code of Ethics and its mission, vision, and values statements.
- 3) **require collaboration:** the best improvisation happens among musicians who have played together before and who trust each other. Likewise, response to ethical crisis is going to require close collaboration between senior leadership, technical experts, and perhaps its ethics-and-values staff.
- 4) **be grounded in knowledge:** in music, amateurs don’t really do well at improvising. The expert musician knows how to play the expected notes, knows how to stick to the melody, but chooses to deviate. The CEO responding to a crisis must likewise work from knowledge: knowledge of the nature of ethical obligation, knowledge of her company’s own values, and knowledge of the interests of various stakeholders.

From this follows that the ability to make ethical decisions can be improved by training, but also depends on the individual character or profile of a decision maker (e.g. for creativity). However, since high-level-decision makers are often selected on the basis of political considerations and not on the basis of their individual skills to manage a societal crisis, training becomes even more important.

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A whole body of literature about corporate ethical decision making is available elsewhere [25].

For the work in DRIVER SP9 the research described above should be taken into account. The natural place in the project is WP52 (Competence Framework) and WP55 (High-level decision making). For a potential cooperation between SP9 and SP5 on this matter see section 2.2.1.

3.1.1.2 Integrating societal aspects into all kinds of crisis management/security solutions (society-friendly-by-design)

The current state of the art in integrating societal aspects into all kinds of crisis management/security solutions is in principle represented by any FP7 or H2020 security research project that has included this topic into its work approach. However, one can distinguish between three maturity levels of EU security research in this regard

1. Projects that do not deal with the societal aspects of their application area at all;
2. 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;
3. Projects that try to follow a "society-friendly-by-design" approach and try to really integrate societal aspects into their solutions.

Still, many FP7 or H2020 security projects do not or do not appropriately deal with societal aspects of the solutions they are supposed to develop. However, quite a number of projects feature dedicated tasks or work packages on societal aspects. These are not described in detail in the present document. However, really integrating societal aspects by a society-friendly-by-design approach (a tendency also known as "privacy-by-design", although solely requesting privacy might be a bit too narrow) so far is only being attempted by some projects.

For example, the FP7 SLANDAIL (Empowering Emergency Response Systems Using Social Media) project assesses the ethical use of social media information in times of natural crisis and natural disasters to assure optimal information flow to the emergency services of the affected areas. It recommends to build a trust relationship with the public by following some basic principles while using social media for response purposes: Simplicity, Relevance, and Goal-focus [26].

The FP7 Sec-InCoRe (Secure Dynamic Cloud for Information, Communication and Resource Interoperability based on Pan-European Disaster Inventory) [27] project assumes that IT supported emergency response should carefully and responsibly balance security and privacy. In order to do this, it does not only look at ethical dilemmas (such as function creep, where data is collected and processed for one reason and later used for other purposes, or a soft erosion of civil liberties through increasing surveillance), but also at new ethical possibilities (such as more resilient societies through engaging the public more closely by IT-enabled understanding and response to crises).

Another example for "privacy-by-design" from a surveillance context is the Fraunhofer IOSB NEST (Network enabled surveillance and tracking) project [28]. NEST is a semi-autonomous surveillance system that triggers the alerting of security personnel and data recording only, if targets behave in an unexpected way. This way it ensures surveillance and some level of privacy at the same time.

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Again, the BRIDGE project (cf. above) provides a very valuable discussion also on this topic¹⁹. It states that ICT solutions “can augment responders’ capabilities to carry out risk analysis, communicate and coordinate, act accountably, and to gather and process information about an emergency, but they can also complicate risk analysis, reduce opportunities for face-to-face interaction, undermine existing practices of professional integrity and accountability, and contribute to information overload. A number of ethical issues arise from the amalgamation of ever more sophisticated ICT into people’s imaginaries, practices and policies.” It is also discussed that even very recent publications on ethics, law and policy in crisis management [29][30] hardly discuss this topic. It is, however, discussed in Jillson [31]. She discusses the positive effects of ICT solutions - such as the extension of surge capacity, maximised availability, more equitable distribution of services, and better risk communication – but also indicates that ICT can complicate the acknowledgement of ethical principles like those “of non-maleficence and beneficence, respect for human dignity, and distributive justice (equal access)”. A moral dilemma pertaining public health is given: Should personal health data be shared in the case of a major epidemic? If data is not shared between agencies, it promotes “silo thinking”; if it is shared it conflicts with confidentiality. This dilemma is a direct consequence of the ability to widely share data.

Based on table 1 (cf. section 3.1.1.1), the BRIDGE project derived ways in which ICT solutions can negatively or positively impact the realization of the virtues listed. “At every level both positive and negative effects can be produced, often simultaneously and in complex ways. For example, novel communications technologies can support highly productive new forms of communication and collaboration (e.g. through video-calls and screen-sharing between remote participants). At the same time, these same technologies can reduce the need for face-to-face human contact. Thus, the pros and cons we list are not inherent, fixed properties of technologies, but effects that arise in specific socio-political, economic and cultural environments and particular contexts of use.”

The “pros” and “cons” analysis of the use of ICT solutions in crisis management of the BRIDGE project is shown in table 2 and 3. Both tables deal with technologies from the BRIDGE project. However, almost all “pros” and “cons” apply as well to DRIVER solutions or can be adapted to those. For this reason, the table are shown in full detail.

Selected pros of IT use in emergencies	Ethical Principles	Technologies in Use [BRIDGE Technologies]	Augmentation opportunities
Technology does not tire and it is impartial.	Impartiality	Sensors and facial recognition technologies.	Support and augment human perception and reasoning.
Technology can go where people cannot go and detect things people cannot sense.	Preparedness	Heat cameras, robots, CCTV.	Support and augment human perception and reasoning.
Novel support to obtain, structure, analyse information from many sources,	Preparedness Cooperation	Expert systems, GIS.	Enable deeper and broader dynamic risk analysis in the preparation phase and during the response phase.

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Selected pros of IT use in emergencies	Ethical Principles	Technologies in Use [BRIDGE Technologies]	Augmentation opportunities
visualization.			
Capabilities to identify and locate people and resources more quickly and easily.	Humanity Cooperation	Social media, GPS, satellite imagery, EHR, social service records on vulnerable persons, RFID.	Enable faster and more targeted search and rescue and relief, provide opportunities for enhanced, dialogic engagement with affected populations and community resilience.
Advanced information management, visualization and sharing.	Preparedness Cooperation	Disaster Management Systems (e.g. Sahana), Ushahidi, 3D modelling, EU CPM Inventory databases, Tetra data.	Strengthen situation awareness communication, coordination and collaboration, awareness of available resources.
Collection, storage and maintenance of information about experts and authorities.	Preparedness Information Sharing	CECIS Pool of Experts Database.	Expanded capability to identify and communicate with trustworthy experts and relevant authorities.
Facilitate communication.	Cooperation	Tetra Radio, mobile/smart phones, social media, cloud storage, collaboration systems	Availability of secure, reliable and selective channels for verbal and non-verbal communication, e.g. with wearable location and sensor signals, video and audio.
Facilitate coordination.	Impartiality	EU CPM Inventories	Advanced capability to utilise a wider range of resources to maximum capacity.
Facilitate participation.	Information Sharing Cooperation	Social media, crisis mapping	Enhanced capability to identify trustworthy actors in the affected population and to engage with individuals and communities, possibility for novel partnerships.
Facilitate transparency and accountability.	Impartiality	Logging, search and visualization technologies	It can be easier to trace communications and identify discrimination

Table 2: The Ethical 'Impact' of Technological Affordances – "Pros" (BRIDGE project)

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Selected pros of IT use in emergencies	Ethical Principles	Technologies in Use [BRIDGE Technologies]	Resulting risks, challenges and problems
Technology Dependence	Preparedness Cooperation	Most technologies, but especially communication, visualization, sensor and alarm technologies.	If technologies fail, tasks can be difficult to accomplish because traditional practices and tools have been forgotten or neglected.
Labour Intensiveness	Preparedness Cooperation	...especially expert systems, GIS, databases.	Large amounts of manpower are needed to design and maintain technologies in good order.
Complexity	Preparedness Cooperation	... especially expert systems, workflows.	The operation of digital technologies is difficult to understand and new skills must be learnt continuously. Complexity also means more things can go wrong.
Increased Risk of a breach of Data Protection Regulations	Sharing Information	...especially communication technologies, databases (e.g. Policing/Health).	Complexity, increasing saturation of work practices with technology and the invisibility of data flows make it more likely that data is incorrectly handled.
Limit traditional human interaction	Cooperation Humanity	...especially communication Technologies, sensors, databases.	Computer mediated communication can undermine traditional practices of trust and shared understanding. It can be tempting for responders to hide behind their laptops. This can reduce humanity of response by reducing interaction with affected populations.
Increase digital divides	Humanity	...especially communication technologies, databases, GIS, data analytics tools.	IT innovation can engender exclusion and render silent individuals or communities with no access or skill to use technology and thereby increase their vulnerability and isolation.
Surveillance	Impartiality	...especially communication technologies, CCTV and video, sensors.	Making more information systems interoperable during a crisis increases the amount of data that can be known about

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Selected pros of IT use in emergencies	Ethical Principles	Technologies in Use [BRIDGE Technologies]	Resulting risks, challenges and problems
			individuals. This can produce detrimental effects, such as an erosion of privacy.
Social Sorting	Impartiality	...especially communication technologies, databases, GIS, data analytics tools.	Informationalising crisis management can engender discrimination on the basis of data about socio-economic factors, health, ethnicity or cultural criteria. This is often unintended and hard to trace to a specific decision, action or person. It can become structural, such as bias in security measures for the war on terror, or the focus of preventive measures on vulnerable populations.
Information overload	Social Contract	...especially communication technologies, expert systems, sensors.	The ability to gather more information means more information must be made sense of, this can be difficult, demand more manpower than is available and be time consuming. Too much information can cause stress.
Undermining professional integrity	Social Contract	...especially communication technologies, expert systems, sensors.	Who is responsible in a technologically augmented decision-making process? ICT can make it difficult for people to act creatively, freely and responsibly, and to employ prudent judgement (e.g. if they do not understand how machines make suggestions or workflows).
New negligence lawsuits	Social Contract	...especially communication technologies, CCTV, expert systems.	Logging of all communications makes it possible for inquiries to pinpoint wrong actions or decisions, inevitably with hindsight and without being able to consider the full context of those actions or decisions.
Bias and manipulation	Impartiality	...especially	Through social media

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Selected pros of IT use in emergencies	Ethical Principles	Technologies in Use [BRIDGE Technologies]	Resulting risks, challenges and problems
by novel partnerships and vocal social media issue publics.		communication technologies.	individuals and groups can undermine information superiority and information control in the operational process, promote vigilantism (Vancouver, Boston) and ideological campaigns.
Increased media influence and/or bias, promotion of disaster myths.	Cooperation Humanity	...especially communication technologies.	The media rely on technology, too (access, network, audio-visual). Their needs may influence emergency response in an era of increased public and political accountability (being seen giving water to smiling children is preferable to clearing mud).

Table 3: The Ethical 'Impact' of Technological Affordances – "Cons" (BRIDGE project)

For interpretation of both tables it is noted that things are simplified to some extent which could lead to innovation impasse. Rather than avoiding technologies, their introduction into operational crisis management requires training and guidance. Also, the technologies should not be analysed in an isolated manner, but always put into a context of application.

3.1.2 Societal research relating to the DRIVER Methodology & infrastructure dimension (societal indicators)

This section deals with research on indicators and criteria that help to assess the societal dimension of security including crisis management and that can be used as a basis for the DRIVER SP9 societal indicator framework. Examples for such projects in the **Security Research** so far were:

The FP7 Security Research PACT (Public perception of security and privacy: Assessing knowledge, Collecting evidence, Translating research into action) [32] project tested the thesis that security, privacy and fundamental rights can be assessed together. The work one in PACT relates very strongly to what SP9 is aiming at. Some of their results could even provide an important basis for the work in SP9. So, a more detailed description is following. The main tasks of the project were: 1) assessing knowledge about the relationship between security and privacy; 2) a survey to collect empirical evidence on the public perception of the relationships between these three concepts; 3) the development of a privacy framework regarding his relation to fundamental rights. One of PACT's main deliverables was a web-based Decision Support System to support the context dependent assessment of privacy, social and ethical impact of security measures [33]. It is based on the PACT "Privacy Reference Framework for Security Technologies" (PRFST) [34], which encompasses

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- “The main cultural, social, ethical factors (which vary across national cultures and contexts of application) to be taken in consideration during the assessment of the security and privacy implications of a given security technology;
- Trade-off and non-trade-off elements that affects public perception of security investments; and
- The role played by trust and concern in addressing public concern in this policy area.

The main objective of the PRFST is to assist decision and policy makers to consider privacy and fundamental rights when they evaluate the pros and cons of specific security investments.

The PRFST framework covers the following steps:

1. **Analysis of the scenario/use case:** This step focuses on defining the context that is particular to each specific case of the security system that is being designed, and for which technology security investments will be made. Depending on the requirements and the level of maturity of scenario analysis, an initial description for the particular scenario in the form of a high-level use case should be provided (i.e. a short description of the scenario and scope), following a convenient and familiar use case template.
2. **Assets to protect:** The identification of assets that given security technology investments or policies (particularly in the area of Freedom, Security and Justice) should protect is of paramount importance in the initial characterization phase. In this regard, privacy and data protection frameworks are not the only means by which one protects assets. Furthermore, these frameworks often cover and imply much more than 'just' privacy and data protection. As a general rule, all personal data should be considered an asset to protect. Apart from the general privacy and data protection frameworks, it is also necessary to take into account fundamental rights, including the right to human dignity, right to integrity, right to freedom of movement, etc.
3. **Assessment of technological solutions:** In order to assess the strengths and weaknesses of selected technologies in the context of security and impact on privacy, mapping of the technologies is required with regards to (i) potential for privacy intrusion, including all types of privacy, (ii) relation to the main Privacy Targets according to the European Data Protection Directive and (iii) listing main connected Privacy Risks.
4. **Privacy Threat Index (PTI):** The privacy threat index will act as a tool for security developers to identify a (non-exhaustive) range of privacy threat scenarios associated with taking a particular security policy/measure decision. The PTI is intended to identify a list of the privacy threats that may arise from a security policy, and categorize them according to their potential impact on citizens. A potential negative impact on citizens' privacy can, as a result, lead to a potential economic cost from taking the security technology that caused that privacy impact. This step is designed

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to assist the policy and decision makers collect the necessary privacy threat information associated with the prospective technology. The PTI is characterized by the following three elements: threat, likelihood, and impact.

5. **Identification of the controls to apply:** When identifying controls to apply, the PRFST user should first of all check which controls are mandatory, according to national, European and international regulations. Besides mandatory controls, a good rule to keep in mind is (data) minimization: both from scratch (e.g. no unnecessary data are collected) and on-going (data are erased as soon as possible). This has several implications in terms of technical controls, and permits to prevent or reduce a wide array of data-related harms.
6. **Reporting, guidelines and recommendations:** The final step of the PRFST concerns the reporting of the overall process, as well as the formulation of guidelines and recommendations for development and deployment of the chosen technology (if any). The exercise of reporting about each previous step of the PRFST process, as well as the decisions taken and their rationale, permits to acquire an overview of the on-going decision making process. Moreover, a step-by-step report offers the occasion to assess the solution finally identified and may provide new insights on its overall impact on a given setting. It can be used as background material for an eventual Privacy and Data Protection Impact Assessment or for a Surveillance Impact Assessment.”

The use of the Decision Support System for DRIVER SP9 will be considered in the next phase.

The main goal of the FP7 SECILE (Securing Europe through Counter-Terrorism: Impact, Legitimacy, and Effectiveness) [35] project was to provide an understanding of how the impact, legitimacy and effectiveness of the European counter-terrorism measures can be measured on an empirically-informed basis. The methodology could – with some adaptations - be applied to crisis management as well.

The FP7 Security Research EvoCS (Evolving Concept of Security) [36] project developed a sophisticated methodology that enables the assessment of the perception of security by the general public (or different target groups) [37] in different geographical regions and thus, to some extent the effect of security measures and application context.

The FP7 Security Research project ABC4EU (Automated Border Control Gates for Europe) [38] will develop a practical methodology for the assessment of societal impact. This methodology involves the embedment of various concerns as desirability, acceptability, ethics, and data management working on design of Automated Border Control gates taking into account the needs of all actors.

Also in other areas of FP6/FP7, namely in the **Socio-economic Sciences and Humanities** part, work on societal indicators can be found. Examples that could be adapted to the needs in crisis management are:

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The EURO-JUSTICE (Justice Indicators) [39] project which aim was to develop social indicators on trust on justice from evidence based public assessment of criminal justice across Europe; The POINT (Policy Influence of Indicators) [40] project which was to give an evidence-based (literature review) understanding of the role of indicators in policymaking; The AMELI (Advanced Methodology for European Laeken Indicators) project - a large simulation study based on Eurostat data aiming to improve the methodology for developing indicators of social cohesion.

3.1.3 Societal research relating to the DRIVER User dimension

In terms of physical interaction between and improved understanding of different stakeholders of societal aspects in security and security research, i.e. in terms of contributing to the DRIVER user dimension (cf. section 1.2.3 and 2.2.3) there is only one project so far that tries to foster debate and mutual recognition of stakeholders' standpoints: The Network of Excellence on Societal Security, SOURCE [41].

The SOURCE network aims to address the divergences regarding the concept of security as perceived from different sectors: academia, security industry, policy-makers, civil society, and security end-users. Although, so far focused only on mutual understanding, it could provide a platform to also address crisis management innovation related issues with the different stakeholders, including end-users. Several DRIVER partners (PRIO, FOI, Fraunhofer, CIES, EOS, TNO) are also partner in SOURCE, so that synergies would be easy to achieve.

No projects can be identified that aim at fostering the inclusion of societal aspects into supply and demand side debates on civil security capability development in the sense it is discussed in D13.2.

3.2 Operational crisis management Codes of Conduct and Ethics guidelines

When talking about the State of the Art in ethical and societal aspects in crisis management doctrine and Standard Operational Procedures (SOPs), one has to look at Codes of Conduct of different organisations and countries in this regard and at several multinational initiatives that deal with the need of ethical & societal behaviour of crisis management actors in crisis management operations. Their analysis provides an overview about the current state of acknowledgement of these aspects. Contributions by SP9 to this could be recommendations to further develop these and add additional advice for the ethical use of next generation ICT solutions that will become more and more prominent in disaster management worldwide.

Looking at ethical statements by national governments of e.g. USA, Germany and others, it can be noted that most of them are trying to incorporate ethical standards in their daily work. However, these focus mainly on issues like avoiding racism in their own organisation, conflicts of interest, gifts, travel, outside activities, political activity, nepotism, gambling, contractors in the workplace, post-

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government employment, and financial disclosure [42]. Societal aspects as relevant from an SP9 perspective are far from being adequately addressed on a national authority’s level.

There are a few examples, like in **Canada’s Public Safety** organisation, for ethical guidelines that also include the treatment of victims of a crisis and call for “the primacy of human life and human dignity” [44]. The German **Technisches Hilfswerk (Federal Office for Technical Relief, THW)** states the importance of “humanity”, but does not further specify how this manifests in ethical doctrine during disaster operations.

The **Canadian Council for International Co-operation (CCIC)**, however, “was one of the first networks of civil society organizations in the world to adopt a code of ethics that included a collective statement of “Principles of Development” and a “Code of Conduct” [45]. The CCIC is “a coalition of Canadian voluntary sector organizations working globally to achieve sustainable human development”. Its activities also include peace-building and humanitarian operations.

The ethical principles that CCIC accepts include a set of operational standards, compliance procedures and guide practices. The outlined ethical principles are: Human Rights, Accountability, Transparency, Fairness, Co-operation, and Sustainability.

Another group of principles established relate to aspects of:

- Satisfaction of human needs;
- Addressing the root-causes of global inequality;
- Promoting social justice;
- Respecting indigenous people;
- Respecting cultural and spiritual integrity.

The **UK Civil Contingency Act** states some guiding principles that have an ethical component, but do not very much go beyond asking for responsible and common-sense-driven behaviour before, in, and after emergency situations [46].

Overall, it can be noted that government institutions engaged in civil protection lack a proper reflection of societal and ethical aspects in crisis management, while volunteer organisations – at national and international level (cf. below) – seem to be much more elaborated in this respect.

Accordingly, the widespread lack of the acknowledgement of societal and humanitarian aspects in national procedures is opposed by a seemingly large consensus for the need of those in international organisations (that also address disaster situations in developing countries).

The most widely used set of ethical and humanitarian principles is the one provided by the **International Red Cross and Red Crescent Movement**. It is made of ten principle commitments that should be considered in disaster response work in addition to the high standards (independence, effectiveness, etc.). These principles are [47]:

1. The Humanitarian imperative comes first;
2. Aid is given regardless of the race, creed or nationality of the recipients and without adverse distinction of any kind. Aid priorities are calculated on the basis of need alone;

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3. Aid will not be used to further particular political or religious standpoint;
4. We shall endeavour not to act as instrument of government foreign policy;
5. We shall respect culture and custom;
6. We shall attempt to build disaster response on local capacities;
7. Ways shall be found to involve programme beneficiaries in the management of relief aid;
8. Relief aid must strive to reduce future vulnerabilities to disaster as well as meeting basis needs;
9. We hold our self-accountable to both those we seek to assist and those from whom we accept resources;
10. In our information, publicity and advertising activities, we shall recognize disaster victims as dignified humans, not hopeless objects.

The **SHPERE** project was initiated by a group of humanitarian NGOs, the International Red Cross and Red Crescent Movement, and UN agencies. “Organisations willing to have their policies and operational strategies conform to Sphere principles and standards do so on a voluntary basis. There is no sign-up mechanism to the Sphere Project. Since its inception, the Sphere process has endeavoured to be inclusive, transparent and globally representative.”[48] Common principles and universal minimum standards for humanitarian assistance are provided in the SPHERE handbook [49]. It “collects evidence-based universal minimum standards in four life-saving sectors: water supply, sanitation and hygiene promotion; food security and nutrition; shelter, settlement and non-food items; and health action.” Standards that serve as a basis are the “Minimum Standards for Education: Preparedness, Response, Recovery” by the Inter-Agency Network for Education in Emergencies (INEE) [50]; the “Livestock Emergency Guidelines and Standards” by the LEGS Project [51]; and the “Minimum Economic Recovery Standards” by the SEEP Network [52].

The **Humanitarian Accountability Partnership** (HAP) is an international partnership of humanitarian and development organisations dedicated to ensuring greater accountability to people affected by crises through the promotion of a Standard on Quality and Accountability. In 2010 the HAP standard principles were developed based on the Red Cross principles:

Apart from this, HAP helps member organisations better define their commitments to affected populations and demonstrates practical ways of putting those commitments into practice at the programme level by:

- “Supporting members to develop an organisational accountability framework. The framework underscores an organisation’s commitment to accountability and informs stakeholders about the ways in which the organisation will endeavour to meet those commitments. Through this, all stakeholders, and especially affected population---s, can subsequently hold an organisation to account;

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- Providing guidance to members on their codes of conduct with particular attention given to putting measures in place to prevent and respond to allegations of sexual exploitation and abuse;
- Advising members on setting up complaints and response mechanisms so that affected populations and other stakeholders can submit a complaint knowing that it is safe to do so and ensuring that every complaint receives a response.”

A first European attempt to formulate an ethical code of conduct was part of the Executive Secretariat of the **European and Mediterranean Major Hazards Agreement’s** (EUR-OPA).

Apart from the examples listed above, there are many more ethical doctrine standards to be found in the health domain. These deal with human dignity and topics like triage. Since these aspects are not covered by DRIVER solutions, they are not described in detail here.

3.3 Conclusions from the State of the Art Analysis

Ongoing research, i.e. the state of the art in capability development that focuses on the development of societal/ethical solutions or tries to somehow integrate societal aspects into crisis management solutions just started a couple of years ago. Ethical decision making has been analysed extensively by business research. Within the European Security Research Program societal aspects have gained more and more importance, although proper acknowledgement cannot be regarded as a standard yet. In crisis management research this would be of special importance, since it can easily act as a negative standard for other security areas. In order to make use of what has been developed elsewhere, SP9 will have a look at business research on ethical crisis management and will give advice to DRIVER SP5 in this regard. Also, the results of the BRIDGE project will be carefully taken into account, especially for ICT solutions developed in SP4, but also in other parts of the Solutions dimension.

The State of the Art in indicator development (i.e. the research relating to the DRIVER Methodology & infrastructure dimension) also provides some helpful results for the work in DRIVER. Here the PACT project is of special interest. However, still a lot has to be done in order to ensure sustainable acknowledgement of societal aspects during crisis management solutions assessments and security solutions assessment in general. By building on earlier results and by close interaction between SP and SP9 and thus, between the relevant technology and societal experts DRIVER seeks to make considerable progress in this area.

A direct consequence from the need for progress in the Methodology & infrastructure dimension is the current lack of inclusion of societal and ethical aspects into the dialogue between supply and demand sides. Cooperation with the SOURCE project – running in parallel to DRIVER – here provides a unique opportunity to make progress and to bundle efforts for (i) achieving a better understanding among stakeholders, and (ii) the acknowledgement of the significance of societal and ethical aspects during the crisis management (and security) capability development process.

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In terms of operational crisis management (cf. section 3.2), it can be said that while the international agreements described above address human dignity and human rights in disaster management in detail, they are mostly focussing on out of area operations in underdeveloped countries, where populations are at risk to be further discriminated against as a consequence of a disaster.

However, human dignity, fundamental rights, maintenance of trust with the population, and avoidance of the creation of new vulnerabilities in first world countries like the European Member States (MS) is hardly addressed as relevant. Also, its interplay with ICT-enabled next generation crisis management solutions is not part of Codes of Conduct or SOPs so far. DRIVER SP9 will come up with recommendations (that will derive from the criteria systems) for including these aspects into national and international procedures and doctrine.

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Annex II – Agenda of the initial DRIVER task T91.2 meeting



Driving Innovation in Crisis Management for **E**uropean **R**esilience

Agenda of the DRIVER task T91.2 meeting scheduled on 17-18 June 2014 in Barcelona

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1 Agenda Day 1

Time	Topic	Speaker
09.00	Introduction & aim of the meeting	Fraunhofer, all
09.15	DRIVER logic, inputs & outputs from and to SP9	Fraunhofer
10.15	Potential societal implications of DRIVER solutions (WP92, 93) <ul style="list-style-type: none"> - insecurities, societal costs, positive impact - collection of issues & research needs - first thoughts on JEs 	PRIO, Fraunhofer, all
12.15	<i>Lunch Break</i>	
13.15	Potential societal implications of DRIVER solutions (WP92, 93) <ul style="list-style-type: none"> - insecurities, societal costs, positive impact - collection of issues & research needs - first thoughts on JEs 	PRIO, Fraunhofer, all
15.00	Potential training aspects for DRIVER development team (WP94) <ul style="list-style-type: none"> - research needs 	CIES, all (Fraunhofer needs to attend PMC TelCo 15-16)
17.15	<i>Closing day 1</i>	

2 Agenda Day 2

Time	Topic	Speaker
09.00	Wrap-up day 1	Fraunhofer
09.15	Distribution of workshare WP92 & 92	PRIO, all
10.00	Draft structure for WP91, 92 & 93 deliverables	Fraunhofer, PRIO, all
10.45	Draft coordination plan : timing M2-M10	PRIO, all
11.30	SC15 implementation : DPAs & experimentation ethics	PRIO, Fraunhofer
12.15	<i>Closing day 2</i>	

3 Expected list of Participants

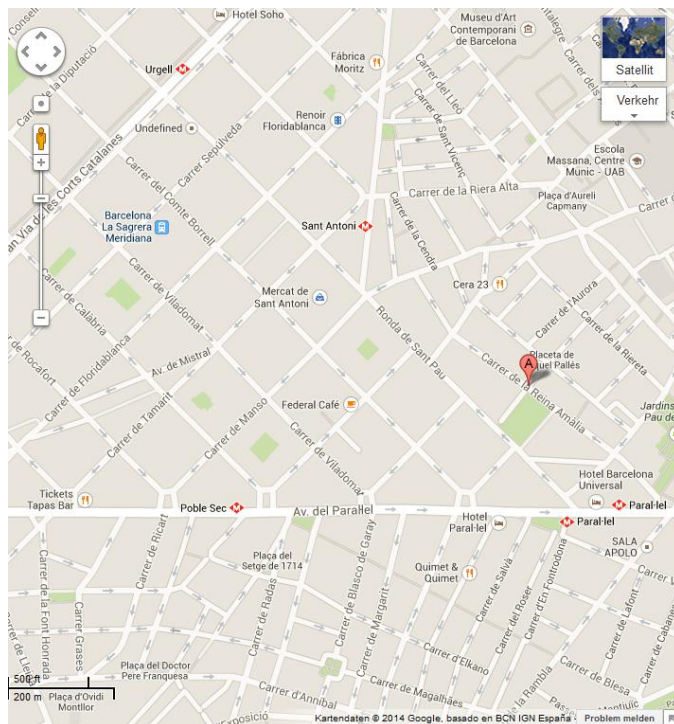
Name	Organisation	Day 1	Day 2
Merle Missoweit	Fraunhofer	yes	yes
Mareile Kaufmann	PRIO	yes	yes
Sadhbh McCarthy	CIES	yes	yes
Gemma Galdon Clavell	CIES	No	yes

4 Venue and Logistics

Meeting Address:

ETICAS office,

Access map: (copy paste here)



Recommended hotels & prices:

Barceló Raval. 200 euros

Hotel Millenni. 100 euros

Abba Rambla. 100 euros

Residència Pere Felip Monlau. 35 euros

Details of meeting contact person:

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