Concept and project objectives

The DRIVER project implements the Aftermath Crisis Management System-of-Systems Demonstration Programme funded under the 7th Framework Programme by the European Commission.

The DRIVER project aims at two main dimensions:

- Firstly, the development of a pan-European test-bed enabling the testing and iterative refinement of new crisis management (CM) solutions and thereby facilitating capability development through the provision of respective methodologies and infrastructure;

- Secondly, at the actual development of a DRIVER Portfolio of Tools that improves crisis management at Member State and EU level.

The DRIVER consortium consists of 37 organisations from 13 EU Member States and two associated countries. The project will be coordinated by European IT services leader Atos with technical and scientific support from the Swedish Defence Research Agency (FOI) and the Fraunhofer Institute for Technological Trend Analysis (INT).

The total available budget will be roughly 45 million Euros, i.e. DRIVER will be the largest CM project in Europe, if not the world, for the foreseeable future.

Background: crisis management – an ever evolving challenge

Crisis Management (CM) is an ever evolving challenge.

Hazards change, both for natural and man-made reasons – climate change being a well-known example of the latter.

Vulnerabilities change, for reasons ranging from the establishment of settlements in new areas to societal evolution affecting people’s ability to cope with crises.

Interconnectedness changes because of increased connectivity in the technical domain, for example the power transmission system, and in the socio-cultural domain as cross-border communities become increasingly important.

This does not necessarily mean that the frequency of crises increases, but unless innovation is up to the challenge of producing solutions, which fully exploit modularity, flexibility and adaptivity, then either the cost of capability development or the costs due to inadequate management of ever more complex crises will grow.

In addition, European CM capabilities are already a mature and competent System-of-Systems – here interpreted as a federation of heterogeneous and loosely coupled local, regional and national systems.
able to collaborate in varying configurations and with varying levels of interoperability. Radical change to these capabilities would be very costly and likely incur unacceptable loss of CM capability during a long transition phase.

**DRIVER’s Science & Technology (S&T) objectives**

For the reasons outlined above DRIVER is not about wholesale redesign of crisis management (CM) capabilities. Instead it is about the simultaneous launch of an ability to adapt European CM to future demands as they emerge by means of a **distributed European test-bed for CM capability development**. The test-bed will consist of virtually connected exercise facilities and crisis labs where users, providers, researchers, policy makers and citizens jointly and iteratively can progress on new approaches or solutions to emerging issues, and in developing a **well-balanced comprehensive portfolio of CM tools** (here taken to include not only technological solutions, but also operational concepts, approaches and policies). This portfolio should supplement the valuable European CM legacy in a cost-effective manner with regard to current and foreseeable challenges.

The test-bed and the portfolio are the two main dimensions of DRIVER – and they also constitute two of the three main S&T objectives, which make up DRIVER’s mission. The third main objective is the creation and fostering of a **DRIVER Community** including all stakeholders in CM (public, private, non-profit, citizen organisations, researchers, industrials), who are concerned by societal and technological innovation in CM and its up-take. This constantly evolving Community will facilitate a **more deeply shared understanding of CM across Europe**. The success of DRIVER in fully reaching its objectives will consequently also lay on a sound dissemination strategy to promote the results, motivation, challenges and achievements in a structured and effective manner to the targeted audience of:

- Policies: policy & decision makers at EU institutional, member state & international level
- Practitioners: public authorities and NGOs related to CM
- Businesses: solution & technology suppliers
- Researchers: past and ongoing CM related research projects and academia
- Standardisation bodies
- Civil society in general

The intense interaction by DRIVER with CM stakeholders while developing the portfolio using the test-bed facilities is likely to create more shared understanding among these stakeholders across Europe. Further, this shared understanding is a prerequisite for a tailored adoption of the tools of the DRIVER portfolio in Member States. Finally, this shared understanding will strengthen the **long-term sustainability of the DRIVER Test-bed**, and ultimately enhance European CM capabilities by providing the necessary infrastructure for strategic development of the latter even after the project has ended.

**The DRIVER methodology dimension**

Inertia to innovation exists in all sectors, but CM and other domains of civil security have some particularly inhibiting characteristics. Since CM organisations are expected to deal with all types of crises, which are not handled by somebody else, it is easy to question whether a new solution is really better for all relevant contingencies than the one it is proposed to replace. A better **evidence-base for CM capability investment decisions** is therefore needed.

However, the complexity of CM makes it hard predicting analytically the potential benefits of new solutions and approaches, particularly considering the wide scope of potentially relevant contingencies, and even harder doing this in a way that convinces end-users of investing into those. Therefore there is no other way for building an evidence-base than to start by testing, benchmarking, and evaluating
proposed solutions in realistic environments with real users in the context of their actual legacy resources. Such testing is nevertheless difficult because of the risks involved: CM operations deal with human life and health and with vast material values. Putting this at risk by introducing untested solutions is very rarely acceptable.

Further, to arrive at sound and validated assessment of benefits and drawbacks of new ideas, it is vital to be able to iterate testing under varying conditions, and to control variables that might otherwise have an unpredictable effect on the outcome. In the absence of such systematic approach test and demonstration efforts are unlikely to effectively – and legitimately! – support the development and implementation of novel CM capabilities. As a matter of course Modelling and Simulation will be used in consort with real life experiments – and the full range of intermediate approaches – in order to perform the very large numbers of parameter variations needed and to be able to test even really dangerous scenarios. Also historical experience and expert judgment need to be exploited in a systematic way.

To align the concept of demonstration to the specific challenges of CM and thus, to overcome the difficulties alluded to above, DRIVER will introduce the concept of campaigns of experiments (as opposed to a one-shot-validation demo concept) providing an iterative way towards operationalization of innovative solutions, by gradually adapting them to operational constraints, as well as creating acceptance among users through their active involvement, and by providing evidence to decision-makers that they are cost-effective.

It is a key feature that the experiments get progressively more demanding. The joint experimentation (JE, see also Fig.1) campaigns and the final demo will focus on challenges hitherto beyond the scope of European CM capabilities and typically requiring highly complex interaction between component tools.

**DRIVER**’s thematic dimension

DRIVER is not mainly about inventing novel solution ideas, but about achieving innovation based on the systematic testing and adaptation of already existing ideas that are grouped into three main thematic strands (civil resilience, professional response, evolved learning; see fig.1, table 1).

Based on extensive assessment exercises the DRIVER portfolio of CM tools will be selected based on cost-effectiveness in relation to current and foreseeable CM challenges and the capability legacy of EU MS.

![Figure 1: The DRIVER concept](image-url)
Components of the DRIVER portfolio of tools (“the thematic dimension”, non-exhaustive)

- Methods and Infrastructure for a distributed test-bed for evidence based CM capability and policy development.
- Civil resilience solutions: individual and community resilience; volunteer crisis preparedness; resilience of local governments; crisis communication with the general public; organisation and mobilisation of individuals and communities.
- Professional response: situation assessment tools: e.g. damage assessment, early warning, crisis dynamics, social dynamics, data sharing; tasking and resource management tools incl. volunteer management and logistics and supply chain resilience; interoperability; information exchange & communications.
- Evolved learning: harmonized competence framework; lessons learned framework; training for high-level decision-making; training concept for cooperation of CM professionals and the general public.
- Recommendations for CM structures, governance, standards.
- Tools for improvement of societal impact of CM.

**Table: The DRIVER portfolio of tools**

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<th>DRIVER consortium organisations:</th>
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<tr>
<td>• AIT Austrian Institute of Technology GmbH (Austria)</td>
<td>• Institute of Information and Communication Technologies (Bulgaria)</td>
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<tr>
<td>• ARTTIC (France)</td>
<td>• ITTI sp. z o.o. (Poland)</td>
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<td>• Association pour la Recherche et le Développement des méthodes et processus Industrielles- Armines (France)</td>
<td>• JRC - Joint Research Centre- European Commission (Belgium)</td>
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<td>• ATOS Spain SA (Spain)</td>
<td>• Magen David Adom in Israel (Israel)</td>
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<td>• Myndigheten för Samhällsskydd och Beredskap (Sweden)</td>
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<td>• Centre for Irish and European Security Limited (Ireland)</td>
<td>• Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek- TNO (The Netherlands)</td>
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<td>• Centro de Innovación Tecnológica para Logística y Transporte Mercancías Carretera (Spain)</td>
<td>• Peace Research Institute Oslo - PRIO (Norway)</td>
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<tr>
<td>• Dansk Røde Kors (Danish Red Cross) (Denmark)</td>
<td>• Pole Euroméditerranéen sur les Risques Association (France)</td>
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<tr>
<td>• Deutsches Zentrum für Luft- und Raumfahrt e.V. - DLR (Germany)</td>
<td>• Public Safety Communication Europe Forum (Belgium)</td>
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<td>• DIN Deutsches Institut für Normung e.V. (DIN German Institute for Standardization (Germany)</td>
<td>• Q4PR Limited (Ireland)</td>
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<td>• Disaster Waste Recovery (United Kingdom)</td>
<td>• Technisches Hilfswerk, THW (Germany)</td>
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<td>• Ecorys Nederland B.V. (The Netherlands)</td>
<td>• THG- City of the Hague (The Netherlands)</td>
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<tr>
<td>• Edisoft- Empresa de Servicos e Desenvolvimento de Software SA (Portugal)</td>
<td>• Thales Communications &amp; Security (France)</td>
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<td>• E-Semble (The Netherlands)</td>
<td>• The British Red Cross Society Royal Charter (United Kingdom)</td>
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<td>• EPLFM (Entente Pour la Forêt Méditerranéenne) (France)</td>
<td>• Totalförsvarets Forskningsinstitut (Sweden)</td>
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<tr>
<td>• European Organisation for Security SCRL (Spain)</td>
<td>• Universität Stuttgart IAT (Institut für Arbeitswissenschaft und Technologiemanagement) (Germany)</td>
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<td>• European Union Satellite Centre (Spain)</td>
<td>• Westfälische Wilhelms- Universität Münster (Germany)</td>
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| • Frequentis AG (Austria) | • 

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