



SECURE DYNAMIC CLOUD FOR  
INFORMATION, COMMUNICATION AND RESOURCE INTEROPERABILITY  
BASED ON PAN-EUROPEAN DISASTER INVENTORY

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**Deliverable 2.4**

**Domain Analysis: Baseline and emergent  
future practices**

Final

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Edited by Katrina Petersen

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Work Package 2

Project Coordinator

Prof. Dr.-Ing. Rainer Koch (University of Paderborn)

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## Authors



University of Paderborn  
C.I.K.

Christina Schäfer  
Email: [c.schaefer@cik.upb.de](mailto:c.schaefer@cik.upb.de)



Centre for Mobilities  
Research  
Department of Sociology  
Lancaster University  
LA1 4YD  
UK

Monika Buscher  
Email: [m.buscher@lancaster.ac.uk](mailto:m.buscher@lancaster.ac.uk)

Katrina Petersen  
Email: [k.petersen@lancaster.ac.uk](mailto:k.petersen@lancaster.ac.uk)

Sarah Becklake  
Email: [s.becklake@lancaster.ac.uk](mailto:s.becklake@lancaster.ac.uk)

Catherine Easton  
Email: [c.easton@lancaster.ac.uk](mailto:c.easton@lancaster.ac.uk)

Rachel Oliphant  
Email: [r.oliphant@lancaster.ac.uk](mailto:r.oliphant@lancaster.ac.uk)

Xaroula Kerasidou  
Email: [x.kerasidou@lancaster.ac.uk](mailto:x.kerasidou@lancaster.ac.uk)



British APCO

Paul Hirst  
Email: [paul.hirst@bapco.org.uk](mailto:paul.hirst@bapco.org.uk)



Center for Security Studies  
(KEMEA)  
P.Kanellopoulou 4  
1101 77 Athens  
Greece

Ioannis Daniilidis  
Email: [i.daniilidis@kemea-research.gr](mailto:i.daniilidis@kemea-research.gr)

Stefanos Malliaros  
Email: [s.malliaros@kemea-research.gr](mailto:s.malliaros@kemea-research.gr)

Dimitris Kavallieros  
Email: [d.kavallieros@kemea-research.gr](mailto:d.kavallieros@kemea-research.gr)



## Reviewers



T6

Simona De Rosa

Email: [s.derosa@t-6.it](mailto:s.derosa@t-6.it)



ADS

Olivier Paterour

Email: [olivier.paterour@airbus.com](mailto:olivier.paterour@airbus.com)



## Executive summary

This deliverable describes the status of our domain analysis, which examines crisis management models and explores current and emergent practices of first responders in public protection and disaster response (PPDR). We focus on one key area in our domain of design that has to this point remained underdeveloped over the work packages: collaboration and interoperability in relation to a common information space (CIS). This deliverable starts from a few basic questions we need to address in order to design the necessary tools to support stakeholders in developing and using a CIS:

- What happens during times of collaboration and interoperability that makes sharing and trust, shared understanding and secure communication possible?
- What kind of conceptions of ‘sharing’, ‘trust’, ‘common’ and ‘secure’ are needed between stakeholders?
- How does that help us understand how to enable a productive and useful CIS?
- What kind of awareness of Ethical, Legal and Social Issues (ELSI) would be valuable to help make that possible?

The main premise for all of these questions is that sharing information is more than transferring data. While sharing requires alignment in terms of formats and interpretation, more importantly it requires an awareness of data context, including local practices of information management, sense-making practices, and the specific situation in which the data were gathered. In other words, the aim is to develop an understanding of the baseline and emergent practices necessary for information to be shared meaningfully and in controlled ways between a range of diverse stakeholders over time and across distances.

This characteristic of interoperable emergency management is important because it will help set the parameters within which we can expect stakeholders to act, as they draw upon previous practice and develop new practices to figure out how to best work with each other in new situations. Understanding the ELSI within information sharing practices is also vital in order for SecInCoRe’s results to enable greater pan-EU security, preparedness, and overall resilience, and not just become another shared database. Lastly, examining the questions above will help us determine how the different components of the project need to be able to interact with each other in order to enable shared and common information.

Chapter 2 examines existing literature on CIS and how they are more than just a technically secure information warehouse. While this chapter is predominantly theoretical, it summarises the state of the art of research and draws on a range of examples in order to establish a basis from which to structure our empirical analysis and CIS design proposal. This is necessary in order to advance upon existing knowledge about CIS and delimit where we need to be looking within already existing pan-EU systems and first responder practices to understand and identify:

- 1) What it is about collaborating across agencies and borders that poses challenges;
- 2) Where in present practices can we learn what is essential and what works to develop ideas for supporting these practices; and



- 3) What are the emergent partnerships and collaborative practices – ways of engaging with new stakeholders that are yet to be written into regulations or standards but that constitute future trends and expectations for emergency management which we need to design for.

Chapter 3 follows with a description of the regulatory framework and upcoming changes in relation to privacy and data sharing with the EU. It focuses specifically on public-private relationships, cross-border exchanges, and the right of the individual as organisations aggregate data at increasingly high rates. It also presents the present status of state of exception laws in order to understand when the privacy and data protection laws are relevant and when they might be temporarily suspended during a crisis situation. A major aim is to identify where national and EU tensions might arise within these laws to understand how they will shape the collaborative environment in disaster management.

From there, Chapter 4 looks at how the EU structures help shape practice in emergency management and discusses the implications for SecInCore at this scale of policy. This chapter begins to zoom into specific potentials for real practice. Examining EU structures offers insight into the frameworks within which technologically augmented interoperability and collaboration have to take place. This includes EU models for crisis management, EU systems for data sharing that already exist, and EU rules and regulations the shape data sharing. The first step needs to be a clear understanding at the EU level of the expectations for collaboration and the systems in place to enable interoperability. It also helps develop an initial understanding of what is the expected benefit from collaborations. For example, is it just sharing data or is there an expectation for a deeper understanding of other agencies' frameworks for data gathering and risk analysis that can enable a common interpretation of data?

Chapter 5 explores in greater detail what kind of stakeholders are involved in emergency management and how to better understand the direct users which should be included in our analysis. While this discussing is on going among the SecInCoRe team, it is important to identify who is required for emergency management, especially planning and training, in order to identify which trust and relevancy issues we need to address for the CIS to enable the desired interoperability. A secondary focus within this chapter is to understand how the inclusion of different stakeholders in emergency planning can affect conceptions of risk and values for response – both of which can change the field of action, the potential for common understanding, and community acceptance of decisions made.

Chapter 6 follows with an analysis of empirical research we have conducted — including co-design workshops, disaster exercise observations and extended interviews—in order to identify more specific collaborative practices and issues that already exist and that are starting to develop. At the more local planning and incident level, what is really happening when collaborations work? What is getting in the way of collaborations that needs to be dealt with in order for a CIS concept to function? Talking with emergency practitioners about the various stages of interacting with each other, from planning to operations, paints a picture of:

- 1) What kinds of needs they have when working with outside data;
- 2) What shapes how data is shared;



- 3) How relying on the traditional face-to-face is no longer sufficient for growing interoperability at the pan-EU scale; and
- 4) The range of trust making practices that can scale up and down along with a CIS. The aim of this section is to develop the theory and EU level systems analysis through specific examples of existing and emergent emergency management practice.

Once the domain of action is established through theory and models, and fleshed out with real world practices, Chapter 7 sets a framework for CIS design. It provides the groundwork for the expansion of the pan-European inventory of past disasters, data sets, information systems and incident command models and ELSI and the types of questions that need to be addressed in order to develop the case study template and the range of case studies needed. It establishes a framework to help identify emergent crisis management practices and crisis management models to focus the upcoming analysis and discussion on what is changing with the need to interact more in new ways, with new stakeholders, and with new technologies. This will also help the analysis in the SecInCore project to help anticipate and design for good future practice, to look forward and not just at what has happened and worked in the past. To do so, the chapter formulates the goals for the ELSI guidelines for networked information exchange in emergency management, where the SecInCoRe team leads a collaboration between a range of EU projects. The chapter explores how these guidelines build upon existing guidelines and can offer added value for collaboration and interoperability at local and at the pan-EU level.

By the end of the deliverable, as summarised in chapter 8, it should be clear:

- How the SecInCoRe team understands a CIS
- What makes a CIS more than just a secure cloud-based information warehouse
- What structures at the EU level exist to enable CISs
- What kinds of practices already exist that build the basis for collaboration
- What kinds of practices are emerging within changing social and technical backgrounds for collaboration.
- How these findings feed into the identification of emergent crisis management models, identification of first responder practices, and building of the ELSI guidelines.

To help with the internal logic of this document, each chapter starts and ends with a table that expresses the main goals and conclusions for each section. This structures each chapter and aims to make clear how each chapter builds on the previous and provides essential input for the next step in the argument. Within each table there are connections to considerations for other work packages.